

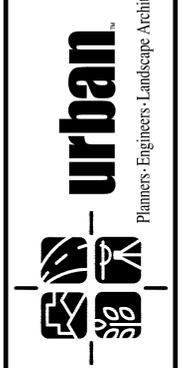
# TOWN OF VIENNA DEPARTMENT OF PUBLIC WORKS FAIRFAX COUNTY, VIRGINIA

## GLEN AVE, SW SIDEWALK IMPROVEMENT PLAN 95% DESIGN CONSTRUCTION DRAWINGS

No.	DATE	DESCRIPTION	REVISIONS
3	09/26/24	95% PLAN UPDATE	
2	06/14/24	95% PLAN	
1	10/11/23	30% PLAN	

PLAN DATE
10/11/2023
08-14-2024
09-26-2024

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7120 Lees Ferry Turnpike  
Annandale, Virginia 22003  
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Fax: 703.642.8251  
www.urban-ld.com



**NOTICE REQUIRED**  
CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION OR BLASTING AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.

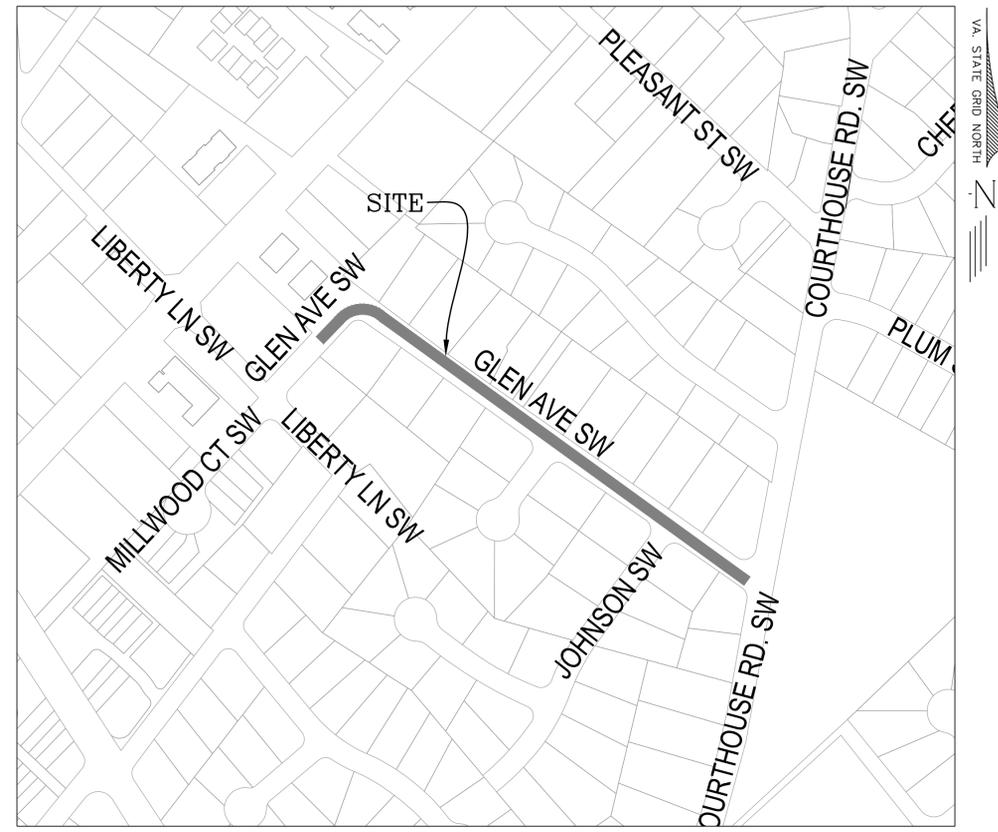
**CONTACT "MISS UTILITY" AT  
1-800-552-7001  
FOR THESE UTILITIES**

VIRGINIA ELECTRIC & POWER CO. A.T.&T. CO. COLUMBIA GAS TRANSMISSION CO. FAIRFAX CO. SAN. SEWER DIV. TRANSCO GAS PIPELINE CO. COLUMBIA GAS OF VIRGINIA CONTINENTAL TELEPHONE OF VIRGINIA	COLONIAL PIPELINE CO. FAIRFAX CO. WATER AUTHORITY WASHINGTON GAS LIGHT CO. PRINCE WILLIAM ELEC. CO-OP. PLANTATION PIPELINE CO. C & P TELEPHONE CO.
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**CONTACT THESE UTILITIES**

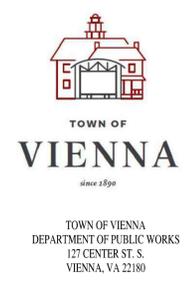
TRI-COUNTY ELEC. CO-OP 1-777-2151	LOUDOUN WATER 571-291-7880
FALLS CHURCH WATER SER. 1-241-5078	FAIRFAX CITY WATER SER. 385-7916

**EMERGENCY DIAL 911  
POLICE - FIRE - RESCUE**  
777-1021 777-2222



VICINITY MAP  
SCALE : 1" = 200'

OWNER/DEVELOPER:



### SHEET INDEX

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COVER SHEET  
GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA  
SCALE: AS NOTED C.I. N/A DATE: AUG 2024

SHEET  
1  
OF  
23  
FILE No.  
PP-2531

**GENERAL NOTES**

OWNER/ DEVELOPER:  
TOWN OF VIENNA  
DEPARTMENT OF PUBLIC WORKS  
127 CENTER STREET, SOUTH  
VIENNA, VA 22180

1. THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES TO UTILITIES IF DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, THEY SHOULD IMMEDIATELY NOTIFY THE TOWN AND ENGINEER AND TAKE NECESSARY AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUANCE OF SERVICE. THE ENGINEER DOES NOT CERTIFY TO THE LOCATION OR EXISTENCE OF ANY UNDERGROUND UTILITY SHOWN ON THIS PLAN. THE CONTRACTOR SHALL CONTACT "MISS UTILITY" AT 811 PRIOR TO COMMENCEMENT OF ANY EXCAVATION. THE CONTRACTOR SHALL NOTIFY THE TOWN AND ENGINEER OF ANY POTENTIAL UTILITY CONFLICTS PRIOR TO COMMENCING CONSTRUCTION.

2. SUBSURFACE UTILITIES SHOWN PER MISS UTILITY MARK OUT FIELD LOCATION.

3. WATERLINE SHOWN PER TOWN OF VIENNA UTILITY SYSTEMS MAP.

4. NO TITLE REPORT FURNISHED.

5. CLEARING AND GRADING SHALL BE IN ACCORDANCE WITH THE GRADING AND EROSION CONTROL PLANS AND STANDARDS SET FORTH BY THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK. ALL LAND ON OR OFF-SITE WHICH IS DISTURBED BY THIS IMPROVEMENT AND WHICH IS NOT BEING BUILT UPON OR SURFACED SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION.

6. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEANS OF CLEANING TRUCKS AND/OR OTHER EQUIPMENT PRIOR TO ENTERING THE TOWN STREETS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLEAN STREETS, ALLAY DUST AND TO TAKE WHATEVER MEASURES NECESSARY TO INSURE THAT THE ROAD IS MAINTAINED IN A CLEAN, MUD AND DUST FREE CONDITION AT ALL TIMES. SEE SILTATION AND EROSION CONTROL PