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Erosion & Sediment Control Notes

COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
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PROFESSIONAL ENGINEER

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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IP

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

EROSION AND SEDIMENT CONTROL MINIMUM STANDARDS (9VAC25-840-40):

X 1. 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 14 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR. (SHEETS 1R-1R6))

X 2. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES 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. (SHEETS 10-1R(6))

X 3. 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. (SHEETS 10-1R(6))

X 4. 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. (SHEETS 10-1R(6))

N/A 5. STABILIZATION MEASURES SHALL BE APPLIED TO EARTHEN STRUCTURES SUCH AS DAMS, DIKES AND DIVERSIONS IMMEDIATELY AFTER INSTALLATION.

N/A 6. SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN.

N/A a. 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.

N/A b. 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 OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

X 7. 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. (SHEETS 10-1R(6))

X 8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE. (SHEETS 1R-1R(6))

X 9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED. (SHEETS 10-1R(6))

X 10. 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. (SHEETS 10-1R(6))

X 11. 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 AND RECEIVING CHANNEL. (SHEETS 1R-1R(6))

N/A 12. 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.

N/A 13. 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.

N/A 14. ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.

N/A 15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETED.

X 16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING STANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA: (SHEET SERIES 15-22)

X a. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.

X b. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.

X 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.

X d. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.

X e. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.

X f. APPLICABLE SAFETY REQUIREMENTS SHALL BE COMPLIED WITH.

X 17. 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.

X 18. 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 VESCP 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.

X 19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES 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 FOLLOWING STANDARDS AND CRITERIA. STREAM RESTORATION AND RELOCATION PROJECTS THAT INCORPORATE NATURAL CHANNEL DESIGN CONCEPTS ARE NOT MAN-MADE CHANNELS AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS: (SEE DRAINAGE REPORT)

X a. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.

X b. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:

X (1) THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS 100 TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION;

X (2) (a) NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.

(b) ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND

(c) PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A 10-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.

X c. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:

X (1) IMPROVE THE CHANNELS TO A CONDITION WHERE A 10-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO THE CHANNEL, THE BED, OR THE BANKS;

X (2) IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE 10-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;

X (3) DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A 10-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MAN-MADE CHANNEL; OR

X (4) PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE VESCP AUTHORITY TO PREVENT DOWNSTREAM EROSION.

X d. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.

X e. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.

X f. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE VESCP OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMENTS OF THE FACILITY AND THE PERSON RESPONSIBLE FOR PERFORMING THE MAINTENANCE.

X g. OUTFALL FROM A DETENTION FACILITY SHALL BE DISCHARGED TO A RECEIVING CHANNEL, AND ENERGY DISSIPATORS SHALL BE PLACED AT THE OUTFALL OF ALL DETENTION FACILITIES AS NECESSARY TO PROVIDE A STABILIZED TRANSITION FROM THE FACILITY TO THE RECEIVING CHANNEL.

X h. ALL ON-SITE CHANNELS MUST BE VERIFIED TO BE ADEQUATE.

X i. INCREASED VOLUMES OF SHEET FLOWS THAT MAY CAUSE EROSION OR SEDIMENTATION ON ADJACENT PROPERTY SHALL BE DIVERTED TO A STABLE OUTLET, ADEQUATE CHANNEL, PIPE OR PIPE SYSTEM, OR TO A DETENTION FACILITY.

X j. IN APPLYING THESE STORMWATER MANAGEMENT CRITERIA, INDIVIDUAL LOTS OR PARCELS IN A RESIDENTIAL, COMMERCIAL OR INDUSTRIAL DEVELOPMENT SHALL NOT BE CONSIDERED TO BE SEPARATE DEVELOPMENT PROJECTS. INSTEAD, THE DEVELOPMENT, AS A WHOLE, SHALL BE CONSIDERED TO BE A SINGLE DEVELOPMENT PROJECT. HYDROLOGIC PARAMETERS THAT REFLECT THE ULTIMATE DEVELOPMENT CONDITION SHALL BE USED IN ALL ENGINEERING CALCULATIONS.

X k. ALL MEASURES USED TO PROTECT PROPERTIES AND WATERWAYS SHALL BE EMPLOYED IN A MANNER WHICH MINIMIZES IMPACTS ON THE PHYSICAL, CHEMICAL AND BIOLOGICAL INTEGRITY OF RIVERS, STREAMS AND OTHER WATERS OF THE STATE.

N/A l. ANY PLAN APPROVED PRIOR TO JULY 1, 2014, THAT PROVIDES FOR STORMWATER MANAGEMENT THAT ADDRESSES ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS SHALL SATISFY THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS IF THE PRACTICES ARE DESIGNED TO (I) DETAIN THE WATER QUALITY VOLUME AND TO RELEASE IT OVER 48 HOURS; (II) DETAIN AND RELEASE OVER A 24-HOUR PERIOD THE EXPECTED RAINFALL RESULTING FROM THE ONE YEAR, 24-HOUR STORM; AND (III) REDUCE THE ALLOWABLE PEAK FLOW RATE RESULTING FROM THE 1.5, 2, AND 10-YEAR, 24-HOUR STORMS TO A LEVEL THAT IS LESS THAN OR EQUAL TO THE PEAK FLOW RATE FROM THE SITE ASSUMING IT WAS IN A GOOD FORESTED CONDITION, ACHIEVED THROUGH MULTIPLICATION OF THE FORESTED PEAK FLOW RATE BY A REDUCTION FACTOR THAT IS EQUAL TO THE RUNOFF VOLUME FROM THE SITE WHEN IT WAS IN A GOOD FORESTED CONDITION DIVIDED BY THE RUNOFF VOLUME FROM THE SITE IN ITS PROPOSED CONDITION, AND SHALL BE EXEMPT FROM ANY FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS FOR NATURAL OR MAN-MADE CHANNELS AS DEFINED IN ANY REGULATIONS PROMULGATED PURSUANT TO § 62.1-44.15:54 OR 62.1-44.15:65 OF THE ACT.

X m. FOR PLANS APPROVED ON AND AFTER JULY 1, 2014, THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT AND THIS SUBSECTION SHALL BE SATISFIED BY COMPLIANCE WITH WATER QUANTITY REQUIREMENTS IN THE STORMWATER MANAGEMENT ACT (§ 62.1-44.15:24 ET SEQ. OF THE CODE OF VIRGINIA) AND ATTENDANT REGULATIONS, UNLESS SUCH LAND-DISTURBING ACTIVITIES (I) ARE IN ACCORDANCE WITH PROVISIONS FOR TIME LIMITS ON APPLICABILITY OF APPROVED DESIGN CRITERIA IN 9VAC25-870-47 OR GRANDFATHERING IN 9VAC25-870-48 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION, IN WHICH CASE THE FLOW RATE CAPACITY AND VELOCITY REQUIREMENTS OF § 62.1-44.15:52 A OF THE ACT SHALL APPLY, OR (II) ARE EXEMPT PURSUANT TO § 62.1-44.15:34 C 7 OF THE ACT.

N/A n. COMPLIANCE WITH THE WATER QUANTITY MINIMUM STANDARDS SET OUT IN 9VAC25-870-66 OF THE VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) REGULATION SHALL BE DEEMED TO SATISFY THE REQUIREMENTS OF THIS SUBDIVISION 19.

X o. TEMPORARY STONE CONSTRUCTION ENTRANCE:
A STABILIZED STONE PAD WITH A FILTER FABRIC UNDERLINER LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE. (PER VDOT STANDARD EC-11 AND STD & SPEC 3.02 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK)

N/A p. SAFETY FENCE TO BE INSTALLED AROUND ALL SEDIMENT BASINS AND WHERE DEEMED NECESSARY (STD & SPEC. 3.01 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK).

X = Applicable to This Project
N/A = Not Applicable to This Project

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 1P

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

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SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
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SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

EROSION AND SEDIMENT CONTROL PLAN
VESCH NARRATIVE AND CHECKLIST

COMMONWEALTH OF VIRGINIA
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IP(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF ADDING A BIKE PATH ALONG THE NORTH SIDE OF THE ROAD AND MULTIMODAL IMPROVEMENTS ALONG THE REST OF THE PROJECT.THE PROJECT STRECHES FROM LAYTON HALL DRIVE TO RIDGE DRIVE.THE TOTAL DISTURBED AREA OF THE PROJECT ALONG BLENHEIM BOULEVARD IS 10.96 ACRES.

EXISTING SITE CONDITIONS

TOPOGRAPHY FOR THE MAJORITY OF THE PROJECT AREA IS ROLLING HILLS WITH A MIXTURE OF RESIDENTIAL AND COMMERCIAL AREAS. THERE ARE NO DEFINED WETLANDS WITHIN THE PROJECT LIMITS.THE PROJECT IS WITHIN THE LIMITS OF ONE WATERSHED - PL-30.HUC12 *020700100402. ACCOTINK CREEK.

THE PROJECT IS WITHIN THE LIMITS OF A SINGLE WATERSHED: VAHU6 - PL30.HUC12 *020700100402.ACCOTINK CREEK -

ADJACENT AREAS:

AREAS ADJACENT TO THE PROJECT LIMITS ARE COMMERCIAL.AND RESIDENTIAL USES.

OFFSITE AREAS:

THERE IS NO ANTICIPATION THAT BORROW MATERIAL WILL BE NECESSARY FOR THIS PROJECT.IF DURING CONSTRUCTION THE CONTRACTOR REQUIRES OFFSITE BORROW MATERIAL,THIS EROSION CONTROL PLAN DOES NOT ADDRESS THESE AREAS AND THE CONTRACTOR WILL BE RESPONSIBLE FOR OBTAINING INDEPENDENT EROSION AND SEDIMENT CONTROL PLANS TO COVER OFFSITE.

SOILS:

THE SOILS ON THE SITE ARE PRIMARILY VARIATIES OF SILT LOAM.C AND D SOILS.

CRITICAL AREAS:

THERE ARE NO CRITICAL EROSION AREAS WITHIN THE PROJECT.THE CONTRACTOR IS TO BE EXTRA DILIGENT WITH EROSION AND SEDIMENT CONTROL MEASURES AROUND STOCKPILES AND THE EXISTING STORMWATER MANAGEMENT FACILITES LOCATED ON ADJACENT PROPERTIES,PROPOSED FACILITIES.AND ADJACENT PROPERTIES.THE CONTRACTOR IS TO INSPECT AFTER EVERY RAIN AND RESTORE TO PROPOSED CONDITIONS.

EROSION AND SEDIMENT CONTROL MEASURES:

UNLESS OTHERWISE DIRECTED,ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION.DIVERSION DIKES,FILTER BARRIER,AND SILT FENCE FOR EXISTING STORM DRAINAGE STRUCTURES SHALL BE PLACED PRIOR TO EARTH MOVING OPERATIONS.THE MINIMUM STANDARDS OF THE VESCH SHALL BE ADHERED TO UNLESS OTHERWISE WAIVED OR APPROVED BY A VARIANCE.

MAINTENANCE PROGRAM:

THE CONTRACTOR SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (IE.SEEDED,MULCHED, OR SODDED AREAS)ON A DAILY BASIS AND AFTER EACH RAINFALL EVENT TO ENSURE THAT ALL CONTROLS ARE FUNCTIONING PROPERLY.THE FOLLOWING ITEMS WILL BE CHECKED IN PARTICULAR; INLET PROTECTION,SEDIMENT TRAPS,SILT FENCE AND CHECK DAMS WILL BE CHECKED REGULARLY FOR SEDIMENT BUILDUP WHICH WILL PREVENT DRAINAGE.AND IF THE GRAVEL IS CLOGGED BY SEDIMENT.IT SHALL BE REMOVED AND CLEANED OR REPLACED.THE SITE FENCE BARRIER WILL BE CHECKED REGULARLY FOR UNDERMINING OR DETERIORATION OF THE FABRIC, AND SEDIMENT SHALL BE REMOVED WHEN THE LEVEL OF SEDIMENT DEPOSITION REACHES HALFWAY TO THE TOP OF THE BARRIER,AND THE SEEDED AREAS WILL BE CHECKED REGULARLY TO ENSURE THAT A GOOD STAND IS MAINTAINED,AND AREAS SHALL BE FERTILIZED AND RESEEDED AS NEEDED.ANY DAMAGED CONTROLS SHALL BE REPAIRED BY THE END OF THE WORK DAY,INCLUDING RESEEDING AND MULCHING IF NECESSARY AT THE INSPECTOR'S APPROVAL.

TEMPORARY AND PERMANENT STABILIZATION:

TEMPORARY AND PERMANENT STABILIZATION SHALL BE APPLIED TO ALL DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADING 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 LEFT DORMANT FOR MORE THAN ONE YEAR.

STORMWATER RUNOFF CONSIDERATIONS:

THE PROJECT PROPOSES SIX NEW STORMWATER MANAGEMENT FACILITIES (5-15,8-10,9-14,4-2A,6-3A,AND 10-4A) FOR WATER QUANTITY AND QUALITY PURPOSES.PROPOSED RUNOFF TO THESE FACILITIES WILL MEET THE MS-19 AND VDOT REGULATIONS.

CALCULATIONS

ALL PERMANENT FACILITY CALCULATIONS,AS WELL AS OUTFALL AND RUNOFF CALCULATIONS HAVE BEEN PROVIDED IN THE DRAINAGE REPORT. TEMPORARY SEDIMENT BASIN CALCULATIONS HAVE BEEN PROVIDED IN THE IR SERIES.

PHASE I LAND DISTURBING/ CONSTRUCTION SEQUENCE:

1. THE CONTRACTOR MUST GIVE THE CITY INSPECTOR 48 HOURS NOTIFICATION TO SCHEDULE AN ON-SITE PRE-CONSTRUCTION MEETING FOR THE ISSUANCE OF A LAND DISTURBANCE PERMIT.THE CERTIFIED RESPONSIBLE LAND DISTURBER (CRLD) AND THE STORMWATER QUALIFIED PERSON MUST ATTEND THE PRE-CONSTRUCTION MEETING.
2. FLAG LIMITS OF CLEARING AND CONSTRUCT CONSTRUCTION ENTRANCES.
3. INSTALL TEMPORARY CONTROLS INCLUDING SILT FENCE.DIVERSION,SEDIMENT TRAPs,INLET PROTECTION ,AND ROCK CHECK DAMS.
4. CLEAR AND GRUB REMAINDER OF THE SITE AS NECESSARY.
5. CONSTRUCT PERIMETER EROSION AND SEDIMENT CONTROLS.
6. STABILIZE ALL DENUDED AREAS ACCORDING TO THE SECTION TEMPORARY AND PERMANENT STABILIZATION.
7. THE CRLD AND THE ENVIRONMENTAL ENGINEERING INSPECTOR MUST MEET PRIOR TO PROCEEDING TO PHASE II OF THE EROSION CONTROL PLAN.

PHASE II LAND DISTURBING SEQUENCE:

1. CONSTRUCT PROPOSED STORM SEWER SYSTEM,PROPOSED DITCHES AND PROPOSED CULVERTS,AND CULVERT EXTENSIONS.
2. CONSTRUCT INLET AND OUTLET PROTECTION AT ALL APPLICABLE LOCATIONS.
3. ROUGH GRADE THE REMAINDER OF THE SITE INCLUDING THE BANKS AND ADJACENT AREAS TO THE STREAM.
4. INSTALL ALL CURB AND GUTTER AND PLACE BASE STONE PAVEMENT.
5. FINE GRADE SITE AND INSTALL ALL PERMANENT SEEDING AND FERTILIZE ALL GRASSED AREAS.
6. REMOVE ALL EROSION CONTROL MEASURES.
7. CLEAN SITE OF ALL TRASH AND DEBRIS.
8. HAVE THE INSPECTOR INSPECT ALL AREAS TO DETERMINE IF THE AREA IS ADEQUATELY STABILIZED.

STORAGE YARD/LAY DOWN YARD

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF THE EQUIPMENT STORAGE AREA.THIS AREA MUST STAY WITHIN THE PROJECT'S LIMITS OF CONSTRUCTION.UNLESS AN OFF-SITE AREA IS COORINATED AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING INDEPENDENT E&S CONTROL PERMITS TO COVER ANY OFF-SITE IMPACTS.

1992

CHECKLIST

FOR EROSION AND SEDIMENT CONTROL PLANS

✓ Minimum Standards - All applicable Minimum Standards must be addressed.

NARRATIVE

✓ Project description - Briefly describes the nature and purpose of the land-disturbing activity, and the area (acres) to be disturbed.

✓ Existing site conditions - A description of the existing topography, vegetation and drainage.

✓ Adjacent areas - A description of neighboring areas such as streams, lakes, residential areas, roads, etc., which might be affected by the land disturbance.

✓ Off-site areas - Describe any off-site land-disturbing activities that will occur (including borrow sites, waste or surplus areas, etc.). Will any other areas be disturbed?

✓ Soils - A brief description of the soils on the site giving such information as soil name, mapping unit, erodibility, permeability, depth, texture and soil structure.

✓ Critical areas - A description of areas on the site which have potentially serious erosion problems (e.g., steep slopes, channels, wet weather/ underground springs, etc.).

✓ Erosion and sediment control measures - A description of the methods which will be used to control erosion and sedimentation on the site. (Controls should meet the specifications in Chapter 3.)

✓ Permanent stabilization - A brief description, including specifications, of how the site will be stabilized after construction is completed.

✓ Stormwater runoff considerations - Will the development site cause an increase in peak runoff rates? Will the increase in runoff cause flooding or channel degradation downstream? Describe the strategy to control stormwater runoff.

✓ Calculations - Detailed calculations for the design of temporary sediment basins, permanent stormwater detention basins, diversions, channels, etc. Include calculations for pre- and post-development runoff.

VI - 13

1992

Checklist (continued)

SITE PLAN

✓ Vicinity map - A small map locating the site in relation to the surrounding area. Include any landmarks which might assist in locating the site.

✓ Indicate north - The direction of north in relation to the site.

✓ Limits of clearing and grading - Areas which are to be cleared and graded.

✓ Existing contours - The existing contours of the site.

✓ Final contours - Changes to the existing contours, including final drainage patterns.

✓ Existing vegetation - The existing tree lines, grassed areas, or unique vegetation.

✓ Soils - The boundaries of different soil types.

✓ Existing drainage patterns - The dividing lines and the direction of flow for the different drainage areas. Include the size (acreage) of each drainage area.

N/A Critical erosion areas - Areas with potentially serious erosion problems. (See Chapter 6 for criteria.)

✓ Site Development - Show all improvements such as buildings, parking lots, access roads, utility construction, etc.

✓ Location of practices - The locations of erosion and sediment controls and stormwater management practices used on the site. Use the standard symbols and abbreviations in Chapter 3 of this handbook.

N/A Off-site areas - Identify any off-site land-disturbing activities (e.g., borrow sites, waste areas, etc.). Show location of erosion controls. (Is there sufficient information to assure adequate protection and stabilization?)

N/A Detail drawings - Any structural practices used that are not referenced to the E&S handbook or local handbooks should be explained and illustrated with detail drawings.

✓ Maintenance - A schedule of regular inspections and repair of erosion and sediment control structures should be set forth.

VI - 14

EROSION AND SEDIMENT CONTROL STRUCTURES

- SAFETY FENCE (3.01):
A protective barrier installed to prevent access to an erosion control measure.

- TEMPORARY STONE CONSTRUCTION ENTRANCE (3.02):
A stabilized stone pad with a filter fabric underliner located at points of vehicular ingress and egress on a construction site.(Per VDOT Standard EC-11)

- CONSTRUCTION ROAD STABILIZATION (3.03):
The temporary stabilization of access roads,subdivision roads,parking areas,and other on-site vehicle transportation routes with stone immediately after grading.(Per VDOT Standard EC-11)

- TEMPORARY SILT FENCE (3.05):
A temporary sediment barrier consisting of a synthetic filter fabric stretched across and attached to supporting posts and entrenched.(Per VDOT Standard EC-5)

- STORM DRAIN INLET PROTECTION (3.07):
A sediment filter or an excavated impounding area around a storm drain drop inlet or curb inlet.(Per VDOT Standard EC-6 Type A and B)

- CULVERT INLET PROTECTION (3.08):
A sediment filter located at the inlet to storm sewer culverts.(Per VDOT Standard EC-6 Type C)

- TEMPORARY DIVERSION DIKE (3.09):
A temporary ridge of compacted soil constructed at the top or base of a sloping disturbed area.(Per VDOT Standard EC-9)

- DIVERSION (3.12):
A channel constructed across a slope with a supporting earthen ridge on the lower side.(Per VDOT Standard EC-12)

- TEMPORARY SEDIMENT TRAP (3.13):
A temporary ponding area formed by constructing an earthen embankment with a stone outlet.(Per VDOT Standard EC-7)

EROSION AND SEDIMENT CONTROL STRUCTURES CONT.

- TEMPORARY SEDIMENT BASIN (3.14):
A temporary barrier or dam with a controlled stormwater release structure formed by constructing an embankment of compacted soil across a drainway.

- STORMWATER CONVEYANCE CHANNEL (3.17):
A permanent,designed waterway,shaped,sized,and lined with appropriate vegetation or structural material used to safely convey stormwater runoff within or away from a developing area.

- OUTLET PROTECTION (3.18):
Structurally lined aprons or other acceptable energy dissipating devices placed at the outlets of pipes or paved channel sections.(Per VDOT Standard EC-1)

- ROCK CHECK DAMS (3.20):
Small temporary stone dams constructed across a swale or drainage ditch.(Per VDOT Standard EC-4)

- TEMPORARY VEHICULAR STREAM CROSSING (3.24):
A temporary structural span installed across a flowing watercourse for use by construction traffic. (Per VDOT standard EC-14)

- TEMPORARY SEEDING (3.31):
The establishment of a temporary vegetative cover on disturbed areas by seeding with appropriate rapidly growing annual plants.Temporary seeding shall be done in accordance with Virginia Erosion and Sediment Control Handbook standard and specification 3.31.

- PERMANENT SEEDING (3.32):
All areas disturbed by construction shall be stabilized with permanent seeding immediately following finished grading.Seeding shall be done according to Virginia Erosion and Sediment Control Handbook standard and specification 3.32,PERMANENT SEEDING.

4/22/2025

PROJECT	SHEET NO.
U000-151-R94	IP(1)

FINAL PLANS

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PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

EROSION CONTROL PHASE I

COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IQ

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Erosion & Sediment Legend

- TSF-A — Denotes Temporary Silt Fence Type A; St'd EC-5
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- Prop. Right of Way Monument RM-2

SCALE	PROJECT	SHEET NO.
0 50' 100'	U000-151-R94	IQ

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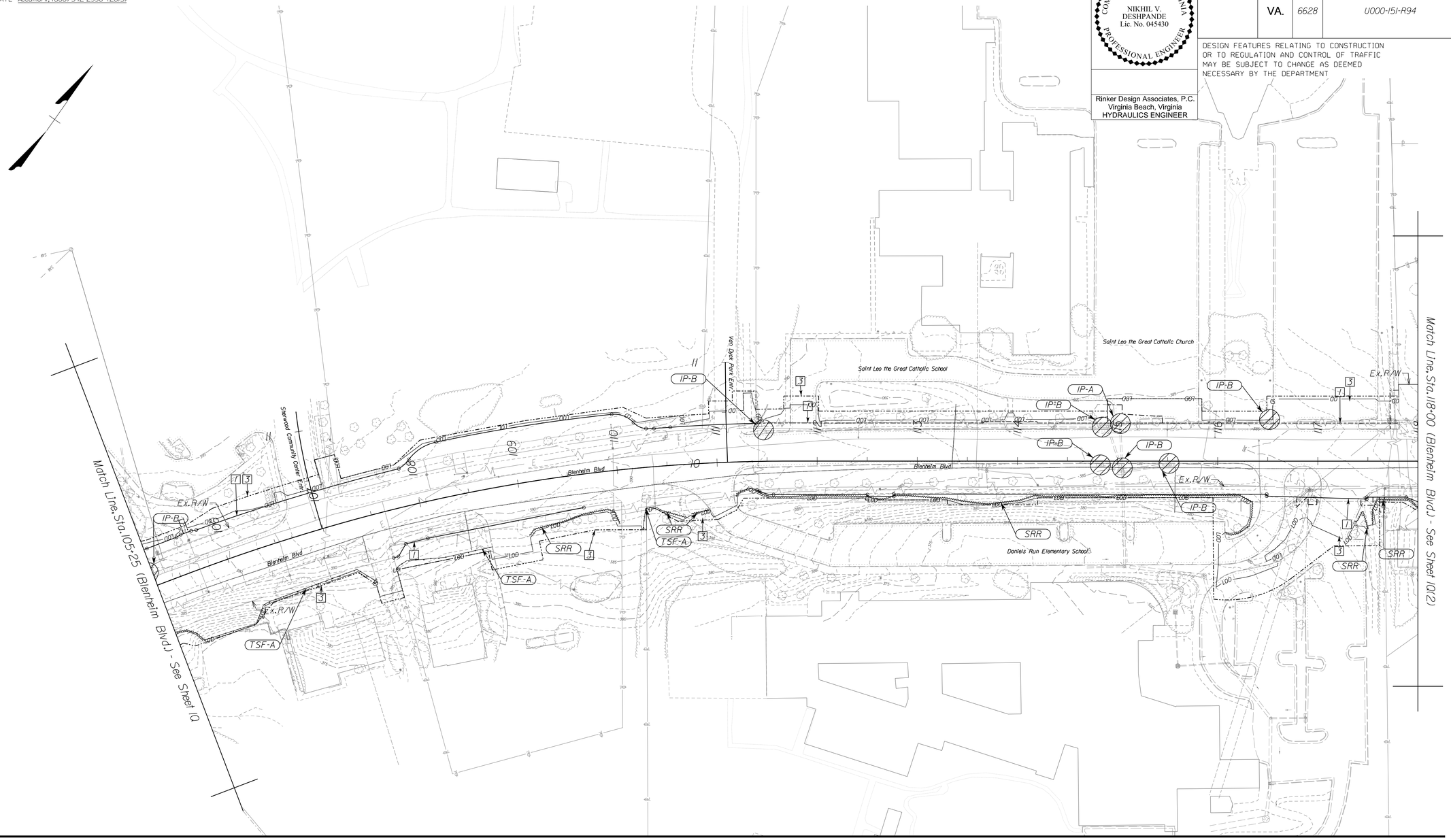

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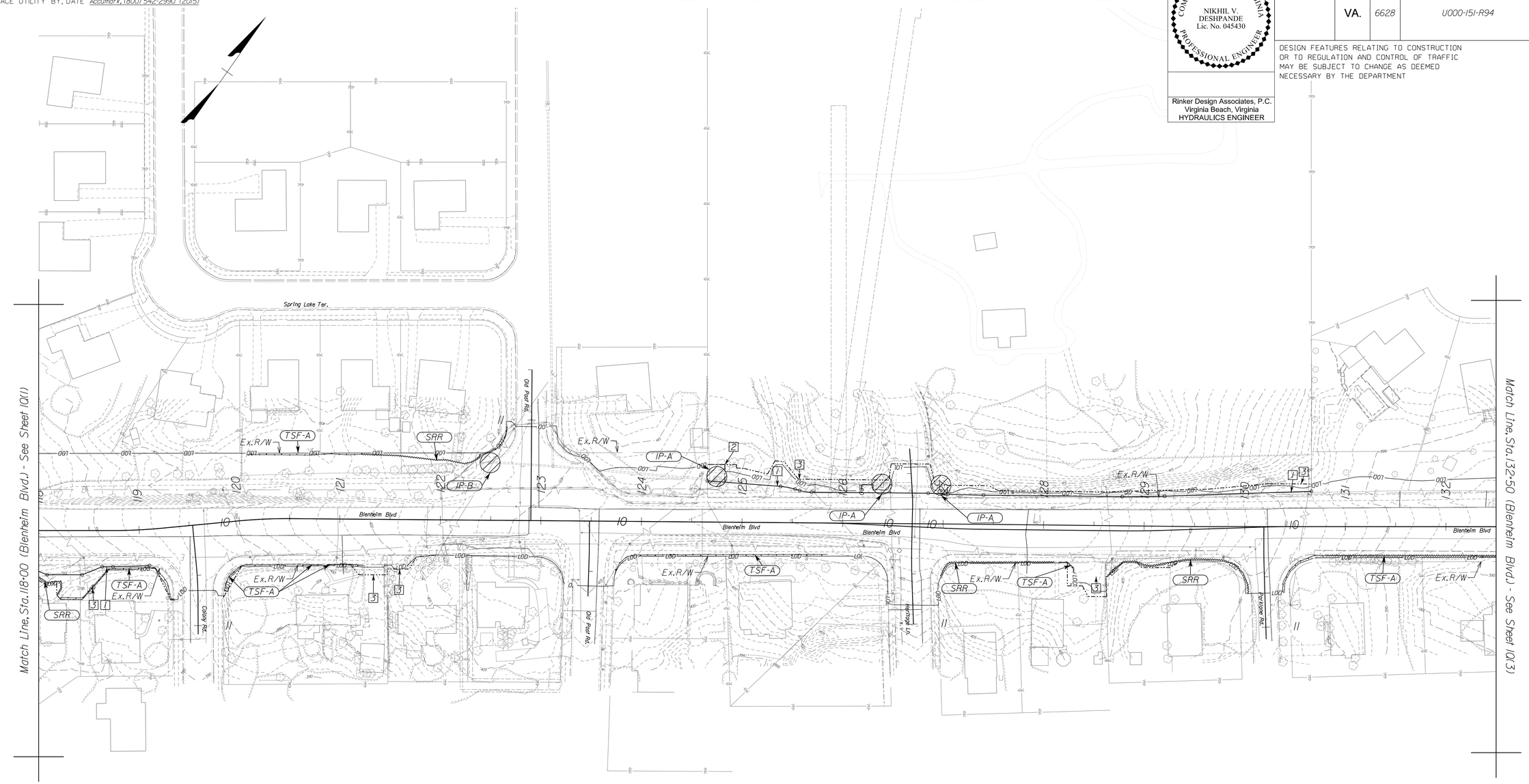

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SCALE: 0 50' 100'

PROJECT	SHEET NO.
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REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	1Q(3)

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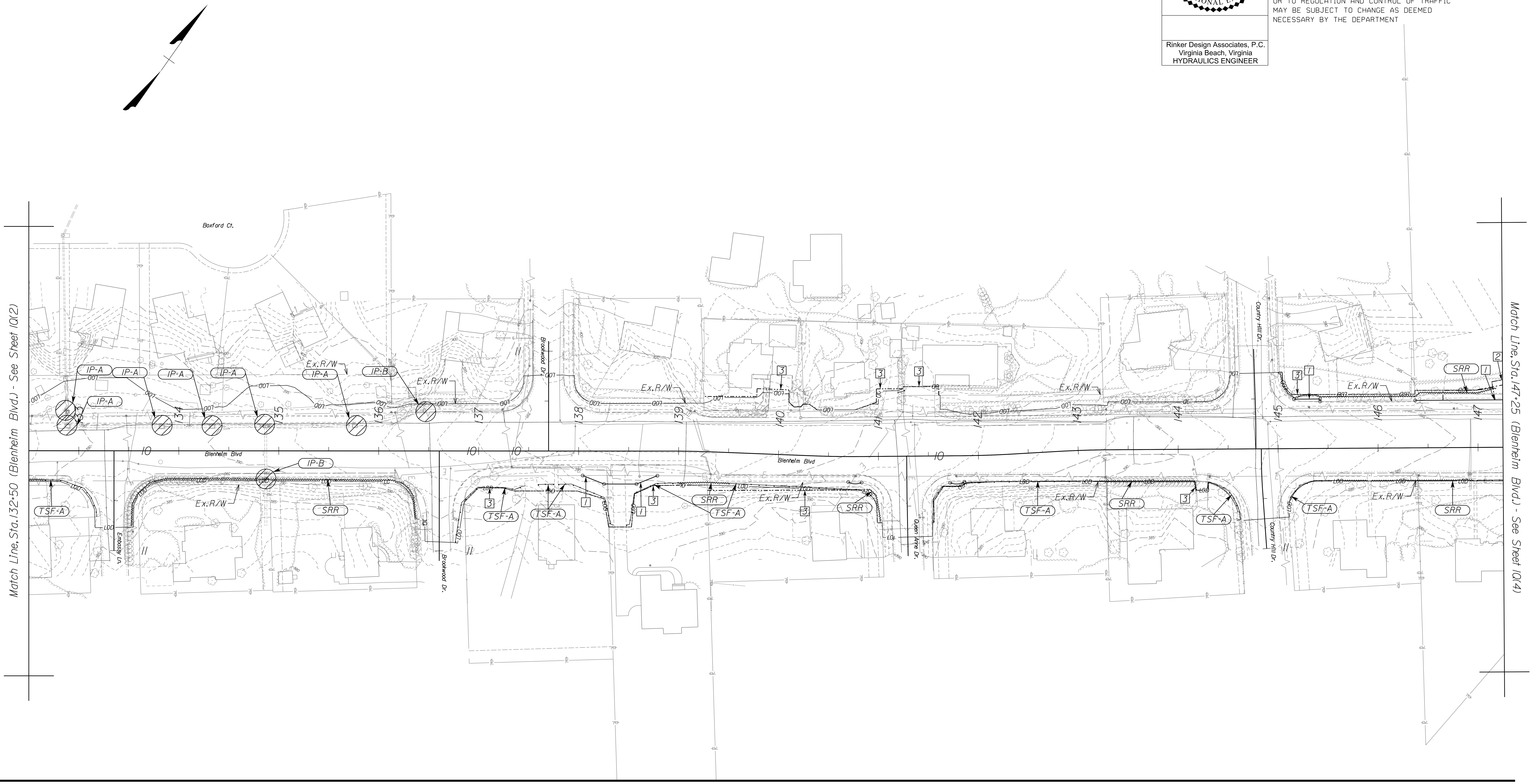

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SCALE 0 50' 100'

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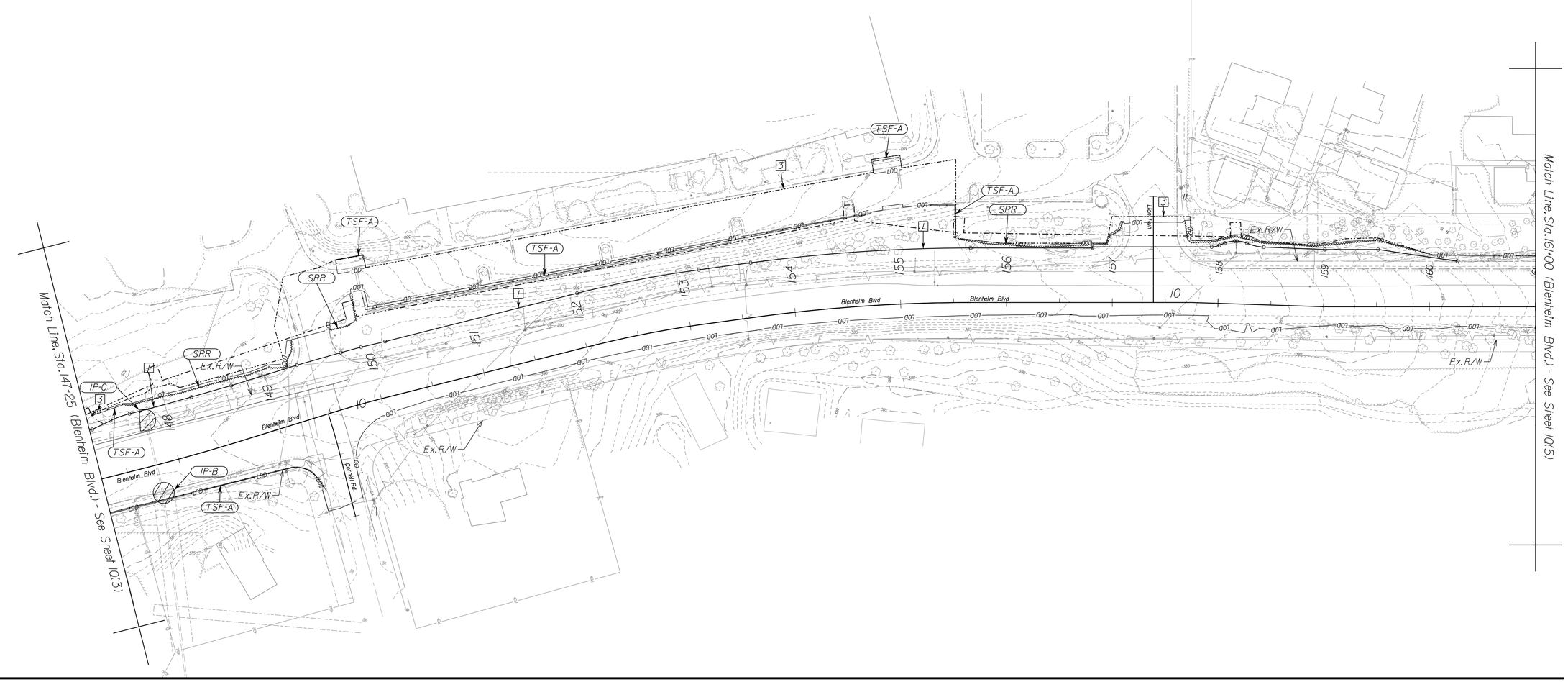

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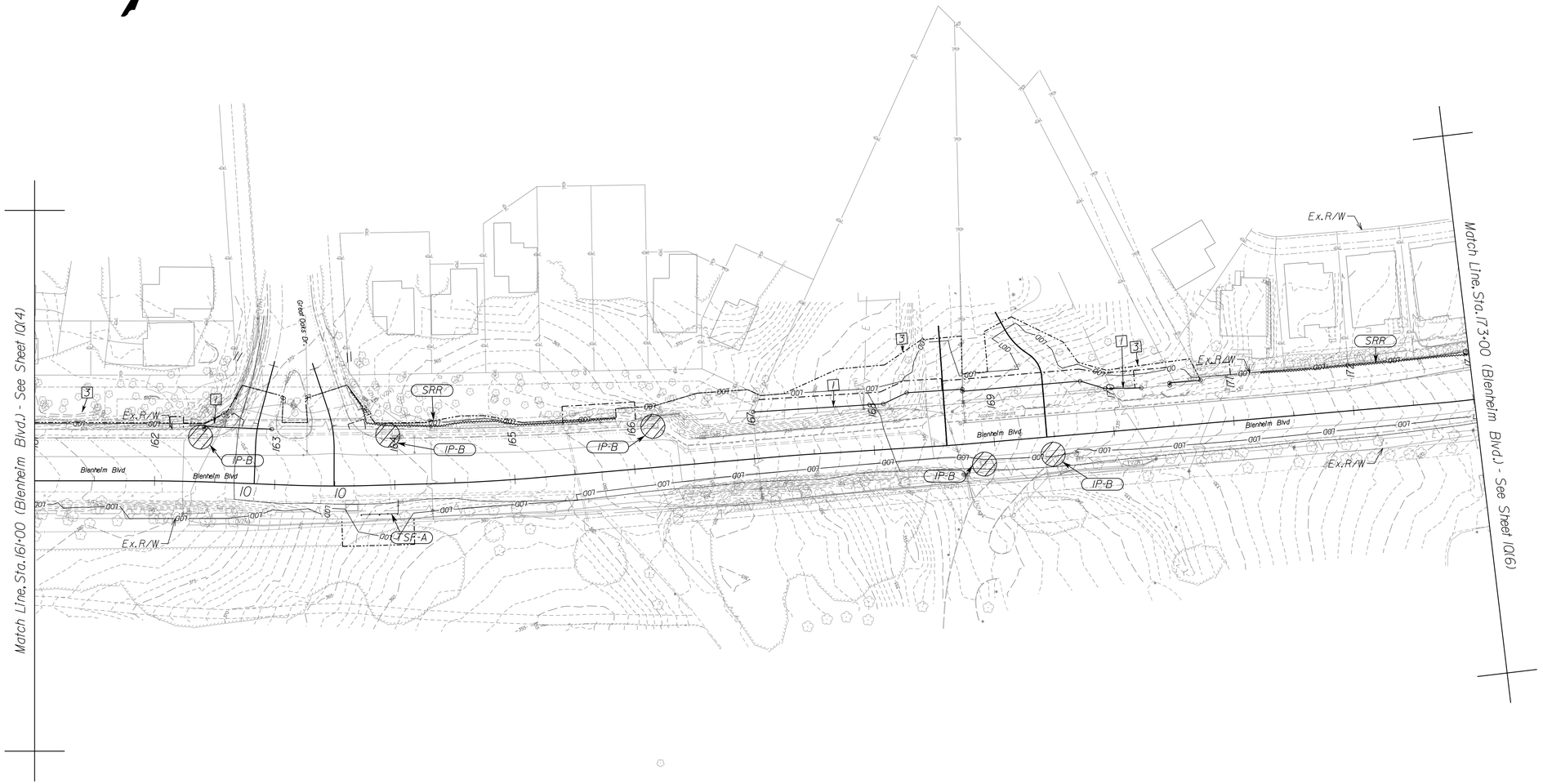

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SCALE: 0 50' 100'

PROJECT	SHEET NO.
U000-151-R94	IQ(5)

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REVISED	STATE	ROUTE	PROJECT	SHEET NO.
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2	Prop. Permanent Drainage Ease. (Dot-Dashed Lines)	6	Prop. Permanent Traffic Signal Ease. (Dot-Dashed Lines)
3	Prop. Temporary Construction Ease. (Dot-Dot-Dashed Lines)	7	Prop. Perpetual Street Ease. (Dot-Dashed Lines)
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SCALE 0 50' 100'

PROJECT	SHEET NO.
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EROSION CONTROL PHASE 2

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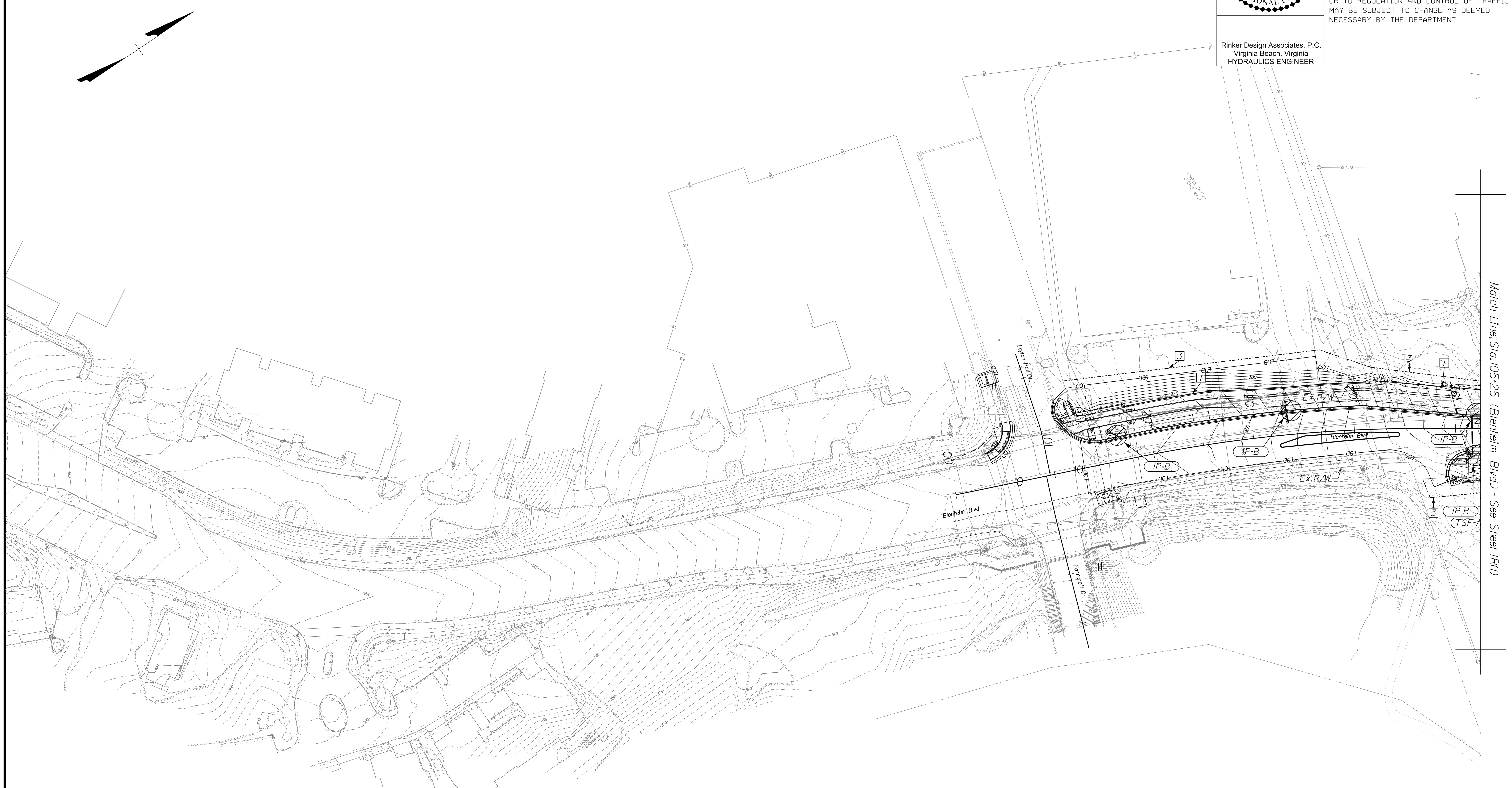

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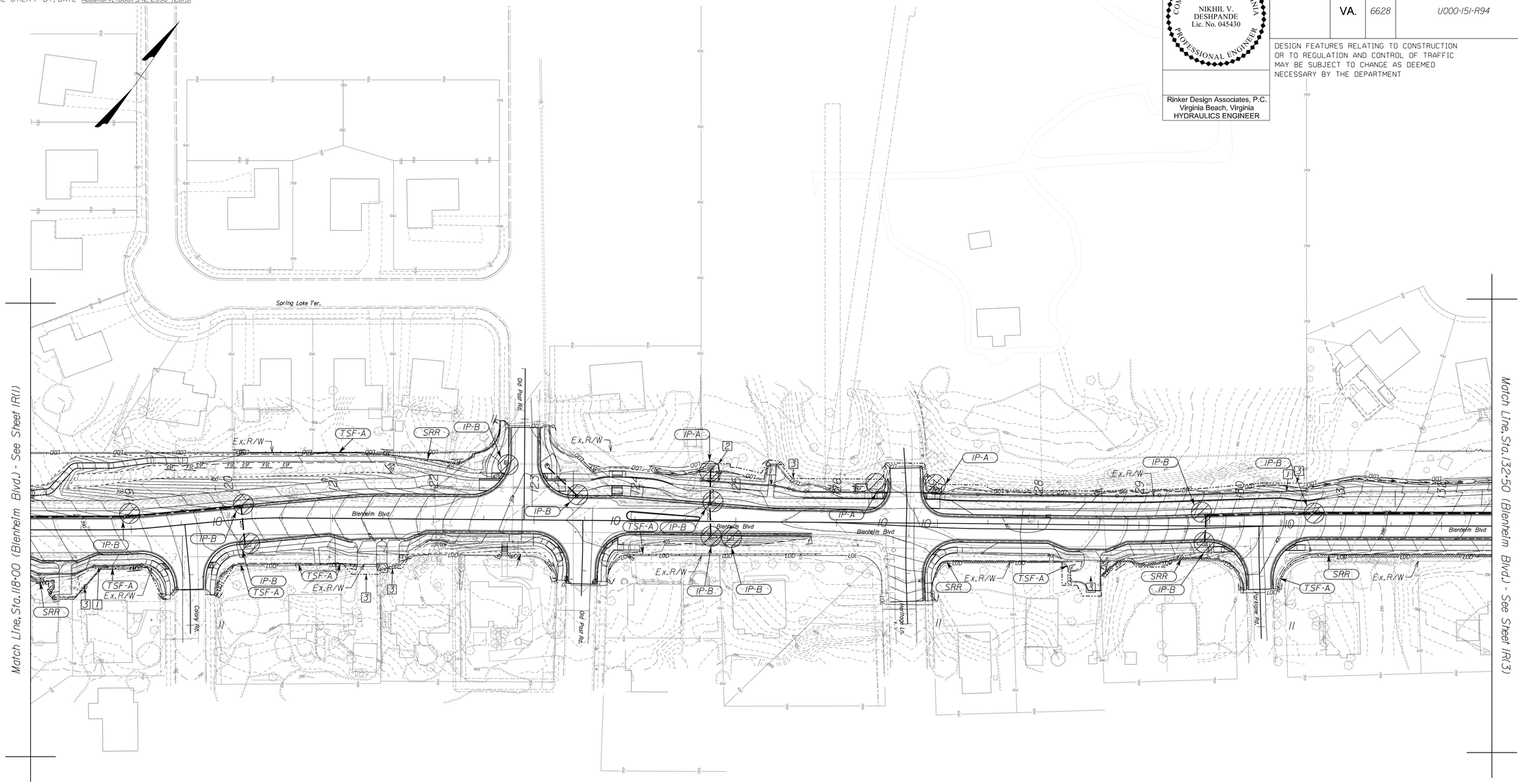

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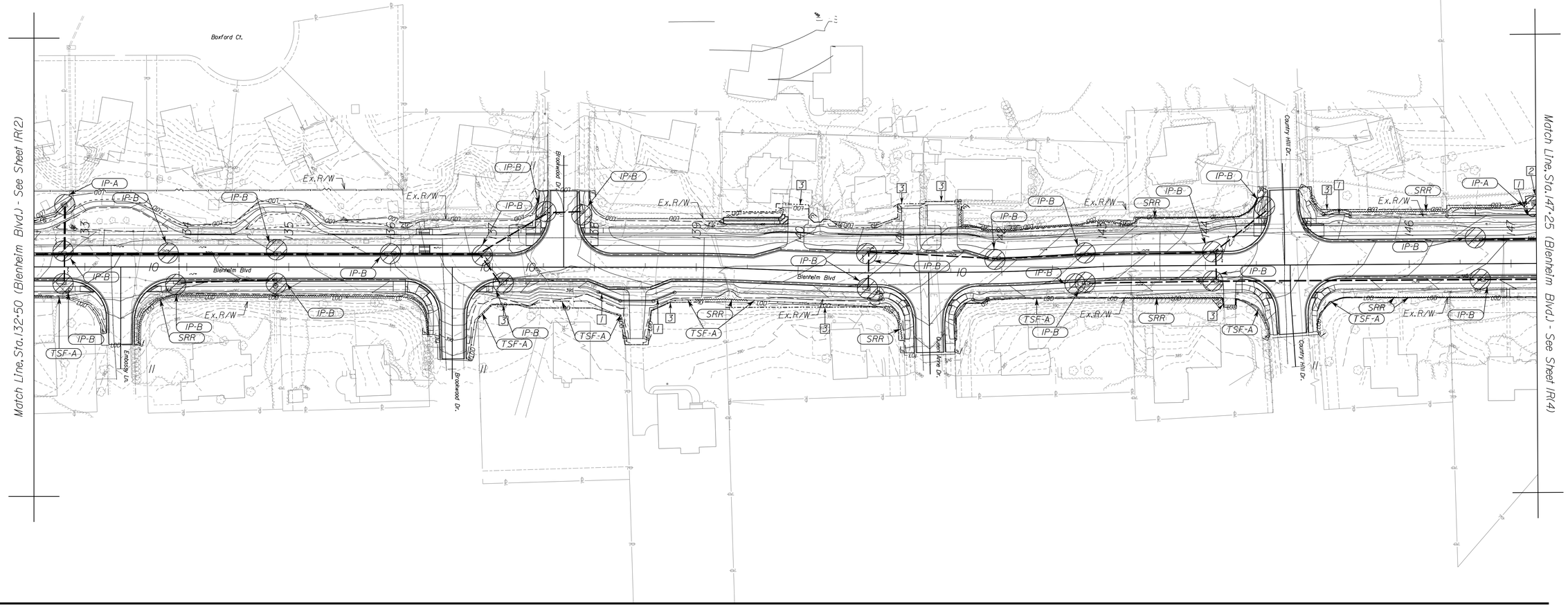
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IR(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



Erosion & Sediment Legend

- TSF-A — Denotes Temporary Silt Fence Type A; St'd EC-5
- FC — Denotes Limits of Cut/Fill
- LOD — Denotes Limits of Disturbance
- IP-_ — Denotes Inlet Protection Type A/B; St'd. EC-6
- IP-C — Denotes Inlet Protection Type C; St'd. EC-6
- SRR — Denotes Sediment Retention Roll; SRR

Right of Way Legend

- # → Key Legend
- Prop. Right of Way
- 1 — Prop. Permanent Drainage Ease. (Dot-Dashed Lines)
- 2 — Prop. Temporary Construction Ease. (Dot-Dot-Dashed Lines)
- 3 — Prop. Permanent Lighting Ease. (Dot-Dashed Lines)
- 4 — Prop. Permanent Utility Ease. (Dot-Dashed Lines, See Label for Owner)
- 6 — Prop. Permanent Traffic Signal Ease. (Dot-Dashed Lines)
- 7 — Prop. Perpetual Street Ease. (Dot-Dashed Lines)
- Prop. Right of Way Monument RM-2

SCALE	PROJECT	SHEET NO.
0 50' 100'	U000-151-R94	IR(3)

FINAL PLANS

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4/22/2025

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

EROSION CONTROL PHASE 2

COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IR(4)

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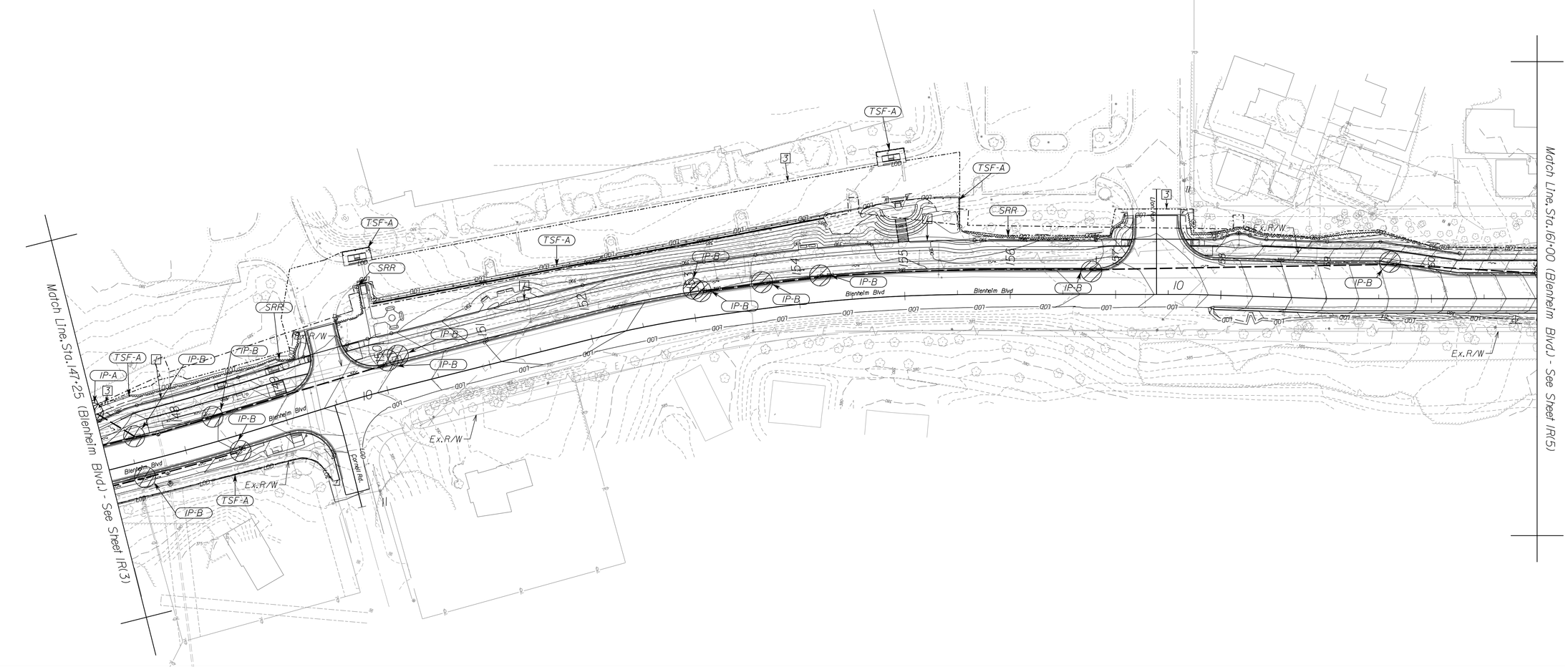

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Right of Way Legend

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- 1 — Prop.Permanent Drainage Ease. (Dot-Dashed Lines)
- 2 — Prop.Temporary Construction Ease. (Dot-Dot-Dashed Lines)
- 3 — Prop.Permanent Lighting Ease. (Dot-Dashed Lines)
- 4 — Prop.Permanent Utility Ease. (Dot-Dashed Lines, See Label for Owner)
- 6 — Prop.Permanent Traffic Signal Ease.(Dot-Dashed Lines)
- 7 — Prop.Perpetual Street Ease. (Dot-Dashed Lines)
- Prop.Right of Way Monument RM-2

SCALE	PROJECT	SHEET NO.
0 50' 100'	U000-151-R94	IR(4)

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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IR(5)

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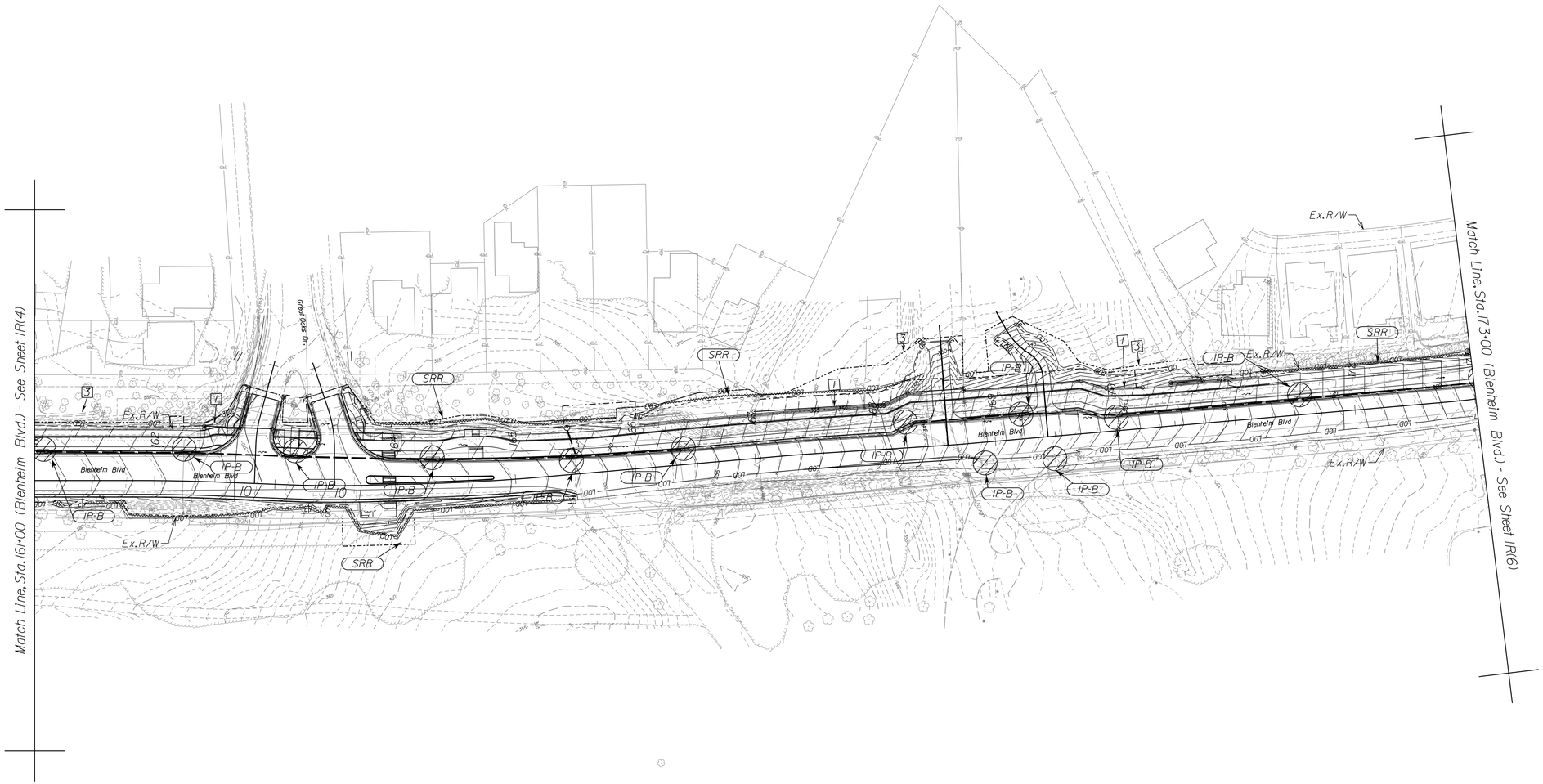

Erosion & Sediment Legend

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- 6 — Prop. Permanent Traffic Signal Ease. (Dot-Dashed Lines)
- 7 — Prop. Perpetual Street Ease. (Dot-Dashed Lines)
- Prop. Right of Way Monument RM-2

SCALE	PROJECT	SHEET NO.
0 50' 100'	U000-151-R94	IR(5)

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Virginia Beach, Virginia
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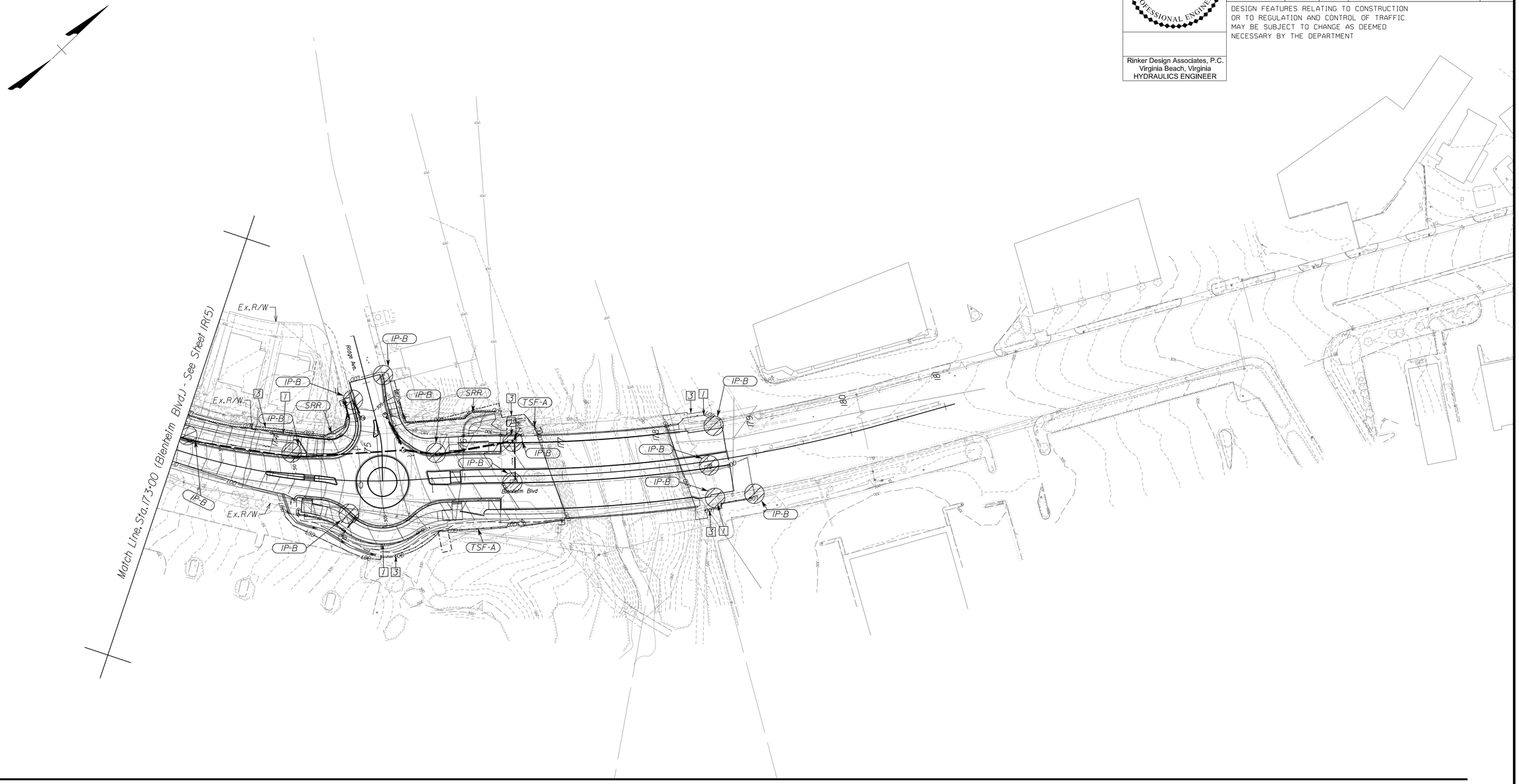
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IR(6)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



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SCALE	PROJECT	SHEET NO.
0 50' 100'	U000-151-R94	IR(6)

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SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

Underground Utilities Test Hole Information

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IT

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

PLAN SHEET	TEST HOLE	DISTANCE (FEET)	(1) STATION & ROADWAY SURVEY BASELINE	OWNER	TYPE OF FACILITY	(2) ELEV. (FEET)	(3) CONFLICT YES/NO	(4) REMARKS	UTILITY (5) ADJUSTMENT REQUIRED
3	1A		101+45.49	WGL	GAS	369.27	NO	UTILITY TO REMAIN	NO
3	1B		101+45.49	WGL	GAS	369.62	NO	UTILITY TO REMAIN	NO
4	2		105+16.28	FFXWTR	WATER	382.58	YES	OFFSET INCLUDED IN WATER PLANS	YES
4	3		105+16.66	WGL	GAS	381.02	NO	1' SEPARATION FROM STORM	NO
4	4		106+96.55	WGL	GAS	388.29	NO	UTILITY TO REMAIN	NO
4	5		107+15.49	FFXWTR	WATER	389.31	NO	PROPOSED WATER TIE IN	NO
4	6		107+80.75	FFXWTR	WATER	384.27	NO	PROPOSED WATER TIE IN	NO
4	7		108+13.18	FFXWTR	WATER	390.41	NO	PROPOSED WATER TIE IN	NO
4	8		109+00.47	WGL	GAS	386.51	NO	UTILITY TO REMAIN	NO
4	9		110+41.68	WGL	GAS	385.13	YES	TO BE RELOCATED BY OTHERS	YES
5	10		111+86.13	WGL	GAS	383.58	YES	TO BE RELOCATED BY OTHERS	YES
5	11		112+30.19	FFXWTR	WATER	382.56	NO	PROPOSED WATER TIE IN	NO
5	12		114+73.55	WGL	GAS	379.59	NO	1' SEPARATION FROM STORM	NO
5	13		114+81.23	FFXWTR	WATER	380.18	YES	OFFSET INCLUDED IN WATER PLANS	YES
5	14		115+39.54	FFXWTR	WATER	379.09	NO	PROPOSED WATER TIE IN	NO
5	15		116+41.97	FFXWTR	WATER	378.69	NO	1.7' SEPARATION FROM STORM PIPE	NO
5	16		116+88.96	---	---	---	---	NO UTILITY FOUND	---
5	17		117+00.73	WGL	GAS	380.56	NO	UTILITY TO REMAIN	NO
5	18		117+70.04	WGL	GAS	383.06	YES	TO BE RELOCATED BY OTHERS	YES
5	19		117+89.15	FFXWTR	WATER	385.44	NO	1' SEPARATION FROM STORM	NO
6	20		119+15.54	FFXWTR	WATER	387.94	NO	PROPOSED WATER TIE IN	NO
6	21		119+38.83	FFXWTR	WATER	388.28	NO	PROPOSED WATER TIE IN	NO
6	22		120+11.09	WGL	GAS	291.26	YES	TO BE RELOCATED BY OTHERS	YES
6	23		120+58.10	FFXWTR	WATER	392.72	NO	PROPOSED WATER TIE IN	NO
6	24A		121+02.33	WGL	GAS	394.37	NO	UTILITY TO REMAIN	NO
6	24B		121+02.33	WGL	GAS	394.55	NO	UTILITY TO REMAIN	NO
6	25		121+49.82	FFXWTR	WATER	396.39	NO	UTILITY TO REMAIN	NO
6	26		122+18.71	COX	CATV	403.73	YES	TO BE RELOCATED BY OTHERS	YES
6	27		123+70.83	FFXWTR	WATER	401.76	NO	PROPOSED WATER TIE IN	NO
6	28		123+70.56	COX	CATV	404.47	NO	UTILITY TO REMAIN	NO
6	29		124+42.39	COX	CATV	404.30	NO	UTILITY TO REMAIN	NO
6	30		124+60.56	WGL	GAS	404.62	NO	UTILITY TO REMAIN	NO
6	31		124+74.30	WGL	GAS	403.29	YES	TO BE RELOCATED BY OTHERS	YES
7	32		126+50.44	FFXWTR	WATER	404.71	NO	TO BE ABANDONED	NO
7	33		126+93.98	WGL	GAS	405.30	NO	UTILITY TO REMAIN	NO
7	34		130+23.10	WGL	GAS	397.84	NO	1' SEPARATION FROM STORM	NO
7	35		130+35.84	FFXWTR	WATER	395.83	NO	TO BE ABANDONED	NO
7	36		130+77.26	WGL	GAS	393.91	YES	TO BE RELOCATED BY OTHERS	YES
7	37		132+81.28	WGL	GAS	386.91	YES	TO BE RELOCATED BY OTHERS	YES
7	38		133+04.36	FFXWTR	WATER	384.27	NO	TO BE ABANDONED	NO
7	39		133+25.91	WGL	GAS	385.75	YES	TO BE RELOCATED BY OTHERS	YES
7	40		133+59.10	FFXWTR	WATER	383.26	NO	TO BE ABANDONED	NO
8	41		136+51.80	WGL	GAS	387.83	NO	UTILITY TO REMAIN	NO
8	42		136+71.69	FFXWTR	WATER	387.21	NO	PROPOSED WATER TIE IN	NO
8	43		137+09.62	WGL	GAS	389.78	YES	TO BE RELOCATED BY OTHERS	YES
8	44		137+27.56	WGL	GAS	---	---	NO UTILITY FOUND	---
8	45		137+47.51	WGL	GAS	390.55	NO	UTILITY TO REMAIN	NO
8	46		137+81.27	FFXWTR	WATER	391.76	NO	1' SEPARATION FROM STORM	NO
8	47		137+81.26	FFXWTR	WATER	392.17	NO	UTILITY TO REMAIN	NO
9	48		141+18.06	WGL	GAS	390.40	NO	1.26' SEPARATION FROM STORM	NO
9	49		141+36.36	FFXWTR	WATER	389.78	NO	1' SEPARATION FROM STORM	NO
9	50		143+55.49	WGL	GAS	386.87	YES	TO BE RELOCATED BY OTHERS	YES
9	51		144+33.09	WGL	GAS	384.64	NO	1' SEPARATION FROM STORM	NO
9	52		144+56.62	WGL	GAS	385.73	YES	TO BE RELOCATED BY OTHERS	YES
9	53		144+77.50	WGL	GAS	384.02	YES	TO BE RELOCATED BY OTHERS	YES
9	54		145+03.07	WGL	GAS	382.88	NO	UTILITY TO REMAIN	NO
9	55		147+43.66	WGL	GAS	378.98	NO	1' SEPARATION FROM STORM	NO
10	56		148+37.21	WGL	GAS	378.75	NO	UTILITY TO REMAIN	NO
10	57		149+60.49	WGL	GAS	381.51	NO	1' SEPARATION FROM STORM	NO
10	58		152+86.58	FFXWTR	WATER	385.04	NO	TO BE ABANDONED	NO
11	59		155+23.42	FFXWTR	WATER	383.91	NO	TO BE ABANDONED	NO
11	60		155+32.81	FFXWTR	WATER	383.67	NO	1' SEPARATION FROM STORM	NO
11	61		157+13.46	DOMINION	ELECTRIC	384.43	NO	UTILITY TO REMAIN	NO
11	62		157+89.72	DOMINION	ELECTRIC	385.99	NO	UTILITY TO REMAIN	NO
11	63		158+90.24	FFXWTR	WATER	379.57	YES	OFFSET INCLUDED IN WATER PLANS	YES
12	64		162+37.67	DOMINION	ELECTRIC	370.03	NO	UTILITY TO REMAIN	NO
12	65		162+50.22	FFXWTR	WATER	367.33	NO	PROPOSED WATER TIE IN	NO
12	66		162+51.93	VERIZON	TELEPHONE	368.17	NO	UTILITY TO REMAIN	NO

UTILITY OWNERS

WGL – Washington Gas Light Company
Mark Tajnai
(703) 750-5667
MTajnai@washgas.com
6801 Industrial Road
Springfield, VA 22151

FFXWTR – Fairfax County Water Authority
Pascal Arcese
(703) 289-6307
parcese@fairfaxwater.org

COX – Cox Communications
Rick Sothen
(703) 856-9213
Rick.Sothen@cox.com
7741 Southern Drive
Springfield, VA 22150

DOMINION – Dominion Energy
Lindsey Conrad
Lindsey.Conrad@dominionenergy.com

VERIZON – Verizon Communications
Julio Hernandez
julio.a.hernandez@verizon.com

ACCUMARK
9500 KING AIR COURT
ASHLAND, VA. 23005
(800) 542-2990 www.accumark.us

ACCUMARK #NV23-078
City of Fairfax
Blenheim Boulevard
TEST HOLE SUMMARY SHEET
DATE: 12/1/2023

NOTES:

(1) ALL TEST HOLES ARE REFERENCED FROM THE ROADWAY BASELINE UNLESS OTHERWISE NOTED.

(2) ELEVATIONS SHOWN HEREON ARE TO THE TOP OF THE FACILITY UNLESS OTHERWISE NOTED.

(3) YES OR NO: NO INDICATES NO DIRECT CONFLICT, HOWEVER, CLEARANCE MAY BE LESS THAN ACCEPTABLE TO UTILITY OWNER.

(4) REMARKS TO INCLUDE CLEARANCE DIMENSION (REGARDLESS OF DISTANCE).

(5) YES OR NO: INFORMATION TO BE PROVIDED BY THE VDOT DISTRICT UTILITY ENGINEER.

Miss Utility's Telephone Numbers
Miss Utility _____ 811 or 1-800-552-7001
Check Ticket Status _____ 1-800-552-3120

Miss Utility's Service Is Free
Miss Utility Provides Emergency Service
365 Days a Year, 24 Hours a Day

DIG WITH CARE KEEP VIRGINIA SAFE

	PROJECT	SHEET NO.
	U000-151-R94	IT

4/22/2025

FINAL PLANS

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Underground Utilities Test Hole Information

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	IT(1)

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PLAN SHEET	TEST HOLE	DISTANCE (FEET)	(1) STATION & ROADWAY SURVEY BASELINE	OWNER	TYPE OF FACILITY	(2) ELEV. (FEET)	(3) CONFLICT YES/NO	(4) REMARKS	UTILITY (5) ADJUSTMENT REQUIRED
12	67		162+58.05	DOMINION	ELECTRIC	368.46	YES	TO BE RELOCATED BY OTHERS	YES
12	68		162+66.32	WGL	GAS	---	---	NO UTILITY FOUND	---
12	69		162+66.79	WGL	GAS	---	---	NO UTILITY FOUND	---
12	70		163+00.23	VERIZON	FIBER OPTIC	365.92	NO	UTILITY TO REMAIN	NO
12	71		163+26.29	FFXWTR	WATER	364.50	NO	PROPOSED WATER TIE IN	NO
12	72		163+32.76	VERIZON	FIBER OPTIC	364.95	NO	UTILITY TO REMAIN	NO
12	73		163+30.98	DOMINION	ELECTRIC	367.34	YES	TO BE RELOCATED BY OTHERS	YES
12	74		163+61.39	VERIZON	FIBER OPTIC	364.29	YES	TO BE RELOCATED BY OTHERS	YES
12	75		163+58.02	DOMINION	ELECTRIC	366.56	YES	TO BE RELOCATED BY OTHERS	YES
12	76		163+88.71	WGL	GAS	360.81	NO	UTILITY TO REMAIN	NO
12	77		164+13.93	FFXWTR	WATER	360.49	NO	TO BE ABANDONED	NO
12	78		164+69.54	COX	CATV	362.24	NO	UTILITY TO REMAIN	NO
12	79		166+37.48	FFXWTR	WATER	---	---	NO UTILITY FOUND	---
14	80		173+74.72	WGL	GAS	309.59	NO	1.47' SEPARATION FROM STORM	NO
14	81		174+35.01	WGL	GAS	305.59	YES	TO BE RELOCATED BY OTHERS	YES
14	82		174+75.52	FFXWTR	WATER	301.78	NO	PROPOSED WATER TIE IN	NO
14	83		174+71.35	VERIZON	FIBER OPTIC	302.96	YES	TO BE RELOCATED BY OTHERS	YES
14	84		175+21.13	FFXWTR	WATER	298.26	NO	TO BE ABANDONED	NO
14	85		175+20.72	FFXWTR	WATER	---	NO	PROPOSED WATER TIE IN	NO
14	86		175+98.99	WGL	GAS	296.65	YES	TO BE RELOCATED BY OTHERS	YES
14	87A		176+03.87	COX	FIBER OPTIC	296.04	NO	UTILITY TO REMAIN	NO
14	87B		176+03.87	COX	FIBER OPTIC	296.04	NO	UTILITY TO REMAIN	NO
14	88		176.08.52	DOMINION	ELECTRIC	294.52	NO	UTILITY TO REMAIN	NO
14	89		176+09.42	COX	CATV	294.92	NO	UTILITY TO REMAIN	NO
14	90		176+68.45	FFXWTR	WATER	292.75	NO	PROPOSED WATER TIE IN	NO
3	91		103+63.06	WGL	GAS	379.58	NO	UTILITY TO REMAIN	NO
3	92		108+44.29	WGL	GAS	386.88	NO	1.22' SEPARATION FROM STORM	NO
5	93		113+35.02	WGL	GAS	381.88	YES	TO BE RELOCATED BY OTHERS	YES
5	94		115+64.32	WGL	GAS	---	---	NO UTILITY FOUND	---
7	95		128+78.45	WGL	GAS	404.05	NO	UTILITY TO REMAIN	NO
7	96		127+82.38	WGL	GAS	406.12	NO	UTILITY TO REMAIN	NO
8	97		136+51.66	WGL	GAS	386.94	NO	UTILITY TO REMAIN	NO
9	98		141+37.56	WGL	GAS	390.28	NO	UTILITY TO REMAIN	NO
12	99		162+66.57	WGL	GAS	---	---	NO UTILITY FOUND	---
12	100		168+11.45	WGL	GAS	343.63	NO	UTILITY TO REMAIN	NO
12	101A		168+47.32	FFXWTR	WATER	342.17	NO	UTILITY TO REMAIN	NO
12	101B		168+47.32	FFXPUBWRK	STORM	341.56	NO	UTILITY TO REMAIN	NO
12	102		168+46.02	FFXWTR	WATER	342.50	NO	2.8' SEPARATION FROM STORM	NO
12	103		168+65.67	VERIZON	FIBER OPTIC	340.11	NO	UTILITY TO REMAIN	NO
14	104		174+72.99	WGL	GAS	303.32	NO	UTILITY TO REMAIN	NO
14	105		175+47.90	WGL	GAS	299.11	NO	UTILITY TO REMAIN	NO
7	106		126+76.58	WGL	GAS	404.68	NO	UTILITY TO REMAIN	NO
7	107		133+26.08	WGL	GAS	385.97	no	UTILITY TO REMAIN	NO
7	108		133+52.78	FFXWTR	WATER	383.55	NO	TO BE ABANDONED	NO
6	109A		119+62.79	WGL	GAS	389.40	NO	UTILITY TO REMAIN	NO

PLAN SHEETS	TEST HOLES	DISTANCE (FEET)	(1) STATION & ROADWAY SURVEY CENTERLINE	OWNER	TYPE OF FACILITY	(2) ELEV. (FEET)	(3) CONFLICT YES/NO	(4) REMARKS	UTILITY (5) ADJUSTMENT REQUIRED
6	109B		119+62.79	FFXWTR	WATER	388.51	NO	UTILITY TO REMAIN	NO

UTILITY OWNERS

WGL – Washington Gas Light Company
Mark Tajnai
(703) 750-5667
MTajnai@washgas.com
6801 Industrial Road
Springfield, VA 22151

FFXWTR – Fairfax County Water Authority
Pascal Arcese
(703) 289-6307
parcese@fairfaxwater.org

COX – Cox Communications
Rick Sothen
(703) 856-9213
Rick.Sothen@cox.com
7741 Southern Drive
Springfield, VA 22150

DOMINION – Dominion Energy
Lindsey Conrad
Lindsey.Conrad@dominionenergy.com

VERIZON – Verizon Communications
Julio Hernandez
julio.a.hernandez@verizon.com

FFXPUBWRK – Fairfax County Public Works
Sunny Sarna
(703) 273-3067
Sunny.Sarna@fairfaxva.gov

ACCUMARK
9500 KING AIR COURT
ASHLAND, VA. 23005
(800) 542-2990 www.accumark.us

ACCUMARK #NV23-078
City of Fairfax
Blenheim Boulevard
TEST HOLE SUMMARY SHEET
DATE: 12/1/2023

NOTES:

(1) ALL TEST HOLES ARE REFERENCED FROM THE ROADWAY BASELINE UNLESS OTHERWISE NOTED.

(2) ELEVATIONS SHOWN HEREON ARE TO THE TOP OF THE FACILITY UNLESS OTHERWISE NOTED.

(3) YES OR NO; NO INDICATES NO DIRECT CONFLICT, HOWEVER, CLEARANCE MAY BE LESS THAN ACCEPTABLE TO UTILITY OWNER.

(4) REMARKS TO INCLUDE CLEARANCE DIMENSION (REGARDLESS OF DISTANCE).

(5) YES OR NO; INFORMATION TO BE PROVIDED BY THE VDOT DISTRICT UTILITY ENGINEER.

Miss Utility's Telephone Numbers
Miss Utility ____ 811 or 1-800-552-7001
Check Ticket Status ____ 1-800-552-3120

Miss Utility's Service Is Free
Miss Utility Provides Emergency Service
365 Days a Year, 24 Hours a Day

DIG WITH CARE KEEP VIRGINIA SAFE Call 811 Before You Dig

PROJECT	SHEET NO.
U000-151-R94	IT(1)

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

GENERAL NOTES

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

GRADING

G-1 The grade line denotes top of finished pavement unless shown otherwise on typical sections or plans.

G-4 The cost of removal of all existing concrete items located in the area to be graded, including, but not limited to the following, shall be included in the price bid for regular excavation: Sign post foundation, sidewalk, steps, curb & gutter, paved ditch, small ret. walls, storm sewer pipe, storm structures and end sections.

G-5 The excavation of unsuitable material as specified on these plans is based on previously conducted subsurface soil investigation. If, during construction, it is deemed necessary to change the depth more than one foot, or the limits of such excavation, such change is to be made at the direction of the Engineer and measurement and payment shall be made in accordance with Section 303 of the applicable VDOT Road and Bridge Specifications.

G-6 The borrow material for this project shall be a minimum CBR 5 or as approved by the Materials Engineer.

DRAINAGE

D-1 The horizontal location of all drainage structures shown on these plans is approximate only, with the exception of structures showing specific stations, special design bridges and storm sewer systems.

D-2 The horizontal location and invert elevations shown for proposed culverts and storm sewer outfall pipes are based on existing survey data and required design criteria. If during construction, it is found that the horizontal location or invert elevations shown on the plans differ significantly from the horizontal location or elevations of the stream or swale in which the culvert or storm sewer outfall pipe is to be placed, the Engineer shall confer with, and get approval from, the applicable District Drainage Engineer before installing the culvert or storm sewer outfall pipe.

D-3 The "H" dimensions shown on plans for drop inlets and junction boxes and the "L.F." dimensions shown for manholes are for estimating purposes and are based on the proposed invert elevations shown for the structure and the anticipated top (rim) elevation based on existing or proposed finished grade. The actual "H" or "L.F." dimensions are to be determined by the contractor from field conditions.

D-6 Pipes shall conform to any of the allowable types shown on sheet number 2K, within the applicable height of cover limitations. For strength, sheet thickness, or class designation; available sizes; height of cover limitations; and other restrictions for a particular pipe type or height of cover, see the VDOT Road and Bridge Standard PC-1. Structural plate pipe may be substituted for corrugated pipe of the same size, provided the substitution complies with the applicable sections of the VDOT Road and Bridge Standards PC-1.

D-11 The proposed granular filter blanket for the proposed riprap may be omitted by the Engineer if the slope on which it is to be placed is found to be comprised of material which is coarser than that specified for the proposed granular filter blanket.

D-14 Proposed drop inlets with a height (H) less than the standard minimum shown in the VDOT Road and Bridge Standards shall be considered and paid for as Standard Drop Inlets for the type specified. Pipes with less than standard minimum finished height of cover shall be noted as such in the drainage description for the pipe. Specific pipe bedding and cover requirements are provided in the applicable PB-1 and PC-1 standard drawings of the VDOT Road and Bridge Standards.

D-16 When CG-6 or CG-7 is specified on a radius (such as at a street intersection), the Engineer may approve a decrease in the cross slope of the gutter to facilitate proper drainage.

PAVEMENT

P-2 The pavement materials on this project will be paid for on a tonnage basis. The weight will vary in accordance with the specific gravity of the aggregates and the asphaltic content of the mix actually used to secure the design depth. The weight of the asphalt concrete is based on 95% of the theoretical maximum density.

INCIDENTALS

I-6 Certain trees shall be preserved as noted on plans or as directed by the Engineer.

I-7 Where Standard slope roundoffs would damage trees, bushes or other desirable vegetation, they shall be omitted when so ordered by the Engineer.

I-8A Clearing and grubbing shall be confined to those areas needed for construction. No trees or shrubs in ungraded areas shall be cut without the permission of the Engineer.

I-9 When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.

I-12 St'd. RM-2 right of way monuments shall be set by the Contractor.

I-14 Salvaged guardrail materials not used in the new construction shall become the property of the Contractor and shall be disposed of at a licensed landfill, recycled or be retained by the Contractor.

I-16 The "underground utilities" survey data on this project has been provided by consultant and copies are available from the Department.

I-17 For method of constructing Straight-Line Taper Lanes in curb and/or curb and gutter sections, see typical details on Sheet N/A.

I-18 All pavement markings and traffic flow arrows shown on the roadway construction plans are schematic only. The actual location and application of pavement markings shall be in accordance with Section 704 of the applicable VDOT Road and Bridge Specifications, MUTCD, sequence of construction/traffic control plans, pavement marking plan sheet 15 series and as directed by the Engineer.

I-19 The following outside sources, under contract with the City of Fairfax, have provided information on this project.

Hydraulic Design	-	Rinker Design Associates
Roadway Design	-	Rinker Design Associates
Utility Design	-	Rinker Design Associates
Utility Designation	-	Accumark
Utility Location	-	Accumark
Survey	-	Rinker Design Associates
Bridge Design	-	N/A
Traffic Design	-	Toole Design
Landscape Design	-	Toole Design

If questions or problems arise during construction, please contact the Construction Engineer. DO NOT CONTACT THE OUTSIDE SOURCES.

I-20 The Official Electronic PDF Version of the plans will override the paper copies or prints of specific layers.

Portions of this plan assembly have been CADD generated. To assist in the preparation of the bid and construction of the project, Microstation format (.dgn) files will be made available to the prime contractor during bids and after award of the contract.

I-21 All electronic plan assemblies will include the construction plans in two formats: PDF files and MicroStation format (.dgn) files. Only the PDF files will be considered as part of the official plan assembly.

The MicroStation format (.dgn) files are furnished only as information for the contractor. These plans are developed in layers (levels) to aid in readability. (See the VDOT CADD Manual for CADD Level Structure). However, the construction items may or may not be in the proper layering scheme as described in the VDOT CADD Manual. The Microstation files will only match the scanned files if all required levels are turned on. A Microstation Software license is required to be able to read these files.

EROSION AND SEDIMENT CONTROL (ESC)

E-1 If the removal of Brush Silt Barrier is specified by the plans or required by the Engineer, the cost of removal and disposal of brush shall be in accordance with Section 109 of the applicable VDOT Road and Bridge Specifications.

E-2 Rock for Check Dams, Inlet Protection, Erosion Control Stone and Riprap shall be in accordance with Section 203 and Section 414 of the applicable VDOT Road and Bridge Specifications.

E-3 The following symbols are used to depict Erosion Control items in the plan assembly:

EC-2	Denotes Protective Covering, St'd. EC-2
EC-3A EC-3B EC-3C	Denotes Soil Stabilization Mat. St'd. EC-3 Type A, B or C
TFB	Denotes Temporary Filter Barrier, St'd EC-5
TSF	Denotes Temporary Silt Fence, St'd EC-5
DD	Denotes Temporary Diversion Channel, St'd EC-12
DD	Denotes Temporary Diversion Dike, St'd EC-9
TC-I	Denotes Turbidity Curtain, Type - Impervious
TC-P	Denotes Turbidity Curtain, Type - Pervious
RCD-1	Denotes Rock Check Dam, Type I; St'd EC-4
RCD-2	Denotes Rock Check Dam, Type II; St'd EC-4
IP-A	Denotes Inlet Protection, Type A; St'd EC-6
IP-B	Denotes Inlet Protection, Type B; St'd EC-6
SRR	Denotes Sediment Retention Roll; SRR

	PROJECT	SHEET NO.
	U000-151-R94	2

4/22/2025

FINAL PLANS

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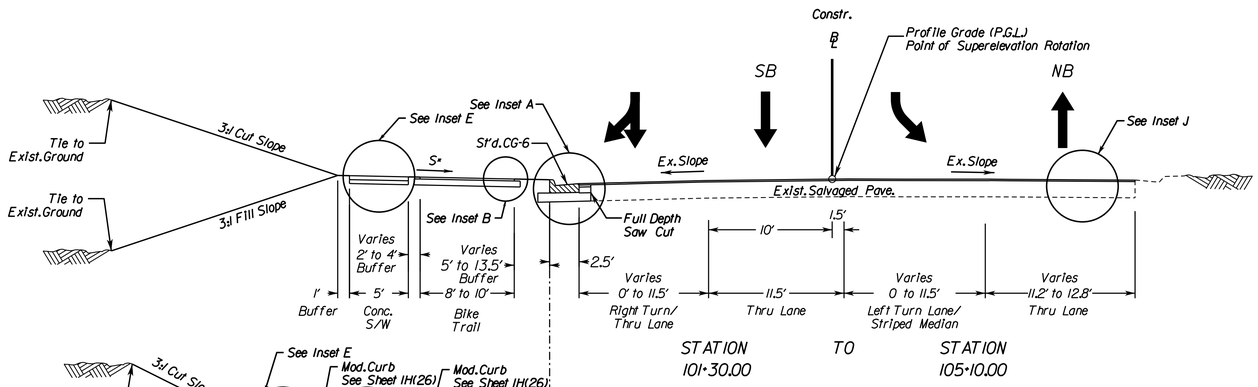
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

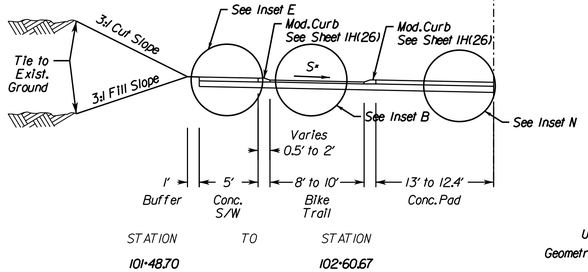
TYPICAL SECTIONS

Blenheim Boulevard, Rte. 6628

Undivided, 2 Lane Street with Curb & Gutter and SB Right & Left Turn Lanes
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)



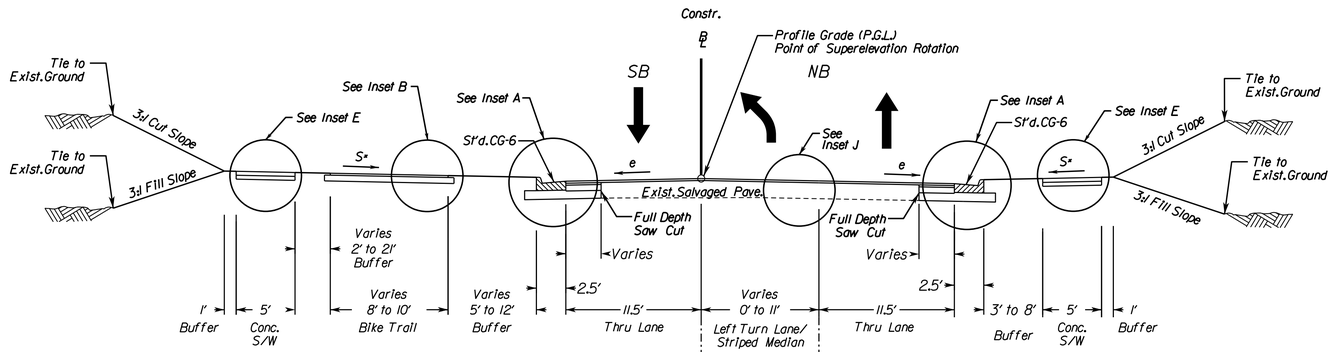
STATION 101+30.00 TO STATION 105+10.00



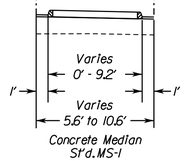
STATION 101+48.70 TO STATION 102+60.67

Blenheim Boulevard, Rte. 6628

Undivided, 2 Lane Street with Curb & Gutter & NB Left Turn Lane
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)



STATION 105+10.00 TO STATION 103+25.00
STATION 104+44.82 TO STATION 110+50.00



STATION 104+44.82 TO STATION 110+50.00

*S= 2%, except where noted on Alternate Sidewalk/Trail Slope Table

Alternate Sidewalk/Trail Slope Table

Side	Sta.	To	Sta.	Slope (%)
Left	107+75.00		110+31.00	1
Left	108+00.00		110+00.00	0.5
Left	110+00.00		110+25.00	0.5
Left	107+75.00		108+00.00	1 to 0.5

COMMONWEALTH OF VIRGINIA
MARK A. GUNN
Lic. No. 038323
PROFESSIONAL ENGINEER

Rinker Design Assoc. P.C.
Manassas, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2A

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

TYPICAL SECTION NOTES

1. Pavement widening to be performed in accordance with VDOT Std. WP-2. Positive drainage between pavement layers shall be provided at all locations.
2. Std. UD-4 Req'd. see plan sheets for detailed locations.
3. Std. UD-3 Req'd. see plan sheets for detailed locations.
4. Std. UD-2 Req'd. see plan sheets for detailed locations.
5. See 17 series for retaining wall details.
6. Std. HR-1, Type II Req'd. see plan sheets for detailed locations.
7. See Sheet 2A(7) for Inset details.
8. See Profile Sheets for superelevation values.
9. When widening existing pavement, the pavement subgrade slope shall be designed such that the existing pavement subbase material can properly drain to a standard UD-4 edge drain.
10. The final surface course shall be placed in continuous operation across the full pavement width after all previous layers have been completed and shall include all areas where eradication of existing pavement markings have been performed for temporary tie-ins.
11. Where the existing pavement is to be widened, all existing pavement edgedrains (UD-4) shall be removed.
12. When liquid asphalt is used as a curing material for cement stabilization course, it shall be liquid asphalt CRS-1, CR-1h or CMS-2 applied at a rate of 0.2gal/sy. Where necessary for maintenance of traffic, cover material consisting of NO.10 Aggregate or Grading B Sand shall be applied at a rate of 10 lbs./sy.
13. In locations where the proposed grade will be more then 2.0" but less than 4.0" above the existing pavement surface, the existing pavement surface should be milled sufficiently to provide enough depth for the installation of the surface and intermediate courses provided in the pavement design. Where intermediate pavement is required for buildup it shall be place in a uniform layer across the full pavement width.
14. See Sheet 2A(8) for geotechnical recommendations and locations of unsuitable materials and undercut.

	PROJECT	SHEET NO.
	U000-151-R94	2A

4/24/2025

FINAL PLANS | THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

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SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

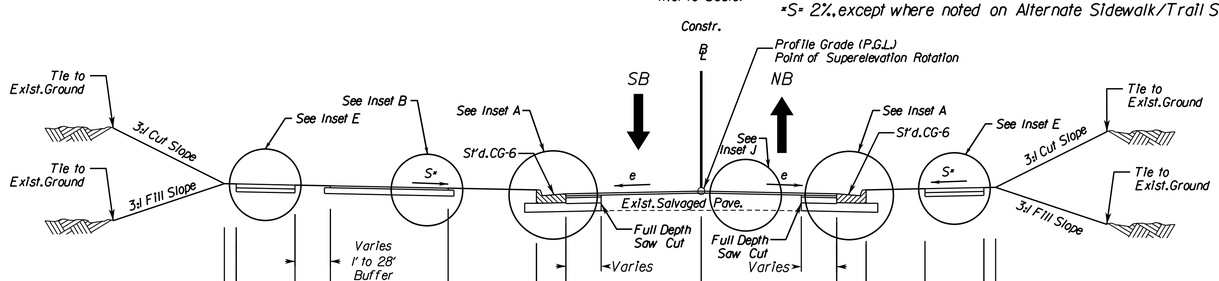
TYPICAL SECTIONS

Blenheim Boulevard, Rte. 6628

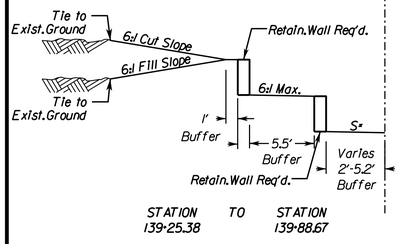
Undivided, 2 Lane Street with Curb & Gutter
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH

(Not to Scale)

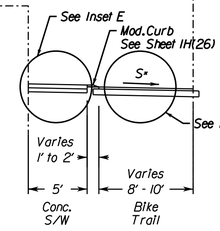
*S= 2%, except where noted on Alternate Sidewalk/Trail Slope Table



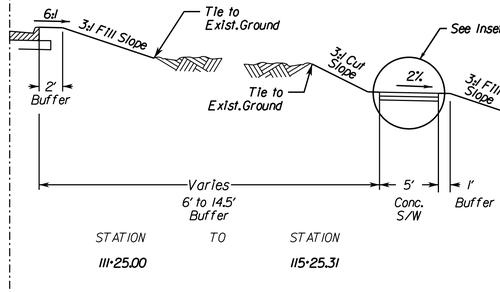
STATION TO STATION
110+50.00 115+25.31
125+37.27 144+83.38



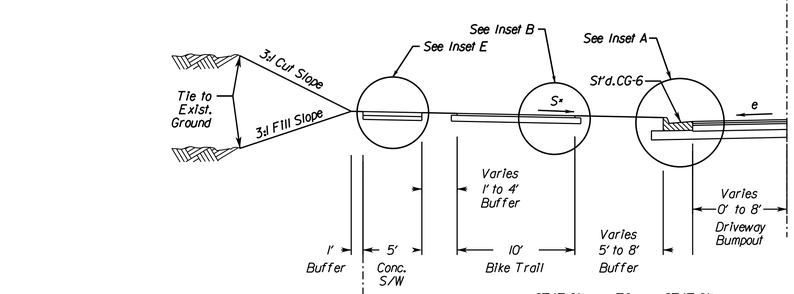
STATION TO STATION
139+25.38 139+88.67



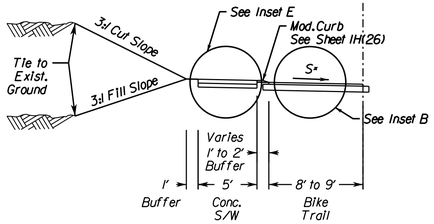
STATION TO STATION
125+68.95 127+03.44
133+98.88 134+47.42
135+39.11 136+67.02



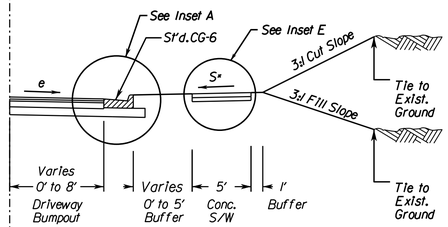
STATION TO STATION
111+25.00 115+25.31



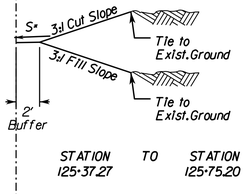
STATION TO STATION
139+56.03 141+89.61



STATION TO STATION
139+65.49 139+88.66
140+38.35 141+79.06



STATION TO STATION
128+10.06 128+88.04
137+94.52 138+75.52



STATION TO STATION
125+37.27 125+75.20

STATION TO STATION
125+75.20 127+21.86

COMMONWEALTH OF VIRGINIA
MARK A. GUNN
Lic. No. 038323
PROFESSIONAL ENGINEER

Rinker Design Assoc. P.C.
Manassas, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2A(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

TYPICAL SECTION NOTES

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3. St'd. UD-3 Req'd.. see plan sheets for detailed locations.
4. St'd. UD-2 Req'd.. see plan sheets for detailed locations.
5. See I7 series for retaining wall details.
6. St'd. HR-1, Type II Req'd. see plan sheets for detailed locations.
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14. See Sheet 2A(8) for geotechnical recommendations and locations of unsuitable materials and undercut.

Alternate Sidewalk/Trail Slope Table

Side	Sta.	To	Sta.	Slope (%)
Left	111+25.00		117+25.00	0.5
Left	125+00.00		125+25.00	2 to 0.5
Left	125+25.00		126+50.00	0.5
Right	128+30.00		128+50.00	2 to -2
Right	128+50.00		128+65.00	-2
Right	128+65.00		128+75.00	-2 to 2
Left	136+00.00		136+25.00	2 to 0.5
Left	136+25.00		137+25.00	0.5
Right	138+20.00		138+30.00	2 to -2
Right	138+30.00		138+50.00	-2
Right	138+50.00		138+70.00	-2 to 2
Right	140+25.00		140+50.00	2 to 0.5
Right	140+50.00		141+00.00	0.5
Left	140+15.00		140+25.00	2 to 0.5
Left	140+25.00		141+20.00	0.5
Left	141+20.00		141+40.00	0.5 to 2
Left	143+75.00		144+00.00	2 to 0.5
Left	144+00.00		144+75.00	0.5

	PROJECT	SHEET NO.
	U000-151-R94	2A(1)

4/24/2025

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SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

TYPICAL SECTIONS

Blenheim Boulevard, Rte. 6628

Undivided, 2 Lane Street with Curb & Gutter & SB Left Turn Lane
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)

*S= 2%, except where noted on Alternate Sidewalk/Trail Slope Table

TYPICAL SECTION NOTES

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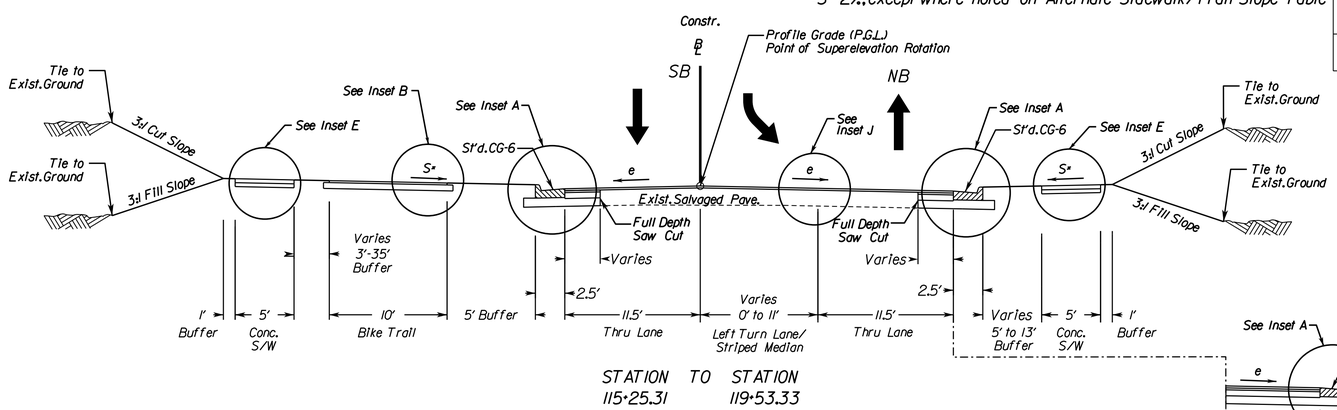
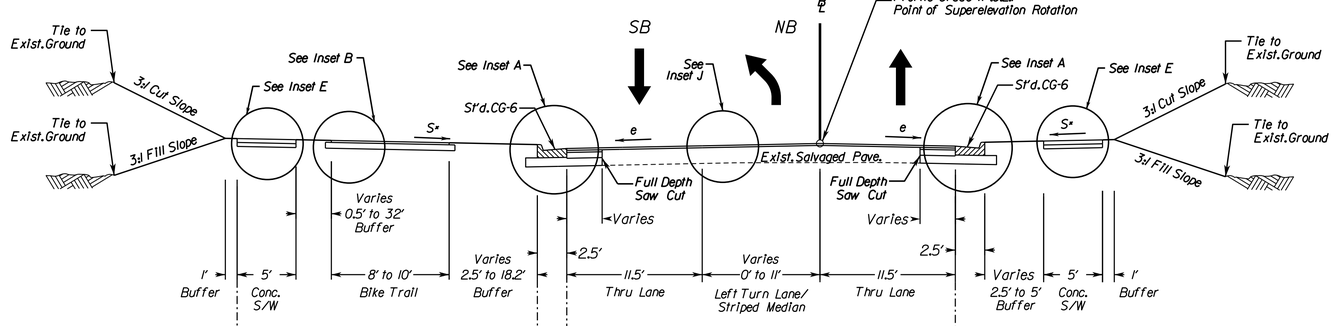


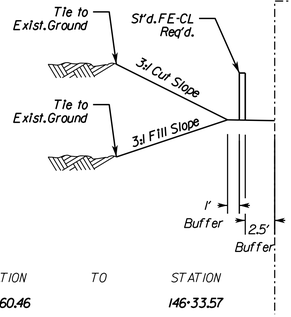
STATION TO STATION
115+25.31 119+53.33

Blenheim Boulevard, Rte. 6628

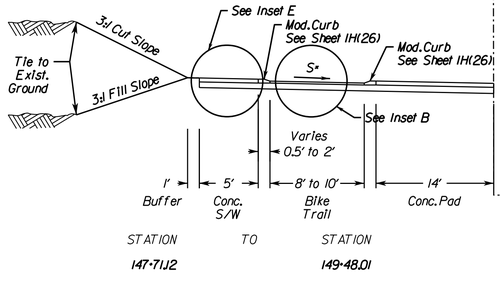
Undivided, 2 Lane Street with Curb & Gutter & SB Left Turn Lane
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)



STATION TO STATION
119+53.33 123+90.61
144+83.38 149+48.01

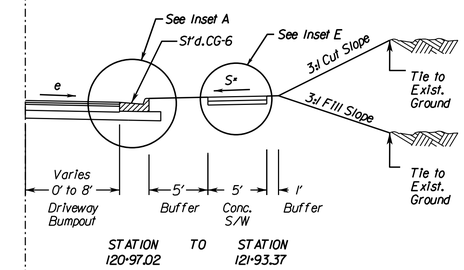


STATION TO STATION
145+60.46 146+33.57

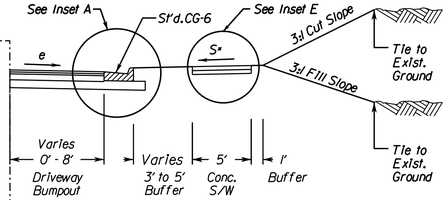


STATION TO STATION
147+71.12 149+48.01

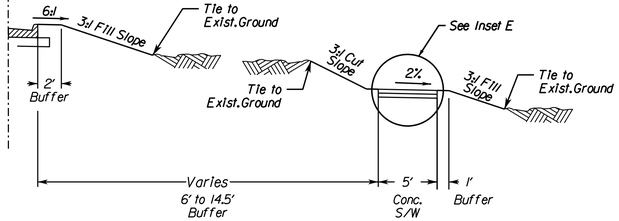
STATION TO STATION
145+25.83 148+05.28



STATION TO STATION
120+97.02 121+93.37



STATION TO STATION
117+91.00 118+66.00



STATION TO STATION
115+25.31 116+50.00

Alternate Sidewalk/Trail Slope Table

Side	Sta.	To	Sta.	Slope (%)
Left	111+25.00		117+25.00	0.5
Right	121+10.00		121+20.00	2 to -2
Right	121+20.00		121+35.00	-2
Right	121+35.00		121+55.00	-2 to 1
Right	121+55.00		121+70.00	1 to 2
Left	145+00.00		146+25.00	0.5
Left	146+25.00		146+50.00	0.5
Left	147+15.00		147+60.00	2 to 0.5
Left	147+60.00		147+71.00	0.5

COMMONWEALTH OF VIRGINIA
MARK A. GUNN
Lic. No. 038323
PROFESSIONAL ENGINEER

Rinker Design Assoc. P.C.
Manassas, Virginia
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2A(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

	PROJECT	SHEET NO.
	U000-151-R94	2A(2)

4/24/2025

FINAL PLANS

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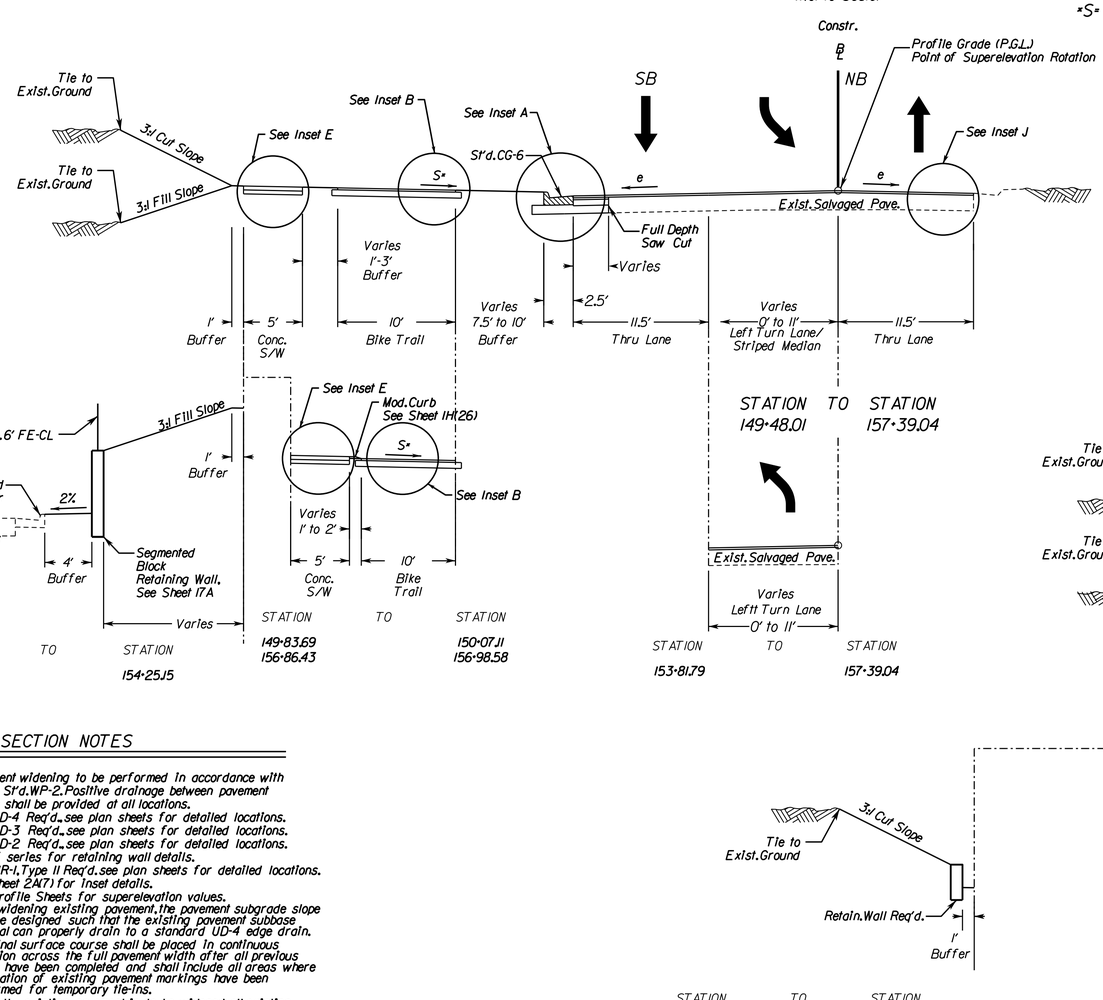
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

TYPICAL SECTIONS

Blenheim Boulevard, Rte. 6628

Undivided, 2 Lane Street with Curb & Gutter & NB Left Turn Lane
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)

*S= 2%, except where noted on Alternate Sidewalk/Trail Slope Table



STATION	TO	STATION
149+48.01		157+39.04

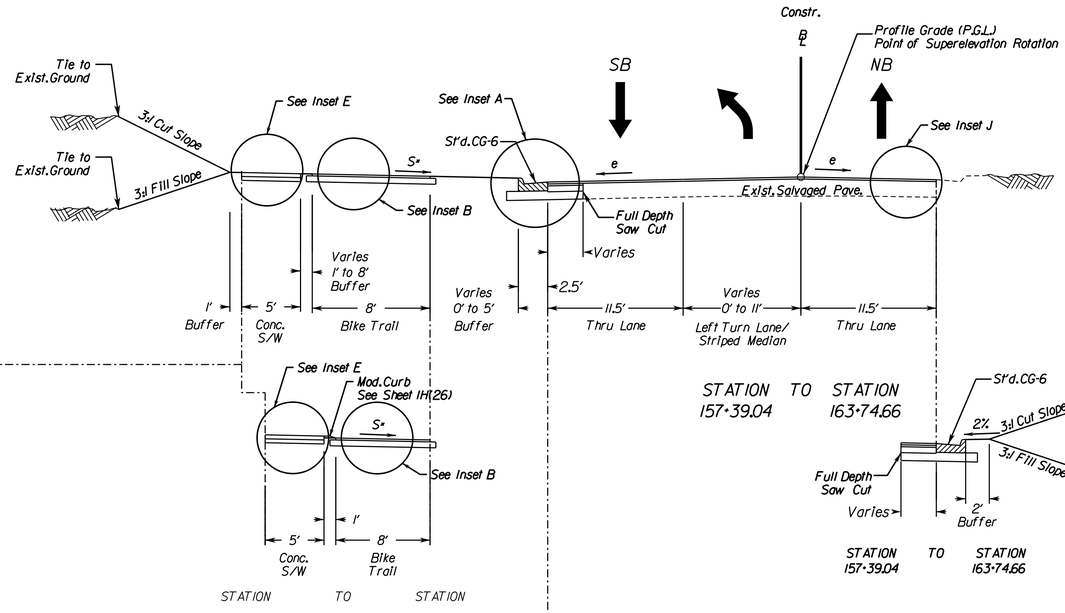
STATION	TO	STATION
150+06.98		154+25.15

STATION	TO	STATION
149+83.69		150+07.11
156+86.43		156+98.58

STATION	TO	STATION
153+81.79		157+39.04

Blenheim Boulevard, Rte. 6628

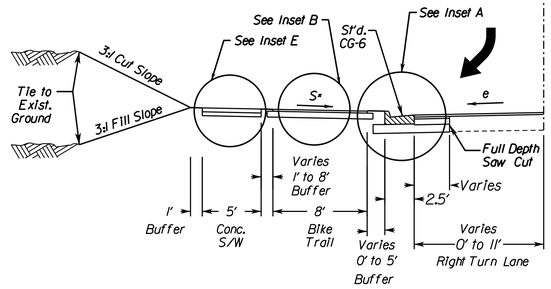
Undivided, 2 Lane Street with Curb & Gutter & SB Left Turn Lane
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)



STATION	TO	STATION
157+39.04		163+74.66

STATION	TO	STATION
157+39.04		163+74.66

STATION	TO	STATION
160+31.40		160+55.00
160+65.00		162+25.00



STATION	TO	STATION
157+94.05		160+25.21

Alternate Sidewalk/Trail Slope Table

Side	Sta.	To	Sta.	Slope (%)
Left	160+65.00		160+75.00	2 to 1
Left	160+75.00		161+25.00	1
Left	161+25.00		161+35.00	1 to 2

TYPICAL SECTION NOTES

1. Pavement widening to be performed in accordance with VDOT St'd. WP-2. Positive drainage between pavement layers shall be provided at all locations.
2. St'd. UD-4 Req'd.. see plan sheets for detailed locations.
3. St'd. UD-3 Req'd.. see plan sheets for detailed locations.
4. St'd. UD-2 Req'd.. see plan sheets for detailed locations.
5. See 17 series for retaining wall details.
6. St'd. HR-1, Type II Req'd. see plan sheets for detailed locations.
7. See Sheet 2A(7) for inset details.
8. See Profile Sheets for superelevation values.
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14. See Sheet 2A(8) for geotechnical recommendations and locations of unsuitable materials and undercut.

COMMONWEALTH OF VIRGINIA
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DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2A(3)

PROJECT	SHEET NO.
U000-151-R94	2A(3)

4/24/2025

FINAL PLANS

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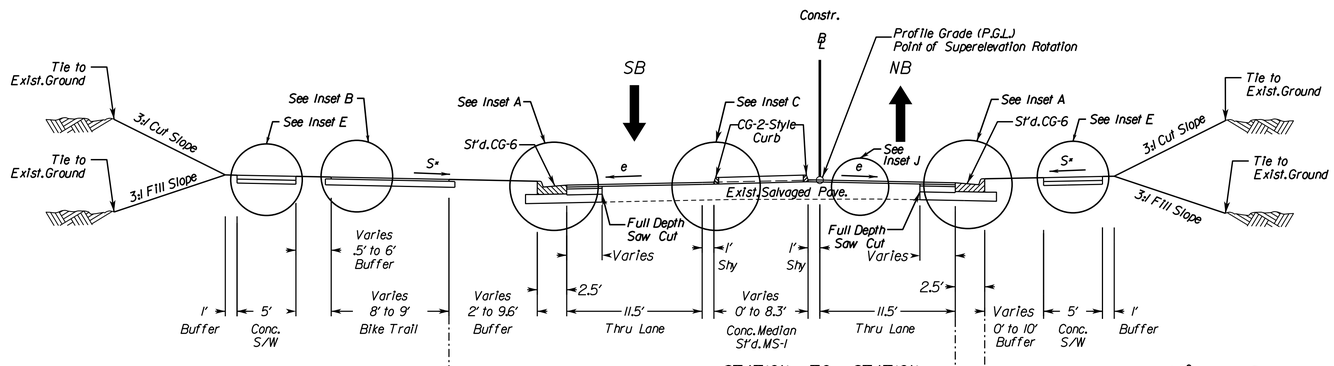
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

TYPICAL SECTIONS

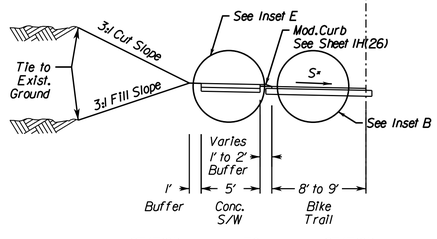
Blenheim Boulevard, Rte. 6628

Divided Section, 2 Lane Street with Curb & Gutter and Concrete Median
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)

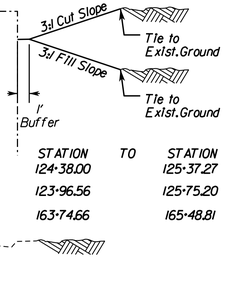
*S= 2%, except where noted on Alternate Sidewalk/Trail Slope Table



STATION	TO	STATION
123+90.61		125+37.27
163+74.66		166+00.00
173+39.94		174+70.18

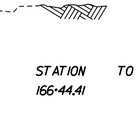


STATION	TO	STATION
123+56.70		124+37.12
163+74.66		165+30.88



STATION	TO	STATION
124+38.00		125+37.27
123+96.56		125+75.20
163+74.66		165+48.81

STATION	TO	STATION
166+44.41		174+30.03



STATION	TO	STATION
124+38.00		125+37.27
123+96.56		125+75.20
163+74.66		165+48.81

STATION	TO	STATION
166+44.41		174+30.03

Alternate Sidewalk/Trail Slope Table

Side	Sta.	To	Sta.	Slope (%)
Left	125+00.00		125+25.00	2 to 0.5
Left	125+25.00		126+50.00	0.5
Left	171+25.00		173+25.00	0.5
Left	172+75.00		174+76.00	0.5
Left	172+75.00		174+57.00	0.5

TYPICAL SECTION NOTES

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3. Std. UD-3 Req'd., see plan sheets for detailed locations.
4. Std. UD-2 Req'd., see plan sheets for detailed locations.
5. See 17 series for retaining wall details.
6. Std. HR-1, Type II Req'd. see plan sheets for detailed locations.
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COMMONWEALTH OF VIRGINIA
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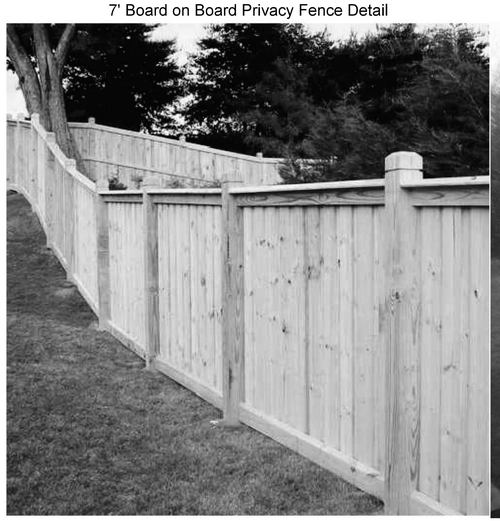
ROADWAY ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2A(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

7' Board on Board Privacy Fence Detail



5' Rail and Crossbuck Board Fence with Wire Mesh Detail

FENCE NOTES

7' BOARD ON BOARD PRIVACY FENCE:
1. TO BE INSTALLED ON CITY ON CITY PROPERTY ALONG PARCELS 029, 031, 033, 034 PER PLAN SHEETS 7 AND 8.
2. FENCE TO BE VERTICAL BOARD ON BOARD AND FINISHED WITH A CAP RAIL.
3. WOOD TO BE PRESSURE TREATED.
4. GATES TO BE INSTALLED AS INDICATED ON THE PLANS. GATES SHALL MATCH THE GENERAL FENCING DESIGN AND BE EQUAL TO THE HEIGHT OF THE FENCE. LATCHING SHALL BE ACCESSIBLE FROM EACH SIDE OF THE GATE AND ABLE TO BE SECURED FROM THE INTERIOR ONLY (PROPERTY OWNER SIDE OF FENCE). GATES SHALL INCLUDE ANGLED STABILIZING BRACING TO PREVENT SAG AND ALLOW FOR SMOOTH OPERATION.
5. SHOP DRAWINGS FOR EACH FENCE LOCATION SHALL BE SUBMITTED TO THE CITY FOR REVIEW/APPROVAL PRIOR TO ORDERING OF MATERIALS. THE COST TO PREPARE SHOP DRAWING SHALL BE INCIDENTAL TO THE COST OF FENCE MATERIALS.
6. AT LOCATIONS WHERE EXISTING FENCING RUNS ALONG PROPERTY LINES (PERPENDICULAR TO BLENHEIM BOULEVARD) CONTRACTOR SHALL INSTALL A NEW FENCE POST AT THE PROPERTY CORNER AND CONNECT TO EXISTING PERPENDICULAR FENCING. EXISTING FENCING SHALL NOT TIE DIRECTLY TO THE FENCE ALONG THE CITY RIGHT OF WAY LINE. BUT SHALL TERMINATE AT A FENCE POST ABUTTING THE CITY FENCE.

5' RAIL AND CROSSBUCK BOARD FENCE WITH WIRE MESH:
1. TO BE INSTALLED ON CITY PROPERTY ALONG PARCELS 008, 010, 012, 014, 015, 017 PER PLAN SHEETS 5 AND 6.
2. FENCE TO BE 3 HORIZONTAL RAILS WITH CROSS RAILS BETWEEN THE TOP AND MIDDLE RAIL.
3. WOOD TO BE PRESSURE TREATED.
4. GATES TO BE INSTALLED AS INDICATED ON THE PLANS. GATES SHALL BE VERTICAL STYLES EQUAL TO THE HEIGHT OF THE FENCE. LATCHING SHALL BE ACCESSIBLE FROM EACH SIDE OF THE GATE AND ABLE TO BE SECURED FROM THE INTERIOR ONLY (PROPERTY OWNER SIDE OF FENCE). GATES SHALL INCLUDE ANGLED STABILIZING BRACE TO PREVENT SAG AND ALLOW FOR SMOOTH OPERATION.
5. WELDED WIRE MESH TO BE INSTALLED ON THE PROPERTY SIDE OF THE FENCE (INTERIOR AWAY FROM BLENHEIM BLVD) FROM THE GROUND TO THE CENTER OF THE TOP RAIL. NO SHARP EDGES SHALL BE PRESENT ALONG THE EDGES OF THE WELDED WIRE MESH. WIRE MESH SHALL BE SECURED TO EACH VIRTICAL POST.
6. SHOP DRAWINGS FOR EACH FENCE LOCATION SHALL BE SUBMITTED TO THE CITY FOR REVIEW/APPROVAL PRIOR TO ORDERING OF MATERIALS. THE COST TO PREPARE SHOP DRAWING SHALL BE INCIDENTAL TO THE COST OF FENCE MATERIALS.
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PROJECT	SHEET NO.
U000-151-R94	2A(4)

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4/24/2025

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SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
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SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

TYPICAL SECTIONS

Blenheim Boulevard, Rte. 6628

Undivided, 2 Lane Street with Curb & Gutter
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH

(Not to Scale)

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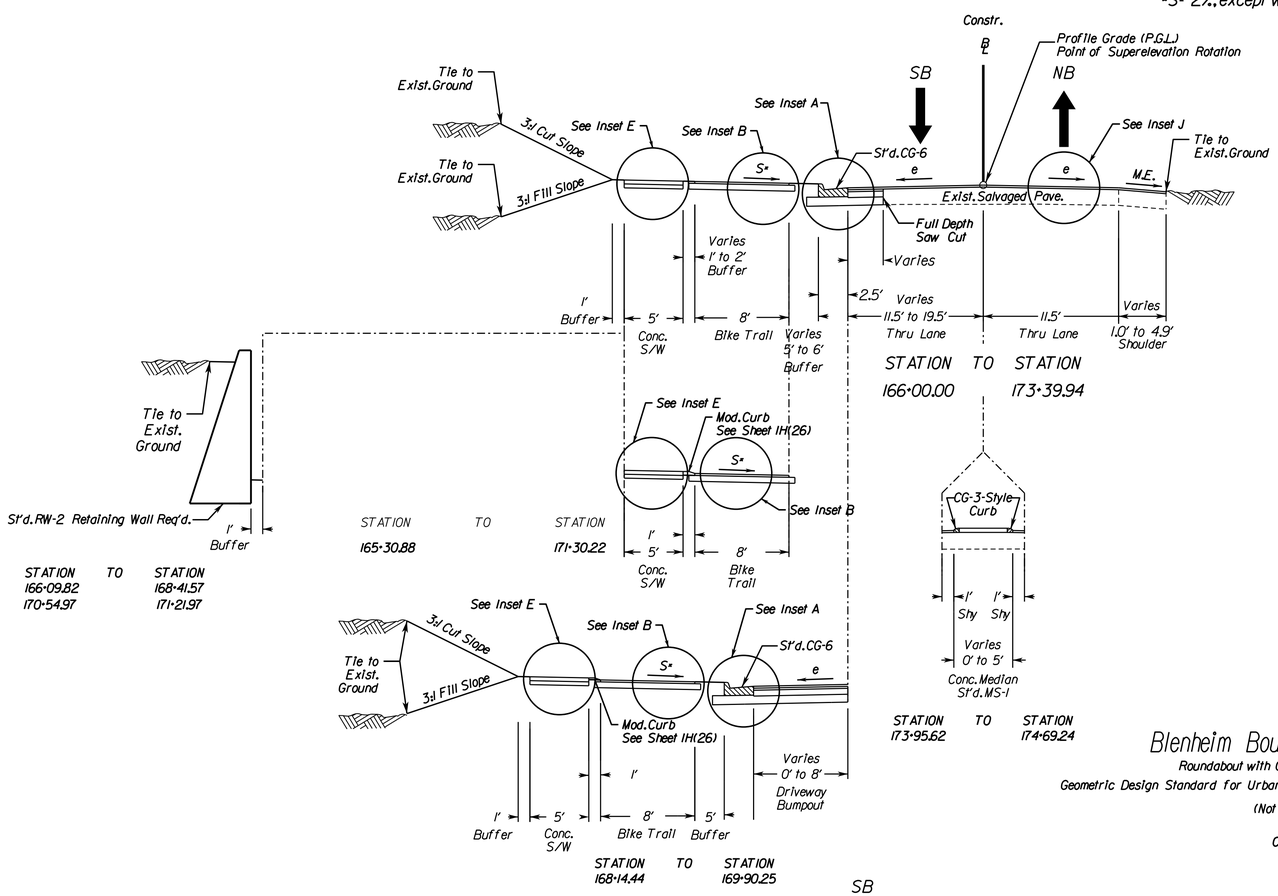
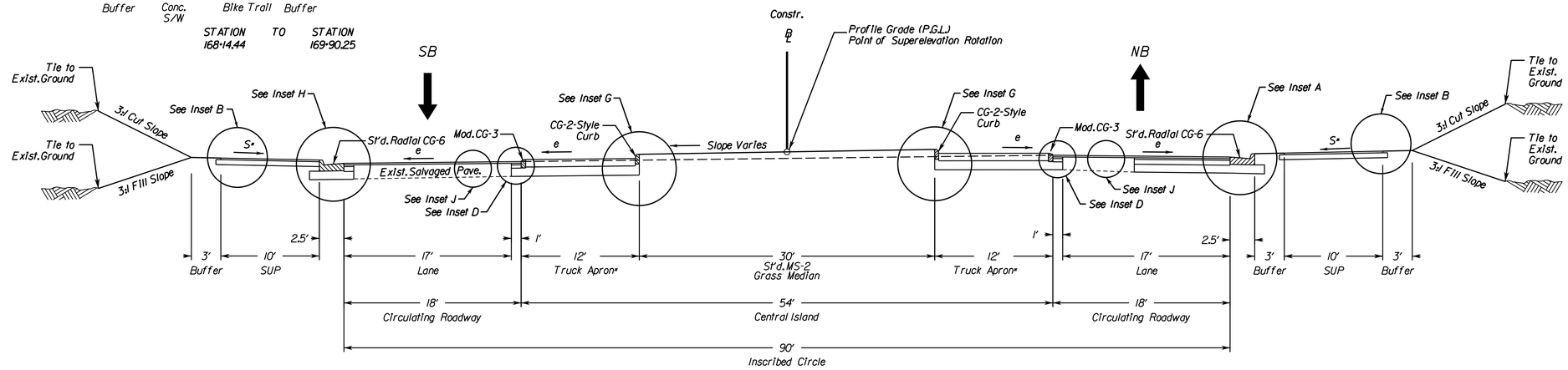


Blenheim Boulevard, Rte. 6628

Roundabout with Curb & Gutter Section
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH

(Not to Scale)



* Truck apron shall be stamped and colored concrete with a conventional red brick pattern to be approved by VDOT and City of Fairfax

STATION TO STATION
174+70.18 175+60.12

COMMONWEALTH OF VIRGINIA
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2A(5)

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3. St'd. UD-3 Req'd., see plan sheets for detailed locations.
4. St'd. UD-2 Req'd., see plan sheets for detailed locations.
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Alternate Sidewalk/Trail Slope Table

Side	Sta.	To	Sta.	Slope (%)
Left	171+00.22		171+25.22	2 to 0.5
Left	171+00.00		171+25.00	2 to 0.5
Left	171+25.00		173+25.00	0.5
Left	172+75.00		174+76.00	0.5
Left	172+75.00		174+57.00	0.5

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	U000-151-R94	2A(5)

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TYPICAL SECTIONS

Blenheim Boulevard, Rte. 6628

Divided Section, 2 Lane Street with Curb & Gutter and Grass Median
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)

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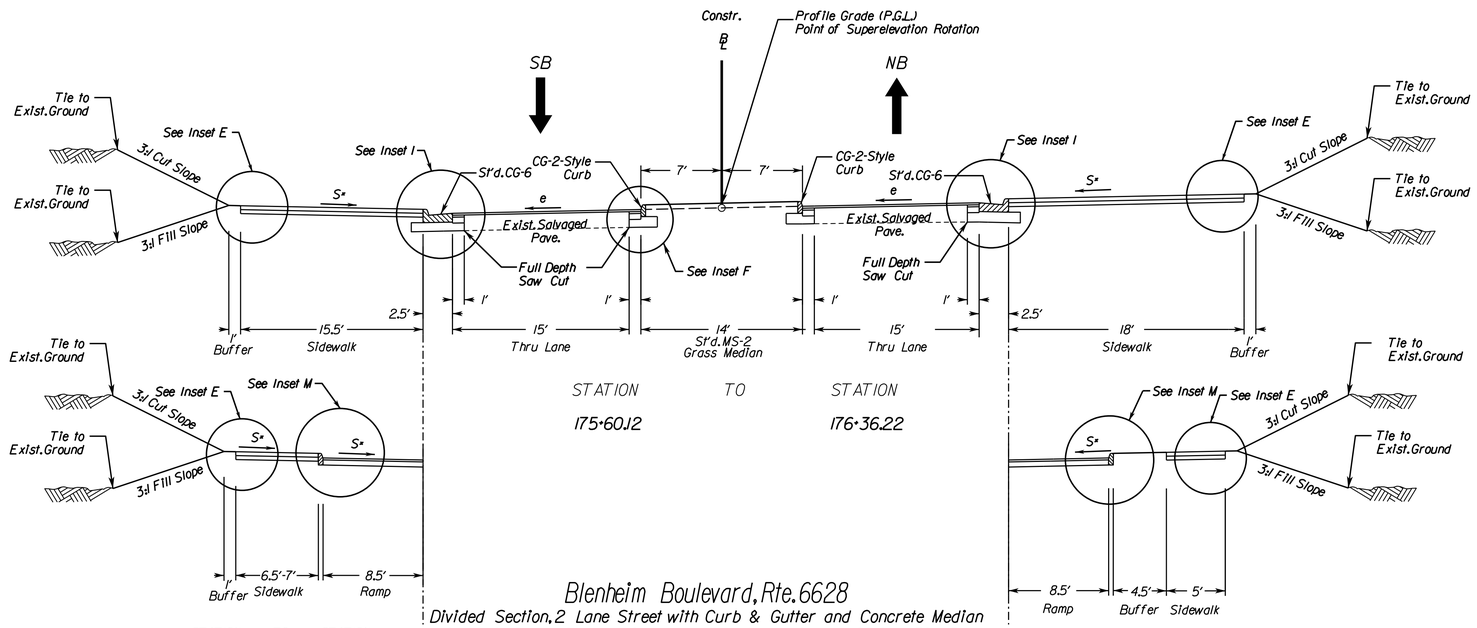
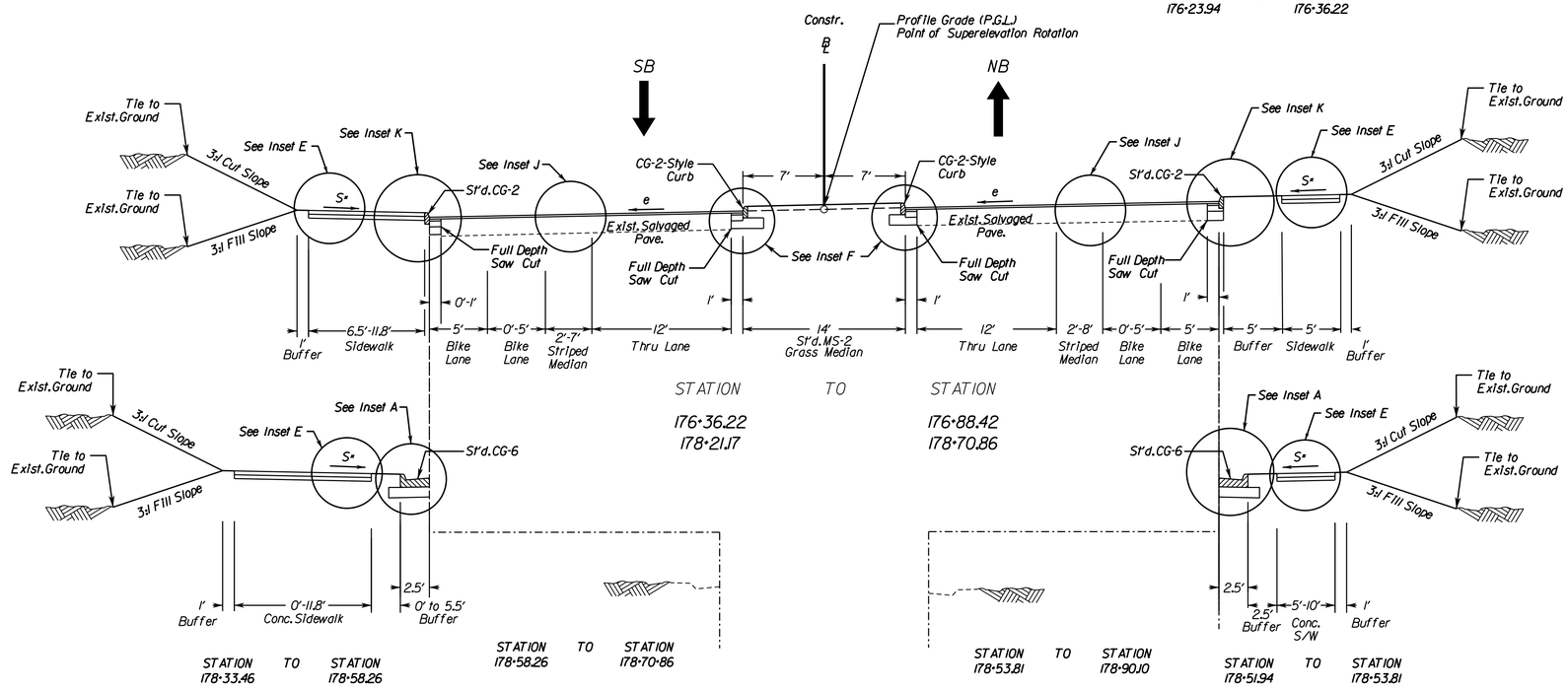


Blenheim Boulevard, Rte. 6628

Divided Section, 2 Lane Street with Curb & Gutter and Concrete Median
Geometric Design Standard for Urban Minor Arterial System (GS-6): V=30 MPH
(Not to Scale)



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4. Std. UD-2 Req'd., see plan sheets for detailed locations.
5. See 17 series for retaining wall details.
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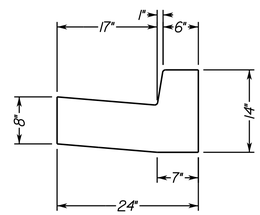
MODIFIED CG-6 CURB AND GUTTER



Notes:

1. Construction joints at 10' on curb.
2. All concrete shall be Class A4, air entrained.
3. Expansion joints in header curb, curb and gutter to be 40' apart and at all points at the P.C. & P.T. of curves.
4. Construction joints in sidewalk to be 5' apart. Expansion joints in sidewalk to be 40' apart. If sidewalk is at the curb, expansion joints to match joint in curb, also expansion joints between curb and sidewalk. Dowels and sleeves to be installed in C&G joints where sub-grade is unstable.
5. Expansion joints required where sidewalks meet driveway aprons.

COMMONWEALTH OF VIRGINIA
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2A(6)

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U000-151-R94	2A(6)

4/24/2025

FINAL PLANS

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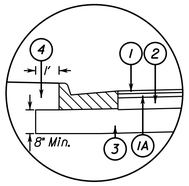
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

TYPICAL SECTIONS INSETS

Inset A



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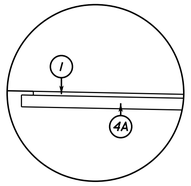

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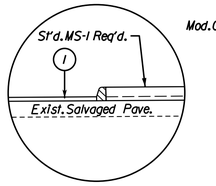

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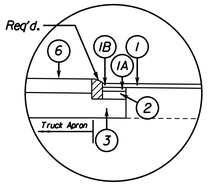

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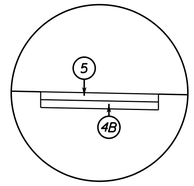

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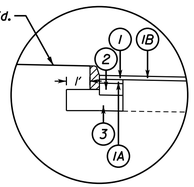

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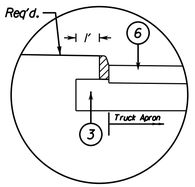

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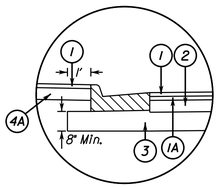

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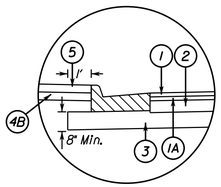

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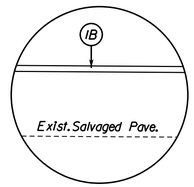

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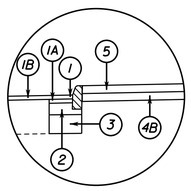

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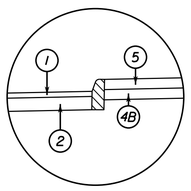

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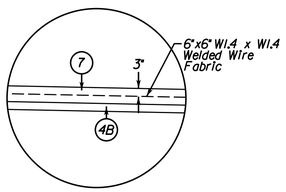
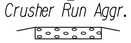


PRIVATE AND COMMERCIAL ENTRANCES

TYPE I
Crusher Run Aggr.



6" Crusher Run
Aggr. 25 or 26

TYPE II
Concrete

Concrete Entrance Pavement
7" HES
4" Aggr. Base Mat'l. Ty. I
No. 21A or 21B

NOT TO SCALE

TYPE III
Asphalt

Asphalt Conc. Type
SM-9.5A or SM-9.5D @ 220 Lbs. per S.Y.
4" Aggr. Base Mat'l. Ty. I
No. 21A or 21B

TYPE IV
Asphalt Commercial

Asphalt Conc. Type
SM-9.5A or SM-9.5D @ 165 Lbs. per S.Y.
4" Asphalt Conc. Base Course
BM-25.0A
6" Aggr. Base Mat'l. Ty. I
No. 21A or 21B

The type of entrance (I, II, III, IV) to be constructed will be determined by the existing condition at the time of construction.

INSET DESIGN LEGEND

(1) Surface Course - (2") Asph.Conc., Type SM-9.5D estimated @ 238 lbs/ sq.yd.
(1A) Intermediate Course - (2") Asph.Conc., Type IM-19.0A
(1B) Existing Pavement - 2" Mill req'd., replace with Min. 2" SM-9.5D, estimated @ 238 lbs/sq.yd.
(2) Base Course - (8") Asph.Conc., Type BM-25.0A
(3) Subbase Course - (8") Aggr. Base Material, Type I, Size No. 21B
(4) Regular Fill Material to be compacted in accordance with VDOT Road and Bridge Specifications.
(4A) (6") Aggr. Base Material, Type I, Size No. 21B extended 6" on either side of the surface
(4B) (4") Aggr. Base Material, Type I, Size No. 21B
(5) (4") Hydraulic Cement Conc. Class A4
(6) (10.0") Plain Jointed Concrete Pavement Standard PR-2 with max. 15' joint spacing
(7) (6") Hydraulic Cement Conc. Class A4 with 6"x6" W1.4 x W1.4 Welded Wire Fabric

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DMY Eng. Consultants, Inc.
Fairfax, Virginia
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GEOTECHNICAL RECOMMENDATIONS

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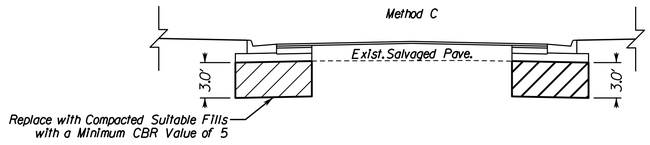
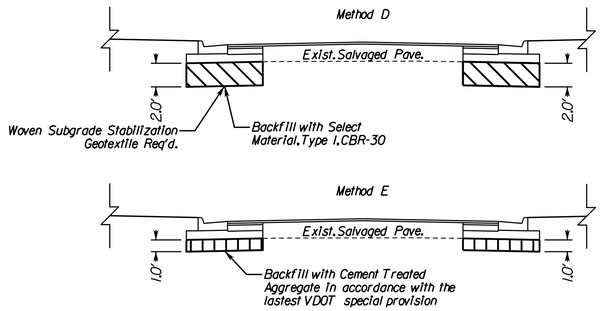
DMY Eng. Consultants, Inc.
Fairfax, Virginia
GEOTECHNICAL ENGINEER

Typical Examples of Unsuitable Subgrade Treatment





6.0 GEOTECHNICAL RECOMMENDATIONS

6.1. PAVEMENT

We have used the traffic data provided by RDA on April 7, 2021 and those included in the roadway plans dated January 24, 2023 to evaluate the pavement sections. The design traffic data are summarized in the following table.

Table 6-1: Design Traffic Data

	Blenheim Boulevard
Design Life (years)	30
Initial Design Year	2023
Two-way AADT (Initial)	11,000
Annual Growth Rate	1.9%
Directional Ratio (Pavement Design)	50%
Percent Cars/Passenger Vehicles	95%
Percent Single Unit Trucks/Buses	4%
Percent Tractor Trailer Trucks	1%
Total Calculated Design Lane ESALs	2,423,487

The CBR values along the project alignment varied from 0.6 to 3.6. These values are considered low and will require undercutting subgrade. We recommend where undercut of subgrade is needed, it be replaced with engineered fill with a minimum CBR of 5. A design subgrade CBR value of 3.3 was used for the design of the pavement. The pavement design was performed in general accordance with the VDOT MOI Chapter VI. The pavement design was also checked using the latest version of VDOT's "Pavement Design Guide for Subdivision and Secondary Roads in Virginia". Detailed pavement design including the traffic load information and calculations are attached to this report in Appendix E. The recommended full depth pavement and pavement mill and overlay sections are listed in Table 6-2 and Table 6-3, respectively.

performed in such a pattern that the entire subgrade areas are traversed with at least one pass. In areas where proofrolling is impractical, the subgrade should be probed.

If the subgrade exhibits excessive deflections or pumping when proof-rolled or soft subgrade is detected by probing, an appropriate remedial measure would be recommended by the Geotechnical Engineer of Record or an authorized representative at that time. Potential problem subgrade areas as identified by this soil investigation and the recommended remedial measures are detailed in the following paragraphs. The stabilized subgrade areas should be again evaluated and approved by the Geotechnical Engineer of Record or an authorized representative prior to fill placement or pavement construction.

6.4. UNSUITABLE SOILS

Unsuitable soils generally include soils that have excessive moisture, high plasticity (Liquid Limits greater than 50%), soils with low SPT N-values (less than 5 bpf), low CBR value (CBR < 3.3), high swell (swell >5%), and soils containing excessive debris and organics. The pavement subgrade soil conditions at the drilled boring locations are summarized in Table D1 in Appendix D. The types and recommended treatment methods of the unsuitable soils are discussed in detail in the following paragraphs.

Based on the subsurface conditions observed in our exploration, unsuitable soils were encountered throughout the project span. We recommend that the following subgrade treatment methods be implemented for the entire project. Any offsite borrow materials to be used within 3 feet of the proposed pavement subgrade shall have a CBR value of 5 or greater.

(Method C): Undercut the unsuitable soils in its entirety or 3 feet from the proposed pavement subgrade elevation, whichever is less, and replace with compacted suitable fills with a minimum CBR value of 5.

(Method D): Undercut the unsuitable soils in its entirety or 2 feet from the proposed pavement subgrade elevation, whichever is less, place a layer of woven subgrade stabilization geotextile, and then backfill with Select Material, Type I, min CBR-30.

(Method E): Undercut the unsuitable soils in its entirety or 1 foot from the proposed pavement subgrade elevation, whichever is less, and then backfill with Cement Treated Aggregate in accordance with the latest VDOT special provision.

6.5. RETAINING WALLS

A total of five retaining walls are proposed on this project. The information of the proposed retaining walls is summarized in the following table.

Table 6-2: Full Depth Pavement Recommendation

Location	Pavement Section
Blenheim Blvd – Widening and Reconstruction (entire project)	Surface – 2.0 inches Asphalt Concrete, Type SM-9.5D
	Intermediate – 2.0 inches Asphalt Concrete, Type IM-19.0A
	Base – 8.0 inches Asphalt Concrete, Type BM-25.0A
	Subbase – 8.0 inches Aggregate Base Material, Type I, Size No. 21B

All existing turn lanes, acceleration lanes, and driveways that will be under the future through lanes shall be reconstructed with the full depth pavement recommended in Table 6-2.

The pavement widening should be performed in accordance with VDOT standard detail WP-2 for asphalt pavement widening. VDOT standard UD-4 edge drains should be installed beneath the curb and gutter on the low side of new pavements and widening. The underdrain pipes should be either connected to existing underdrain or storm structures.

Table 6-3: Pavement Mill & Overlay Recommendation

Blenheim Blvd – Existing Pavement (entire project)	Mill 2.0 inches and replace with 2.0 inches SM 9.5D

The existing pavement does not meet the 30-year design standard based on the provided traffic data and the available pavement and subgrade data; however, it is our understanding that the current project scope only plans to mill and overlay the existing pavement without buildup. Regular maintenance should be expected to maintain the structural integrity and surface condition of the pavement.

6.2. SITE PREPARATION AND EARTHWORK

Site preparation, earthwork, and subgrade preparation should be performed in accordance with *Section 301 – Clearing and Grubbing*, *Section 303 – Earthwork*, *Section 305 – Subgrade and Shoulders,* and other applicable sections of the latest edition of the *VDOT Road and Bridge Specifications*. Additional site specific recommendations are discussed in the following sections.

6.3. SUBGRADE PREPARATION

The newly exposed roadway subgrade should be evaluated by the Geotechnical Engineer of Record or an authorized representative. During this evaluation, DMY recommends that all subgrade in the proposed roadway widening and reconstruction areas be proof-rolled using a fully loaded tandem axle dump truck (10-ton minimum) or similar rubber-tired vehicle. The proofrolling should be

Table 6-4: Summary of Retaining Walls

Retaining Wall ID	Retaining Wall Type	Location	Cut/Fill	Maximum Wall Height (ft)	Reference Borings
RW-A	RW-3	Sta. 127+06.25 to 128+99.20, Left	Cut	4.5	NA
RW-B1/2	Timber Wall	Sta. 139+25.19 to 139+88.86, Left	Cut	3	W-6
RW-C	RW-3	Sta. 150+06.77 to 154+25.00, Left	Fill	10	W-7 to W-11
RW-D	RW-2	Sta. 166+34.81 to 168+28.71, Left	Cut	13	W-22 to W-24
RW-E	RW-2	Sta. 170+54.74 to 171+21.74, Left	Cut	5.5	W-26 and W-27

Based on our subsurface exploration, foundation undercut will be required for at the wall location listed in the following table. The undercut should be backfilled with Select Material, Type I, min CBR-30.

Table 6-5: Summary of Foundation Undercut Recommendations

Retaining Wall ID	Estimated Areas Requiring Foundation Improvement	Reference Borings	Recommended Foundation Undercut Depth (ft)
RW-C	Sta. 152+50 to 154+25	W-10 and W-11	2

The RW-2/3 retaining wall construction shall be in accordance with the VDOT Standard RW-2/3 for concrete gravity retaining walls as shown in the VDOT Road and Bridge Standards, and applicable sections of the latest VDOT Road and Bridge Specifications. The timber retaining wall shall be constructed in accordance with the City of Fairfax's standard details.

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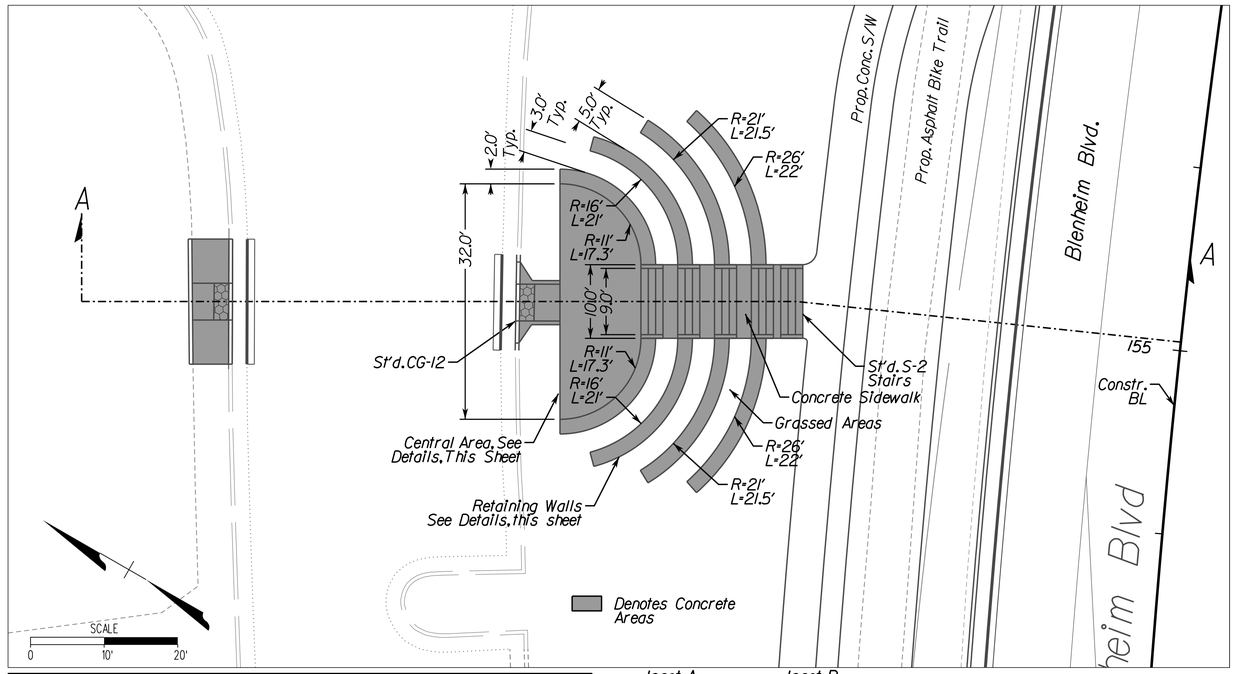
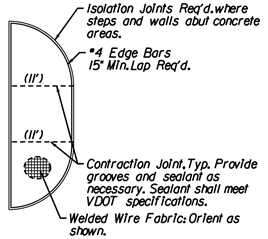
Fairfax High School Outdoot Seating Details



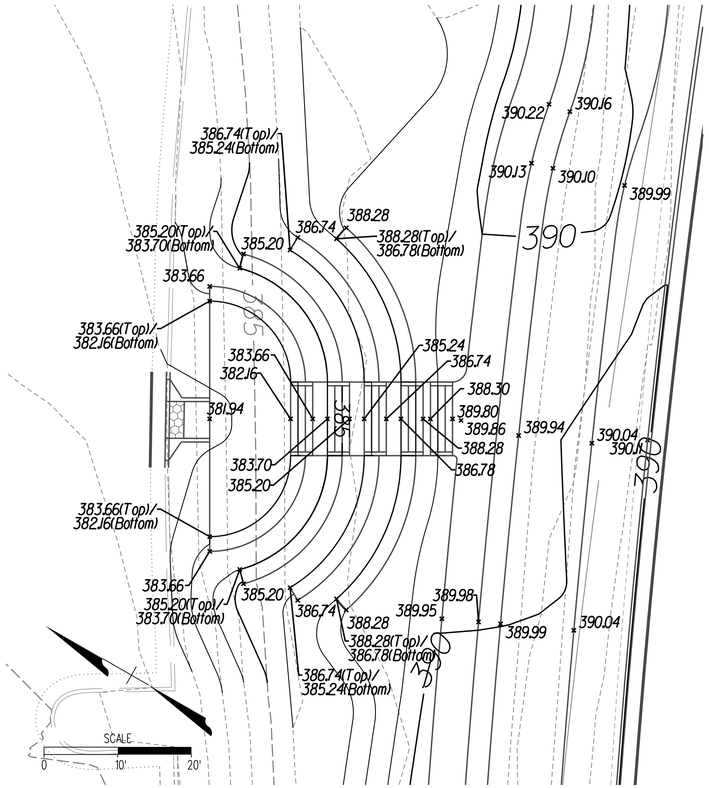
Central Area Details



Central Area Notes:

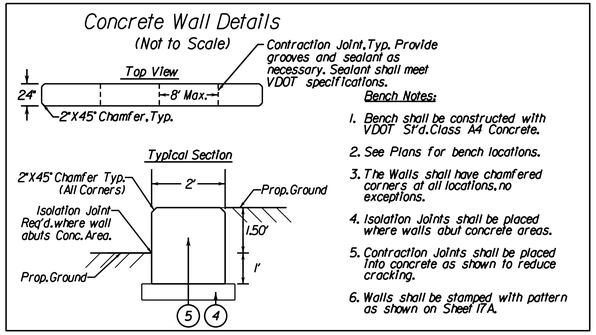
1. See VDOT St'd.PR-2 for Contraction Joint detail. Provide dowels, groove, and sealant per the standard detail. The dowels shall be installed normal to the joint.
2. Concrete slab shall be reinforced with welded wire fabric 6x6-W1.4xW1.4. Cut fabric to match the plan shape of the slab between the joints with 2" clearance from the joints. Vertically, locate the fabric at slab mid depth.
3. The specified edge bars shall be deformed and conform to ASTM A15 Grade 60. Place the edge bars at mid-depth of the slab above the welded wire fabric.

Grading Plan



Concrete Wall Details

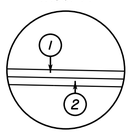
(Not to Scale)



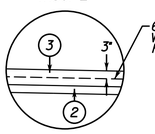
Bench Notes:

1. Bench shall be constructed with VDOT St'd.Class A4 Concrete.
2. See Plans for bench locations.
3. The Walls shall have chamfered corners at all locations, no exceptions.
4. Isolation Joints shall be placed where walls abut concrete areas.
5. Contraction Joints shall be placed into concrete as shown to reduce cracking.
6. Walls shall be stamped with pattern as shown on Sheet 17A.

Inset A

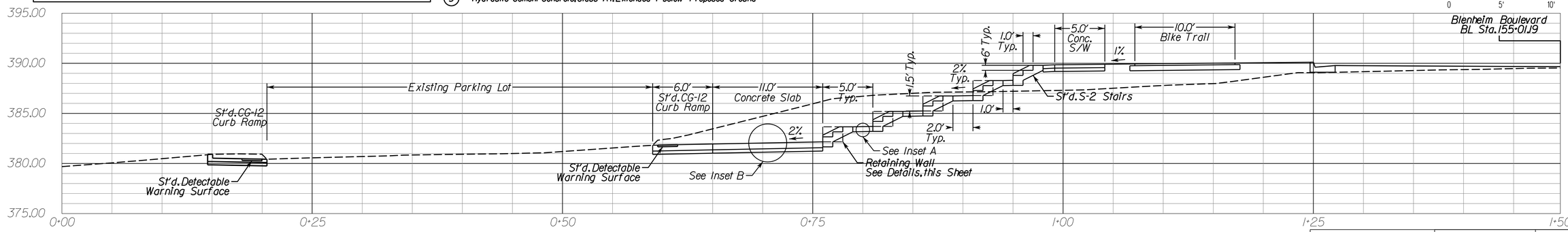


Inset B



INSET DESIGN LEGEND

1. (4") Hydraulic Cement Conc. Class A4
2. (4") Aggr. Base Material, Type I, Size No. 21B
3. (6") Hydraulic Cement Conc. Class A4 With 6"x6" W1.4 x W1.4 Welded Wire Fabric
4. 6" Aggr. Base Material, Ty. I, Size No. 21B, Extended 6" from Base of Wall
5. Hydraulic Cement Concrete, Class A4, Extended 1' below Proposed Ground



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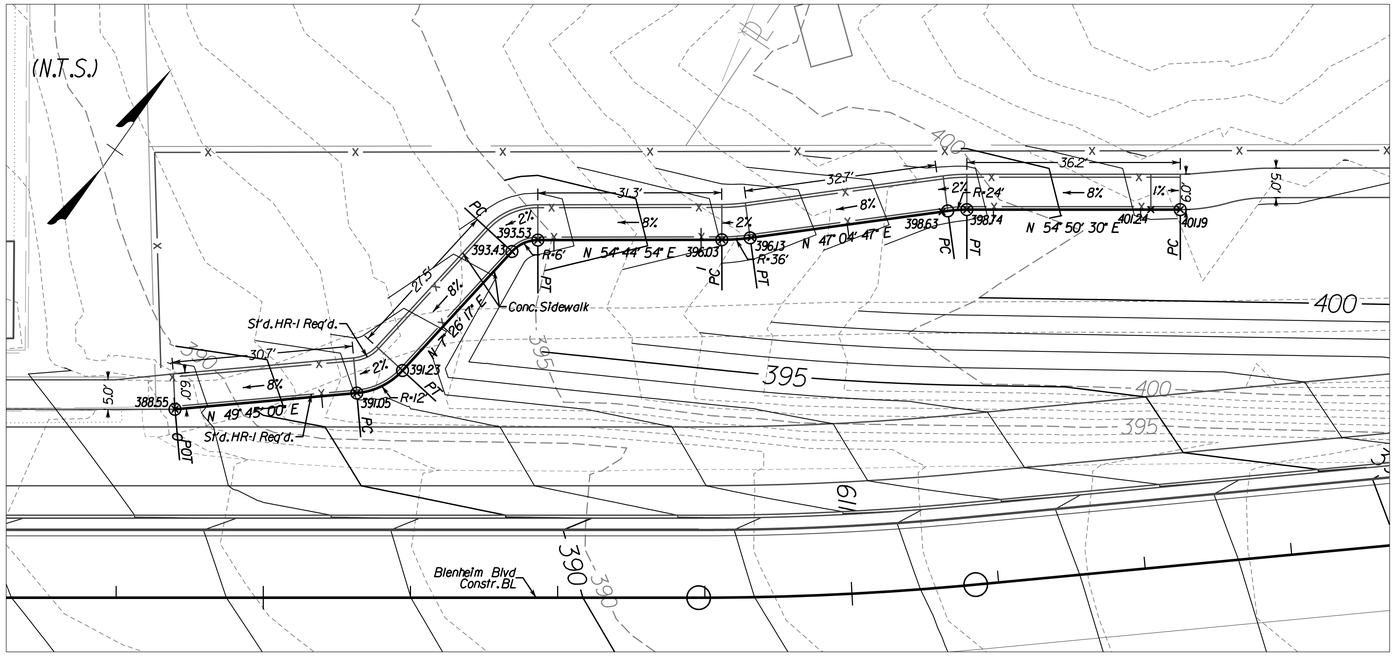
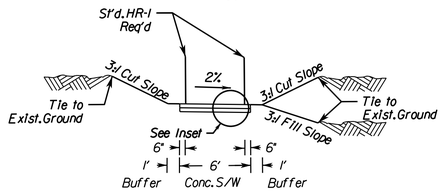
Sidewalk Details



Sidewalk Typical Section

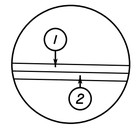


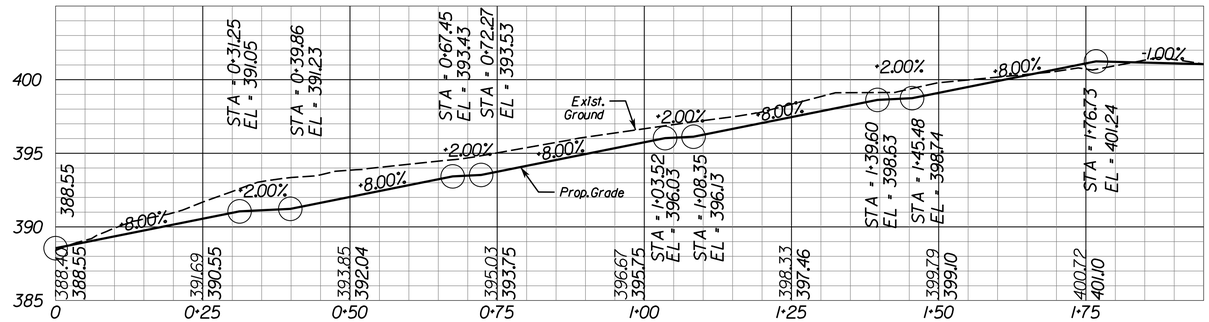
INSET DESIGN LEGEND

(1) (4") Hydraulic Cement Conc. Class A4

(2) (4") Aggr. Base Material, Type I, Size No. 21B

Inset





SCALE H= 25, V= 5
0 12.5' 25' | 0 2.5' 5'

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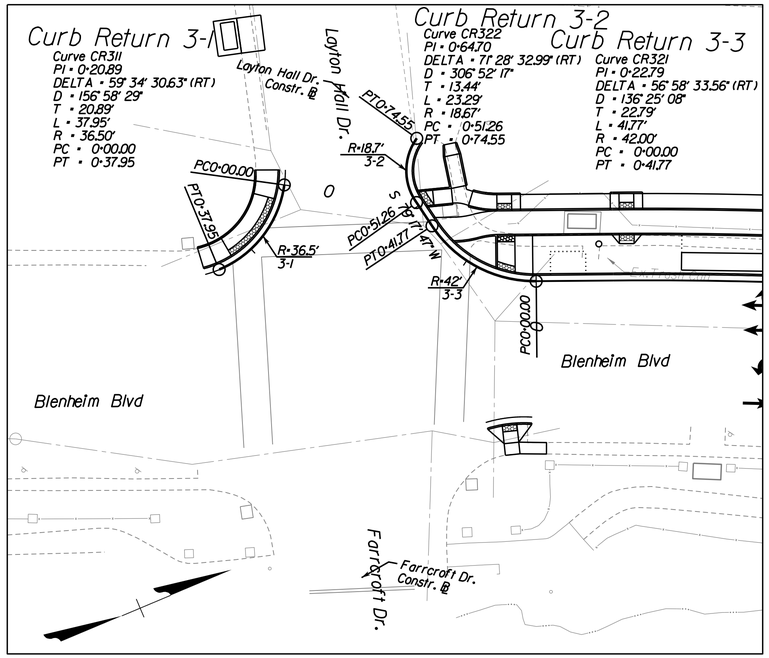
CURB RETURN PROFILES

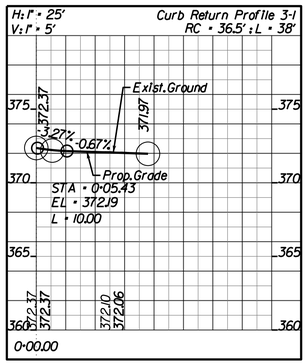
COMMONWEALTH OF VIRGINIA
MARK A. GUNN
Lic. No. 038323
PROFESSIONAL ENGINEER

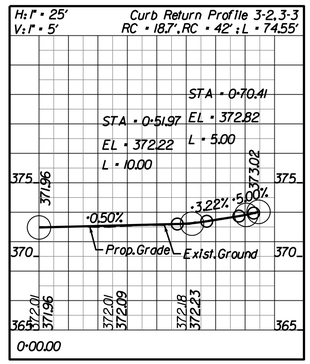
Rinker Design Assoc. P.C.
Manassas, Virginia
ROADWAY ENGINEER

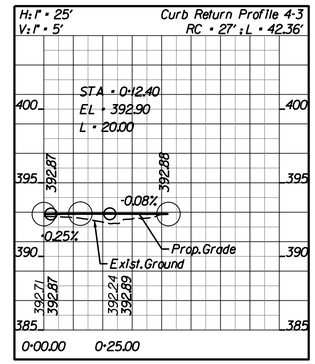
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2B

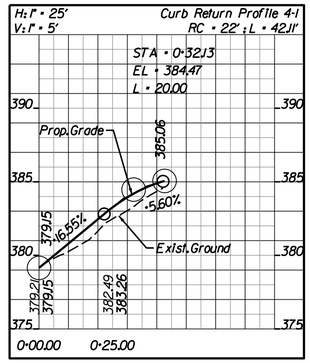
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

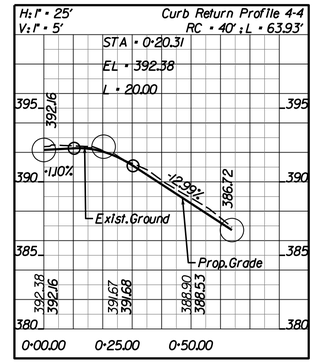


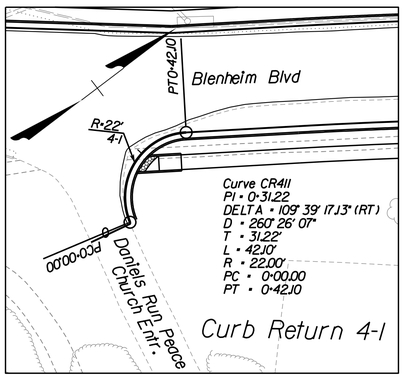


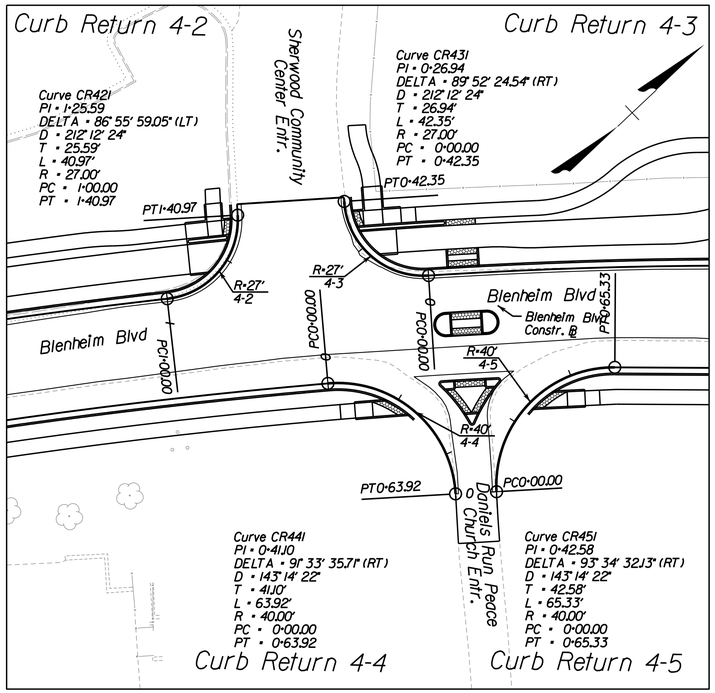


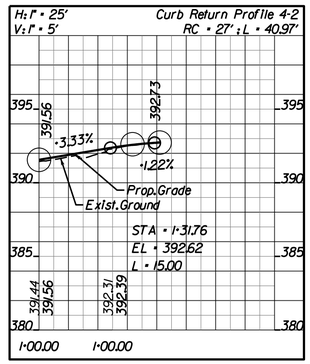


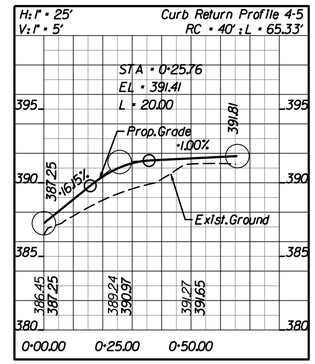












SCALE H: 25' V: 5'
0 1" 2"
0 25' 50'

SCALE 0 25' 50' | PROJECT U000-151-R94 | SHEET NO. 2B

FINAL PLANS

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4/22/2025

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

CURB RETURN PROFILES

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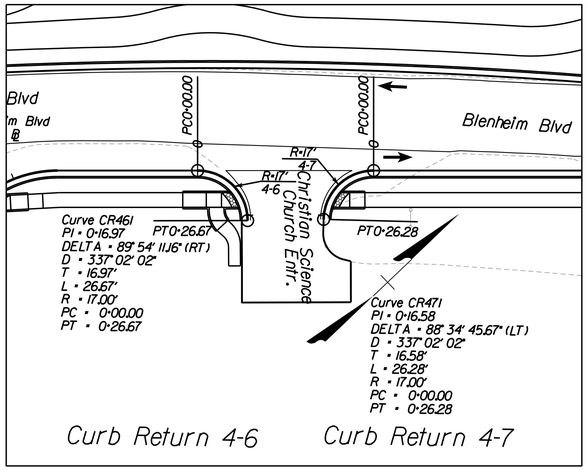

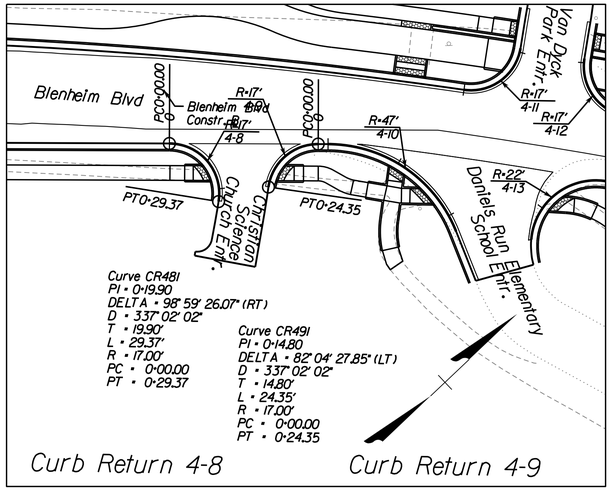

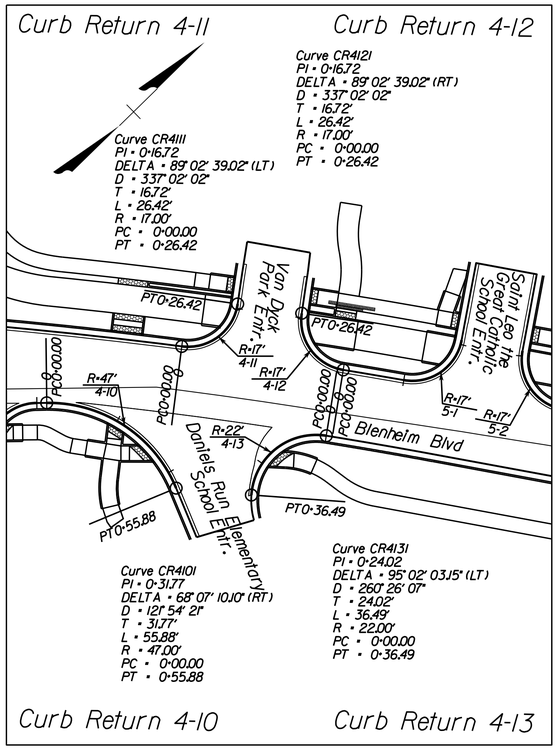

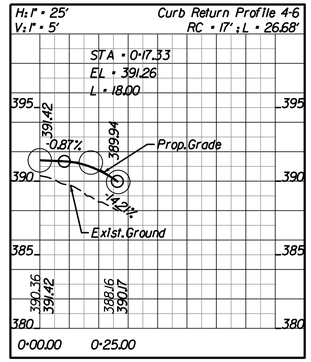

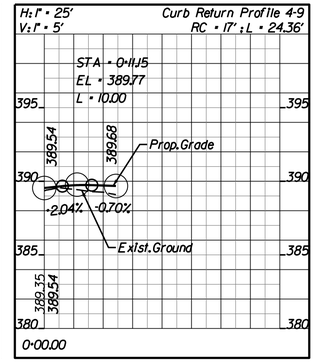

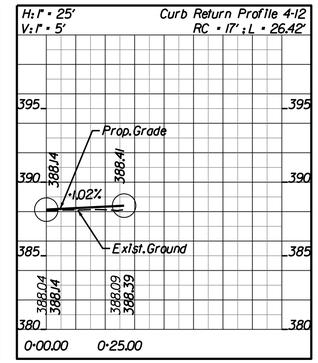

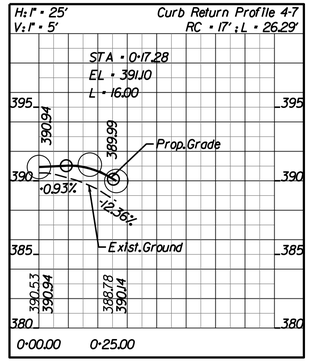

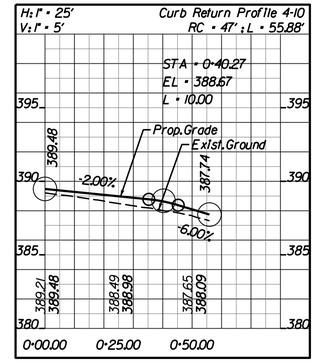

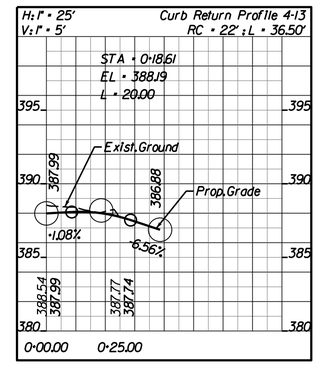

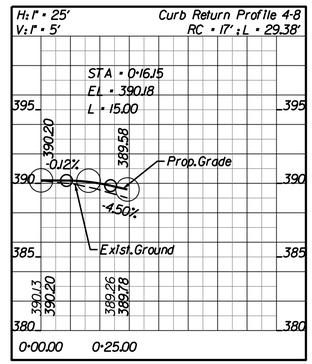

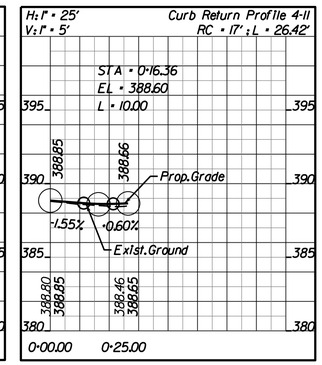

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0' 1' 2'

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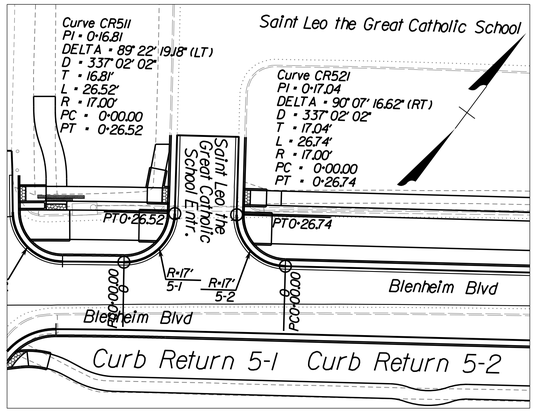

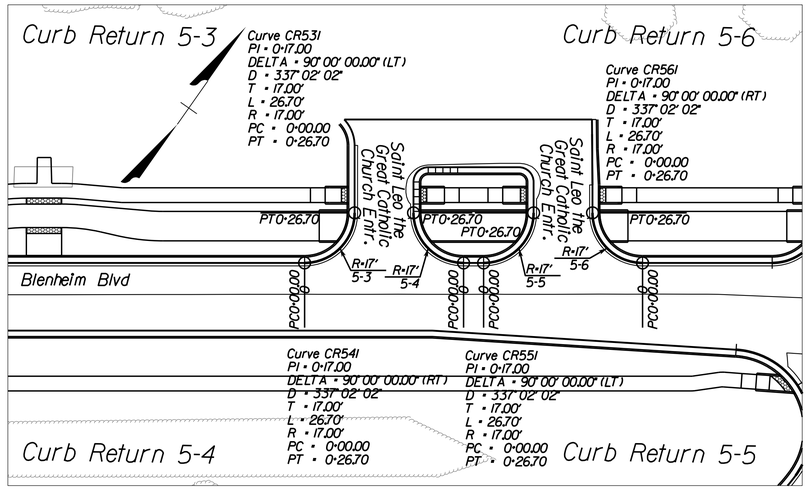

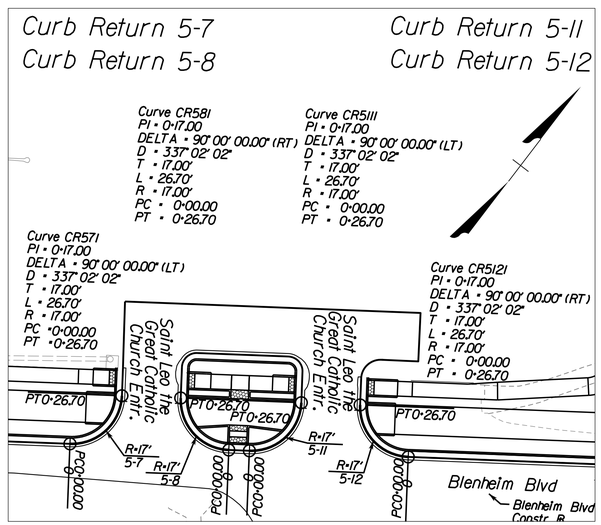

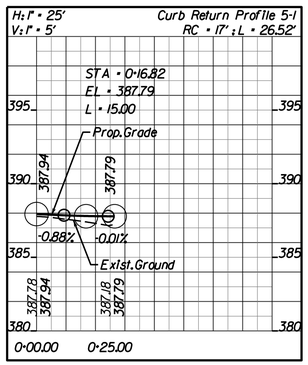

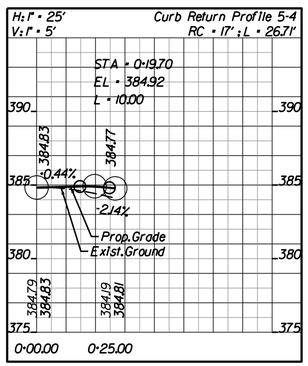

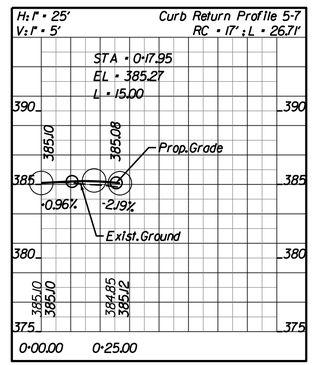

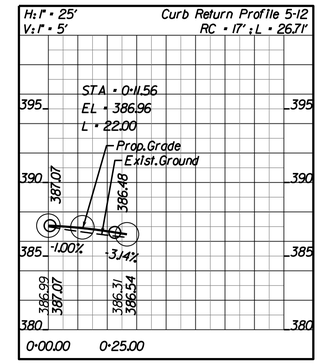

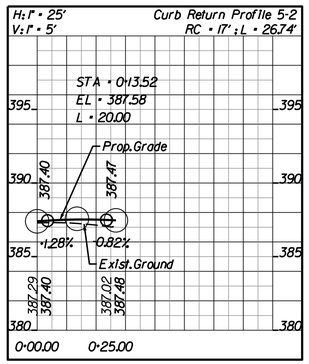

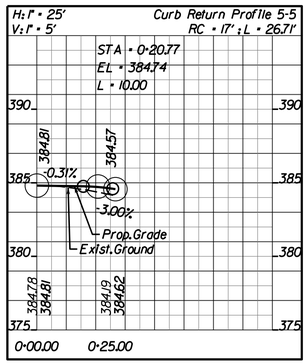

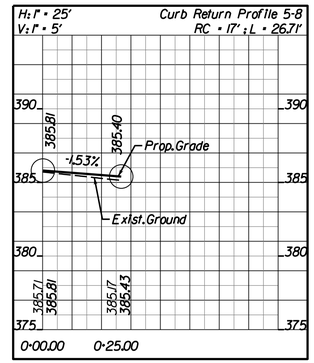

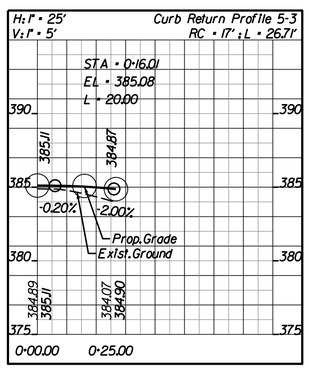

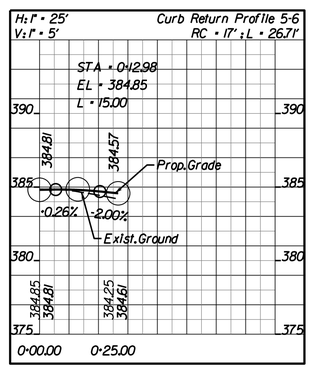

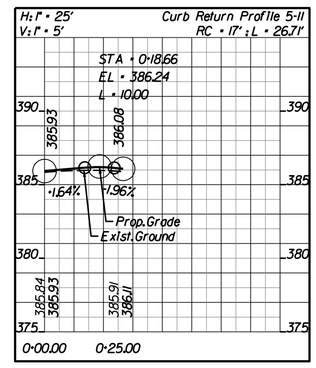

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	VA.	6628	U000-151-R94	2B(2)

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0 25' 50'

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	VA.	6628	U000-151-R94	2B(3)

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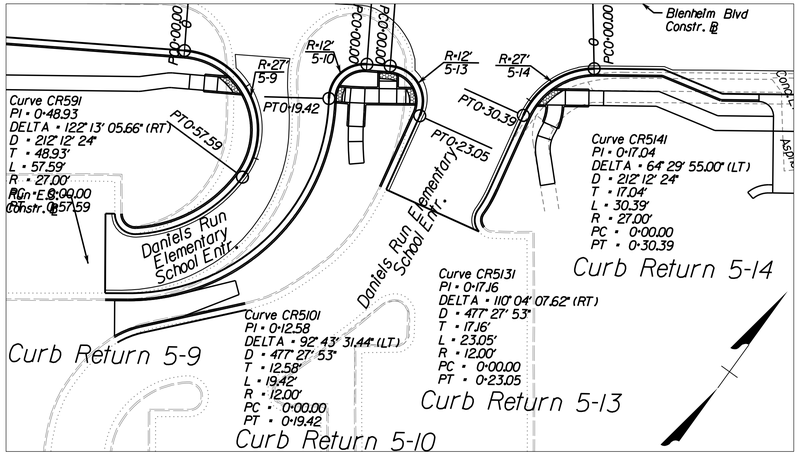

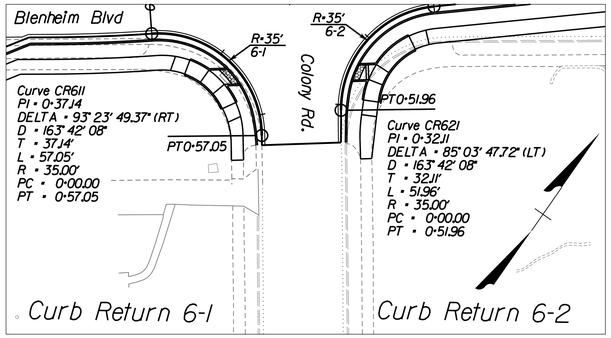

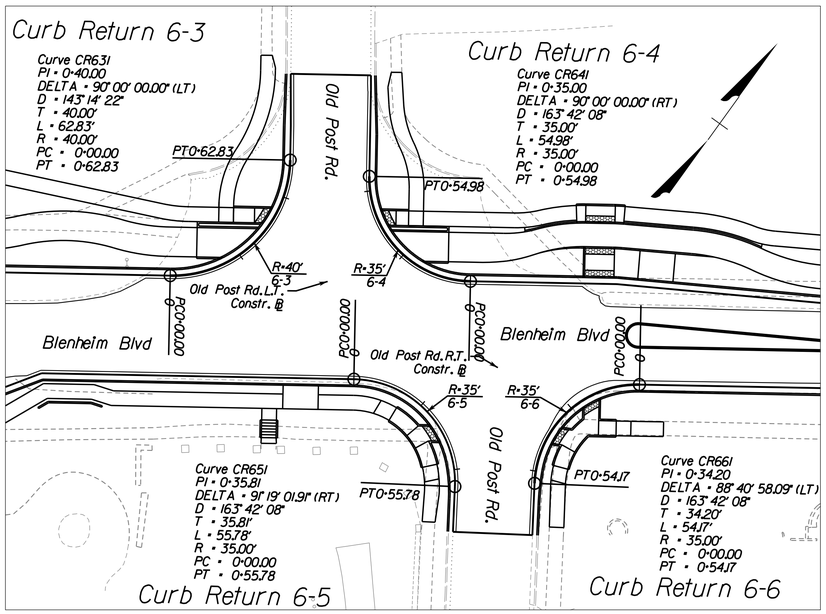

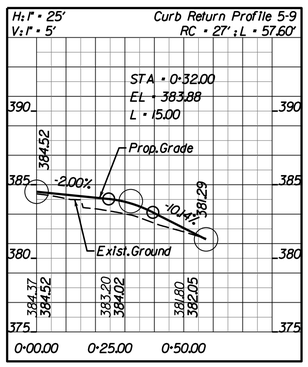

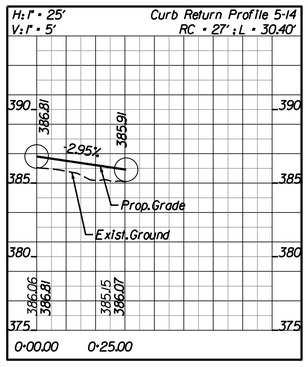

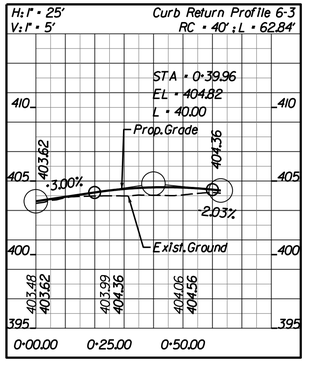

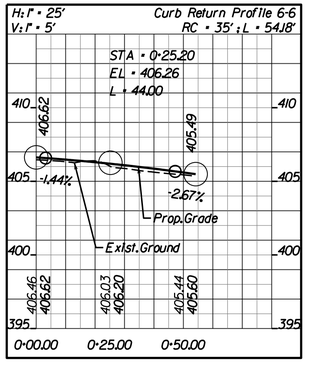

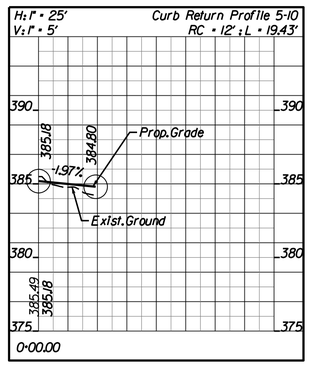

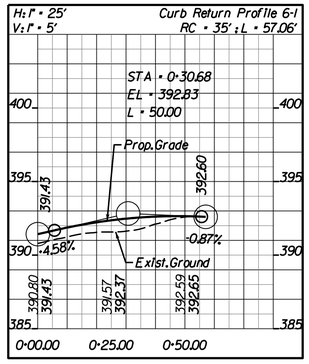

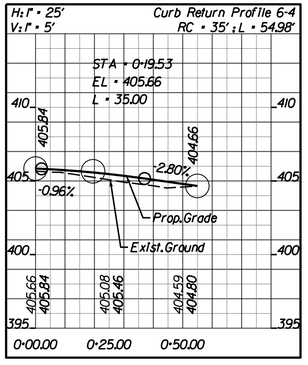

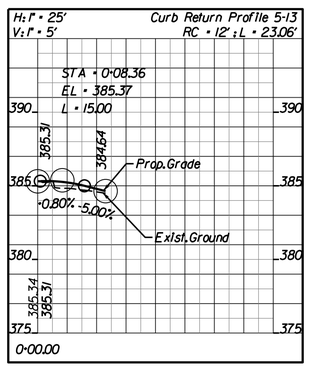

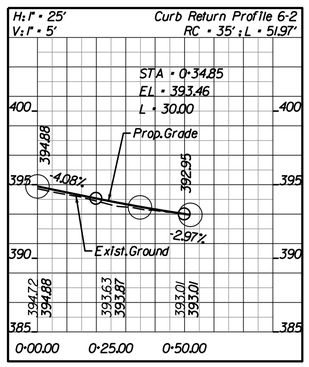

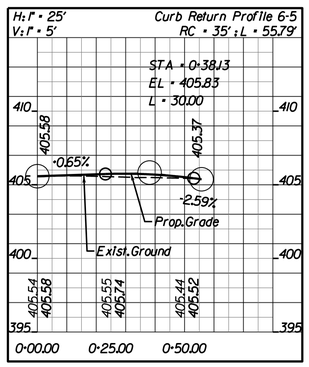

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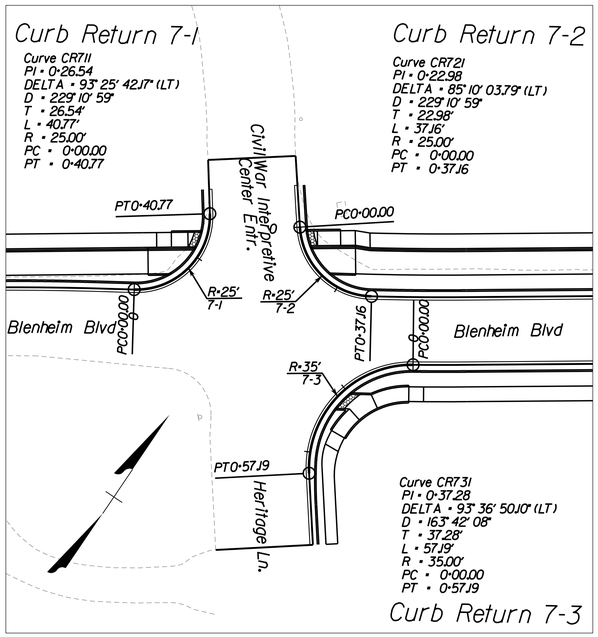

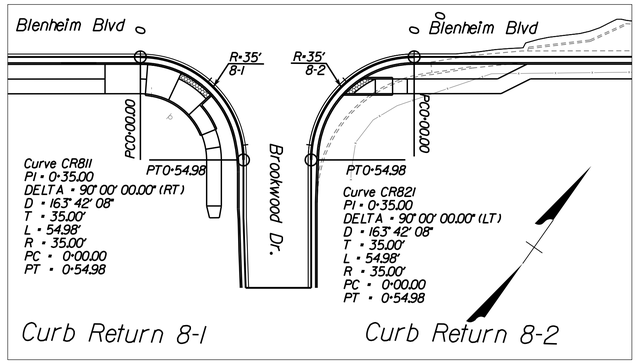

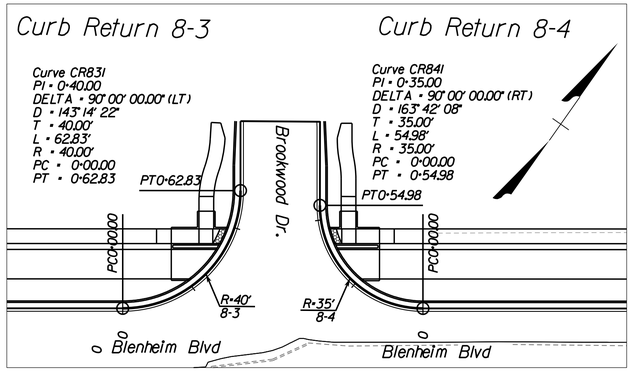

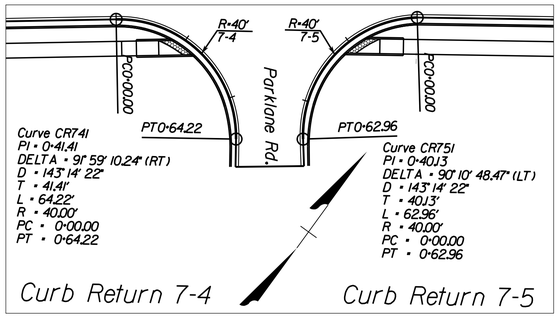

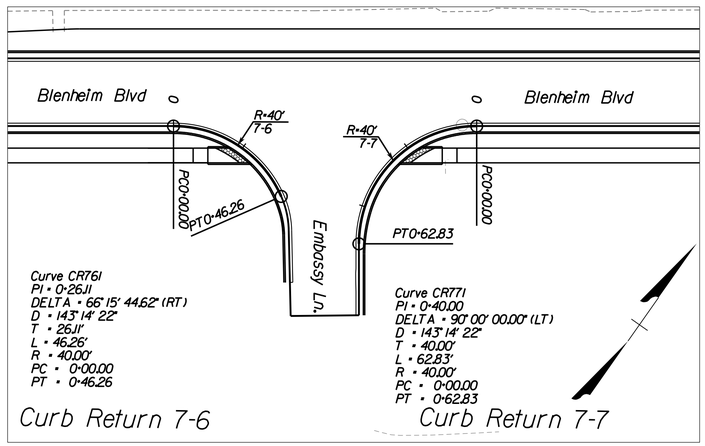

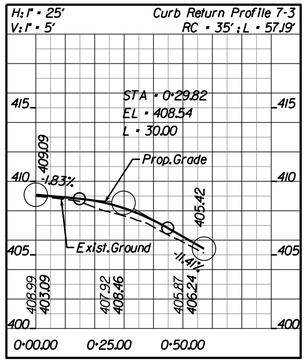

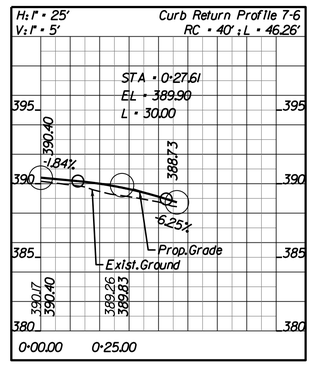

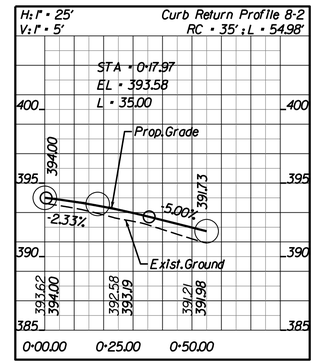

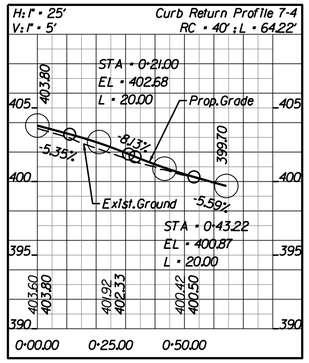

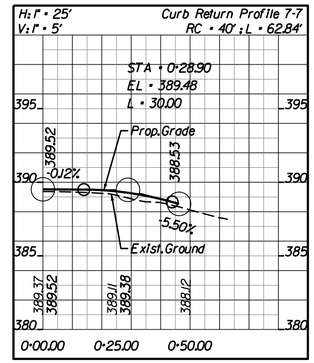

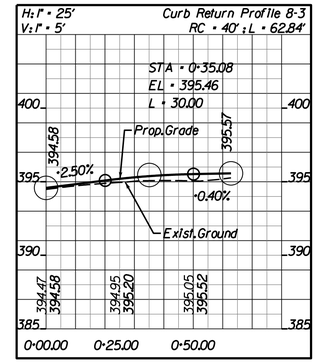

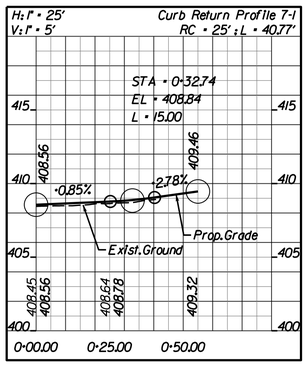

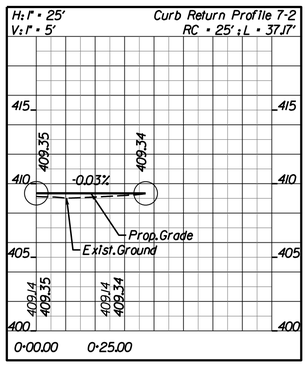

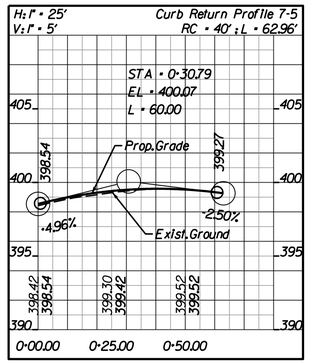

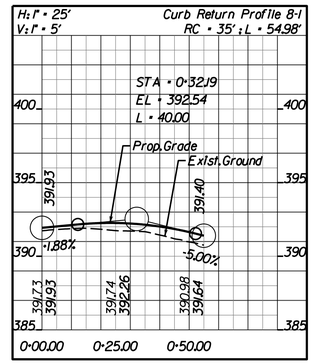

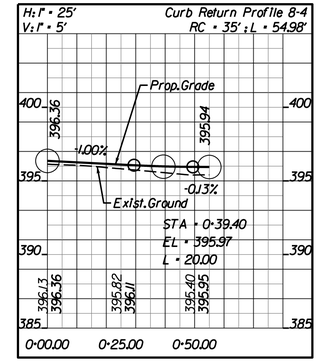

SCALE H: 25' V: 5'
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0 1" 2"

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2B(4)

COMMONWEALTH OF VIRGINIA
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ROADWAY ENGINEER

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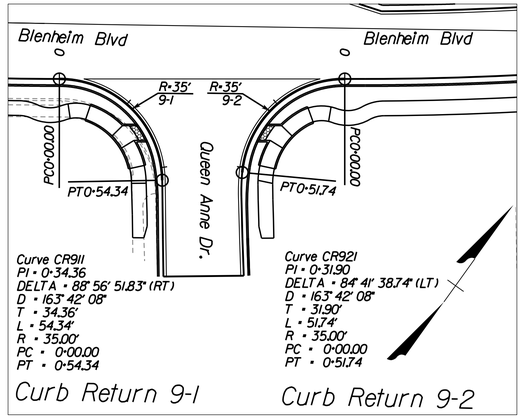

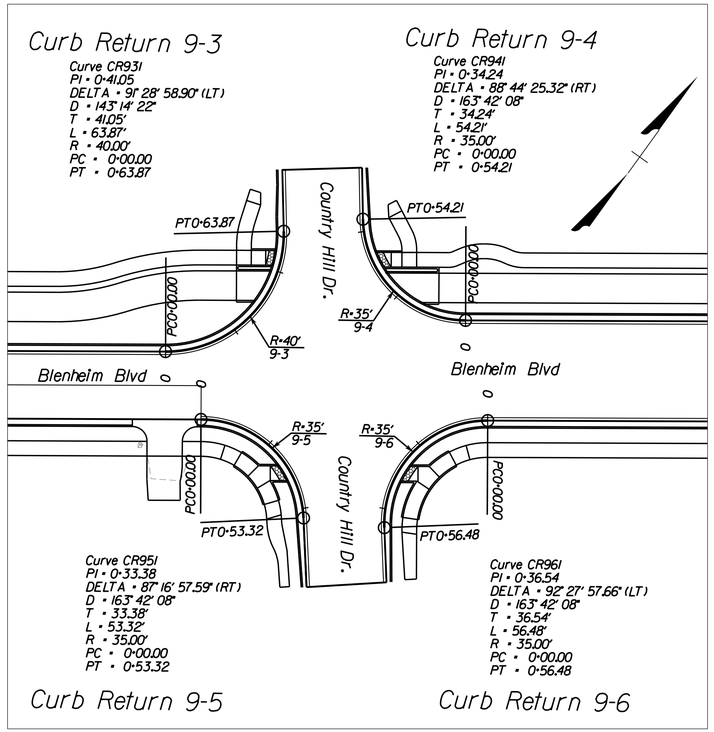

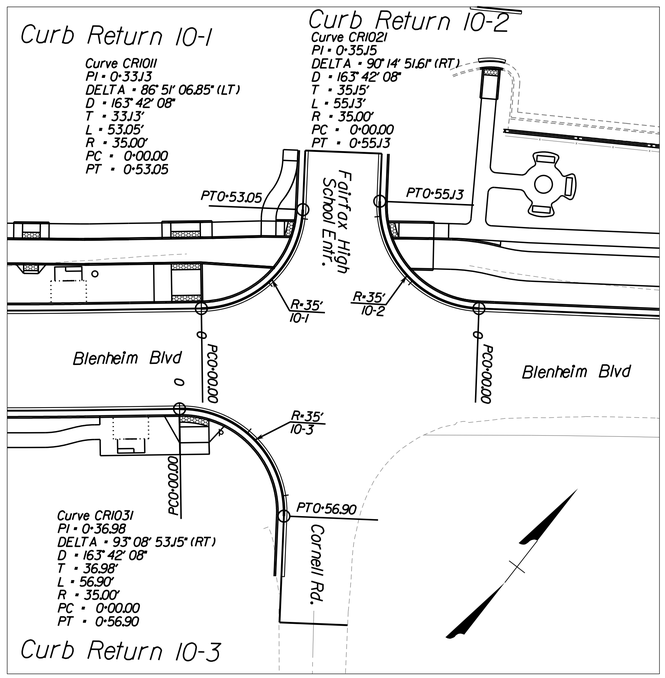

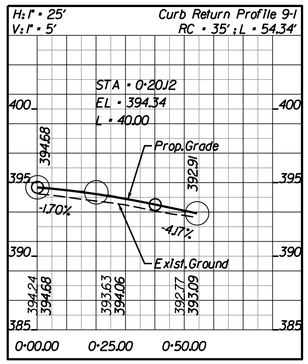

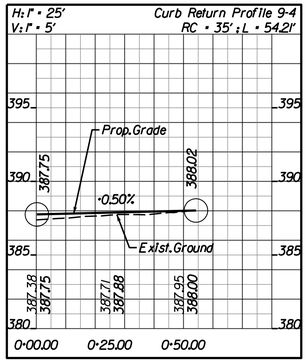

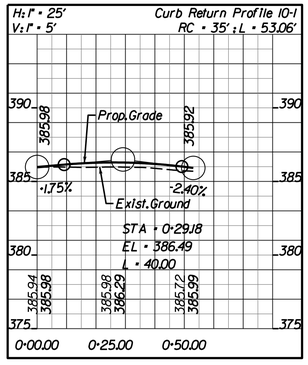

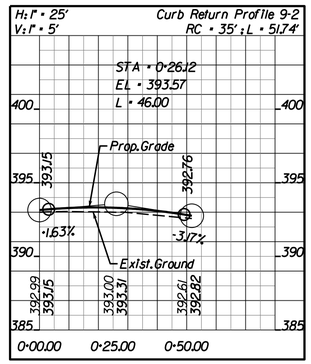

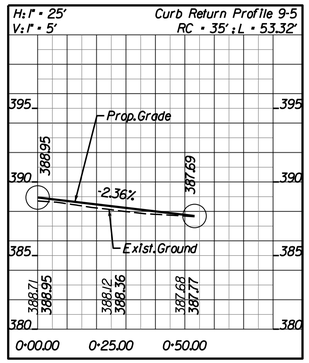

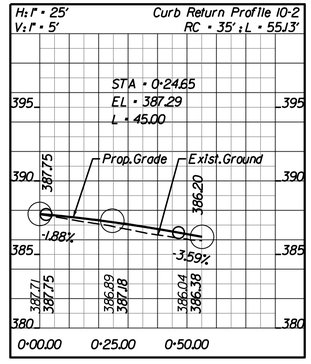

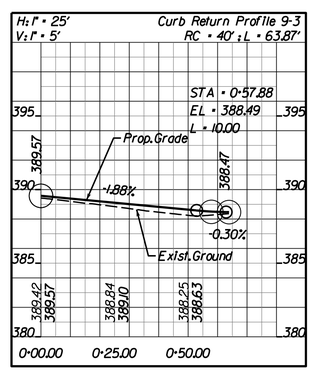

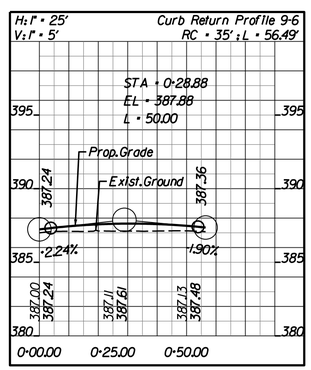

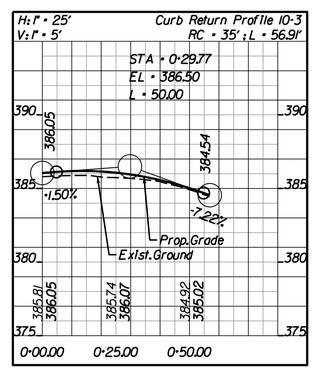

SCALE H: 25' V: 5'
0 25' 50'

SCALE 0 25' 50'

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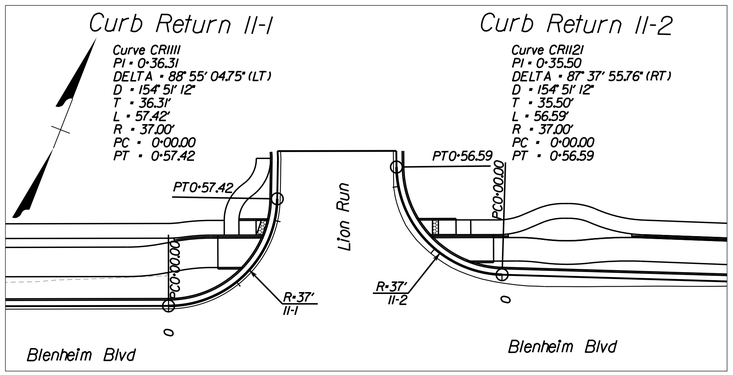

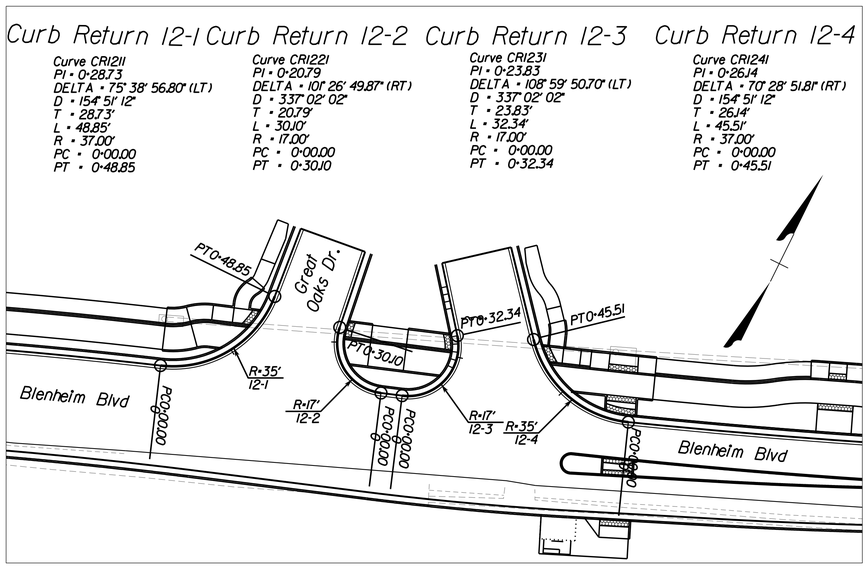

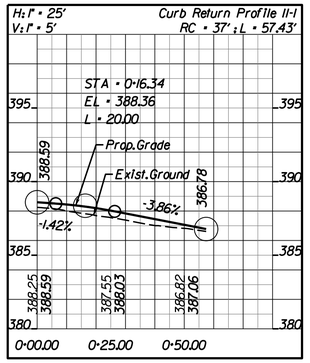

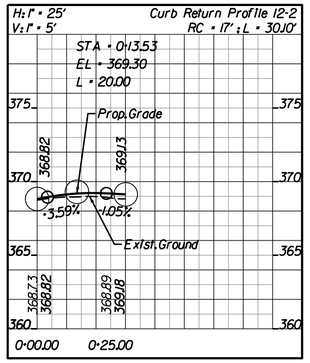

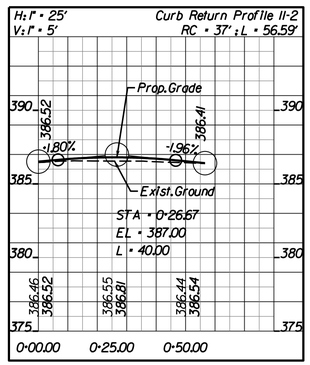

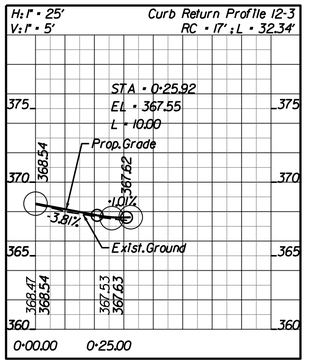

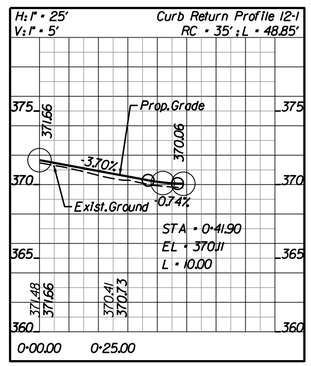

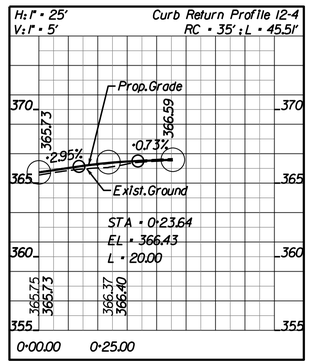

SCALE H: 25' V: 5'
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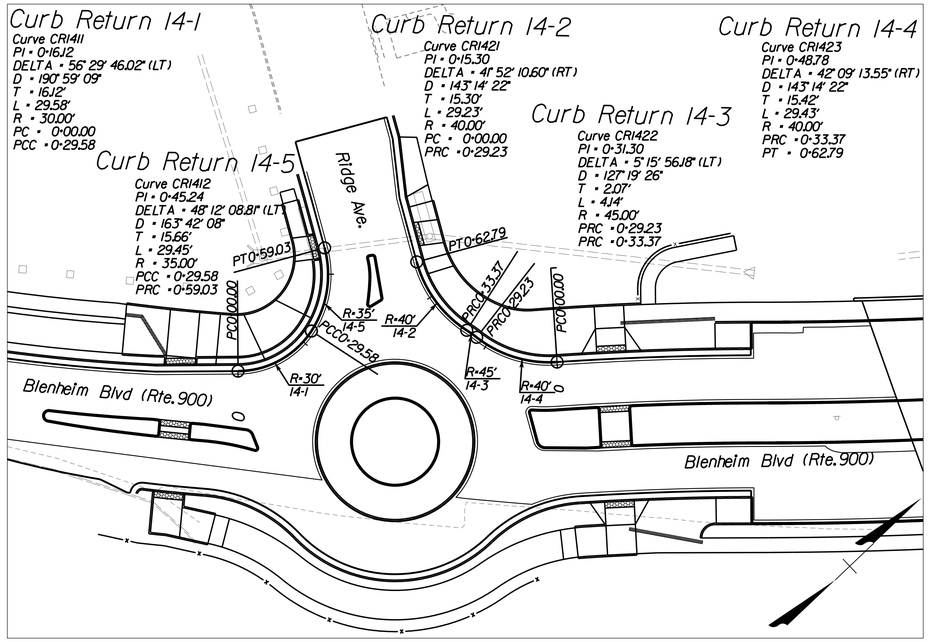

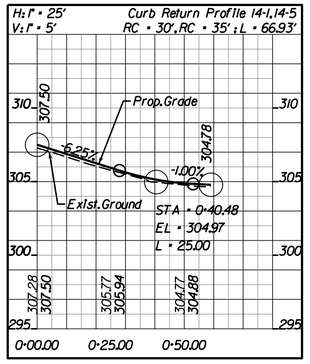

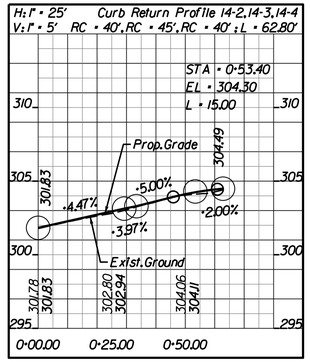

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SCALE	PROJECT	SHEET NO.
0 25' 50'	U000-151-R94	2B(7)

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STORMWATER POLLUTION PREVENTION PLAN (SWPPP) GENERAL INFORMATION SHEET

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2F

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

The information contained in the SWPPP General Information sheets is intended to comply with the requirements of the VPDES General Permit For Discharges Of Stormwater From Construction Activities (the VPDES Construction Permit) issued July 1, 2019 and VDOT's approved Annual ESC and SWM Standards and Specifications.

The SWPPP General Information sheets are to be completed and included in the construction plan set (or other such documents) for land disturbance activities that disturb an area equal to or greater than 10,000 square feet outside the Chesapeake Bay Preservation Area, or equal to or greater than 2,500 square feet in the area defined as Tidewater, Virginia in the Virginia Chesapeake Bay Preservation Act.

The VDOT RLD (as defined in the latest IIM 242) will ensure that the information shown on the SWPPP General Information sheets is updated/revised as necessary in order to reflect changes that may occur during the construction phase of the land disturbing (construction) activity. The updated/revised sheets shall be maintained with the designated record set of plans (or other such documents)for the land disturbance (construction) activity.

I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I further certify that this document and all other documents related to the SWPPP, as identified on the SWPPP General Information Sheets, are maintained at the activity site, or at a location convenient to the activity site where no on-site facilities are available, and such documents will be made available for review upon request in accordance with the provisions of the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10) when applicable. Where the SWPPP documents are not stored on-site, a copy of such documents shall be in the possession of those with day to day operational control over the implementation of the SWPPP whenever they are on site.

* or ** Delegated Authority Signature"

Signature: _____
Printed Name: _____
Date:_____

(1) See Section 1, Item 11 relating to delegation of authority, and form LD-445H (Delegation of Authority).

ACRONYMS

CBPA - Chesapeake Bay Preservation Act
BMP - Best Management Practice
DEQ - Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ESC - Erosion and Sediment Control
IIM - Instructional and Informational Memorandum
R&B - Road and Bridge
RLD - Responsible Land Disturber
SWPPP - Stormwater Pollution Prevention Plan
TMDL - Total Maximum Daily Load
VDOT - Virginia Department of Transportation
VPDES - Virginia Pollutant Discharge Elimination System
VSMP - Virginia Stormwater Management Program
VESCP - Virginia Erosion and Sediment Control Program
WLA - Waste Load Allocation
SWM - Stormwater Management

SECTION I GENERAL INFORMATION

1. Activity Description - This project is a the addition of a bike path along the North side of Blenheim Boulevard and improve the existing sidewalks in the City of Fairfax. The project spans from Layton Hall Drive to the North side of the bridge spanning Accotink Creek.

2. This land disturbance (construction) activity site is located in the City of Fairfax and approximately 10.84 acres will be disturbed by excavation, grading or other construction activities.

3. This proposed activity disturbs one acre or greater and requires coverage under the VPDES General Permit for Discharges Of Stormwater from Construction Activities (the VPDES Construction Permit) as issued by the DEQ. A copy of the VPDES Construction Permit (VAR10), the registration information (LD-445 & LD-445C forms) and the permit coverage letter received from DEQ shall be maintained with other SWPPP documents for this land disturbing activity.

** 4. The location of on-site support facilities that will be covered under the VPDES Construction Permit coverage for this land disturbance (construction) activity shall be provided by the contractor and identified on the record set of plans or in other appropriate contract documents. Support facilities shall include, but not be limited to, borrow and disposal areas, construction and waste material storage areas, equipment and vehicle washing, maintenance, storage and fueling areas, storage areas for fertilizers, fuels or chemicals, concrete wash out areas, sanitary waste facilities and any other areas that may generate a stormwater or non-stormwater discharge directly related to the construction site.

** 5. Written Evidence of permit coverage shall be provided by the contractor for all support activities located outside of VDOT right of way or easement in the form of the Construction General Permit coverage letter: (List VPDES Permit * or Letter from VSMP Authority stating coverage not needed)

6. List the surface waters that have been identified as impaired in the DEQ 2012 305(b)/303(d) Water Quality Assessment Integrated Report for sediment, total suspended solids, turbidity, Nitrogen or Phosphorus. These pollutants are considered benthic impairments:
- Potomac River - impaired for fish consumption because of PCBs in Fish Tissue
- Dead Run - impaired for aquatic life because of Benthic Macroinvertebrates Bioassessments

7. Identify the TMDL's where stormwater from construction activities discharges into a watershed with a TMDL waste load allocation established and approved by the State Water Control Board prior to July 1, 2016 for sediment, total suspended solids, turbidity, nitrogen or phosphorus:
N/A

8. This land disturbance activity discharges stormwater to the following surface waters that have been identified as exceptional in Section 9VAC25-260-30 A 3 c of the Virginia Administrative Code:
N/A

9. Locations of surface waters and locations where concentrated stormwater is discharged from this land disturbance (construction) activity are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity. (List name of surface waters and locations here if not shown in construction plan or other such documents).

10. The ESC and SWM plans (where applicable) for this land disturbance (construction) activity have been developed in accordance with VDOT's Approved Annual Erosion and Sediment Control and Stormwater Management Standards and Specifications as approved by the DEQ.

11. List the RLD and other responsible parties for the land disturbance activity: (required for erosion and sediment control). The following individual(s) have "delegated authority" to sign all reports required by the construction permit including the SWPPP General Information Sheets and Inspection Reports (C-107). Reference form LD-445H for delegation of authority (form 445H for the project is hereby incorporated by reference into this SWPPP). These individual(s) has/have overall responsibility or the environmental matters for the project: (required only for permitted projects):

Name	Position	Responsibility

* 12. The name of the VDOT individual(s) responsible for the oversight inspection in accordance with IIM-LD-256 on these land disturbance construction activities as identified on these SWPPP General Information Sheets. The names will be updated and maintained with the other SWPPP documents for this land disturbance activity.

VDOT Individuals	Position	Responsibility

* 13. The ESC and P2 inspections for this land disturbing (construction) activity shall follow (Select Schedule 1 or 2, if schedule •2 is used, void note •14) as defined in 2020 R&B Specifications except for Section 107.16(e) 4.an Inspection Requirements Rain gauge notes apply only to Inspection Schedule 1.

** 14. The location of the on-site rain gage that will be used to determine the occurrence of a measurable storm event for the purposes of ESC and Pollution Prevention inspections will be provided by the contractor and identified on the record set of plans or in other appropriate SWPPP documents for this land disturbance activity:
(List location of rain gage).

The rain gage shall be observed daily at 10:00 AM to determine the occurrence of a measurable storm event (i.e., 0.25 inches of rainfall or greater in a 24 hour period). A log book shall be maintained to record observation information which shall include (1) the date, (2) the time, (3) whether or not rainfall is occurring at the time of the observation, (4) the amount of accumulated rainfall in the gage, if any, and (5) whether or not an inspection is required based on the amount of accumulated rainfall in the gage.
If there is no rainfall occurring at the time of the observation, the observation information shall be noted in the log book and the rain gage emptied and replaced. An inspection is required if there is 0.25 inches or more accumulation noted in the rain gage.
If there is rainfall occurring at the time of the observation, the observation information is to be noted in the log book. The rain gage is not to be emptied but left to accumulate additional rainfall until the conclusion of the rainfall event. At the conclusion of the rainfall event, an observation of the rain gage shall be made and the observation information shall be noted in the log book and the rain gage emptied and replaced. An inspection is required if there is 0.25 inches or more accumulation noted in the rain gage.

15. The following VDOT documents are applicable to a) permitted projects b) non-permitted projects in Chesapeake Bay Preservation Areas (CBPA) with 2,500 S.F. to 1.0 acre of land disturbance c) non-permitted projects requiring a SWPPP and d) Non-permitted, Non-CBPA with BMP projects that have a water quantity BMP:

VDOT LD-445: Permitted projects, CBPA projects and Non-permitted, Non-CBPA with BMP projects that have a water quantity BMP and ESC projects > 10,000 s.f. but <1 acre.
VDOT LD-445A: Permitted projects only.
VDOT LD-445C: Projects that require a permit, ESC Plan, or SWPPP.
VDOT LD-445D: Permitted projects, CBPA projects and Non-permitted, Non-CBPA with BMP projects that have a water quantity BMP.
VDOT LD-445F: Emergency work projects (when applicable).
Water Quality Requirement (when applicable)
VDOT LD-445H: Permitted projects only.
VDOT C-107 Part I and Part II. All projects that require a permit or SWPPP.
VDOT LD-445I: AS&S Approval Form (when applicable)

16. If there is an excessive loading of sediment from the project (i.e. more than to be expected from the project with an implemented ESC plan) that is discovered within a local watershed with a sediment TMDL that allocates a WLA to VDOT's MS4, (see note •7) the contractor shall investigate the area of concern at the site within 24 hours of discovery and ensure all erosion and sediment control best management practices are being implemented in accordance with the permits approved standards and specifications required by Part I.B of the current Construction General Permit. If corrective action is necessary, the contractor shall initiate corrective actions no later than 5 business days after the initial investigation.

17. If excessive loading of sediment from a land disturbing activity that is not the responsibility of the contractor is discovered discharging into a MS-4, the contractor shall notify the municipality with jurisdiction over erosion and sediment control activities.

* Denotes information that is to be provided/completed by the RLD.

** Denotes information that is to be provided/completed by the contractor.

Revised 5/1/19

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2F

4/22/2025

FINAL PLANS | THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

PROJECT MANAGER *Wendy Block Sanford, (703) 385-7889*
SURVEYED BY, DATE *Nick Kougalis, L.S., (703) 368-7373 (2020)*
DESIGN BY *Mark A. Gunn, P.E., (703) 368-7373*
SUBSURFACE UTILITY BY, DATE *Accumark, (800) 542-2990 (2015)*

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2F(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

SECTION II EROSION AND SEDIMENT CONTROL

✳✳ 1. The intended sequence and timing of activities that disturb soils at the site (e.g., grubbing, excavation, grading, utilities and infrastructure installation, etc.) shall be provided by the contractor in accordance with the current edition of Section 108.03 of the VDOT R&B Specifications and shall be included with the other SWPPP documents for this land disturbance (construction) activity.

2. Directions of stormwater flow and approximate slopes anticipated after major grading activities are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.

3. Areas of soil disturbance and areas of the site which will not be disturbed are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.

4. Locations of major structural and nonstructural ESC measures intended to filter, settle or similarly remove sediment are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.

5. Locations where stabilization practices are expected to occur are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.

6. A description of interim and permanent stabilization practices for the site are identified in the applicable sections of the documents identified in the Note 1 of Section IV.

✳✳ 7. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated will be provided by the contractor and maintained with the record set of plans or other SWPPP documents for this land disturbance (construction) activity: (List how this will be tracked and the location)

8. A description and schedule of procedures to maintain vegetation, erosion and sediment control measures and other protective measures in good and effective operating conditions are identified in the current edition of Sections 107.16 and 303.03 of the VDOT R&B Specifications.

9. Nutrients shall be applied in accordance with the current edition of Sections 603 and 604 of the VDOT Road and Bridge Specifications. Nutrients shall not be applied during rainfall events. Top soil shall be applied in accordance with the current edition of section 602 of the latest Road and Bridge Specifications.

10. All engineering calculations supporting the design of erosion and sediment control measures proposed for this land disturbance (construction) activity are contained in the project drainage file located in the VDOT Northern Virginia District Hydraulics Section and will be made available for review upon request during normal business hours.

11. The temporary erosion and siltation control items shown on the ESC Plan for this land disturbing (construction) activity are intended to provide a general plan for controlling erosion and sediment within the project limits. The ESC Plan is based on field conditions at the time of plan development and an assumed sequence of construction for the project. The contractor, in conjunction with the VDOT Project Engineer and/or ESC Inspector, shall adjust the location, quantity and type of erosion and sediment control items required based on the actual field conditions encountered at the time of construction and the actual scheduling and sequencing of the construction activities. Significant changes to the proposed ESC Plan (e.g., those that require an engineering analysis, elimination of a perimeter control, change to ESC concept that would affect the quantity or direction of flow of water) shall be submitted to the applicable District Hydraulics Engineer for review and approval. Any changes to the proposed ESC Plan must be noted on the designated record set of plans which shall be retained on the project site and made available upon request during normal business hours.

12. The areas beyond the project's construction limits are to be protected from siltation. Perimeter controls such as silt fence, diversion dikes, turbidity curtains, etc. shall be installed prior to any grubbing operations or other earth moving activities.

13. Temporary earthen structures such as dikes and berms are to be stabilized immediately upon installation. Stabilization may include temporary or permanent seeding, riprap, aggregate, sod, mulching, and/or soil stabilization blankets and matting in conjunction with seeding.

14. All channel relocations are to be constructed during the earliest stage of construction and shall be constructed in accordance with all applicable permit requirements and shall be constructed in the dry wherever possible. Stabilization or vegetation shall be established before flow is redirected through the constructed area as directed by the Engineer.

15. The contractor shall plan and implement his land disturbance operations in order to:
- a. Control the volume and velocity of stormwater runoff within the site to minimize erosion.
- b. Control the peak flow rates, volume and velocity of stormwater discharges to minimize erosion at outlets and in downstream channels.
- c. Minimize the amount of soil exposed.
- d. Minimize the disturbance of steep slopes.
- e. Minimize sediment discharge from the site.
- f. Provide and maintain natural buffers around surface waters, direct stormwater runoff to vegetated areas and maximize stormwater infiltration, unless infeasible.
- g. Minimize soil compaction (except in those areas where compaction is required by the contract documents) and preserve topsoil where feasible.

✳✳ 16. The name of the individual(s) or contractor(s) responsible for the installation and maintenance of the erosion and sediment control measures shall be supplied by the contractor and maintained with the other SWPPP documents for this land disturbance (construction) activity.

17. Soil stockpiles temporarily placed within the project area or on VDOT right of way or easement shall be identified, stabilized, and protected with sediment trapping measures.

18. A construction entrance or other approved measure shall be installed at all locations where construction vehicular traffic access routes intersect a paved or a public road in order to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or a public road surface, the road shall be cleaned thoroughly at the end of each work day by shoveling or sweeping. Removed sediment shall be disposed of in accordance with Section 106.04 of the R&B Specifications.

19. Any variance, exception or deviation approved by DEQ must be listed below and supporting documentation (exception/variance/deviation request and DEQ approval) must be maintained with the SWPPP.

The following exceptions to the Water Quantity criteria of the VSMP Regulation have been approved by the DEQ for this land disturbance (construction) activity: (list all approved exceptions and include a brief description of the exception, the date approved and the approving DEQ Office)

Type(1)	Regulation Modified(2)	Approval Date(3)	Description of Variance

(1) Type of modification (Variance from ESC regulations, or Deviation from published guidance)
(2) Section of Regulation or Guidance Document Modified (e.g. ESC Min. Std. 15)
(3) Date that variance/exception/deviation was approved by DEQ.

SECTION III POST CONSTRUCTION STORMWATER MANAGEMENT

Choose the appropriate note 1A or 1B that is applicable to the proposed post construction SWM Plan for this land disturbance (construction) activity. (Delete, strikethrough or mark as NA those notes not applicable.)

1. This land disturbance activity utilizes the Part IIB technical criteria (i.e., Performance or Technology Based, MS 19, etc.) in Section 9VAC25-870-62 et seq. of the VSMP Regulations.

~~2. An exception for (number) pounds of phosphorus removal has been granted for this land disturbance activity by the DEQ in its letter dated (date).~~

~~3. Any variance, exception or deviation approved by DEQ must be listed below and supporting documentation (exception/variance/deviation request and DEQ approval) must be maintained with the SWPPP.~~

~~The following exceptions to the Water Quantity criteria of the VSMP Regulation have been approved by the DEQ for this land disturbance activity: (list all approved exceptions and include a brief description of the exception, the date approved and the approving DEQ Office)~~

Type(1)	Regulation Modified(2)	Approval Date(3)	Description of Waiver

(1) Type of modification (Variance, or Exception from SWM Regulations or Deviation from published guidance)
(2) Section of Regulation or Guidance Document Modified (e.g. ESC Min. Std. 15)
(3) Date that variance/exception/deviation was approved by DEQ.

4. The permanent onsite SWM facilities or offsite strategies proposed to meet the water quality/quantity requirements for this land disturbance (construction) activity are listed in Section VI.

5. A description of all post-construction stormwater management measures that will be installed during the construction process to control pollutants in stormwater discharges after construction operations have been completed is included in the construction plan set (or other such documents) for this land disturbance (construction) activity.

6. All engineering calculations supporting the design of the post-construction stormwater management measures for this land disturbance (construction) activity, including an explanation of the technical basis used to select the practices, are contained in the project drainage file located in the VDOT Northern Virginia District Hydraulics Section and will be made available for review upon request during normal working business hours.

ACRONYMS

CBPA - Chesapeake Bay Preservation Act
BMP - Best Management Practice
DEQ - Department of Environmental Quality
EPA - U.S. Environmental Protection Agency
ESC - Erosion and Sediment Control
IIM - Instructional and Informational Memorandum
R&B - Road and Bridge
RLD - Responsible Land Disturber
SWPPP - Stormwater Pollution Prevention Plan
TMDL - Total Maximum Daily Load
VDOT - Virginia Department of Transportation
VPDES - Virginia Pollutant Discharge Elimination System
VSMP - Virginia Stormwater Management Program
VESCP - Virginia Erosion and Sediment Control Program
WLA - Waste Load Allocation
SWM - Stormwater Management

✳ Denotes information that is to be provided/ completed by the RLD.

✳✳ Denotes information that is to be provided/completed by the contractor.

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NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2F(1)

4/22/2025

FINAL PLANS

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PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) GENERAL INFORMATION SHEET

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2F(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

The information contained in the SWPPP General Information sheets is intended to comply with the requirements of the VPDES General Permit For Discharges Of Stormwater From Construction Activities (the VPDES Construction Permit) issued July 1, 2019 and VDOT's approved Annual ESC and SWM Standards and Specifications.

The SWPPP General Information sheets are to be completed and included in the construction plan set (or other such documents) for land disturbance (construction) activities that disturb an area equal to or greater than 10,000 square feet outside the Chesapeake Bay Preservation Area, or equal to or greater than 2,500 square feet in the area defined as Tidewater, Virginia in the Virginia Chesapeake Bay Preservation Act.

The VDOT RLD will ensure that the information shown on the SWPPP General Information sheets is updated/revised as necessary in order to reflect changes that may occur during the construction phase of the land disturbing (construction) activity. The updated/revised sheets shall be maintained with the designated record set of plans (or other such documents) for the land disturbance (construction) activity.

SECTION IV SWPPP

1. All documents related to the SWPPP for this land disturbance (construction) activity shall be maintained at the activity site and shall be readily available for review upon request during normal business hours. Such documents include, but are not limited to, the construction plans (or other such documents), the ESC Plan, the Pollution Prevention Plan, the post construction SWM Plan (if applicable), the VDOT R&B Standards and Specifications, Supplemental Specifications, Special Provisions and Special Provision Copied Notes. Documents related to stormwater pollution prevention which are not a part of those documents referenced above, such as copies of the VPDES Construction Permit coverage letter (when applicable) and the VPDES General Permit For Discharges Of Stormwater From Construction Activities (when applicable) and those required to be developed by the contractor for pollution prevention associated with any on-site support facilities being included in the VPDES Construction Permit coverage for this land disturbance (construction) activity are to be maintained at the activity site with the other SWPPP documents for this land disturbance (construction) activity. Where no facilities are available at the activity site to maintain the SWPPP documents, they are to be kept by or with the designated RLD at a location convenient to the activity site where they would be made available for review upon request during normal business hours.

2. The SWPPP and any subsequent amendments, modifications and updates shall be implemented from commencement of land disturbance until termination of VPDES Construction Permit coverage or completion of land disturbance (construction) activities where no VPDES Construction Permit coverage is required.

✱✱ 3. For all on-site support facilities that will be included in the VPDES Construction Permit coverage for this land disturbance (construction) activity, the contractor shall develop a SWPPP in accordance with, but not limited to, Section 106.08, 107.02 and 107.16 of the VDOT Road and Bridge Specifications. The SWPPP for the on-site support facilities shall be maintained with and become a component of the SWPPP for this land disturbance (construction) activity. Support facilities shall include, but not be limited to, borrow and disposal areas, construction and waste material storage areas, equipment and vehicle washing, maintenance, storage and fueling areas, storage areas for fertilizers, fuels or chemicals, concrete wash out areas, sanitary waste facilities and any other areas that may generate a stormwater or non-stormwater discharge directly related to the construction site.

4. For those land disturbing (construction) activities requiring coverage under the VPDES Construction Permit, the SWPPP shall be made available for review upon the request of the DEQ, the EPA, the VSMP Authority, the VESCP Authority, local government officials or the operator of a municipal separate storm sewer system (MS4) receiving discharge from the construction site.

✱ 5. For those land disturbing (construction) activities requiring coverage under the VPDES Construction Permit, the VDOT RLD shall post, or have posted, a copy of the General Permit coverage letter and a copy of a completed LD-445A form, noting the name and contact information for the VDOT person responsible for the land disturbing (construction) activity and its SWPPP, outside the project's construction office along with other Federal and State mandated information. Where there is no construction office (e.g., a maintenance activity), the permit coverage letter and the LD-445A form are to be maintained with the other SWPPP documents for the land disturbing (construction) activity.

6. The SWPPP shall be made available for review by the public upon request. Such reviews shall be at a time and publicly accessible location convenient to the VDOT and shall be scheduled during normal business hours and no less than once per month.

SECTION V - POLLUTION PREVENTION PLAN

1. The following non-stormwater discharges from this land disturbing (construction) activity and any on-site support facilities are prohibited:
   a. Wastewater from concrete washouts.
   b. Wastewater from the washout and cleanout of stucco, paint, from release oils, curing compounds and other construction materials.
   c. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance.
   d. Oils, toxic substances or hazardous substances from spills or other releases.
   e. Soaps, solvents or detergents used in equipment and vehicle washing.
   f. There shall be no discharge of floating solids or visible foam in other than trace amounts

2. The following non-stormwater discharges from this land disturbing (construction) activity and any on-site support facilities are allowed when discharged in compliance with the VPDES Construction Permit:
   a. Discharges from firefighting activities.
   b. Fire hydrant flushings.
   c. Waters used to wash vehicles or equipment where soaps, solvents or detergents have not been used and the wash water has been filtered, settled or similarly treated prior to discharge.
   d. Water used to control dust that has been filtered, settled or similarly treated prior to discharge.
   e. Potable water sources including uncontaminated waterline flushings managed in a manner to avoid stream impacts.
   f. Routine external building wash down where soaps, solvents or detergents have not been used and the wash water has been filtered, settled or similarly treated prior to discharge.
   g. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (or where all spilled or leaked material has been removed prior to washing), where soaps, solvents or detergents have not been used and where the wash water has been filtered, settled or similarly treated prior to discharge.
   h. Uncontaminated air conditioning or compressor condensate.
   i. Uncontaminated ground water or spring water.
   j. Foundation or footing drains where flows are not contaminated with process materials such as solvents.
   k. Uncontaminated excavation dewatering, including dewatering trenches and excavations that have been filtered, settled or similarly treated prior to discharge.
   l. Landscape irrigation.

✱✱ 3. The contractor shall develop a Pollution Prevention Plan to address any of his on-site operations that have a potential to generate a pollutant that may reasonably be expected to affect the quality of stormwater discharges from this land disturbance (construction) activity. The Pollution Prevention Plan shall be developed in accordance with, but not limited to, Sections 106.08, 107.02 and 107.16 of the VDOT Road and Bridge Specifications and shall include a narrative with appropriate plan detail and shall be provided on standard 8.5 x 11 inch paper or larger and shall:
   a. Identify the potential pollutant-generating activities and the pollutant that is expected to be exposed to stormwater.
   b. Describe the location where the potential pollutant-generating activities will occur, or if identified on the record set of plans, reference the record set of plans.
   c. Identify all non-stormwater discharges, as described in note two of this section, that are or will be commingled with stormwater discharges from the construction activity, including any on-site support activities.
   d. Identify the person(s) or contractor(s) responsible for implementing and maintaining the pollution prevention practice or practices for each pollutant-generating activity.
   e. Describe the pollution prevention practices and procedures that will be implemented to:
      1) Prevent and respond to leaks, spills, and other releases, including procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases, and procedures for reporting leaks, spills, and other releases in accordance with Section 107.16 of the VDOT Road and Bridge Specifications and the requirements within the VPDES Construction Permit. Any discharges to MWAA controlled areas must be reported to MWAA.
      2) Prevent the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities.
      3) Prevent the discharge of soaps, solvents, detergents, and wash water from construction materials, including procedures for the clean-up of stucco, paint, form release oils, and curing compounds.
      4) Minimize the discharge of pollutants from vehicle and equipment washing, wheel wash water, and other types of washing.
      5) Direct concrete wash water into a leak-proof container or leak-proof settling basin. The container or basin shall be designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes. Liquid concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wash waters and shall not be discharged to surface waters.
      6) Minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials, and wastes including building products (such as asphalt sealants, copper flashing, roofing materials, adhesives, and concrete admixtures), pesticides, herbicides, insecticides, fertilizers, landscape materials, construction and domestic wastes (such as packaging materials), scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, and other trash or building materials.
      7) Prevent the discharge of fuels, oils, and other petroleum products, hazardous or toxic wastes, waste concrete and sanitary wastes.
      8) Address any other discharge from any potential pollutant-generating activity not listed herein.
      9) Minimize the exposure of waste materials to precipitation by closing or covering waste containers during precipitation events and at the end of the business day, or implementing other similarly effective practices. Minimization of exposure is not required in case where the exposure to precipitation will not result in a discharge of pollutants.
      10) Describe and implement procedures for providing pollution prevention awareness (including but not limited to prevention practices, disposal practices and appropriate disposal locations) for all applicable wastes (including any wash water), to appropriate personnel.

✱ Denotes information that is to be provided/completed by the RLD.

✱✱ Denotes information that is to be provided/completed by the contractor.

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NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2F(2)

4/22/2025

FINAL PLANS

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PROJECT MANAGER *Wendy Block Sanford, (703) 385-7889*
SURVEYED BY, DATE *Nick Kougalis, L.S., (703) 368-7373 (2020)*
DESIGN BY *Mark A. Gunn, P.E., (703) 368-7373*
SUBSURFACE UTILITY BY, DATE *Accumark, (800) 542-2990 (2015)*

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) GENERAL INFORMATION SHEET

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2F(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

The information contained in the SWPPP General Information sheets is intended to comply with the requirements of the VPDES General Permit For Discharges Of Stormwater From Construction Activities (the VPDES Construction Permit) issued July 1, 2019 and VDOT's approved Annual ESC and SWM Standards and Specifications.

The SWPPP General Information sheets are to be completed and included in the construction plan set (or other such documents) for land disturbance (construction) activities that disturb an area equal to or greater than 10,000 square feet, or equal to or greater than 2,500 square feet in the area defined as Tidewater, Virginia in the Virginia Chesapeake Bay Preservation Act.

The VDOT RLD will ensure that the information shown on the SWPPP General Information sheets is updated/revised as necessary in order to reflect changes that may occur during the construction phase of the land disturbing (construction) activity. The updated/revised sheets shall be maintained with the designated record set of plans (or other such documents) for the land disturbance (construction) activity.

SECTION VI - PERMANENT BMP INFORMATION △

✳ Denotes information that is to be completed by the RLD.
( ) See note referenced by number in parentheses.

INSTALLED BMP INFORMATION
(VDOT Owned/Operated)

Plan Sheet(s)	Date BMP Made Functional	Type of BMP Installed (See Table A and C)	Geographic Location (County or City)	Latitude/Longitude (1) LAT	LONG	VA 6th Order HUC (7)	Receiving Water (2)	Name of Impaired Water (9)	Acres Treated Per BMP (3) Impervious	Pervious	TOTAL	✳ BMP Maintenance ID Number (10)	BMP Maintenance Manual (11) SECTION	BMP Inspection Manual (11) SECTION
5		Manufactured Treatment Device (5-15)	Fairfax	38.9316 N	77.2123 W	PL30	Daniel's Run	Accotink Creek	1.08	0.97	2.05		7	7
8		Manufactured Treatment Device (8-10)	Fairfax	38.9538 N	77.1924 W	PL30	Daniel's Run	Accotink Creek	0.69	0.64	1.33		7	7
9		Manufactured Treatment Device (9-14)	Fairfax	38.9635 N	77.1859 W	PL30	Daniel's Run	Accotink Creek	0.71	0.50	1.21		7	7
4		Manufactured Treatment Device (4-2A)	Fairfax	38.8508 N	77.2950 W	PL30	Daniel's Run	Accotink Creek	0.07	0.04	0.11		7	7
6		Manufactured Treatment Device (6-3A)	Fairfax	38.8526 N	77.2894 W	PL30	Daniel's Run	Accotink Creek	0.06	0.02	0.08		7	7
10		Manufactured Treatment Device (10-4A)	Fairfax	38.8583 N	77.2822 W	PL30	Daniel's Run	Accotink Creek	0.07	0.03	0.10		7	7
10		Manufactured Treatment Device (10-3A)	Fairfax	38.8584 N	77.2856 W	PL30	Daniel's Run	Accotink Creek	0.09	0.04	0.13		7	7
9		Manufactured Treatment Device (9-10A)	Fairfax	38.8571 N	77.2879 W	PL30	Daniel's Run	Accotink Creek	0.02	0.09	0.11		7	7

ALTERNATIVE BMP INFORMATION

Plan Sheet(s)	Date	Type of BMP Installed (See Table B)	Geographic Location (County or City) (5)	Latitude/Longitude (1) (5) LAT	LONG	VA 6th Order HUC (5) (7)	Receiving Water (2)	Name of Impaired Water (9)

Perpetual Nutrient Credits Acquired for Project

Name of Nutrient Credit Generating Entity (6)	Nutrient Credits (lbs./TP./year) Acquired (6) (12)
	0.00

△ Any changes to the proposed SWM Plan or BMPs necessitated during the construction phase of the project that affects the proposed construction details or potentially affects the information shown in the BMP Tables A and/or B shall be coordinated by the VDOT RLD with the appropriate VDOT District Hydraulics Engineer. The construction plans and the BMP Tables A and/or B are to be formally revised to reflect any authorized/ approved changes to the proposed SWM Plan and/or the proposed BMP construction details. All plan revisions shall be completed in accordance with the Road Design Manual and the Construction Division IIM-CD-2013-12.01, signed and sealed in accordance with Department's sealing and signing policy IIM-LD-243 and filed with the construction record drawings maintained in the VDOT Central Office Plan File Room (ProjectWise). Prior to submitting for termination of coverage under the VPDES General Permit For The Discharge Of Stormwater From Construction Activities, the RLD shall have the District Maintenance Division review the BMPs installed with the project (BMP Table A) for acceptance of maintenance responsibility and to obtain a Maintenance ID number for each BMP listed in BMP Table A. The RLD shall use the information in BMP Tables A and B along with the assigned Maintenance ID number and the date that the BMP became functional as a permanent control measure (for BMPs in Table A only) to complete the LD-445D form when certifying the construction of the BMPs and submitting for termination of coverage under the VPDES General Permit For The Discharge Of Stormwater From Construction Activities.

Table A: Permanent BMP Types (1999 Va. SWM Handbook)
Bio-retention Basin
Bio-retention Filter
Constructed Stormwater Wetlands
Extended Detention Basin
Extended Detention Basin Enhanced
Grassed Swale
Infiltration Basin
Infiltration Trench
Manufactured Treatment Device (MTD) (8)
Retention Basin I
Retention Basin II
Retention Basin III
Sand Filter
Vegetated Filter Strip
Other Approved Types (List Type)
Detention Basin

Table B: Alternative BMP Types
Comprehensive SWM Plan (Regional) Facility
Pollutant Loading Pro Rata Share Program
Other Approved Options (List Type) (4)

Table C: Permanent BMP Types (BMP Clearing House)
Sheet Flow to Vegetated Filter Strip
Grass Channel
Soil Compost Amendment
Permeable Pavement (Level 1)
Permeable Pavement (Level 2)
Infiltration Practice (Level 1)
Infiltration Practice (Level 2)
Bioretention (Level 1)
Bioretention (Level 2)
Dry Swale (Level 1)
Dry Swale (Level 2)
Wet Swale (Level 1)
Wet Swale (Level 2)
Filtering Practice (Level 1)
Filtering Practice (Level 2)
Constructed Wetlands (Level 1)
Constructed Wetlands (Level 2)
Extended Detention Pond (Level 1)
Extended Detention Pond (Level 2)
Wet Pond (Level 1)
Wet Pond (Level 2)
Manufactured Treatment Device (MTD)(8)
Other Approved Types (List Type)

NOTES:
(1) In decimal degrees to the nearest one ten-thousandth of a degree.

(2) For streams with no names, list "(Unnamed Tributary to downstream name)".

(3) Show acres treated to the nearest one hundreths acre.

(4) Include agreements with off-site BMP owners.

(5) Information pertains to the alternative BMP option location, where applicable. Exception - Not required for nutrient credit purchase option.

(6) Applies to the purchase of nutrient credits only.

(7) Virginia 6th Order HUC (VAHU6) Example - YO30.

(8) Final approved shop drawings of Manufactured Treatment Devices (MTDs) are to be included with the BMP information submitted with the LD-445D form.

(9) List the name of any impaired water to which the BMP discharges. The determination of impaired water shall be based on those streams listed as impaired in the DEQ 2012 305(b)/303(d) Water Quality Assessment Integrated Report and shall be the first named waterbody to which the BMP discharges. The impaired waters are those impaired by sediment, total suspended solids, turbidity, nitrogen or phosphorus.

(10) BMP Maintenance ID Number is to be assigned by the District Maintenance Division at permit termination or project completion. This ID number shall be assigned prior to the permit close out process and entered by the area construction engineer under this column, per IIM-LD-95

(11) Provide the section of each Maintenance manual that pertains to the type of BMP. Both manuals can be found at www.vdot.virginia.gov/ business/manuals in the Maintenance selections. Example: Section 4 would be noted for both the maintenance and inspection manuals for a Bioretention I infiltration BMP.

(12) Nutrient credits purchased to the nearest one hundredth pound.

Revised 12/9/24

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2F(3)

4/22/2025

FINAL PLANS

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PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

DRAINAGE DESCRIPTIONS

COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2G

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Sheet 3

3-1	1-St'd.DI-3C Req'd. L=16' H=4.4' Inv.=368.10 Top=372.46 Type B Nose Req'd. Connect 2 UD-4 to Structure
3-1 to 3-2	6' - 15" Storm Sewer Pipe Req'd.(3' Cover) Silt-Tight Joint Type Req'd. Inv(In)368.10 Inv(Out)368.00
3-2	4.8 Lin.Ft.St'd.MH-1 or 2 Req'd. 1 St'd.MH-1 Frame and Cover Req'd. Prop.Top=372.51 Inv.=367.02 1-St'd.IS-1 Req'd. Connect to Ex.18" Pipe
3-3	1-St'd.DI-2B Req'd. L=10' H=3.6' Inv.=373.05 Top=376.60 1 St'd.Monolithic Box Req'd. Less than Minimum Height See Sheet 2G(5) Type B Nose Req'd. 1-St'd.IS-1 Req'd. Connect UD-4 to Structure
3-3-Ex.13	10' - 15" Storm Sewer Pipe Req'd.(2' Cover) Silt-Tight Joint Type Req'd. Inv(In)373.05 Inv(Out)372.95
Ex-15	2.7 Lin.Ft.St'd.MH-1 or 2 Req'd. 1 St'd.MH-1 Frame and Cover Req'd. Prop.Top=376.71 Inv.=373.35 1-St'd.IS-1 Req'd. Connect to Ex.15" Pipe
Ex-15 to 3-3	4' - 15" Storm Sewer Pipe Req'd.(2' Cover) Silt-Tight Joint Type Req'd. Inv(In)373.35 Inv(Out)373.25
Ex-13	Modify Existing MH Connect to Proposed 15" Pipe Prop.Inv(In) = 372.95

Sheet 4

4-1	1-St'd.DI-2B Req'd. L=12' H=3.8' Inv.=382.00 Top=385.82 Type B Nose Req'd. Remove Existing Structure Connect to Ex.15" Pipe Connect UD-4 to Structure St'd IS-1 Req'd
4-2	1-St'd.DI-3B Req'd. L=8' H=3.3' Inv.=382.35 Top=385.64 1 St'd.Monolithic Box Req'd. Less than Minimum Height See Sheet 2G(5) Type B Nose Req'd. Connect UD-4 to Structure
4-2 to 4-1	38' - 15" Storm Sewer Pipe Req'd.(2' Cover) Silt-Tight Joint Type Req'd. Inv(In)382.35 Inv(Out)382.10
4-2A	1- Filterra Tree Box (8'x4') Inv.=382.10 Top= 385.64 1-3'x3' Tree Grate 16'-4" SDR 35 PVC Outfall Pipe to Str.4-2 See Detail, Sheet 2H(5)
4-3	Structure Number not Used
4-4	1-St'd.DI-3B Req'd. L=4' H=3.7' Inv.=388.50 Top=392.16 Type B Nose Req'd. Connect UD-4 to Structure
4-4 to 4-5	147' - 15" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)388.50 Inv(Out)385.75
4-5	1-St'd.DI-3B Req'd. L=6' H=5.1' Inv.=385.65 Top=390.71 Type B Nose Req'd. Connect UD-4 to Structure St'd.IS-1 Req'd
4-5 to 4-6	57' - 15" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)385.65 Inv(Out)384.50
4-6	1-St'd.DI-3A Req'd. H=6.4' Inv.=383.40 Top=389.76 Type B Nose Req'd. Connect UD-4 to Structure St'd.IS-1 Req'd
4-6 to 5-1	185' - 6" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)383.40 Inv(Out)382.00
4-8	1-St'd.DI-2B Req'd. L=12' H=6.4' Inv.=384.30 Top=390.72 Type B Nose Req'd. Connect UD-4 to Structure
4-8 to 4-6	27' - 15" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)384.30 Inv(Out)383.90
4-9	Modify Existing MH Adjust to Grade, Lower 1.2' 1 St'd.MH-1 Frame and Cover Req'd. Prop.Top=385.21 Inv.=381.60

Sheet 5

5-1	1-St'd.DI-2B Req'd. L=4' H=5.6' Inv.=381.90 Top=387.45 Type B Nose Req'd. Connect 2 UD-4 to Structure St'd.IS-1 Req'd
5-1 to 5-9	239' - 10" Storm Sewer Pipe Req'd.(5.5' Cover) Silt-Tight Joint Type Req'd. Inv(In)381.90 Inv(Out)378.00
5-2	1-St'd.DI-2BB Req'd. L=8' H=10.1' Inv.=374.96 Top=385.02 Type B Nose Req'd. Connect to Ex.24" Pipe Connect UD-4 to Structure St'd.IS-1 Req'd
5-3	1-St'd.DI-2B Req'd. L=4' H=9.7' Inv.=375.75 Top=385.46 Type B Nose Req'd. Connect 2 UD-4 to Structure St'd.IS-1 Req'd
5-3 to 5-9	25' - 24" Storm Sewer Pipe Req'd.(7' Cover) Silt-Tight Joint Type Req'd. Inv(In)375.75 Inv(Out)375.40
5-4	1-St'd.DI-2C Req'd. L=18' H=5.6' Inv.=379.00 Top=384.61 Type B Nose Req'd. Connect 2 UD-4 to Structure St'd.IS-1 Req'd
5-4 to 5-2	59' - 18" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)379.00 Inv(Out)378.00
5-5	1-St'd.DI-2B Req'd. L=6' H=4.4' Inv.=380.80 Top=385.15 Type B Nose Req'd. Connect to UD-4 to Structure St'd.IS-1 Req'd
5-5 to 5-11	22' - 18" Storm Sewer Pipe Req'd.(3' Cover) Silt-Tight Joint Type Req'd. Inv(In)380.80 Inv(Out)380.60
5-6	1-St'd.DI-2B Req'd. L=6' H=4.8' Inv.=380.00 Top=384.79 Type B Nose Req'd. Connect UD-4 to Structure St'd.IS-1 Req'd
5-6 to 5-4	47' - 15" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)380.00 Inv(Out)379.10
5-7	1-St'd.DI-2B Req'd. L=8' H=4.9' Inv.=382.30 Top=387.24 Type B Nose Req'd. Connect UD-4 to Structure St'd.IS-1 Req'd
5-7 to 5-6	160' - 15" Storm Sewer Pipe Req'd.(3' Cover) Silt-Tight Joint Type Req'd. Inv(In)383.30 Inv(Out)380.10
5-8	1-St'd.DI-2B Req'd. L=6' H=5.0' Inv.=382.80 Top=387.77 Type B Nose Req'd. Connect UD-4 to Structure St'd.IS-1 Req'd
5-8 to 5-7	34' - 15" Storm Sewer Pipe Req'd.(3' Cover) Silt-Tight Joint Type Req'd. Inv(In)382.80 Inv(Out)382.40
5-9	1 St'd.DI-2B Req'd. L=4' H=7.2' Inv.=378.00 Top=385.19 Type B Nose Req'd. Connect UD-4 to Structure St'd.IS-1 Req'd.
5-9 to 5-2	30' - 24" Storm Sewer Pipe Req'd.(8' Cover) Silt-Tight Joint Type Req'd. Inv(In)375.40 Inv(Out)375.00
5-10	Structure Number Not Used
5-11	4.5 Lin.Ft.St'd.MH-1 or 2 Req'd. 1 St'd.MH-1 Frame and Cover Req'd. Prop.Top=385.63 Inv.=380.50 1-St'd.IS-1 Req'd.
5-11 to 5-16	40' - 18" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)380.50 Inv(Out)380.30
5-12	1-St'd.DI-2B Req'd. L=6' H=7.9' Inv.=384.00 Top=391.91 Type B Nose Req'd. Connect UD-4 to Structure 0.5" Steel Plate Req'd.at Invert St'd.IS-1 Req'd
5-12 to 5-8	118' - 15" Storm Sewer Pipe Req'd.(6' Cover) Silt-Tight Joint Type Req'd. Inv(In)384.00 Inv(Out)382.90
5-13	1-St'd.DI-2B Req'd. L=6' H=6.1' Inv.=380.75 Top=386.86 Type B Nose Req'd. Connect UD-4 to Structure St'd.IS-1 Req'd
5-13 to 5-3	173' - 15" Storm Sewer Pipe Req'd.(5' Cover) Silt-Tight Joint Type Req'd. Inv(In)380.75 Inv(Out)379.25
5-14	1-St'd.DI-2B Req'd. L=8' H=4.5' Inv.=383.80 Top=388.30 Type B Nose Req'd. Connect UD-4 to Structure

Note: All Storm Sewer Pipes to be P.E. - Polyethylene Pipe

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2G

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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2G(1)

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5-14 to 5-13
140' - 15" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)383.80 Inv(Out)382.90

5-15
1 Cascade 5 Water Quality Structure Req'd.
Prop.Top=383.94
Inv.Pipe(In)=374.88 Inv.Pipe(Out)=374.88
Connect to Ex.24" Pipe
See Detail Sht.2H(1)

5-16
1-St'd.DI-3B Req'd.
L=12' H=5.4' Inv.=380.20 Top=385.63
Type B Nose Req'd.
St'd.IS-1 Req'd

5-16 to 5-3
34' - 24" Storm Sewer Pipe Req'd.(4' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)380.20 Inv(Out)379.70

5-17
1-St'd.DI-2B Req'd.
L=14' H=4.0' Inv.=381.20 Top=385.16
Type B Nose Req'd.

5-17 to 5-5
55' - 18" Storm Sewer Pipe Req'd.(4' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)381.20 Inv(Out)380.90

Sheet 6

6-1
1-St'd.DI-3B Req'd.
L=6' H=5.1' Inv.=390.50 Top=395.59
Type B Nose Req'd.
Connect UD-4 to Structure

6-1 to 6-2
36' - 15" Storm Sewer Pipe Req'd.(4' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)390.50 Inv(Out)390.10

6-2
1-St'd.DI-2B Req'd.
L=10' H=6.0' Inv.=390.00 Top=396.02
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd

6-2 to 5-12
111' - 15" Storm Sewer Pipe Req'd.(5' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)390.00 Inv(Out)388.42

6-3
1-St'd.DI-3B Req'd.
L=6' H=4.3' Inv.=403.50 Top=407.81
Type B Nose Req'd.
Connect UD-4 and filterra Drain to Structure

6-3 to 6-4
31' - 15" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)403.50 Inv(Out)403.00

6-3A
1- Filterra Tree Box (6'x4')
Inv.=404.27 Top= 407.81
1-3'x3' Tree Grate
14'-4" SDR 35 PVC Outfall Pipe to Str.6-3
See Detail, Sheet 2H(6)

6-4
1-St'd.DI-2B Req'd.
L=6' H=5.3' Inv.=402.10 Top=407.39
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd

Note: All Storm Sewer Pipes to be PE - Polyethylene Pipe

6-4 to 6-9
18' - 15" Storm Sewer Pipe Req'd.(5' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)402.10 Inv(Out)401.90

6-5
1-St'd.DI-7 Type III Grate Req'd.
H=3.7' Inv.=402.00 Top=405.68

6-5 to 6-9
8' - 15" Storm Sewer Pipe Req'd.(4' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)402.00 Inv(Out)401.90

6-6
1-St'd.DI-3A Req'd.
H=5.8' Inv.=398.30 Top=404.85
Type B Nose Req'd.
Connect to Ex.15" Pipe
Connect UD-4 to Structure

6-7
Structure Number Not Used

6-8
Modify Existing MH
Adjust to Grade, Raise 0.3 ft
1 St'd.MH-1 Frame and Cover Req'd.
Prop.Top=404.77
Connect to Prop 15" Pipe

6-9
Modify Existing DI
Adjust to Grade, Raise 3.1 ft
1 St'd.MH-1 Frame and Cover Req'd.
Prop.Top=407.55
Connect to 2 proposed 15" Pipes

6-10
Structure Number Not Used

6-11
Structure Number Not Used

6-12
1-St'd.DI-2B Req'd.
L=6' H=5.2' Inv.=401.00 Top=406.22
Type B Nose Req'd.
Connect UD-4 to Structure

6-12 to 6-8
38' - 15" Storm Sewer Pipe Req'd.(4' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)401.00 Inv(Out)400.00

Sheet 7

7-1
Structure Number Not Used

7-2
Structure Number Not Used

7-3
1-St'd.DI-3B Req'd.
L=8' H=4.0' Inv.=400.00 Top=404.04
Type B Nose Req'd.
Connect UD-4 to Structure

7-3 to 7-10
26' - 15" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)400.00 Inv(Out)399.80

7-4
1-St'd.DI-2B Req'd.
L=6' H=7.7' Inv.=391.00 Top=398.71
Type B Nose Req'd.
0.5" Steel Plate Req'd.at Invert
1-St'd.IS-1 Req'd.
Connect UD-4 to Structure
Contractor to Provide Shop Drawing

7-4 to 7-6
200' - 15" Storm Sewer Pipe Req'd.(6' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)391.00 Inv(Out)387.00

7-5
1-St'd.DI-3B Req'd.
L=8' H=4.1' Inv.=386.75 Top=390.81
Type B Nose Req'd.
Connect UD-4 to Structure

7-5 to 7-6
26' - 15" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)386.75 Inv(Out)386.50

7-6
1-St'd.DI-2B Req'd.
L=6' H=4.7' Inv.=386.40 Top=391.10
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd.

7-6 to 8-1
102' - 24" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)386.40 Inv(Out)385.50

7-7
Structure Number Not Used

7-8
1-Modified.DI-7 Type III Grate Req'd.
H=3.2' Inv.=388.30 Top=391.50

7-8 to 7-6
43' - 24" Storm Sewer Pipe Req'd.(2' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)388.30 Inv(Out)387.45
Less than Minimum Cover

7-9
Structure Number Not Used

7-10
1-St'd.DI-2B Req'd.
L=8' H=8.3' Inv.=396.00 Top=404.30
Type B Nose Req'd.
1-St'd.IS-1 Req'd.
Connect UD-4 to Structure

7-10 to 7-4
108' - 15" Storm Sewer Pipe Req'd.(7' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)396.00 Inv(Out)393.25

Sheet 8

8-1
1-St'd.DI-2C Req'd.
L=14' H=4.7' Inv.=385.40 Top=390.14
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd

8-1 to 8-4
100' - 24" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)385.40 Inv(Out)384.25

8-2
1-St'd.DI-3C Req'd.
L=10' H=5.9' Inv.=384.00 Top=389.86
Type B Nose Req'd.
Connect 2 UD-4 to Structure
Connect CD-2 to Structure

8-2 to 8-3
92' - 15" Storm Sewer Pipe Req'd.(4' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)384.00 Inv(Out)383.00

8-3
1-St'd.DI-2BB Req'd.
L=6' H=9.3' Inv.=381.40 Top=390.71
Type B Nose Req'd.
1-St'd.IS-1 Req'd.
Connect to Ex.24" Pipe
Connect UD-4 to Structure

8-4
1-St'd.DI-2B Req'd.
L=6' H=8.8' Inv.=382.24 Top=391.00
Type B Nose Req'd.
Connect to Ex.24" Pipe
Connect UD-4 to Structure
St'd.IS-1 Req'd.

8-5
1-St'd.DI-2B Req'd.
L=10' H=4.7' Inv.=389.40 Top=394.07
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd.

8-5 to 8-12
84' - 18" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)389.40 Inv(Out)388.00

8-6
1-St'd.DI-3B Req'd.
L=6' H=4.4' Inv.=390.00 Top=394.35
Type B Nose Req'd.
Connect UD-4 to Structure

8-6 to 8-5
39' - 15" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)390.00 Inv(Out)389.50

8-7
1-St'd.DI-3B Req'd.
L=6' H=4.1' Inv.=391.20 Top=395.26
Type B Nose Req'd.
St'd.IS-1 Req'd

8-7 to 8-5
80' - 15" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)391.20 Inv(Out)390.75

8-8
1-St'd.DI-3B Req'd.
L=8' H=4.0' Inv.=391.50 Top=395.53
Type B Nose Req'd.

8-8 to 8-7
34' - 15" Storm Sewer Pipe Req'd.(3' Cover)
SIit-Tight Joint Type Req'd.
Inv(In)391.50 Inv(Out)391.25

8-10
1- Cascade 5 Water Quality Structure Req'd.
Prop.Top=390.80
Inv.Pipe(In)=381.40 Inv.Pipe(Out)=381.34
Connect to Ex.24" Pipe
See Detail Sht.2H(2)

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2G(1)

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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
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8-11 Structure Number Not Used

8-12 1-St'd.DI-2B Req'd.
L=10' H=4.3' Inv.=387.90 Top=392.24
Type B Nose Req'd.
St'd.IS-1 Req'd
Connect to UD-4

8-12 to 8-4 107' - 18" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)387.90 Inv(Out)385.00

Sheet 9

9-1 1-St'd.DI-2B Req'd.
L=6' H=8.7' Inv.=387.10 Top=395.80
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd.

9-1 to 9-13 125' - 15" Storm Sewer Pipe Req'd.(7' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)387.10 Inv(Out)386.70

9-2 1-St'd.DI-3B Req'd.
L=6' H=4.7' Inv.=390.50 Top=395.19
Type B Nose Req'd.
Connect UD-4 to Structure

9-2 to 9-1 36' - 15" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)390.50 Inv(Out)390.25

9-3 1-St'd.DI-2B Req'd.
L=6' H=5.6' Inv.=384.60 Top=390.15
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd

9-3 to 9-4 26' - 18" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)384.60 Inv(Out)384.25

9-4 1-St'd.DI-3B Req'd.
L=6' H=5.7' Inv.=384.00 Top=389.68
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd

9-4 to 9-6 259' - 18" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)384.00 Inv(Out)381.50

9-5 1-St'd.DI-2B Req'd.
L=6' H=4.5' Inv.=381.10 Top=385.61
Type B Nose Req'd.
Connect UD-4 to Structure

9-5 to 9-15 84' - 15" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)381.10 Inv(Out)380.55

9-6 1-St'd.DI-3B Req'd.
L=6' H=4.2' Inv.=380.90 Top=385.14
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd

9-6 to 9-8 81' - 18" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)380.90 Inv(Out)379.60

9-7 41 Lin.Ft. St'd.MH-1 or 2 Req'd.
1 St'd.MH-1 Frame and Cover Req'd.
Prop.Top=384.58
Inv.=380.04
1-St'd.IS-1 Req'd.
Connect to Ex.15" Pipe

9-8 1-St'd.DI-3C Req'd.
L=10' H=5.0' Inv.=379.50 Top=384.48
Type B Nose Req'd.
Connect 2 UD-4 to Structure
St'd.IS-1 Req'd.

9-8 to 9-16 19' - 18" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)379.50 Inv(Out)379.10

9-9 1-St'd.DI-5 Type III Grate Req'd.
St'd.PG-2A Type A Cover
H=3.0' Inv.=380.66 Top=383.65

9-9 to 9-15 48' - 15" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)380.66 Inv(Out)380.36

9-10A 1- Filterra Tree Box (4'x8')
Inv.=387.50 Top= 391.52
1-3'x3' Tree Grate
6'-5" SDR 35 PVC Outfall Pipe to Str.9-10
See Detail, Sheet 2H(7).

9-10 1-St'd.DI-3B Req'd.
L=6' H=4.8' Inv.=387.00 Top=391.80
Type B Nose Req'd.
Connect UD-4 to Structure

9-10 to 9-4 124' - 15" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)387.00 Inv(Out)385.50

9-11 1-St'd.DI-3B Req'd.
L=10' H=2.7' Inv.=386.15 Top=388.80
Type B Nose Req'd.

9-11 to 9-3 61' - 15" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)386.15 Inv(Out)385.65

9-12 1-St'd.DI-2B Req'd.
L=6' H=6.9' Inv.=385.40 Top=392.27
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd.

9-12 to 9-3 124' - 15" Storm Sewer Pipe Req'd.(5' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)385.40 Inv(Out)384.70

9-13 1-St'd.DI-2B Req'd.
L=6' H=7.0' Inv.=386.60 Top=393.62
Type B Nose Req'd.
1-St'd.IS-1 Req'd.
Connect UD-4 to Structure

9-13 to 9-12 84' - 15" Storm Sewer Pipe Req'd.(5' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)386.60 Inv(Out)385.50

Note: All Storm Sewer Pipes to be PE - Polyethylene Pipe

9-14 1 Cascade 4 Water Quality Structure Req'd.
Prop.Top=384.08
Inv.Pipe(In)=378.12 Inv.Pipe(Out)=373.77
Connect to Ex.18" Pipe (2)
See Detail Sht.2H(3)

9-15 1-St'd.DI-2C Req'd.
L=10' H=4.6' Inv.=380.26 Top=384.89
Type B Nose Req'd.
Connect 2 UD-4 to Structure
St'd.IS-1 Req'd

9-15 to 9-7 23' - 15" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)380.26 Inv(Out)380.14

9-16 5.3 Lin.Ft. St'd.MH-1 or 2 Req'd.
1 St'd.MH-1 Frame and Cover Req'd.
Prop.Top=384.48
Inv.=378.53
1-St'd.IS-1 Req'd.
Connect to Ex.18" Pipe

Sheet 10

10-1 1-St'd.DI-2B Req'd.
L=4' H=4.2' Inv.=381.00 Top=385.21
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd

10-1 to 9-7 48' - 15" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)381.00 Inv(Out)380.50

10-2 1-St'd.DI-3B Req'd.
L=4' H=4.4' Inv.=381.00 Top=385.39
Type B Nose Req'd.
Connect UD-4 to Structure

10-2 to 9-16 67' - 15" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)381.00 Inv(Out)379.75

10-3A 1- Filterra Tree Box (4'x8')
Inv.=383.75 Top= 387.50
1-3'x3' Tree Grate
6'-6" SDR 35 PVC Outfall Pipe to Str.10-3
See Detail, Sheet 2H(7).

10-3 1-St'd.DI-2B Req'd.
L=6' H=4.7' Inv.=383.50 Top=388.15
Type B Nose Req'd.
Connect UD-4 to Structure

10-3 to 10-1 172' - 15" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)383.50 Inv(Out)381.74

10-4 1-St'd.DI-2B Req'd.
L=4' H=4.1' Inv.=386.00 Top=390.06
Type B Nose Req'd.
Connect UD-4 and Filterra Drain to Structure

10-4 to 10-5 56' - 15" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)386.00 Inv(Out)385.50

10-4A 1- Filterra Tree Box (4'x8')
Inv.=386.52 Top= 390.06
1-3'x3' Tree Grate
7'-4" SDR 35 PVC Outfall Pipe to Str.10-4
See Detail, Sheet 2H(7).

10-5 1-St'd.DI-2C Req'd.
L=8' H=4.6' Inv.=385.40 Top=389.95
Type B Nose Req'd.
Connect 2 UD-4 to Structure
St'd.IS-1 Req'd

10-5 to 10-6 49' - 15" Storm Sewer Pipe Req'd.(3' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)385.40 Inv(Out)385.00

10-6 1-St'd.DI-2B Req'd.
L=4' H=5.1' Inv.=384.90 Top=390.00
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd.

10-6 to 11-1 259' - 15" Conc.Pipe Class III Req'd.(5' Cover)
(2770' Radius) with Open Joints - Using 8' Pipe Joint Lengths)
Joints are to be opened a maximum of 25% of spigot or tongue length
Inv(In)384.90 Inv(Out)382.75
Silt-Tight joint type Req'd.

Sheet 11

11-1 1-St'd.DI-2B Req'd.
L=4' H=7.0' Inv.=382.00 Top=388.95
Type B Nose Req'd.
Connect UD-4 to Structure
St'd.IS-1 Req'd.

11-1 to 11-3 282' - 15" Storm Sewer Pipe Req'd.(6' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)382.00 Inv(Out)378.24

11-2 Structure Number Not Used

11-3 1-St'd.DI-2B Req'd.
L=8' H=5.6' Inv.=376.25 Top=381.83
Type B Nose Req'd.
1-St'd.IS-1 Req'd.
Connect UD-4 to Structure

11-3 to 11-4 143' - 15" Storm Sewer Pipe Req'd.(4' Cover)
Silt-Tight Joint Type Req'd.
Inv(In)376.25 Inv(Out)372.25

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2G(2)

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

DRAINAGE DESCRIPTIONS

NIKHIL V. DESHPANDE
Lic. No. 045430
COMMONWEALTH OF VIRGINIA
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2G(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

11-4	I-Std.DI-2B Req'd. L=8' H=4.8' Inv.=371.75 Top=376.55 Type B Nose Req'd. I-Std.IS-I Req'd. Connect UD-4 to Structure
11-4 to 12-1	117' - 15" Storm Sewer Pipe Req'd.(3' Cover) Silt-Tight Joint Type Req'd. Inv(In)371.75 Inv(Out)368.00
Sheet 12	
12-1	I-Std.DI-2B Req'd. L=8' H=5.5' Inv.=366.80 Top=372.27 Type B Nose Req'd. I-Std.IS-I Req'd. Connect UD-4 to Structure
12-1 to 12-2	86' - 15" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)366.80 Inv(Out)363.50
12-2	I-Std.DI-2B Req'd. L=4' H=7.2' Inv.=361.90 Top=369.05 Type B Nose Req'd. I-Std.IS-I Req'd. Connect 2 UD-4 to Structure
12-2 to 12-3	115' - 18" Storm Sewer Pipe Req'd.(5' Cover) Silt-Tight Joint Type Req'd. Inv(In)361.90 Inv(Out)360.00
12-3	I-Std.DI-2B Req'd. L=10' H=5.0' Inv.=359.90 Top=364.89 Type B Nose Req'd. I-Std.IS-I Req'd. Connect UD-4 to Structure
12-3 to 12-4	112' - 18" Storm Sewer Pipe Req'd.(3' Cover) Silt-Tight Joint Type Req'd. Inv(In)359.90 Inv(Out)357.00
12-4	I-Std.DI-2B Req'd. L=4' H=6.2' Inv.=355.00 Top=361.20 Type B Nose Req'd. I-Std.IS-I Req'd. Connect UD-4 to Structure
12-4 to 12-7	93' - 18" Storm Sewer Pipe Req'd.(5' Cover) Silt-Tight Joint Type Req'd. Inv(In)355.00 Inv(Out)353.00
12-5	4.5 Lin.Ft.Std.MH-I or 2 Req'd. I Std.MH-I Frame and Cover Req'd. Prop.Top=360.70 Inv.=355.50 I-Std.IS-I Req'd. Connect to Prop 15" Pipe
12-5 to 12-4	21' - 15" Storm Sewer Pipe Req'd.(5' Cover) Silt-Tight Joint Type Req'd. Inv(In)355.50 Inv(Out)355.20
12-7	Modify Ex MH Add Std DI- 2B,L=8' Prop Top=356.63 Type B Nose Req'd. I-Std.IS-I Req'd. Connect to Ex 15" Pipe Connect UD-4 to Structure
12-8	Structure Number Not Used
12-9	Structure Number Not Used
12-10	I-Std.DI-2B Req'd. L=12' H=8.0' Inv.=338.00 Top=345.95 Type B Nose Req'd. Connect UD-4 to Structure
12-10 to 13-2	95' - 15" Storm Sewer Pipe Req'd.(7' Cover) Silt-Tight Joint Type Req'd. Inv(In)338.00 Inv(Out)334.00
Sheet 13	
13-1	I-Std.DI-2B Req'd. L=10' H=7.0' Inv.=319.75 Top=326.70 Type B Nose Req'd. I-Std.IS-I Req'd. Connect UD-4 to Structure
13-1 to 13-4	149' - 15" Storm Sewer Pipe Req'd.(5' Cover) Silt-Tight Joint Type Req'd. Inv(In)319.75 Inv(Out)314.00
13-2	I-Std.DI-2B Req'd. L=14' H=9.0' Inv.=331.00 Top=340.02 Type B Nose Req'd. I-Std.IS-I Req'd. Connect UD-4 to Structure
13-2 to 13-3	75' - 15" Storm Sewer Pipe Req'd.(6' Cover) Silt-Tight Joint Type Req'd. Inv(In)331.00 Inv(Out)329.00
13-3	I-Std.DI-2BB Req'd. L=10' H=9.2' Inv.=326.00 Top=335.22 Type B Nose Req'd. I-Std.IS-I Req'd. Connect UD-4 to Structure
13-3 to 13-1	152' - 15" Storm Sewer Pipe Req'd.(7' Cover) Silt-Tight Joint Type Req'd. Inv(In)326.00 Inv(Out)322.00
13-4	I-Std.DI-2B Req'd. L=8' H=8.1' Inv.=309.50 Top=317.56 Type B Nose Req'd. 0.5" Steel Plate Req'd.at Invert I-Std.IS-I Req'd. Connect UD-4 to Structure
13-4 to 14-1	109' - 15" Storm Sewer Pipe Req'd.(6' Cover) Silt-Tight Joint Type Req'd. Inv(In)309.50 Inv(Out)304.25
Sheet 14	
14-1	I-Std.DI-2B Req'd. L=6' H=6.8' Inv.=303.20 Top=310.04 Type B Nose Req'd. 0.5" Steel Plate Req'd.at Invert I-Std.IS-I Req'd. Connect UD-4 to Structure Contractor to Provide Shop Drawing
14-1 to 14-14	107' - 18" Storm Sewer Pipe Req'd.(5' Cover) Silt-Tight Joint Type Req'd. Inv(In)303.20 Inv(Out)300.05
14-2	I-Std.DI-2B Req'd. L=8' H=1.3' Inv.=305.50 Top=306.77 Type B Nose Req'd. Connect to UD-4 Structure
14-2 to 14-15	18' - 15" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)305.50 Inv(Out)305.10
14-3	Structure Number Not Used
14-4	I-Std.DI-2B Req'd. L=6' H=5.9' Inv.=296.00 Top=301.91 Type B Nose Req'd. Connect UD-4 to Structure Std.IS-I Req'd
14-4 to 14-5	77' - 24" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)296.00 Inv(Out)295.00
14-5	I-Std.DI-3B Req'd. L=8' H=4.6' Inv.=294.75 Top=299.30 Type B Nose Req'd. Connect UD-4 to Structure Std.IS-I Req'd
14-5 to 14-8	6' - 30" Storm Sewer Pipe Req'd.(2' Cover) Silt-Tight Joint Type Req'd. Inv(In)294.75 Inv(Out)294.70
14-6	I-Std.DI-3B Req'd. L=6' H=4.4' Inv.=295.50 Top=299.86 Type B Nose Req'd. Connect Outlet Pipe to Structure
14-6 to 14-5	38' - 15" Storm Sewer Pipe Req'd.(3' Cover) Silt-Tight Joint Type Req'd. Inv(In)295.50 Inv(Out)295.00
14-7	I-Std.DI-3B Req'd. L=6' H=5.0' Inv.=292.00 Top=297.01 Type B Nose Req'd. Connect to Ex.15" Pipe
14-8	I-Std.ES-I (30") Req'd. Inv.=294.70
14-9	6.0 Lin.Ft.Std.MH-I or 2 Req'd. I Std.MH-I Frame and Cover Req'd.(ADA Accessible) Prop.Top=304.91 Inv.=298.20 I-Std.IS-I Req'd. Connect to Ex 18" Pipe
14-10	I-Std.DI-2B Req'd. L=10' H=6.6' Inv.=298.80 Top=305.40 Type B Nose Req'd.
14-10 to 14-9	16' - 15" Storm Sewer Pipe Req'd.(6' Cover) Silt-Tight Joint Type Req'd. Inv(In)298.80 Inv(Out)298.40
14-11	I-Std.DI-2B Req'd. L=6' H=6.6' Inv.=297.40 Top=303.98 Type B Nose Req'd. I-Std.IS-I Req'd. Connect to UD-4 to Structure
14-11 to 14-14	17' - 24" Storm Sewer Pipe Req'd.(5' Cover) Silt-Tight Joint Type Req'd. Inv(In)297.40 Inv(Out)297.15
14-12	6.3 Lin.Ft.Std.MH-I or 2 Req'd. I Std.MH-I Frame and Cover Req'd.(ADA Accessible) Prop.Top=304.73 Inv.=297.80 I-Std.IS-I Req'd. Connect to Ex 18" Pipe
14-12 to 14-11	18' - 24" Storm Sewer Pipe Req'd.(6' Cover) Silt-Tight Joint Type Req'd. Inv(In)297.80 Inv(Out)297.50
14-14	5.8 Lin.Ft.Std.MH-I or 2 Req'd. I Std.MH-I Frame and Cover Req'd. Prop.Top=303.46 Inv.=297.00 I-Std.IS-I Req'd.
14-14 to 14-4	31' - 24" Storm Sewer Pipe Req'd.(4' Cover) Silt-Tight Joint Type Req'd. Inv(In)297.00 Inv(Out)296.50
14-15	I-Std.ES-I or 2 (15") Req'd. Inv.=305.10 1 CY EC-I Class I Type A Installation Req'd.

Note: All Storm Sewer Pipes to be P.E. - Polyethylene Pipe

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2G(3)

4/22/2025

FINAL PLANS

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PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

EXISTING DRAINAGE DESCRIPTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2G(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

1 In.Pl.Storm MH
Top=372.84
Inv.In=366.16 (From 2)
Inv.In=365.36 (From 8)
Inv.In=366.86 (From 11)
Inv.Out=363.75

2 In.Pl.Storm MH
Top=372.28
Inv.In=369.05 (From 13)
Inv.In=366.80 (From 16)
Inv.In=366.77 (From 3)
Inv.Out=366.67

3 In.Pl.Storm MH
Top=372.07
Inv.In=367.11 (From 4)
Inv.In=369.19 (From 15")
Inv.Out=367.00

4 In.Pl.Storm MH
Top=372.13
Inv.In=367.16 (From 5)
Inv.In=368.22 (From 15")
Inv.Out=367.12

5 In.Pl.Storm MH
Top=372.63
Inv.In=368.01 (From 6)
Inv.In=368.49 (From 17)
Inv.Out=367.82

6 In.Pl.Storm Inlet
Top=373.25
Inv.In=369.75 (From 7)
Inv.In=369.23 (From 36")
Inv.Out=368.65

7 In.Pl.Storm Inlet
Top=385.35
Inv.In=377.33
Inv.Out=376.91

8 In.Pl.Storm Grate
Top=372.28
Inv.In=366.18 (From 9)
Inv.In=366.15 (From 12)
Inv.Out=366.08

9 In.Pl.Storm Inlet
Top=373.31
Inv.In=366.91
Inv.Out=366.80

10 In.Pl.Storm MH
Top=373.82
Inv.In=367.95
Inv.Out=367.81

11 In.Pl.Storm Inlet
Top=372.27
Inv.Out=367.00

12 In.Pl.Storm Inlet
Top=374.39
Inv.Out=369.04

13 In.Pl.Storm MH
Top=376.47
Inv.In=373.16 (From 14)
Inv.In=373.52 (From 15)
Inv.Out=372.88

14 In.Pl.Storm MH
Top=380.89
Inv.In=377.65
Inv.Out=376.07

15 In.Pl.Storm Inlet
Top=376.54
Inv.In=373.65
Inv.Out=373.59

16 In.Pl.Storm Inlet
Top=372.27
Inv.Out=367.02

17 In.Pl.Storm Inlet
Top=372.36
Inv.Out=368.89

18 In.Pl.Storm Grate
Top=386.47
Inv.In=381.81 (From 20)
Inv.In=383.70 (From 19)
Inv.Out=381.60

19 In.Pl.Storm Inlet
Top=390.48
Inv.In=385.93
Inv.Out=385.88

20 In.Pl.Storm Inlet
Top=385.95'
Inv.Out=383.49'

21 In.Pl.Storm Inlet
Top=384.57
Inv.In=380.12 (From 23)
Inv.In=375.25 (From 22)
Inv.In=381.28 (From 26)
Inv.In=381.06 (From 27)
Inv.Out=374.99

22 In.Pl.Storm Inlet
Top=384.46
Inv.In=380.50 (From 23)
Inv.In=378.71 (From 25)
Inv.Out=376.19

23 In.Pl.Storm Grate
Top=383.79
Inv.In=381.17 (From 24)
Inv.In=381.16 (From 21)
Inv.Out=380.95

24 In.Pl.Storm Inlet
Top=385.23
Inv.Out=381.91

25 In.Pl.Storm Inlet
Top=387.68
Inv.Out=384.17

26 In.Pl.Storm Inlet
Top=385.27
Inv.Out=381.72

27 In.Pl.Storm Inlet
Top=384.97
Inv.Out=381.41

28 In.Pl.Storm MH
Top=404.77
Inv.In=398.04 (From 29)
Inv.In=397.95 (From 32)
Inv.Out=397.77

29 In.Pl.Storm Grate
Top=404.96
Inv.In=401.91
Inv.Out=401.76

30 In.Pl.Storm Grate
Top=407.32
Inv.In=404.22
Inv.Out=402.82

31 In.Pl.Storm Grate
Top=408.57
Inv.Out=405.11

32 In.Pl.Storm Grate
Top=403.48
Inv.Out=398.43

34 In.Pl.Storm Pipe
Plugged w/ Conc.

35 In.Pl.Storm Inlet
Top=389.87
Inv.In=381.05 (From 36)
Inv.In=381.46 (From SW)
Inv.Out=380.93

36 In.Pl.Storm Grate
Top=389.96
Inv.In=384.20 (From 42)
Inv.In=383.41 (From 37)
Inv.Out=382.65

37 In.Pl.Storm Grate
Top=389.40
Inv.In=384.12
Inv.Out=384.00

38 In.Pl.Storm Grate
Top=388.88
Inv.In=385.46
Inv.Out=384.63

39 In.Pl.Storm Grate
Top=389.53
Inv.In=387.71
Inv.Out=386.68

40 In.Pl.Storm Grate
Top=389.92
Inv.=388.26

41 In.Pl.Storm End Wall
Inv.=392.12

42 In.Pl.Storm Grate
Top=391.05
Inv.In=388.03
Inv.Out=386.35

43 In.Pl.Storm Inlet
Top=392.62
Inv.Out=388.77

44 In.Pl.Storm Grate
Top=389.31
Inv.Out=384.23

45 In.Pl.Storm Inlet
Top=383.85
Inv.In=378.12
Inv.Out=373.77

46 In.Pl.Storm Pipe
Inv.=380.95

47 In.Pl.Storm MH
Top=356.10
Inv.In=351.48 (From 48)
Inv.Out=350.83 (To 56)

48 In.Pl.Storm Inlet
Top=357.25
Inv.In=352.72
Inv.Out=352.67

49 In.Pl.Storm MH
Top=360.61
Inv.In=358.28 (From 52)
Inv.In=355.44 (From 50)
Inv.In=358.31 (From 15")
Inv.Out=355.28

50 In.Pl.Storm Inlet
Top=365.57
Inv.In=360.96
Inv.Out=360.65

51 In.Pl.Storm Inlet
Top=371.49
Inv.Out=363.93

52 In.Pl.Endwall
Top=360.73
Inv.Out=358.38

53 In.Pl.End Section
Inv.=334.39

54 In.Pl.Storm Grate
Top=337.56
Inv.In=335.11
Inv.Out=334.93

55 In.Pl.Storm Grate
Top=340.98
Inv.In=339.73
Inv.Out=337.03

56 In.Pl.Storm MH
Top=345.09
Cannot Open Structure
Lid Sealed Shut (3/6/23)

57 In.Pl.End Section
Inv.=294.62

58 In.Pl.Storm Inlet
Top=305.05
Inv.In=297.84
Inv.Out=297.80

59 In.Pl.Storm Inlet
Top=305.14
Inv.In=298.50
Inv.Out=298.24

60 In.Pl.Yard Inlet
Top=305.83
Inv.In=301.63
Inv.Out=299.02

61 In.Pl.Culvert
Invert Buried

62 In.Pl.Culvert
Inv.=292.37

63 In.Pl.Culvert
Invert Buried

64 In.Pl.Culvert
Inv.=293.42

65 In.Pl.Storm Inlet
Top=297.36
Inv.In=289.02
Inv.Out=288.96

66 In.Pl.Storm MH
Top=297.44
Inv.In=290.92 (From 70)
Inv.In=290.11 (From 67)
Inv.Out=290.07

67 In.Pl.Storm Inlet
Top=297.28
Inv.In=290.92
Inv.Out=290.77

68 In.Pl.Storm Inlet
Top=297.11
Inv.In=291.36 (From 69)
Inv.In=291.99 (From 15")
Inv.Out=291.29

69 In.Pl.Storm Inlet
Top=298.45
Inv.In=292.75
Inv.Out=292.69

70 In.Pl.Storm Inlet
Top=297.34
Inv.In=291.14
Inv.Out=291.04

71 In.Pl.Storm Inlet
Top=296.98
Inv.Out=291.93

72 In.Pl.Storm Inlet
Top=296.08
Inv.In=287.87
Inv.Out=287.79

73 In.Pl.Storm MH
Top=296.84
Inv.In=289.52
Inv.Out=289.44

74 In.Pl.Storm MH
Top=295.76
Inv.In=288.10 (30")
Inv.In=291.02 (From 75)
Inv.Out=287.95

75 In.Pl.Storm Inlet
Top=296.14
Inv.In=291.38
Inv.Out=291.33

76 In.Pl.Storm Inlet
Top=296.20
Inv.Out=297.47

100 In.Pl.Storm Inlet
Top=376.59
Inv.In=369.54 (From 21)
Inv.In=367.40 (From SW)
Inv.Out=367.32

28A In.Pl.Storm Inlet
Top=396.01
Inv.In=391.02 (From 28)
Inv.Out=390.68

45A In.Pl.Storm Inlet
Top=370.79
Inv.In=365.97 (From 45)
Inv.Out=365.50

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2G(4)

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

DRAINAGE DETAILS

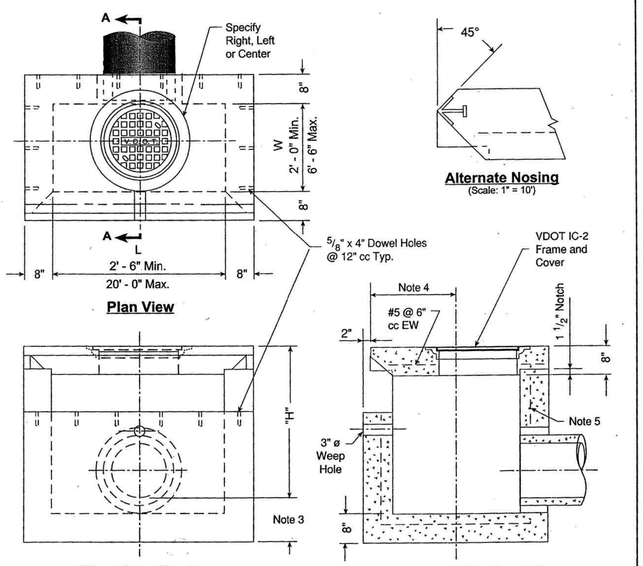
COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2G(5)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Circular Manholes / Vertical Structures Curb Inlets



Note:

(1.) Dimensions subject to permissible variation of ASTM C478.

(2.) Maximum pipe size to be 60" thru sides, no practical limit thru front or rear.

(3.) Invert to bottom of base = 10" minimum.

(4.) Manhole ℄ to top face of curb = $\frac{W}{2}$ + 6", $\frac{W}{2}$ + 8" to bottom face.

(5.) Reinforcement to be ASTM A615 #4 bars @ 6" ± E.W. unless noted. Material properties: f'_c = 4,000 p.s.i., f_y = 60,000 p.s.i. Concrete cover over reinforcement (CCOR) = 1.5".

(6.) Throat and gutter pan to be poured in field by others.

(7.) Non-traffic loading only.

12" pipe - 1.84'
15" pipe - 2.11'
18" pipe - 2.38'
21" pipe - 2.65'
24" pipe - 2.92'
27" pipe - 3.19'
30" pipe - 3.46'
33" pipe - 2.79'
36" pipe - 4.00'

-No Scale-
All dimensions subject to allowable specification tolerances.

TITLE	STATE	SECTION/PAGE	DATE
VDOT DI - 3 Curb Drop Inlet Monolithic Box Assembly Detail	VA	10.11	03-15-06

Hanson

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2G(5)

4/22/2025

FINAL PLANS

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DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

BMP Structure 5-15

CONTECH® ENGINEERED SOLUTIONS — CASCADE separator™ Flow-Based Sizing per VADEQ Regulations

Project Name:	Blenheim Boulevard		
Site Designation:	Str. 5-15	**Date:**	10/12/23
County or Independent City:	Fairfax	**Design Engineer:**	PWV
State:	VA		

Annual Rainfall (inches)	43	
Target Rainfall Event, P (inches)	1.00	

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	880	0.25	0.97
Impervious Cover	3724	0.95	1.08

Total Volume to be Treated	4605	cf
Total Effective Area to be Treated	2.05	ac
Composite Rv	0.62	
Time of Concentration (Tc)	17.90	min
Unit Peak Discharge (qu)	678	cfs/mi2/in
Treatment Volume Peak Discharge	1.34	cfs
Model Name	CS-5	

BMP Structure 8-10

CONTECH® ENGINEERED SOLUTIONS — CASCADE separator™ Flow-Based Sizing per VADEQ Regulations

Project Name:	Blenheim Boulevard		
Site Designation:	Str. 8-10	**Date:**	10/12/23
County or Independent City:	Fairfax	**Design Engineer:**	PWV
State:	VA		

Annual Rainfall (inches)	43	
Target Rainfall Event, P (inches)	1.00	

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	581	0.25	0.64
Impervious Cover	2379	0.95	0.69

Total Volume to be Treated	2960	cf
Total Effective Area to be Treated	1.33	ac
Composite Rv	0.61	
Time of Concentration (Tc)	8.00	min
Unit Peak Discharge (qu)	925	cfs/mi2/in
Treatment Volume Peak Discharge	1.18	cfs
Model Name	CS-5	

BMP Structure 9-14

CONTECH® ENGINEERED SOLUTIONS — CASCADE separator™ Flow-Based Sizing per VADEQ Regulations

Project Name:	Blenheim Boulevard		
Site Designation:	Str. 9-14	**Date:**	9/14/23
County or Independent City:	Fairfax	**Design Engineer:**	PWV
State:	VA		

Annual Rainfall (inches)	43	
Target Rainfall Event, P (inches)	1.00	

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	454	0.25	0.50
Impervious Cover	2448	0.95	0.71

Total Volume to be Treated	2902	cf
Total Effective Area to be Treated	1.21	ac
Composite Rv	0.66	
Time of Concentration (Tc)	11.00	min
Unit Peak Discharge (qu)	827	cfs/mi2/in
Treatment Volume Peak Discharge	1.03	cfs
Model Name	CS-4	

Note: For informational use only

4/22/2025

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H

FINAL PLANS

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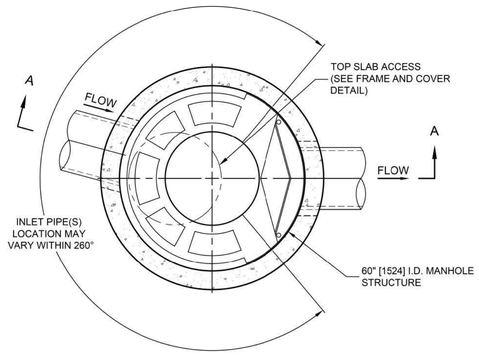
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

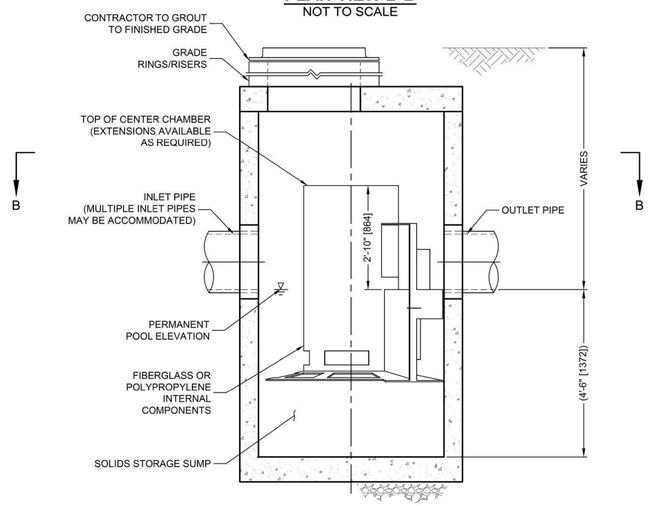
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(1)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

BMP Structure 5-15



PLAN VIEW B-B
NOT TO SCALE



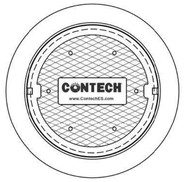
ELEVATION A-A
NOT TO SCALE

CASCADE separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-5 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			5-15
WATER QUALITY FLOW RATE (cfs [L/s])			1.34
PEAK FLOW RATE (cfs [L/s])			31.62
RETURN PERIOD OF PEAK FLOW (yrs)			10yr
RIM ELEVATION			383.94
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1	374.88	TBD	24"
INLET PIPE 2			
OUTLET PIPE	374.88	TBD	24"

NOTES / SPECIAL REQUIREMENTS:

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.contechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-5
CASCADE SEPARATOR
STANDARD DETAIL

I:\COMMON\CAD\TREATMENT\21 CASCADE\40 STANDARD DRAWINGS\DWG\IN PROCESS\CS-5-DTL.DWG 6/26/2023 2:45 PM

Note: For informational use only

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(1)

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

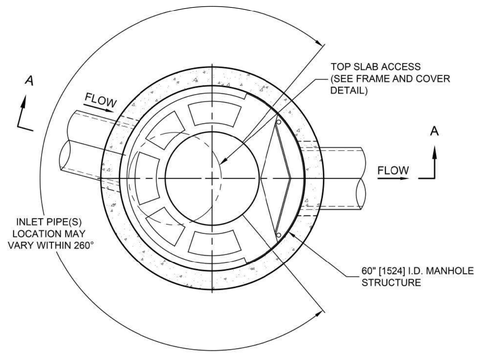
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

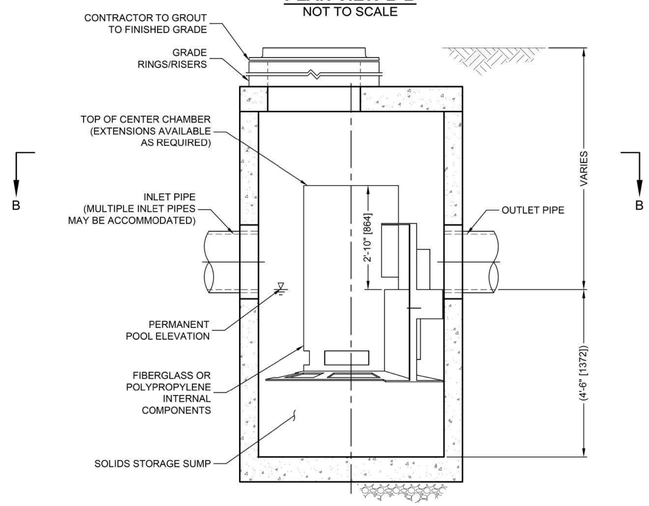
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

BMP Structure 8-10



PLAN VIEW B-B
NOT TO SCALE



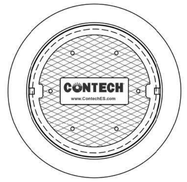
ELEVATION A-A
NOT TO SCALE

CASCADE separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-5 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			8-10
WATER QUALITY FLOW RATE (cfs [L/s])			1.18
PEAK FLOW RATE (cfs [L/s])			29.29
RETURN PERIOD OF PEAK FLOW (yrs)			10yr
RIM ELEVATION			390.80
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1	381.34	TBD	24"
INLET PIPE 2			
OUTLET PIPE	381.34	TBD	24"

NOTES / SPECIAL REQUIREMENTS:

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
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E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

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CS-5
CASCADE SEPARATOR
STANDARD DETAIL

I:\COMMON\CAD\TREATMENT\21 CASCADE\40 STANDARD DRAWINGS\DWG\IN PROCESS\CS-5-DTL.DWG 6/26/2023 2:45 PM

Note: For informational use only

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(2)

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

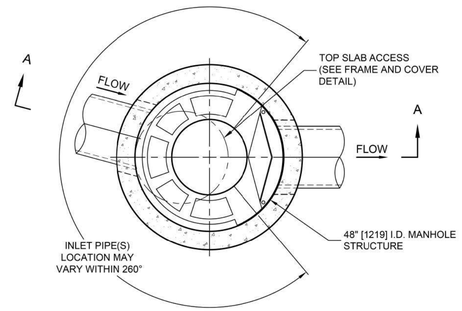
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

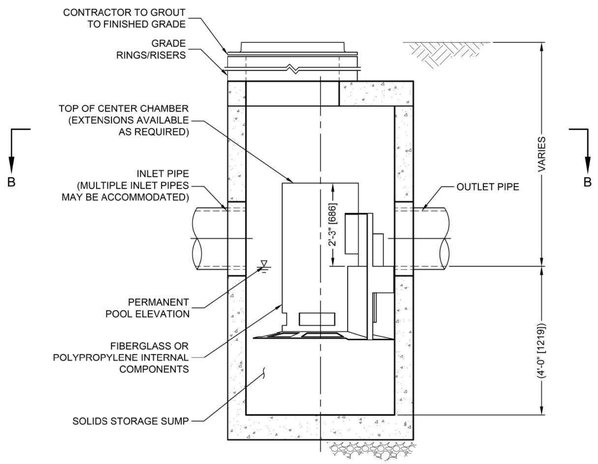
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

BMP Structure 9-14



PLAN VIEW B-B
NOT TO SCALE



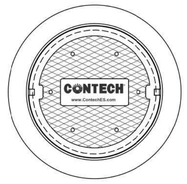
ELEVATION A-A
NOT TO SCALE

CASCADE separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-4 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			9-14
WATER QUALITY FLOW RATE (cfs [L/s])			1.14
PEAK FLOW RATE (cfs [L/s])			15.78
RETURN PERIOD OF PEAK FLOW (yrs)			10yr
RIM ELEVATION			384.08
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1	378.12	TBD	18"
INLET PIPE 2			
OUTLET PIPE	373.77	TBD	18"

NOTES / SPECIAL REQUIREMENTS:

GENERAL NOTES
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5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
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C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
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CS-4
CASCADE SEPARATOR
STANDARD DETAIL

I:\COMMONCAD\TREATMENT\21 CASCADE\40 STANDARD DRAWINGS\DWGIN PROCESS\CS-4-DTL.DWG 6/26/2023 2:43 PM

Note: For informational use only

4/22/2025

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(3)

FINAL PLANS

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PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

BMP Structure 4-2A

CONTECH® ENGINEERED SOLUTIONS — WQv-Based Sizing per VADEQ Regulations — filterra

Project Name:	Blenheim Boulevard		
Site Designation:	65% Filterra 4-2a	**Date:**	9/14/23
County or Independent City:	County	**Design Engineer:**	PWV
State:	VA		

Annual Rainfall (inches)	43
Target Rainfall Event, P (inches)	1.00

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	35	0.25	0.04
Impervious Cover	245	0.95	0.07

Total Volume to be Treated	280	cf
Total Effective Area to be Treated	0.11	ac
Composite Rv	0.70	

Filterra Sizing

Configuration Type	Standard Offline
Model Name	4x8 or 8x4

BMP Structure 6-3A

CONTECH® ENGINEERED SOLUTIONS — WQv-Based Sizing per VADEQ Regulations — filterra

Project Name:	Blenheim Boulevard		
Site Designation:	65% Filterra 6-3a	**Date:**	9/14/23
County or Independent City:	County	**Design Engineer:**	PWV
State:	VA		

Annual Rainfall (inches)	43
Target Rainfall Event, P (inches)	1.00

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	18	0.25	0.02
Impervious Cover	207	0.95	0.06

Total Volume to be Treated	225	cf
Total Effective Area to be Treated	0.08	ac
Composite Rv	0.78	

Filterra Sizing

Configuration Type	Standard Offline
Model Name	4x6 or 6x4

BMP Structure 10-4A

CONTECH® ENGINEERED SOLUTIONS — WQv-Based Sizing per VADEQ Regulations — filterra

Project Name:	Blenheim Boulevard		
Site Designation:	Filterra HC - 10-4a	**Date:**	9/14/23
County or Independent City:	Fairfax	**Design Engineer:**	PWV
State:	VA		

Annual Rainfall (inches)	43
Target Rainfall Event, P (inches)	1.00

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	24	0.22	0.03
Impervious Cover	241	0.95	0.07

Total Volume to be Treated	265	cf
Total Effective Area to be Treated	0.10	ac
Composite Rv	0.73	

Filterra HC Sizing

Phosphorus Removal	40%
Configuration Type	Standard Offline
Model Name	4x4

Note: For informational use only

4/22/2025

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(4)

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(5)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

BMP Structure 10-3A

CONTECH® ENGINEERED SOLUTIONS — WQv-Based Sizing per VADEQ Regulations — filterra

Project Name:	Blenheim Boulevard		
Site Designation:	10-3	**Date:**	12/9/24
County or Independent City:	Fairfax	**Designer**	KP
State:	VA		

Annual Rainfall (inches)	43
Target Rainfall Event, P (inches)	1.00

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0.22	0.00
Impervious Cover	517	0.95	0.15

Total Volume to be Treated	517	cf
Total Effective Area to be Treated	0.15	ac
Composite Rv	0.95	

Filterra Sizing

Phosphorus Removal	65%
Configuration Type	Standard Offline
Model Name	6x8 or 8x6

BMP Structure 9-10A

CONTECH® ENGINEERED SOLUTIONS — WQv-Based Sizing per VADEQ Regulations — filterra

Project Name:	Blenheim Boulevard		
Site Designation:	9-10	**Date:**	12/9/24
County or Independent City:	Fairfax	**Designer**	KP
State:	VA		

Annual Rainfall (inches)	43
Target Rainfall Event, P (inches)	1.00

Volume from Upstream Runoff Reduction Practice to BMP:

	Remaining Volume from Upstream RR Practice (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0	0.00
Impervious Cover	0	0.95	0.00

Volume from Additional Credit Area to BMP:

	Treatment Volume from Untreated Credit Area (cf)	Runoff Coefficient (R_v)	Effective Area (ac)
Managed Turf	0	0.22	0.00
Impervious Cover	345	0.95	0.10

Total Volume to be Treated	345	cf
Total Effective Area to be Treated	0.10	ac
Composite Rv	0.95	

Filterra Sizing

Phosphorus Removal	65%
Configuration Type	Standard Offline
Model Name	4.5x7.83 or 7.83x4.5

Note: For informational use only

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(5)

4/22/2025

FINAL PLANS

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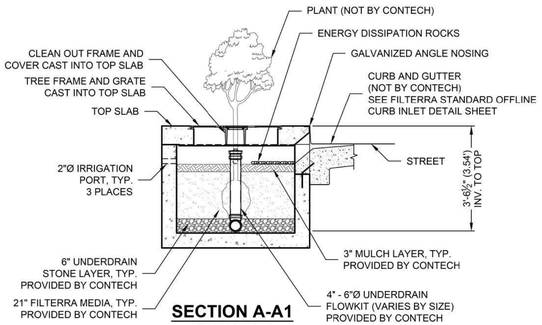
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

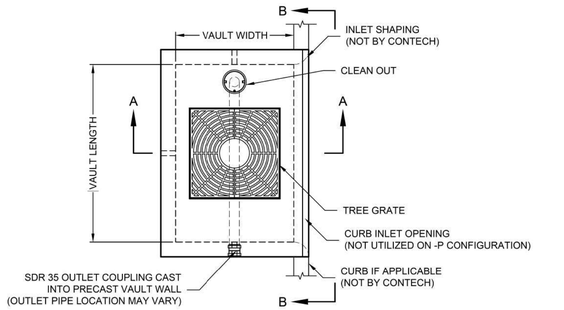
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(6)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

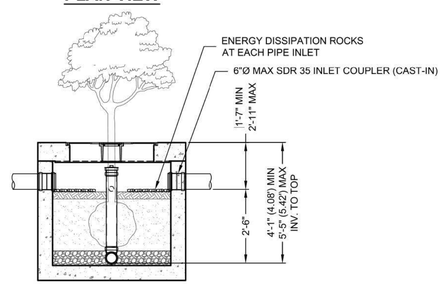
BMP Structures 4-2A



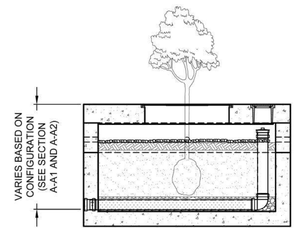
SECTION A-A1
THROAT INLET (-T)



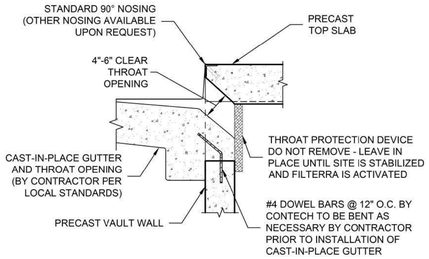
PLAN VIEW



SECTION A-A2
PIPE INLET (-P)



SECTION B-B



STANDARD CURB INLET DETAIL

FT CONFIGURATION
(OPTIONS: THROAT INLET "-T", PIPE INLET "-P")

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA	MIN. NO. OF INLET PIPES (-P ONLY)
~~4 x 4~~	~~16~~	~~FT0404~~	~~FT0404~~	~~ALL~~	~~4" SDR 35~~	~~1~~
~~6 x 4~~	~~24~~	~~FT0604~~	~~FT0406~~	~~ALL~~	~~4" SDR 35~~	~~1~~
8 x 4	32	FT0804	FT0408	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	4" SDR 35	1
~~7.83 x 4.5~~	~~35~~	~~FT078045~~	~~FT045078~~	DE,MD,NJ,PA,VA,WV ONLY	~~4" SDR 35~~	~~1~~
~~6 x 6~~	~~36~~	~~FT0606~~	~~FT0606~~	ALL (EXCEPT CA, TX)	~~4" SDR 35~~	~~1~~
~~8 x 6~~	~~48~~	~~FT0806~~	~~FT0608~~	~~ALL~~	~~4" SDR 35~~	~~1~~
~~10 x 6~~	~~60~~	~~FT1006~~	~~FT0610~~	~~ALL~~ (EXCEPT CA, TX)	~~6" SDR 35~~	~~2~~
~~8 x 8~~	~~64~~	~~FT0808~~	~~FT0808~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~12 x 6~~	~~72~~	~~FT1206~~	~~FT0612~~	~~ALL~~ (EXCEPT TX)	~~6" SDR 35~~	~~2~~
~~10 x 8~~	~~80~~	~~FT1008~~	~~FT0810~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~13 x 7~~	~~91~~	~~FT1307~~	~~FT0713~~	~~ALL~~ (EXCEPT CA, TX)	~~6" SDR 35~~	~~2~~
~~12 x 8~~	~~96~~	~~FT1208~~	~~FT0812~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~14 x 8~~	~~112~~	~~FT1408†~~	~~N/A~~	~~ALL~~	~~6" SDR 35~~	~~3~~
~~16 x 8~~	~~128~~	~~FT1608†~~	~~N/A~~	~~ALL~~ (EXCEPT OR,WA)	~~6" SDR 35~~	~~3~~
~~15 x 9~~	~~135~~	~~FT1509†~~	~~N/A~~	~~OR,WA ONLY~~	~~6" SDR 35~~	~~3~~
~~18 x 8~~	~~144~~	~~FT1808†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~3~~
~~20 x 8~~	~~160~~	~~FT2008†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~4~~
~~22 x 8~~	~~176~~	~~FT2208†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~4~~

†UTILIZES (2) CURB OPENINGS WITH MIN 6" SPACING

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
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FILTERRA OFFLINE (FT) CONFIGURATION DETAIL

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Note: For informational use only

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NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(6)

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

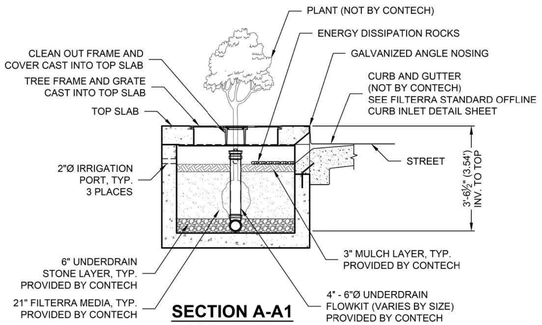
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

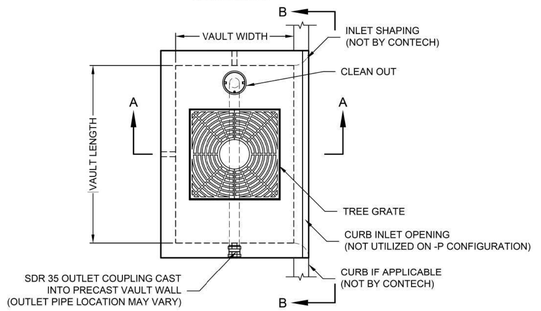
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(7)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

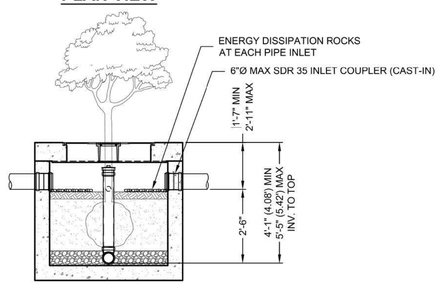
BMP Structure 6-3A



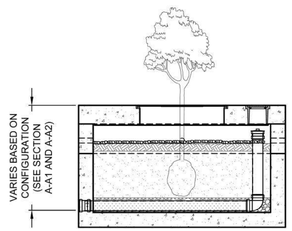
SECTION A-A1
THROAT INLET (-T)



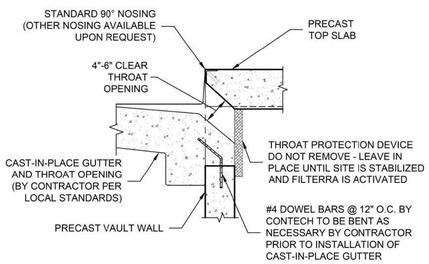
PLAN VIEW



SECTION A-A2
PIPE INLET (-P)



SECTION B-B



STANDARD CURB INLET DETAIL

FT CONFIGURATION
(OPTIONS: THROAT INLET "-T", PIPE INLET "-P")

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA	MIN. NO. OF INLET PIPES (-P ONLY)
~~4 x 4~~	~~16~~	~~FT0404~~	~~FT0404~~	~~ALL~~	~~4" SDR 35~~	~~1~~
6 x 4	24	FT0604	FT0406	ALL	4" SDR 35	1
~~8 x 4~~	~~32~~	~~FT0804~~	~~FT0408~~	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	~~4" SDR 35~~	~~1~~
~~7.83 x 4.5~~	~~35~~	~~FT078045~~	~~FT045078~~	DE,MD,NJ,PA,VA,WV ONLY	~~4" SDR 35~~	~~1~~
~~6 x 6~~	~~36~~	~~FT0606~~	~~FT0606~~	ALL (EXCEPT CA, TX)	~~4" SDR 35~~	~~1~~
~~8 x 6~~	~~48~~	~~FT0806~~	~~FT0608~~	~~ALL~~	~~4" SDR 35~~	~~1~~
10 x 6	60	FT1006	FT0610	ALL (EXCEPT CA, TX)	6" SDR 35	2
~~8 x 8~~	~~64~~	~~FT0808~~	~~FT0808~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~12 x 6~~	~~72~~	~~FT1206~~	~~FT0612~~	ALL (EXCEPT TX)	~~6" SDR 35~~	~~2~~
~~10 x 8~~	~~80~~	~~FT1008~~	~~FT0810~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~13 x 7~~	~~91~~	~~FT1307~~	~~FT0713~~	ALL (EXCEPT CA, TX)	~~6" SDR 35~~	~~2~~
~~12 x 8~~	~~96~~	~~FT1208~~	~~FT0812~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~14 x 8~~	~~112~~	~~FT1408†~~	~~N/A~~	~~ALL~~	~~6" SDR 35~~	~~3~~
~~16 x 8~~	~~128~~	~~FT1608†~~	~~N/A~~	ALL (EXCEPT OR,WA)	~~6" SDR 35~~	~~3~~
~~15 x 9~~	~~135~~	~~FT1509†~~	~~N/A~~	~~OR,WA ONLY~~	~~6" SDR 35~~	~~3~~
~~18 x 8~~	~~144~~	~~FT1808†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~3~~
~~20 x 8~~	~~160~~	~~FT2008†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~4~~
~~22 x 8~~	~~176~~	~~FT2208†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~4~~

†UTILIZES (2) CURB OPENINGS WITH MIN 6" SPACING

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9100 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

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FILTERRA OFFLINE (FT) CONFIGURATION DETAIL

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Note: For informational use only

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NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(7)

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

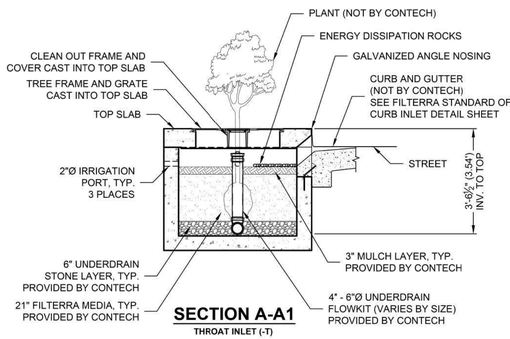
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

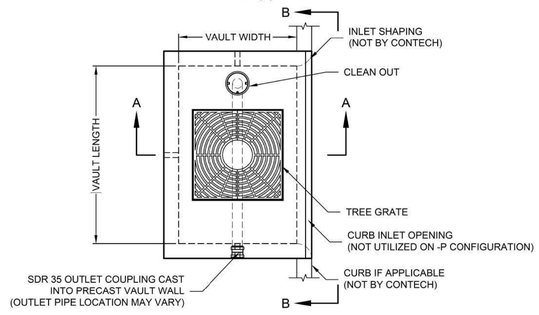
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(8)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

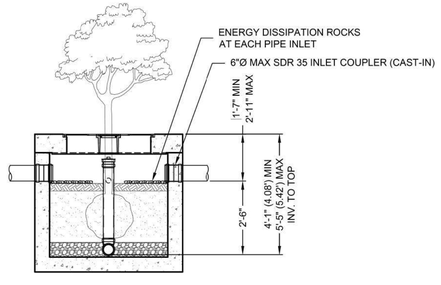
BMP Structure 10-4A



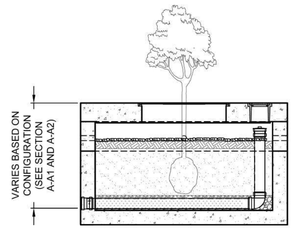
SECTION A-A1
THROAT INLET (-T)



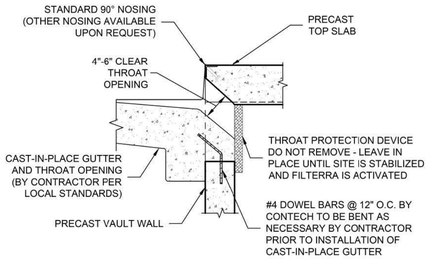
PLAN VIEW



SECTION A-A2
PIPE INLET (-P)



SECTION B-B



STANDARD CURB INLET DETAIL

FT CONFIGURATION
(OPTIONS: THROAT INLET "-T", PIPE INLET "-P")

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA	MIN. NO. OF INLET PIPES (-P ONLY)
4 x 4	16	FT0404	FT0404	ALL	4" SDR 35	1
6 x 4	24	FT0604	FT0406	ALL	4" SDR 35	1
8 x 4	32	FT0804	FT0408	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	4" SDR 35	1
7.83 x 4.5	35	FT078045	FT045078	DE,MD,NJ,PA,VA,WV ONLY	4" SDR 35	1
6 x 6	36	FT0606	FT0606	ALL (EXCEPT CA, TX)	4" SDR 35	1
8 x 6	48	FT0806	FT0608	ALL	4" SDR 35	1
10 x 6	60	FT1006	FT0610	ALL (EXCEPT CA, TX)	6" SDR 35	2
8 x 8	64	FT0808	FT0808	CA, TX ONLY	6" SDR 35	2
12 x 6	72	FT1206	FT0612	ALL (EXCEPT TX)	6" SDR 35	2
10 x 8	80	FT1008	FT0810	CA, TX ONLY	6" SDR 35	2
13 x 7	91	FT1307	FT0713	ALL (EXCEPT CA, TX)	6" SDR 35	2
12 x 8	96	FT1208	FT0812	CA, TX ONLY	6" SDR 35	2
14 x 8	112	FT1408†	N/A	ALL	6" SDR 35	3
16 x 8	128	FT1608†	N/A	ALL (EXCEPT OR,WA)	6" SDR 35	3
15 x 9	135	FT1509†	N/A	OR,WA ONLY	6" SDR 35	3
18 x 8	144	FT1808†	N/A	CALL CONTECH	6" SDR 35	3
20 x 8	160	FT2008†	N/A	CALL CONTECH	6" SDR 35	4
22 x 8	176	FT2208†	N/A	CALL CONTECH	6" SDR 35	4

†UTILIZES (2) CURB OPENINGS WITH MIN 6" SPACING
INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE

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FILTERRA OFFLINE (FT) CONFIGURATION DETAIL

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NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(8)

4/22/2025

FINAL PLANS

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DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
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BMP DETAILS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(9)

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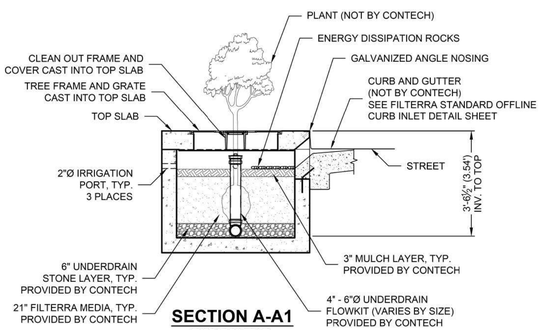
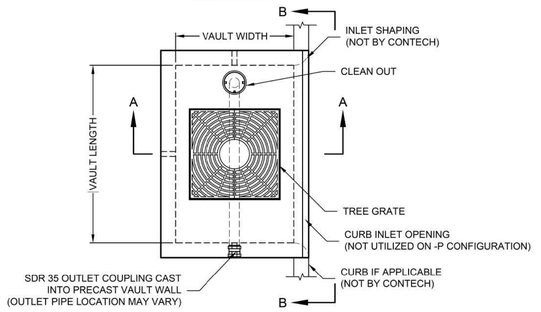
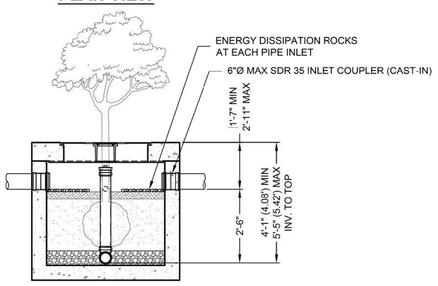
BMP Structure 10-3A



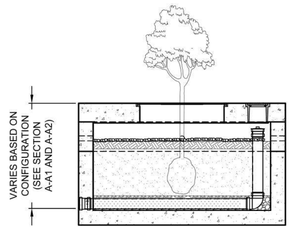
SECTION A-A1
THROAT INLET (-T)



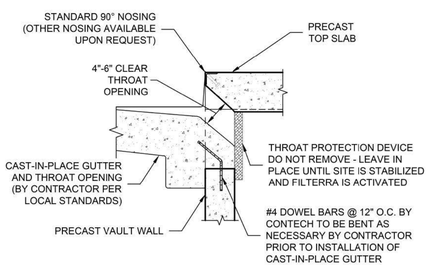
PLAN VIEW



SECTION A-A2
PIPE INLET (-P)



SECTION B-B



STANDARD CURB INLET DETAIL

FT CONFIGURATION
(OPTIONS: THROAT INLET "-T", PIPE INLET "-P")

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA	MIN. NO. OF INLET PIPES (-P ONLY)
~~4 x 4~~	~~16~~	~~FT0404~~	~~FT0404~~	~~ALL~~	~~4" SDR 35~~	~~1~~
6 x 4	24	FT0604	FT0406	ALL	4" SDR 35	1
~~8 x 4~~	~~32~~	~~FT0804~~	~~FT0408~~	~~ALL (EXCEPT DE,MD,NJ,PA,VA,WV)~~	~~4" SDR 35~~	~~1~~
~~7.83 x 4.5~~	~~35~~	~~FT078045~~	~~FT045078~~	~~DE,MD,NJ,PA,VA,WV ONLY~~	~~4" SDR 35~~	~~1~~
~~6 x 6~~	~~36~~	~~FT0606~~	~~FT0606~~	~~ALL (EXCEPT CA, TX)~~	~~4" SDR 35~~	~~1~~
~~8 x 6~~	~~48~~	~~FT0806~~	~~FT0608~~	~~ALL~~	~~4" SDR 35~~	~~1~~
10 x 6	60	FT1006	FT0610	ALL (EXCEPT CA, TX)	6" SDR 35	2
~~8 x 8~~	~~64~~	~~FT0808~~	~~FT0808~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~12 x 6~~	~~72~~	~~FT1206~~	~~FT0612~~	~~ALL (EXCEPT TX)~~	~~6" SDR 35~~	~~2~~
~~10 x 8~~	~~80~~	~~FT1008~~	~~FT0810~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~13 x 7~~	~~91~~	~~FT1307~~	~~FT0713~~	~~ALL (EXCEPT CA, TX)~~	~~6" SDR 35~~	~~2~~
~~12 x 8~~	~~96~~	~~FT1208~~	~~FT0812~~	~~CA, TX ONLY~~	~~6" SDR 35~~	~~2~~
~~14 x 8~~	~~112~~	~~FT1408†~~	~~N/A~~	~~ALL~~	~~6" SDR 35~~	~~3~~
~~16 x 8~~	~~128~~	~~FT1608†~~	~~N/A~~	~~ALL (EXCEPT OR,WA)~~	~~6" SDR 35~~	~~3~~
~~15 x 9~~	~~135~~	~~FT1509†~~	~~N/A~~	~~OR,WA ONLY~~	~~6" SDR 35~~	~~3~~
~~18 x 8~~	~~144~~	~~FT1808†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~3~~
~~20 x 8~~	~~160~~	~~FT2008†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~4~~
~~22 x 8~~	~~176~~	~~FT2208†~~	~~N/A~~	~~CALL CONTECH~~	~~6" SDR 35~~	~~4~~

†UTILIZES (2) CURB OPENINGS WITH MIN 6" SPACING

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE

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FILTERRA OFFLINE (FT)
CONFIGURATION DETAIL

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Note: For informational use only

4/22/2025

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(9)

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

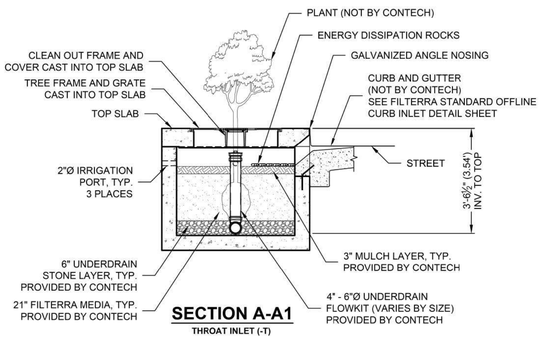
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

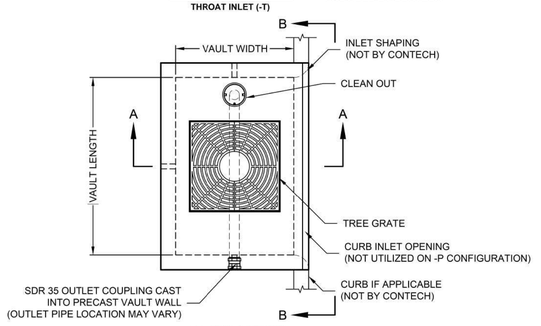
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(10)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

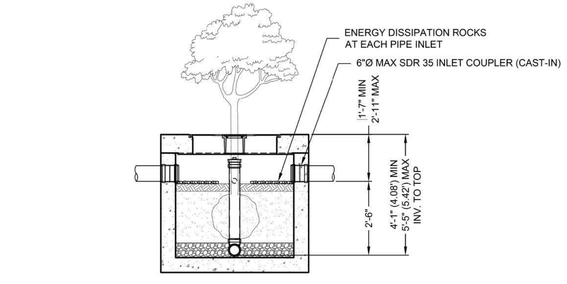
BMP Structure 9-10A



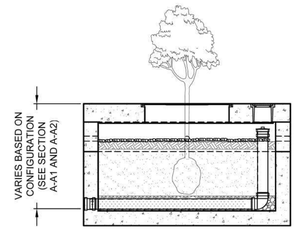
SECTION A-A1
THROAT INLET (-T)



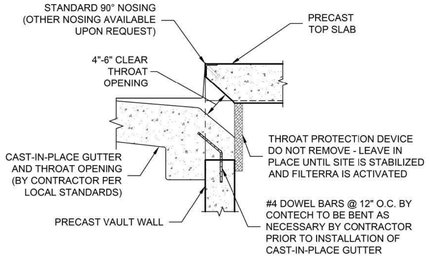
PLAN VIEW



SECTION A-A2
PIPE INLET (-P)



SECTION B-B



STANDARD CURB INLET DETAIL

FT CONFIGURATION
(OPTIONS: THROAT INLET "-T", PIPE INLET "-P")

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	OUTLET PIPE DIA	MIN. NO. OF INLET PIPES (-P ONLY)
4 x 4	16	FT0404	FT0404	ALL	4" SDR 35	1
6 x 4	24	FT0604	FT0406	ALL	4" SDR 35	1
8 x 4	32	FT0804	FT0408	ALL (EXCEPT DE,MD,NJ,PA,VA,WV)	4" SDR 35	1
7.83 x 4.5	35	FT078045	FT045078	DE,MD,NJ,PA,VA,WV ONLY	4" SDR 35	1
6 x 6	36	FT0606	FT0606	ALL (EXCEPT CA, TX)	4" SDR 35	1
8 x 6	48	FT0806	FT0608	ALL	4" SDR 35	1
10 x 6	60	FT1006	FT0610	ALL (EXCEPT CA, TX)	6" SDR 35	2
8 x 8	64	FT0808	FT0808	CA, TX ONLY	6" SDR 35	2
12 x 6	72	FT1206	FT0612	ALL (EXCEPT TX)	6" SDR 35	2
10 x 8	80	FT1008	FT0810	CA, TX ONLY	6" SDR 35	2
13 x 7	91	FT1307	FT0713	ALL (EXCEPT CA, TX)	6" SDR 35	2
12 x 8	96	FT1208	FT0812	CA, TX ONLY	6" SDR 35	2
14 x 8	112	FT1408†	N/A	ALL	6" SDR 35	3
16 x 8	128	FT1608†	N/A	ALL (EXCEPT OR,WA)	6" SDR 35	3
15 x 9	135	FT1509†	N/A	OR,WA ONLY	6" SDR 35	3
18 x 8	144	FT1808†	N/A	CALL CONTECH	6" SDR 35	3
20 x 8	160	FT2008†	N/A	CALL CONTECH	6" SDR 35	4
22 x 8	176	FT2208†	N/A	CALL CONTECH	6" SDR 35	4

†UTILIZES (2) CURB OPENINGS WITH MIN 6" SPACING

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE

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FILTERRA OFFLINE (FT) CONFIGURATION DETAIL

Note: For informational use only

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(10)

FINAL PLANS

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4/22/2025

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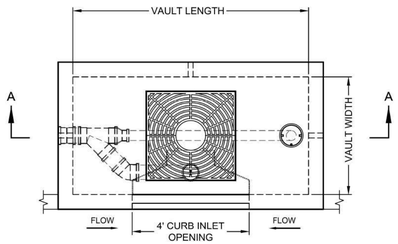
PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

BMP DETAILS

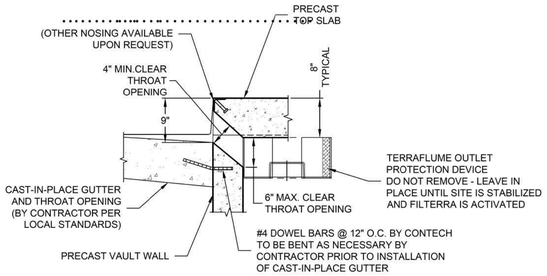
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(11)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

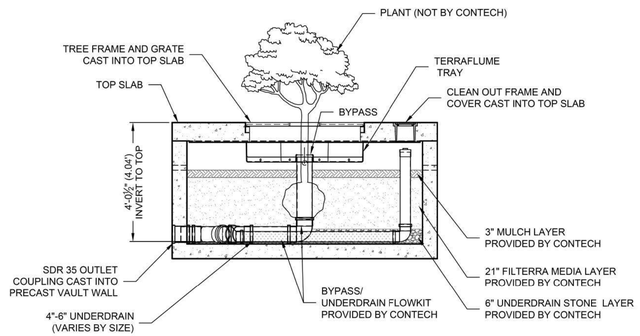
Filterra Internal Bypass Curb Inlet Configuration



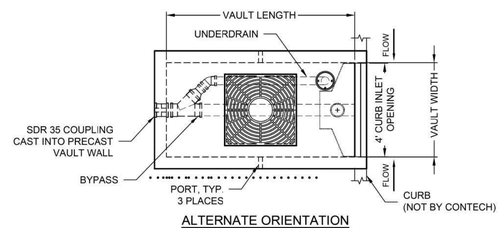
PLAN VIEW



STANDARD CURB INLET WITH TERRAFLUME
NOT TO SCALE



SECTION A-A



ALTERNATE ORIENTATION

FTIBC CONFIGURATION

VAULT SIZE (L x W)	MEDIA AREA (SF)	LONG SIDE INLET DESIG. / PART NO.	SHORT SIDE INLET DESIG. / PART NO.	AVAILABILITY	MAX. OUTLET/ BYPASS PIPE DIA.	MAX. BYPASS FLOW (CFS)	UNDER-DRAIN PIPE DIA. (PERF)	TREE GRATE QTY. & SIZE
4 x 4	16	FTIBC0404	FTIBC0404	ALL	6" SDR 35	1.42	4" SDR 35	(1) 3' x 3'
6 x 4	24	FTIBC0604	FTIBC0406	ALL	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
8 x 4	32	FTIBC0804	FTIBC0408	ALL (EXCEPT DE, MD, NJ, PA, VA, WV)	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
7.83 x 4.5	35	FTIBC078045	FTIBC045078	DE, MD, NJ, PA, VA, WV ONLY	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
6 x 6	36	FTIBC0606	FTIBC0606	ALL (EXCEPT CA, TX)	8" SDR 35	1.89	4" SDR 35	(1) 3' x 3'
8 x 6	48	FTIBC0806	FTIBC0608	ALL	10" SDR 35	2.37	4" SDR 35	(1) 4' x 4'
10 x 6	60	FTIBC1006	FTIBC0610	ALL (EXCEPT CA, TX)	10" SDR 35	2.37	6" SDR 35	(1) 4' x 4'
8 x 8	64	FTIBC0808	FTIBC0808	CA, TX ONLY	10" SDR 35	2.37	6" SDR 35	(1) 4' x 4'
12 x 6	72	FTIBC1206	FTIBC0612	ALL (EXCEPT TX)	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'
10 x 8	80	FTIBC1008	FTIBC0810	CA, TX ONLY	10" SDR 35	2.37	6" SDR 35	(1) 4' x 4'
13 x 7	91	FTIBC1307	FTIBC0713	ALL (EXCEPT CA, TX)	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'
12 x 8	96	FTIBC1208	FTIBC0812	CA,TX ONLY	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'
14 x 8	112	FTIBC1408	N/A	ALL	10" SDR 35	2.37	6" SDR 35	(2) 4' x 4'

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING ON VAULT SIZE

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FILTERRA INTERNAL BYPASS CURB (FTIBC) CONFIGURATION DETAIL

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Note: For informational use only

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4/22/2025

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(11)

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

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SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

Note: For informational use only

BMP DETAILS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(12)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Filterra Standard Plan Notes

Construction & Installation

A. The Contractor is responsible for correct installation of Filterra units as shown in plans.

B. Each unit shall be constructed at the locations and elevations according to the sizes shown on the approved drawings. Any modifications to the elevation or location shall be at the direction of and approved by the Engineer.

C. If the Filterra®is stored before installation, the top slab must be placed on the box using the 2x4 wood provided, to prevent any contamination from the site. All internal fittings supplied (if any), must be left in place as per the delivery.

D. The unit shall be placed on a compacted sub-grade with a minimum 6-inch gravel base matching the final grade of the curb line in the area of the unit. The unit to be placed such that the unit and top slab match the grade of the curb in the area of the unit. Compact undisturbed sub-grade materials to 95% of maximum density at +1- 2% of optimum moisture. Unsuitable material below sub-grade shall be replaced to the site engineer's approval.

E. Outlet connections shall be aligned and sealed to meet the approved drawings with modifications necessary to meet site conditions and local regulations.

F. Once the unit is set, the internal wooden forms and protective mesh cover must be left intact. Remove only the temporary wooden shipping blocks between the box and top slab. The top lid should be sealed onto the box section before backfilling, using a nonshrink grout, butyl rubber or similar waterproof seal. The boards on top of the lid and boards sealed in the unit's throat must **NOT** be removed. The Supplier (Americast or its authorized dealer) will remove these sections at the time of activation. Backfilling should be performed in a careful manner, bringing the appropriate fill material up in 6"lifts on all sides. Precast sections shall be set in a manner that will result in a watertight joint. In all instances, installation of Filterra®unit shall conform to ASTM specification C891 "Standard Practice for Installation of Underground Precast Utility Structures", unless directed otherwise in contract documents.

G. Curb and gutter construction (where present) shall ensure that the flow-line of the Filterra®units is at a greater elevation than the flow-line of the bypass structure or relief (drop inlet, curb cut or similar). Failure to comply with this guideline may cause failure and/or damage to the Filterra®environmental device.

H. Each Filterra®unit must receive adequate irrigation to ensure survival of the living system during periods of drier weather. This may be achieved through gutter flow or through the tree grate.

Activation

A. Activation of the Filterra®unit is performed ONLY by the Supplier. Purchaser is responsible for Filterra®inlet protection and subsequent clean out cost. This process cannot commence until the project site is fully stabilized and cleaned (full landscaping, grass cover, final paving and street sweeping completed), negating the chance of construction materials contaminating the Filterra®system. Care shall be taken during construction not to damage the protective throat and top plates.

B. Activation includes installation of plant(s) and mulch layers as necessary.

Maintenance

A. Each correctly installed Filterra®unit is to be maintained by the Supplier, or a Supplier approved contractor for a minimum period of 1 year. The cost of this service is to be included in the price of each Filterra®unit. Extended maintenance contracts are available at extra cost upon request.

B. Annual maintenance consists of a maximum of (2) scheduled visits. The visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands. The fall visit helps the system by removing excessive leaf litter.

C. Each maintenance visit consists of the following tasks.

1. Filterra®unit inspection
2. Foreign debris, silt, mulch & trash removal
3. Filter media evaluation and recharge as necessary
4. Plant health evaluation and pruning or replacement as necessary
5. Replacement of mulch
6. Disposal of all maintenance refuse items
7. Maintenance records updated and stored (reports available upon request)

D. The beginning and ending date of Supplier's obligation to maintain the installed system shall be determined by the Supplier at the time the system is activated. Owners must promptly notify the Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology.

FILTERRA PLANT LIST

Scientific Name	Common Name	Plant Type	Sun	Hardy Range	Height	Spread	Sizing
Cephalanthus occidentalis	Buttonbush	Deciduous	Partial Shade to Full Sun	4A-10A	4'-6'	6'-10'	L
Aronia melanocarpa	Black Chokeberry	Deciduous	Full Shade to Full Sun	3B-6B	3'-6'	4'-6'	M
Aronia arbutifolia	Red Chokeberry	Deciduous	Partial Shade to Full Sun	4B-9A	6'-10'	4'-6'	M
Cornus florida	Flowering Dogwood	Deciduous	Partial Shade to Full Sun	5A-8B	15'-20'	15'-20'	Tree
Cornus amomum	Silky Dogwood	Deciduous	Full shade to Full Sun	4B-8A	8'-10'	8'-15'	L
Sambucus canadensis	American Elderberry	Deciduous	Partial Shade to Full Sun	4A-9B	10'-15'	6'-10'	L
Chionanthus virginicus	White Fringe Tree	Deciduous	Full Shade to Full Sun	4A-9A	12'-20'	10'-15'	Tree
Ilex decidua	Possum Haw Holly	Deciduous	Full Shade to Full Sun	5A-9A	15'-20'	15'-250'	Tree
Ilex verticillata	Winterberry Holly	Deciduous	Partial Shade to Full Sun	3B-9A	6'-10'	8'-15'	L
Myrica pensylvanica	Northern Bayberry	Deciduous	Partial Shade to Full Sun	3A-7A	10'-15'	6'-10'	L
Cercis canadensis	Eastern Redbud	Deciduous	Partial Shade to Full Sun	4B-9A	15'-25'	15'-25'	Tree

Note: This is a recommended planting list. For complete planting list, please refer to Filterra Vault Configuration Plant List - Mid Atlantic Region.

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(12)

4/22/2025

FINAL PLANS

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SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

DITCH TYPICAL SECTIONS

COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

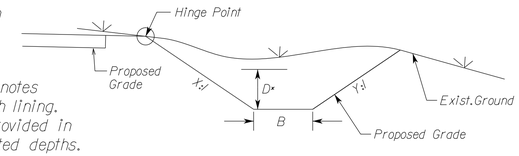
Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2H(13)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Typical Ditch								
Blenhiem Blvd. Left	Station	to	Station	D* (ft)	B (ft)	X (ft)	Y (ft)	Lining
Prop. Ditch 1	124+20	to	124+50	0.3	0	3	3	EC-2 Type I
	124+50	to	124+73	0.4	0	3	3	EC-2 Type I
Prop. Ditch 2	130+68	to	131+00	0.2	0	3	10	EC-2 Type I
	131+00	to	131+50	0.3	0	3	10	EC-2 Type I
	131+50	to	132+00	0.8	0	3	3	EC-2 Type I
	132+00	to	132+83	0.9	0	3	3	EC-2 Type I
Prop. Ditch 3	133+87	to	133+81	0.8	0	3	3	EC-3 Type I

Typical Ditch Section
Proposed Ditch



Note: Dimension "D" denotes minimum depth of ditch lining. EC-3 lining shall be provided in accordance with tabulated depths.

Typical Ditch								
Blenhiem Blvd. Right	Station	to	Station	D* (ft)	B (ft)	X (ft)	Y (ft)	Lining
Prop. Ditch 5	174+13	to	175+10	1	2	2	2	Std. PG-5

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2H(13)

4/22/2025

FINAL PLANS

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SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

Drainage Profiles

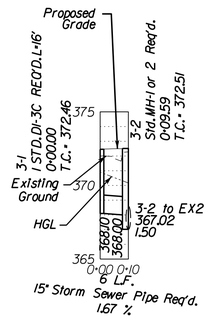
COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

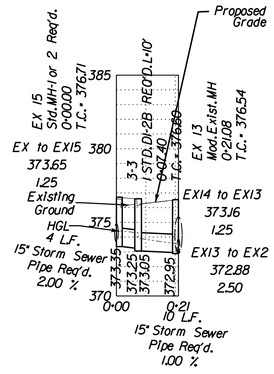
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2I(0)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

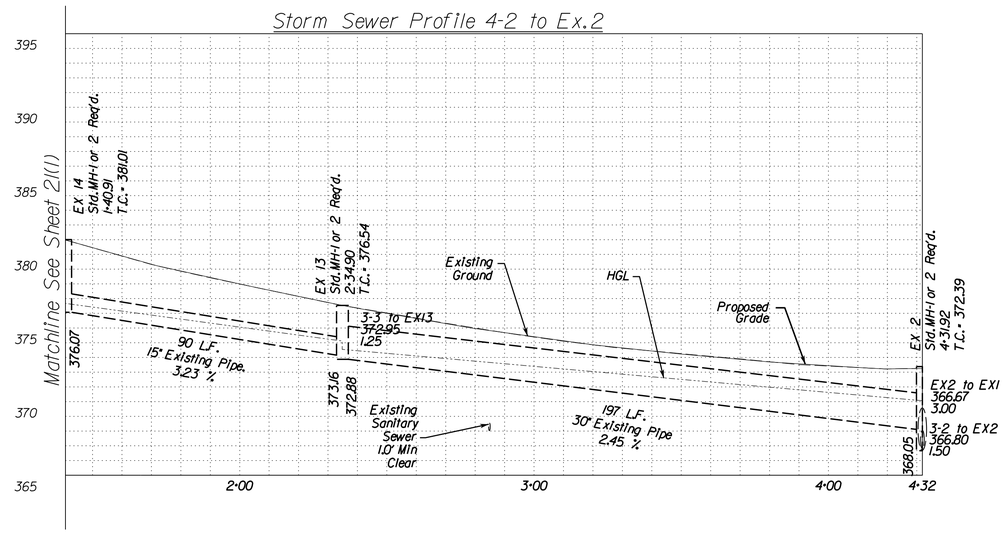
Storm Sewer Profile 3-1 to 3-2



Storm Sewer Profile Ex.12 to 3-2



Storm Sewer Profile 4-2 to Ex.2



Note: All Storm Sewer Pipes to be RCP Class III Reinforced Concrete Pipe. All HGL lines represent a 10-yr storm.

SCALE H= 25, V= 1
0 25' 50'
5' 2.5' 0

PROJECT	SHEET NO.
U000-151-R94	2I(0)

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

Drainage Profiles

COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2I(1)

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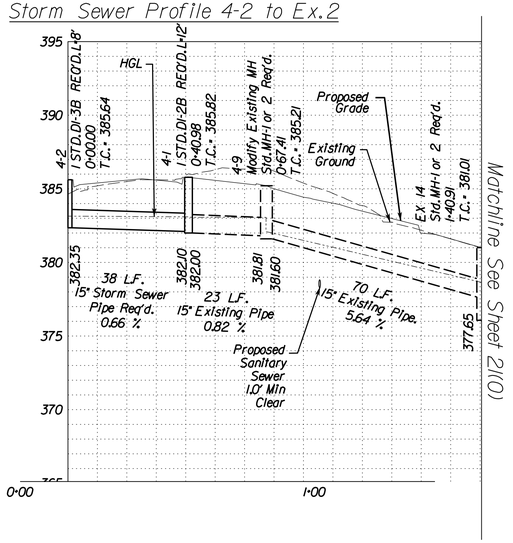
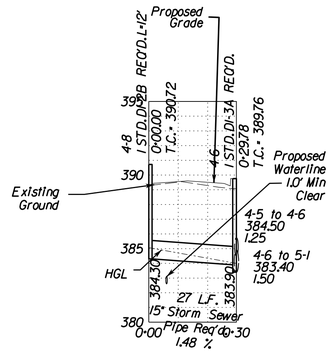
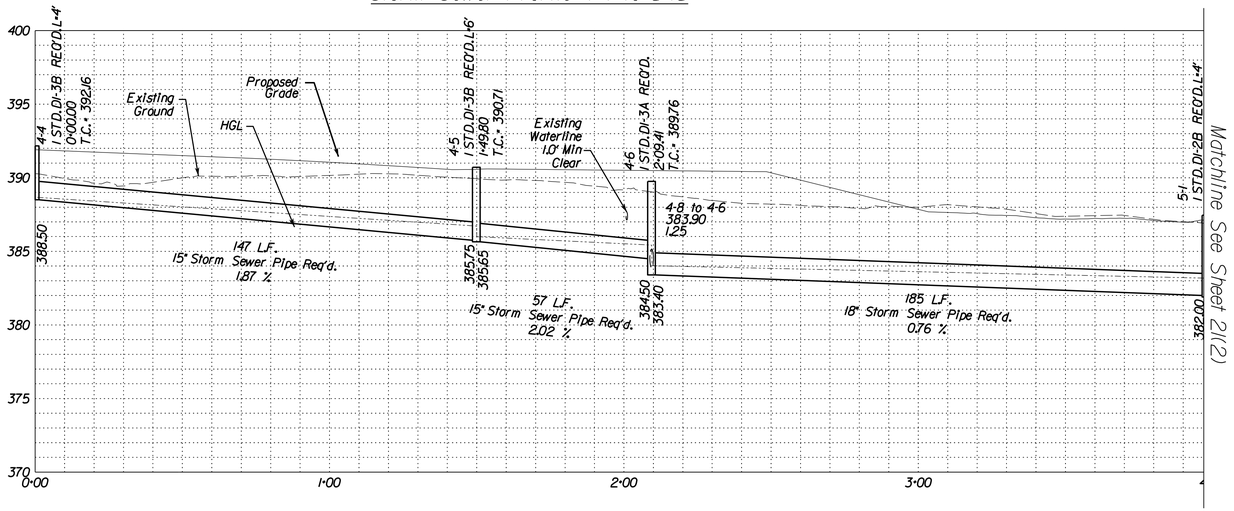
Storm Sewer Profile 4-2 to Ex.2



Storm Sewer Profile 4-8 to 4-6



Storm Sewer Profile 4-4 to 5-15



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SCALE H: 25, V: 1
0 25' 50'
5' 2.5' 0

PROJECT	SHEET NO.
U000-151-R94	2I(1)

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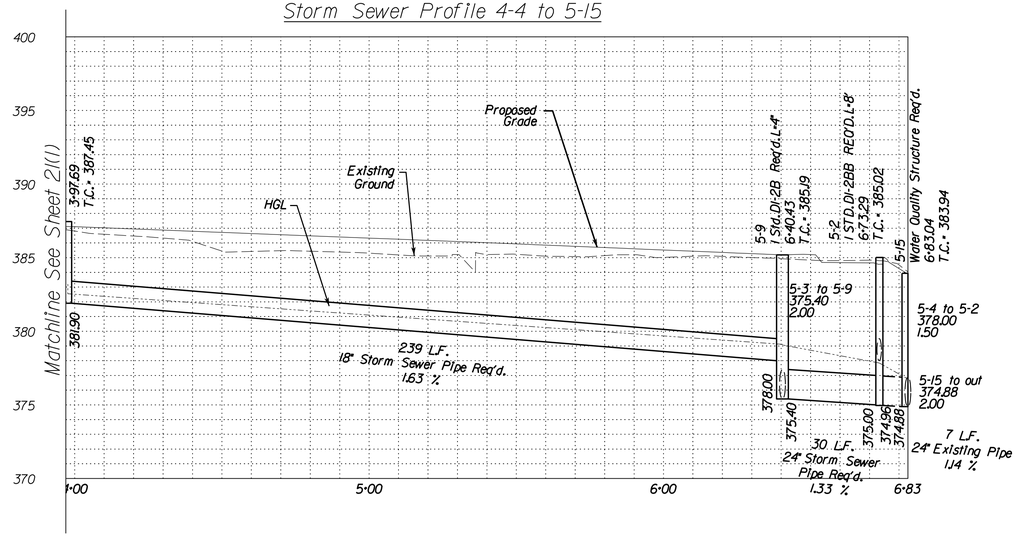
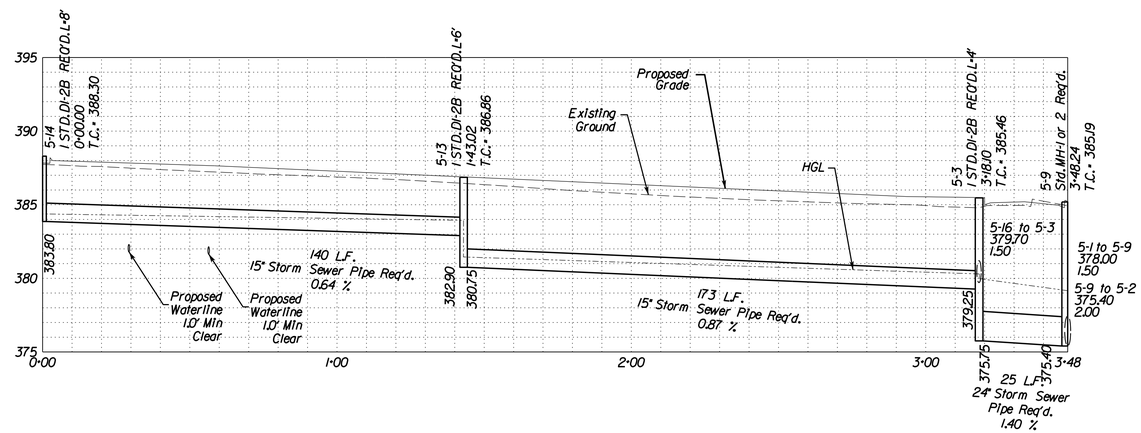
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	21(2)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

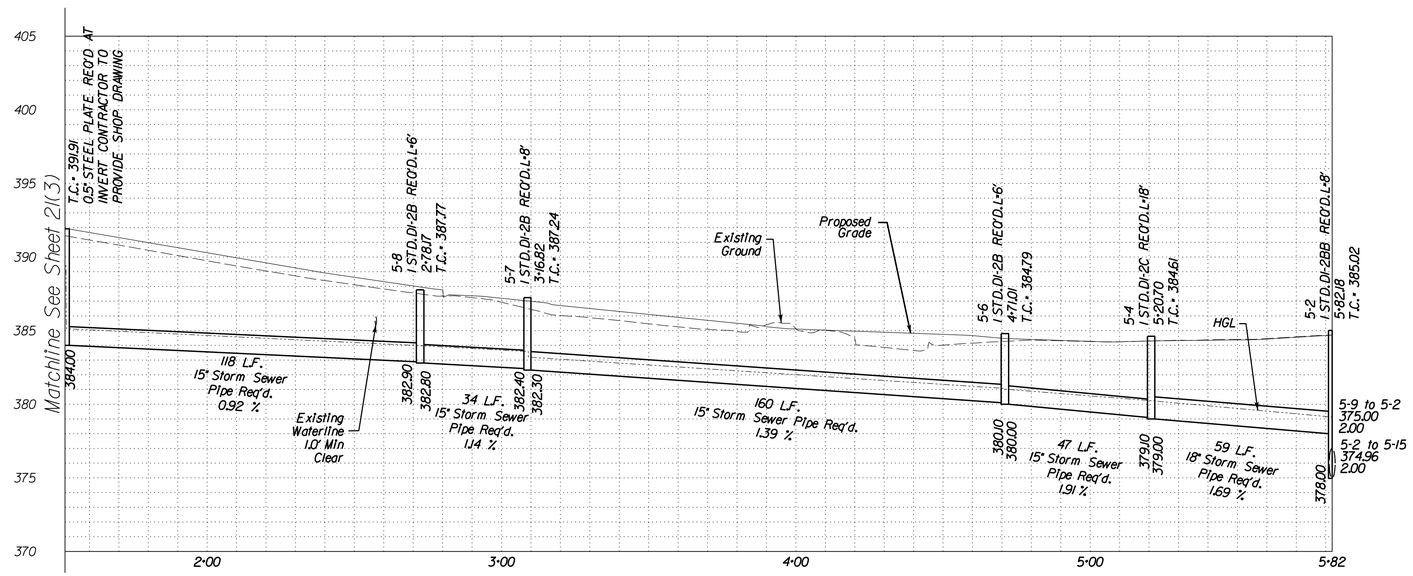
Storm Sewer Profile 4-4 to 5-15



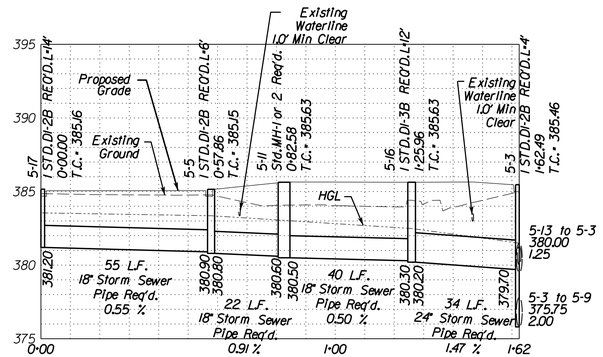
Storm Sewer Profile 5-14 to 5-9



Storm Sewer Profile 6-1 to 5-2



Storm Sewer Profile 5-17 to 5-3



Note: All Storm Sewer Pipes to be RCP Class III Reinforced Concrete Pipe. All HGL lines represent a 10-yr storm.

SCALE H: 25, V: 1
0 25' 50'
0 2.5' 5'

PROJECT	SHEET NO.
U000-151-R94	21(2)

4/22/2025

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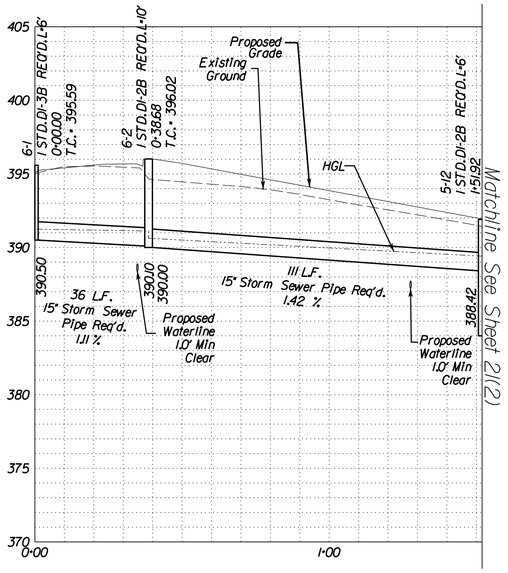
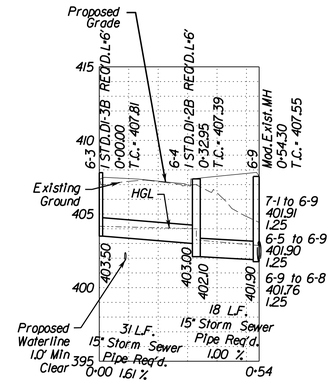
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	21(3)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

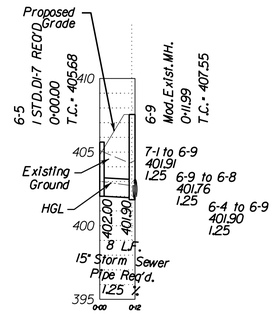
Storm Sewer Profile 6-1 to 5-2



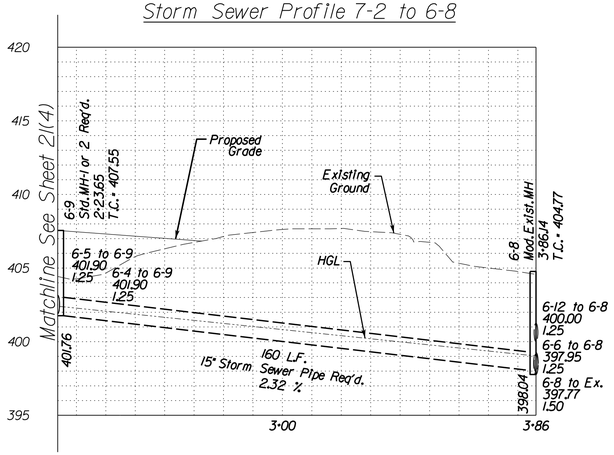
Storm Sewer Profile 6-3 to 6-9



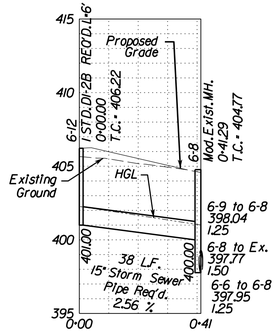
Storm Sewer Profile 6-5 to 6-9



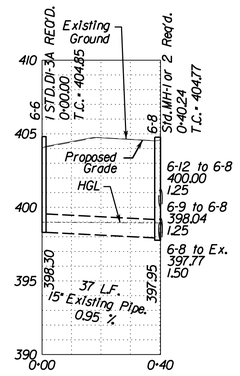
Storm Sewer Profile 7-2 to 6-8



Storm Sewer Profile 6-12 to 6-8



Storm Sewer Profile 6-6 to 6-8



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SCALE H: 25, V: 1
0 25' 50'
0 2.5' 5'

PROJECT	SHEET NO.
U000-151-R94	21(3)

4/22/2025

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Drainage Profiles

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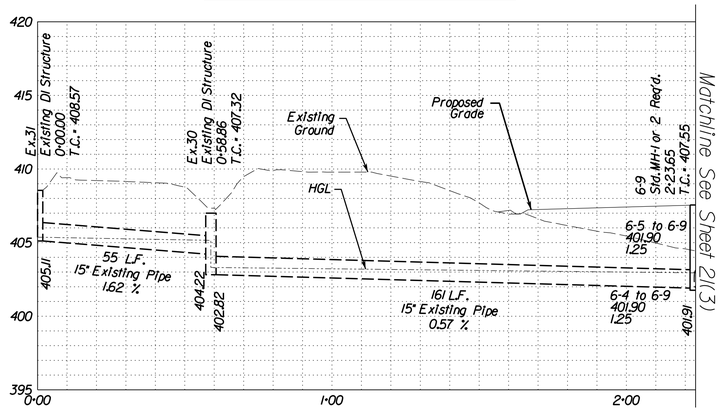
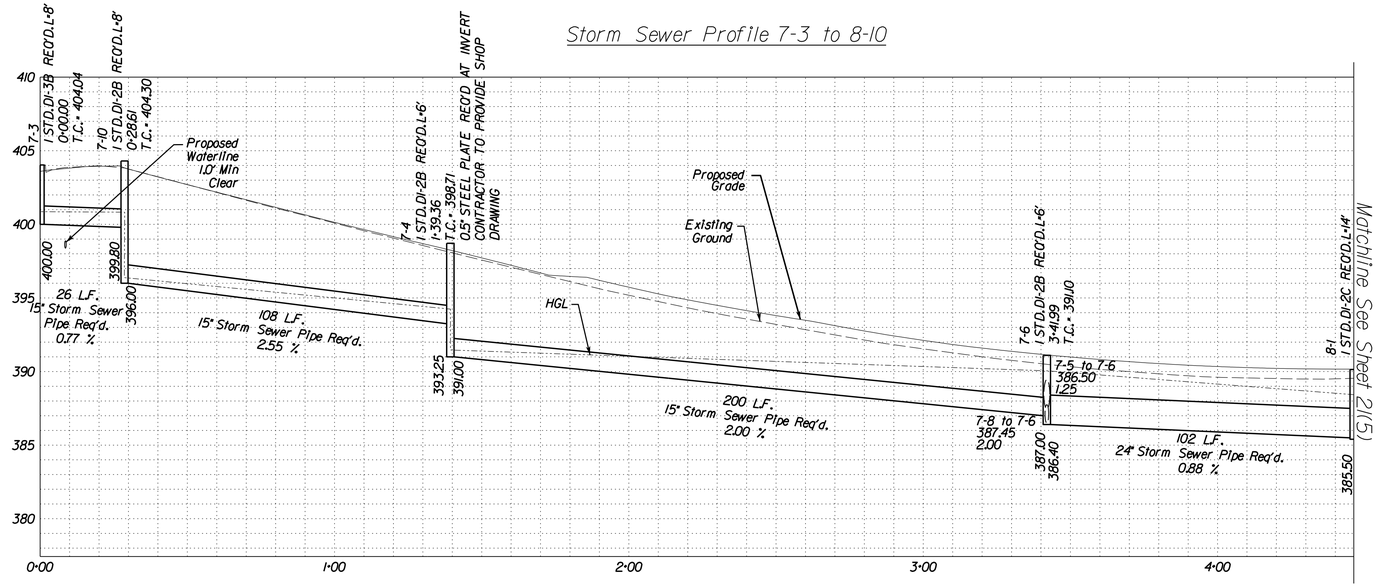
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	21(4)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

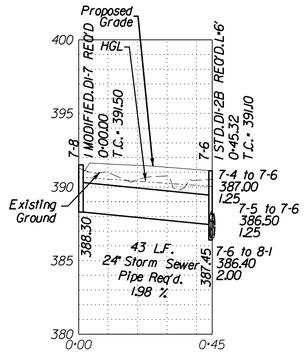
Storm Sewer Profile 7-2 to 6-8



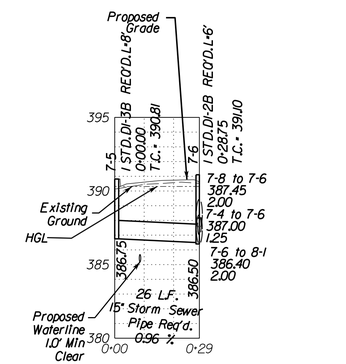
Storm Sewer Profile 7-3 to 8-10



Storm Sewer Profile 7-8 to 7-6



Storm Sewer Profile 7-5 to 7-6



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SCALE H= 25, V= 1
0 25' 50'
5' 2.5' 0

PROJECT	SHEET NO.
U000-151-R94	21(4)

4/22/2025

FINAL PLANS

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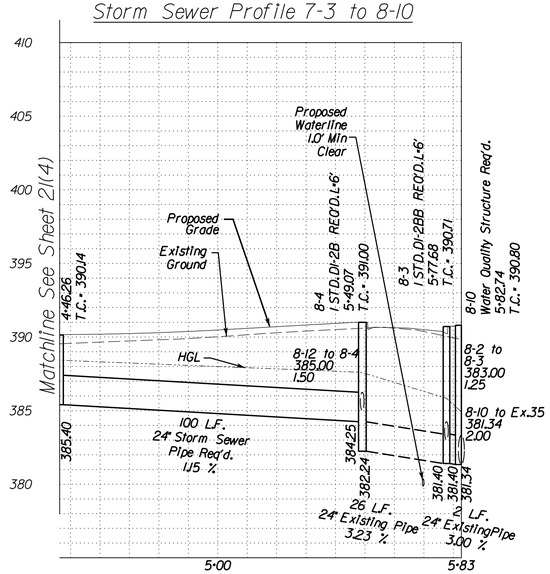
HYDRAULICS ENGINEER

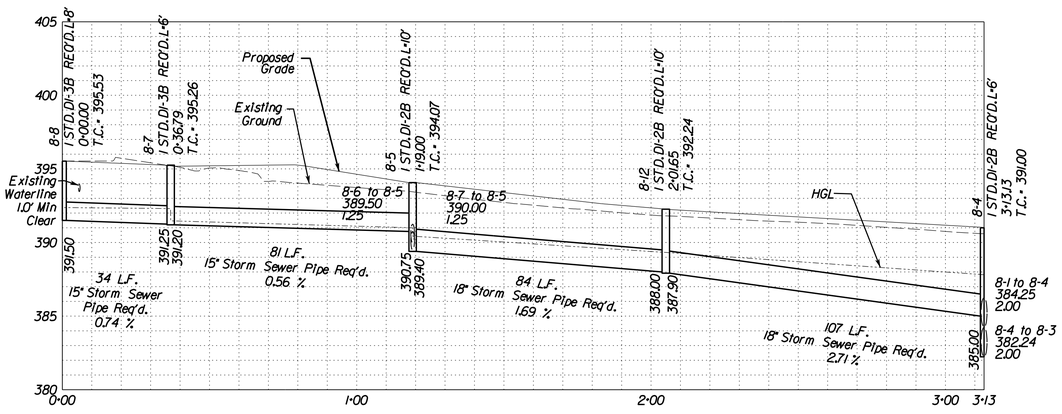
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	21(5)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

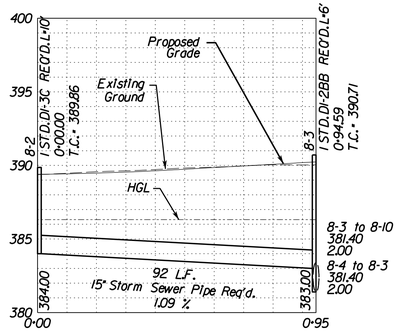
Storm Sewer Profile 7-3 to 8-10



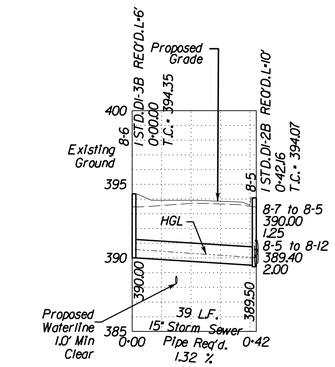
Storm Sewer Profile 8-8 to 8-4



Storm Sewer Profile 8-2 to 8-3



Storm Sewer Profile 8-6 to 8-5



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SCALE H: 25, V: 1
0 25' 50'
0 2.5' 5'

PROJECT	SHEET NO.
U000-151-R94	21(5)

FINAL PLANS

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4/22/2025

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Drainage Profiles

COMMONWEALTH OF VIRGINIA
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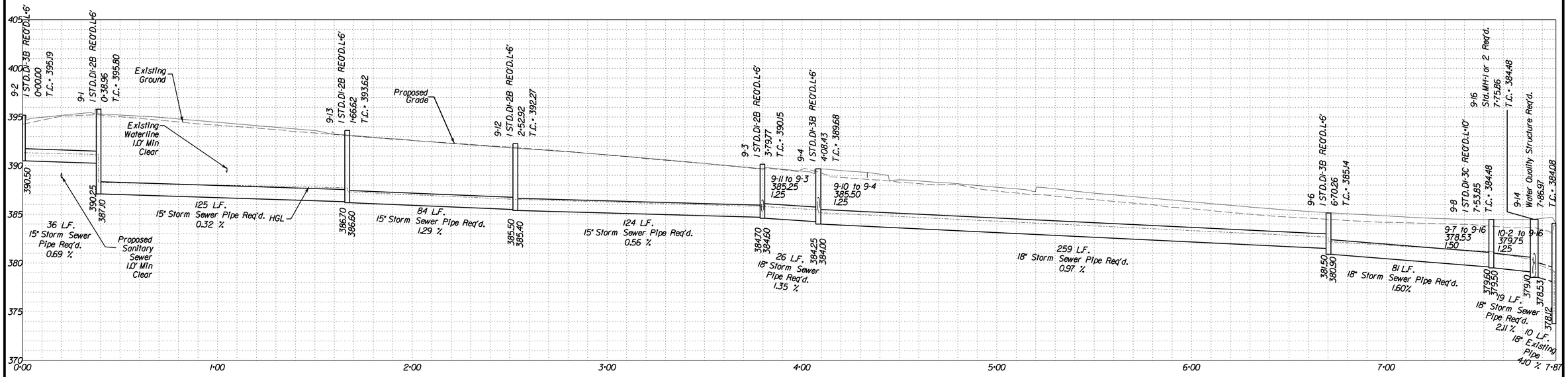
HYDRAULICS ENGINEER

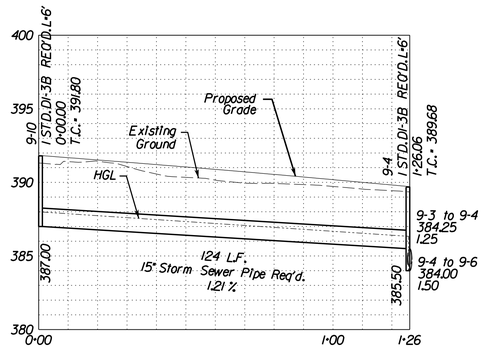
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	21(6)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

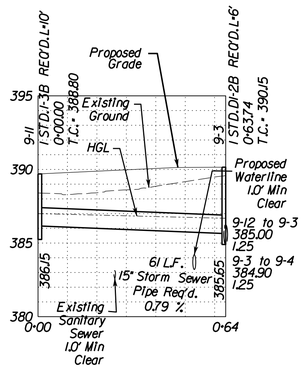
Storm Sewer Profile 9-2 to 9-14



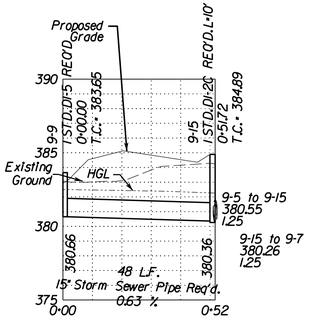
Storm Sewer Profile 9-10 to 9-4



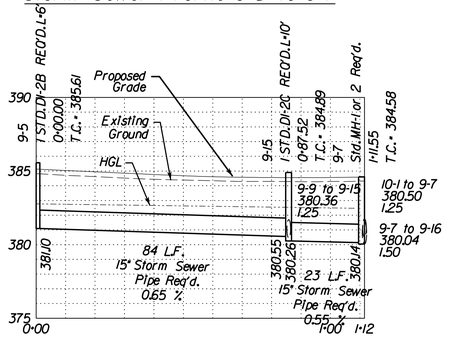
Storm Sewer Profile 9-11 to 9-3



Storm Sewer Profile 9-9 to 9-15



Storm Sewer Profile 9-5 to 9-7



Note: All Storm Sewer Pipes to be RCP Class III Reinforced Concrete Pipe. All HGL lines represent a 10-yr storm.

SCALE H= 25, V= 1
0 25' 50'
5' 2.5' 0

PROJECT	SHEET NO.
U000-151-R94	21(6)

4/22/2025

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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2li7)

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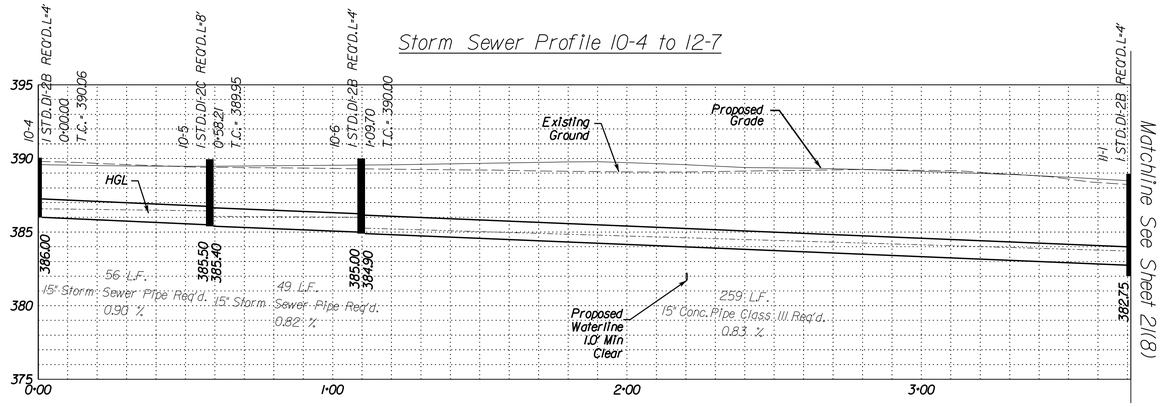
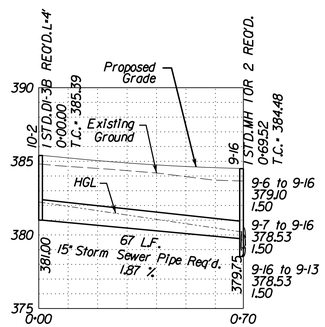
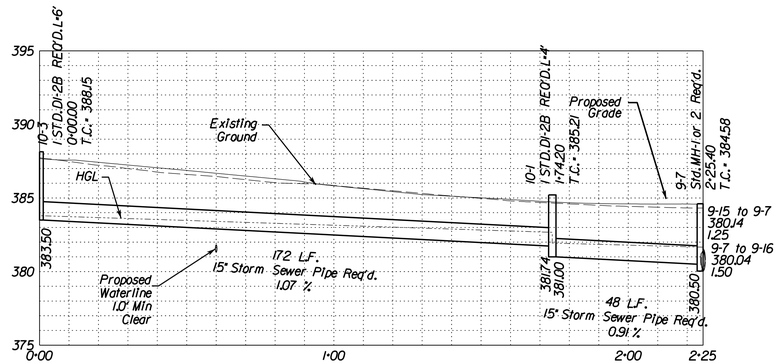
Storm Sewer Profile 10-4 to 12-7



Storm Sewer Profile 10-2 to 9-16



Storm Sewer Profile 10-3 to 9-7



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5' 2.5' 0

PROJECT	SHEET NO.
U000-151-R94	2li7)

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	VA.	6628	U000-151-R94	21(8)

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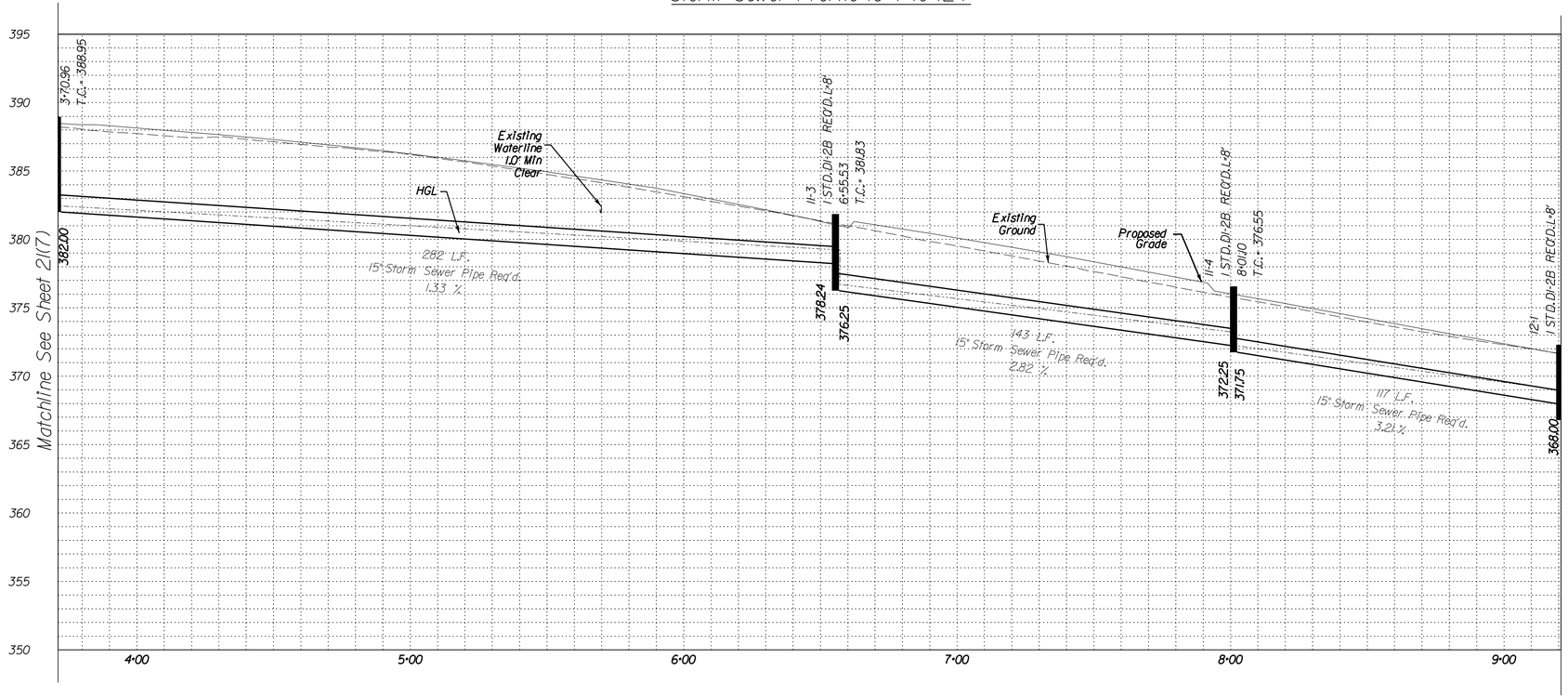
Storm Sewer Profile 10-4 to 12-7



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5' 2.5' 0

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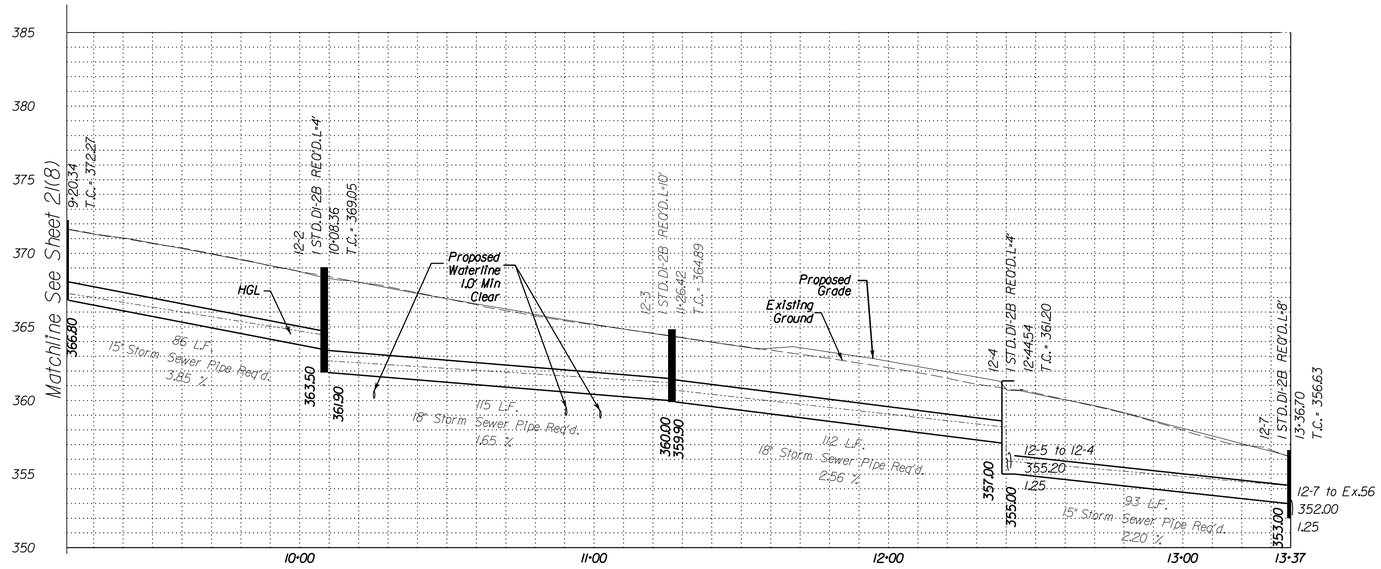
Virginia Beach, Virginia
HYDRAULICS ENGINEER

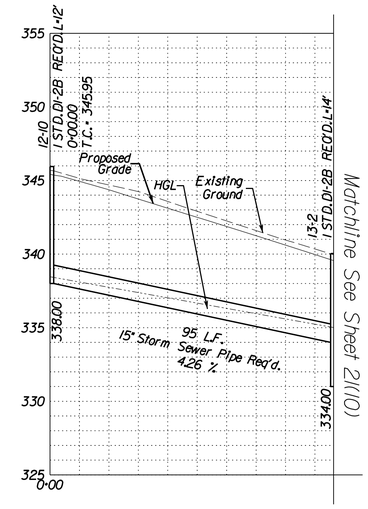
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	21(9)

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

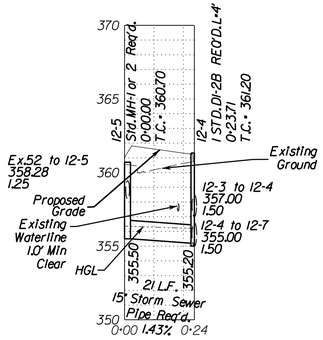
Storm Sewer Profile 10-4 to 12-7



Storm Sewer Profile 12-10 to 14-8



Storm Sewer Profile 12-5 to 12-4



Note: All Storm Sewer Pipes to be RCP Class III Reinforced Concrete Pipe. All HGL lines represent a 10-yr storm.

SCALE H: 25, V: 1
0 25' 50'
5' 2.5' 0

PROJECT	SHEET NO.
U000-151-R94	21(9)

4/22/2025

FINAL PLANS

THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

PROJECT MANAGER Wendy Block Sanford, (703) 385-7889
SURVEYED BY, DATE Nick Kougalis, L.S., (703) 368-7373 (2020)
DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

Drainage Profiles

COMMONWEALTH OF VIRGINIA
NIKHIL V. DESHPANDE
Lic. No. 045430
PROFESSIONAL ENGINEER

Rinker Design Associates, P.C.
Virginia Beach, Virginia
HYDRAULICS ENGINEER

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2I(10)

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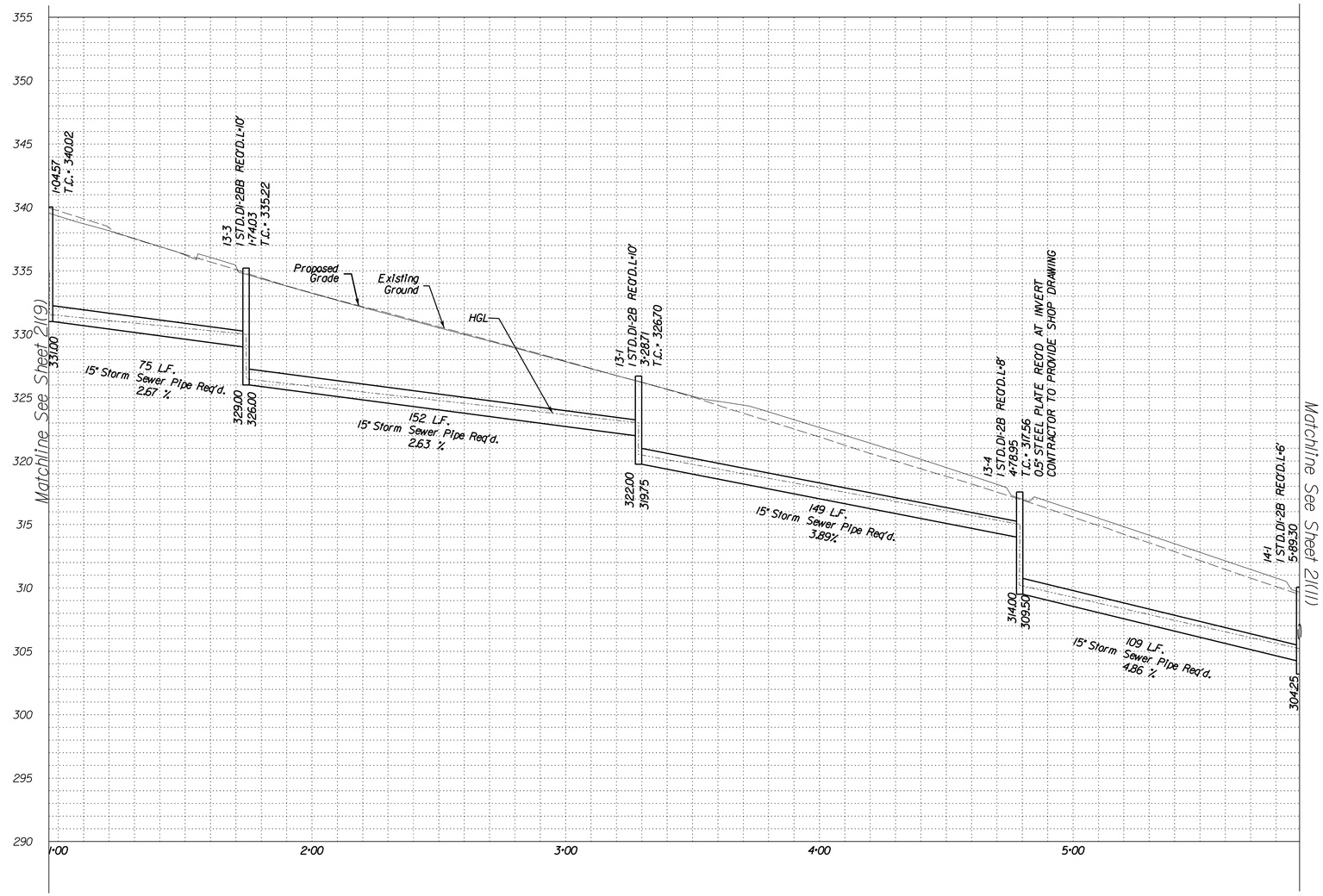
Storm Sewer Profile 12-10 to 14-8



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SCALE H= 25, V= 1
0 25' 50'
0 2.5' 5'

PROJECT	SHEET NO.
U000-151-R94	2I(10)

4/22/2025

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Drainage Profiles

COMMONWEALTH OF VIRGINIA
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	21(11)

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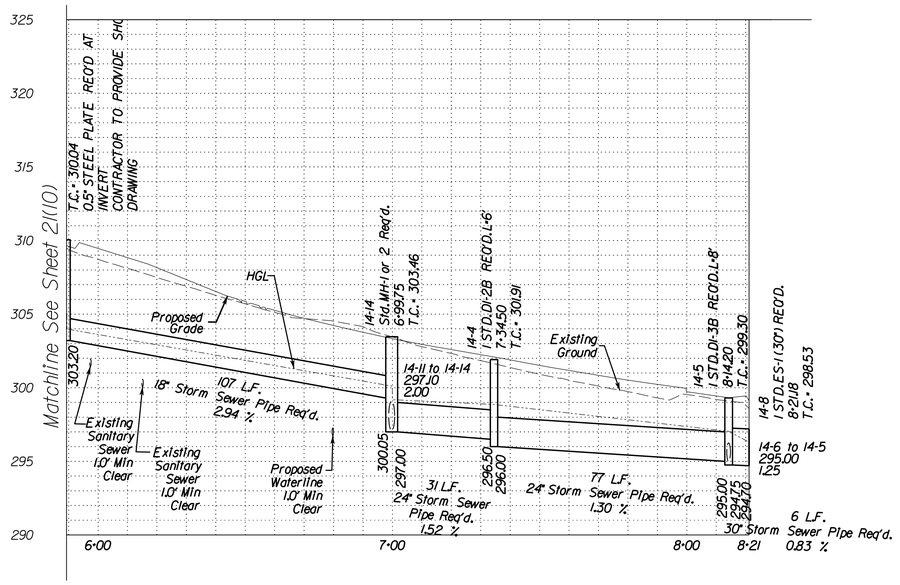
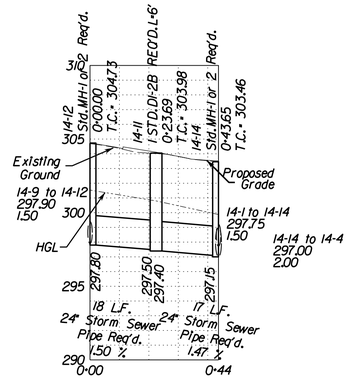
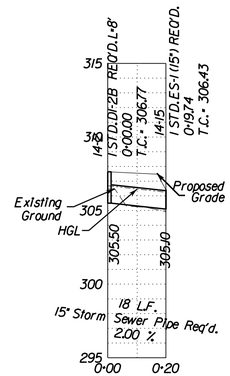
Storm Sewer Profile 12-10 to 14-8



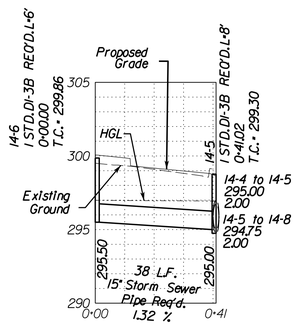
Storm Sewer Profile 14-12 to 14-14



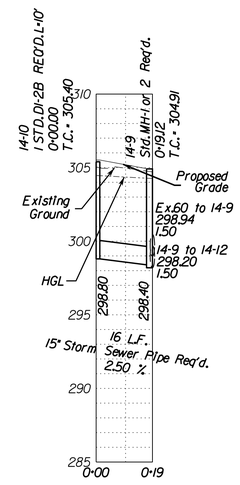
Storm Sewer Profile 14-2 to 14-15



Storm Sewer Profile 14-6 to 14-5



Storm Sewer Profile 14-10 to 14-9



Note: All Storm Sewer Pipes to be RCP Class III Reinforced Concrete Pipe. All HGL lines represent a 10-yr storm.

SCALE H= 25, V= 1
0 25' 50'
5' 2.5' 0

PROJECT	SHEET NO.
U000-151-R94	21(11)

FINAL PLANS | THESE PLANS ARE UNFINISHED AND UNAPPROVED AND ARE NOT TO BE USED FOR CONSTRUCTION.

4/22/2025

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DESIGN BY Mark A. Gunn, P.E., (703) 368-7373
SUBSURFACE UTILITY BY, DATE Accumark, (800) 542-2990 (2015)

UNDERDRAIN SUMMARY

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6628	U000-151-R94	2J10

DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

BASELINE	STATION FROM	STATION TO	LOCATION	UD-4 4" (LF)	Mod. UD-4 6" (LF)	CD-1 (LF)	CD-2 (LF)	OUTLET PIPE (LF)	EW-12 2:1	REMARKS
OLH_REV	101+14	101+67	Left	87'						Connect to Structure 3-1
OLH_REV	103+32	101+67	Left	167'						Connect to Structure 3-1
OLH_REV	105+10	101+35	Left	177'						Connect to Structure 3-3
OLH	106+74	105+17	Left	171'						Connect to Structure 4-1
OLH	107+01	105+17	Right	182'						Connect to Structure 4-2
OLH	107+99	108+31	Right	32'						Connect to Structure 4-4
OLH	107+12	110+40	Left	305'						Connect to Structure 4-8
OLH	109+08	109+83	Right	75'						Connect to Structure 4-5
OLH	109+85	110+40	Left	70'						Connect to Structure 4-8
OLH	110+22	110+45	Right	29'						Connect to Structure 4-6
ENTR_110995RT	10+22	10+41	Left	24'						Connect to Existing UD
ENTR_110995RT	10+26	10+41	Left	17'						Connect to Existing UD
OLH	110+99	110+77	Left	37'						Connect to Structure 4-7
OLH	111+22	111+54	Left	91'						Connect to Structure 5-14
OLH	111+74	111+56	Left	54'						Connect to Structure 5-14
OLH	111+20	112+31	Right	113'						Connect to Structure 5-1
OLH	111+27	112+97	Left	134'						Connect to Structure 5-13
OLH	113+00	114+72	Left	172'						Connect to Structure 5-3
OLH	112+31	115+05	Right	272'						Connect to Structure 5-2
OLH	114+98	114+75	Left	41'						Connect to Structure 5-3
OLH	115+23	115+39	Left	45'						Connect to Structure 5-5
OLH	115+42	115+55	Left	41'						Connect to Structure 5-5
OLH	115+06	115+67	Right	62'						Connect to Structure 5-4
OLH	115+67	115+68	Right				15'			Connect to Structure 5-4
OLH	116+15	115+67	Right	49'						Connect to Structure 5-4
OLH	116+46	116+16	Right	33'						Connect to Structure 5-6
ENTR_11667RT	10+29	11+20	Right	74'						Connect to Existing UD
ENTR_11667RT	10+23	11+23	Left	125'						Connect to Existing UD
ENTR_11728RT	10+23	10+73	Right	57'						Connect to Existing UD
ENTR_11728RT	10+23	10+52	Left	50'						Connect to Existing UD
OLH	119+06	117+72	Right	131'						Connect to Structure 5-7
OLH	118+95	117+72	Left	124'						Connect to Structure 5-8
OLH	120+09	118+98	Left	111'						Connect to Structure 5-12
OLH	123+00	120+11	Right	286'						Connect to Structure 6-1
OLH	122+36	120+11	Left	227'						Connect to Structure 6-2
OLDPOST_LT	10+23	10+56	Left	56'						Connect to Structure 6-6
OLDPOST_LT	10+23	10+87	Right	83'						Connect to Existing UD
OLDPOST_RT	10+12	10+63	Right	68'						Connect to Existing UD
OLH to OLDPOST_RT	124+74	10+63	Left	148'						Connect to Existing UD
OLH	124+72	123+47	Left	129'						Connect to Structure 6-12
OLH	125+75	124+75	Right	101'						Connect to Structure 6-3
OLH	126+52	124+75	Left	199'						Connect to Stucture 6-4
HERITAGE_RT	10+23	10+88	Left	57'						Connect to Existing UD
OLH	126+98	129+66	Right	271'						Connect to Structure 7-3
OLH	126+83	129+66	Left	301'						Connect to Structure 7-10
OLH to PARKLANE	129+69	10+63	Right	73'						Connect to Existing UD
PARKLANE	10+21	10+63	Left	46'						Connect to Existing UD
OLH	129+68	130+76	Left	108'						Connect to Structure 7-4
OLH	130+48	132+79	Right	234'						Connect to Structure 7-5
OLH	130+78	132+79	Left	201'						Connect to Structure 7-6
OLH	132+81	133+83	Left	102'						Connect to Structure 8-1
OLH	134+85	133+92	Left	94'						Connect to Structure CD-2
OLH	133+92	133+92	Left				25'			Connect to Structure 8-2
OLH	134+85	133+92	Right	94'						Connect to Structure 8-2
OLH	136+79	134+88	Left	192'						Connect to Structure 8-4
OLH	136+15	134+88	Right	126'						Connect to Structure 8-3
BROOKWOOD to OLH	10+51	136+82	Left	95'						Connect to Structure 8-5
OLH	139+34	137+08	Right	228'						Connect to Structure 8-6
OLH	137+84	140+70	Left	304'						Connect to Structure 9-1
OLH	139+34	140+70	Right	138'						Connect to Sturcture 9-2
OLH	140+73	141+98	Left	116'						Connect to Structure 9-13
OLH	141+76	142+84	Right	102'						Connect to Structure 9-10
OLH	141+95	142+83	Left	86'						Connect to Structure 9-12
OLH	142+85	144+09	Right	124'						Connect to Structure 9-4
OLH	142+85	144+10	Left	124'						Connect to Structure 9-3
OLH	145+33	146+72	Right	140'						Connect to Structure 9-6
COUNTRYHILL to OLH	10+74	146+71	Left	214'						Connect to Structure 9-5
OLH	146+71	147+55	Left	83'						Connect to Structure 9-15
OLH	147+57	147+75	Left	18'						Connect to Structure 9-7
OLH	146+74	147+55	Right	105'						Connect to Structure 9-8
OLH	148+35	147+79	Left	56						Connect to Structure 9-7
OLH	148+45	147+55	Right	69'						Connect to Structure 9-8
OLH	149+07	148+38	Left	90'						Connect to Structure 10-1
OLH	148+99	148+47	Right	54'						Connect to Structure 10-2
ENTRI4955_LT	10+23	10+75	Left	70'						Connect to Existing UD
ENTRI4955_LT	10+23	10+75	Right	70'						Connect to Existing UD
OLH	151+51	150+04	Left	149'						Connect to Structure 10-3
OLH	151+55	153+11	Left	159'						Connect to Structure 10-4
OLH	153+14	153+65	Left	53'						Connect to Structure 10-5
OLH	154+19	153+67	Left	50'						Connect to Structure 10-5
OLH	155+66	154+22	Left	146'						Connect to Structure 10-6
OLH	155+66	156+79	Left	112'						Connect to Structure 11-1
LIONRUN	10+23	10+72	Left	70'						Connect to Existing UD
LIONRUN	10+34	10+70	Right	56'						Connect to Existing UD
OLH	157+96	159+64	Left	168'						Connect to Structure 11-3
OLH	159+67	161+04	Left	142'						Connect to Structure 11-4
OLH	161+06	162+27	Left	121'						Connect to Structure 12-1
GREATOAKS_SB to OLH	10+69	163+15	Right	54'						Connect to Structure 12-2
GREATOAKS_NB to OLH	10+69	163+18	Left	52'						Connect to Structure 12-2
GREATOAKS_NB to OLH	10+71	164+34	Left	112'						Connect to Structure 12-3
OLH	164+37	165+47	Left	110'						Connect to Structure 12-4
OLH	165+50	166+41	Left	91'						Connect to Structure 12-7
OLH	166+43	168+29	Left	186'						Connect to Structure 12-10
OLH	168+33	169+36	Left	103'						Connect to Structure 13-2
OLH	169+39	169+97	Left	60'						Connect to Structure 13-3
OLH	170+00	171+58	Left	158'						Connect to Structure 13-1
OLH	171+60	173+02	Left	139'						Connect to Structure 13-4
OLH	173+05	174+21	Left	114'						Connect to Structure 14-1
RIDGEAVE	11+07	10+47	Left	60'						Connect to Structure 14-11
RIDGEAVE to OLH	10+44	175+70	Left	47'						Connect to Structure 14-4
OLH	174+31	174+82	Right	57'						Connect to Structure 14-2
OLH	174+85	176+34	Right	162'						Connect to Structure 14-6
OLH	175+76	176+34	Left	59'						Connect to Structure 14-5

NOT TO SCALE	PROJECT U000-151-R94	SHEET NO. 2J10

FINAL PLANS

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4/22/2025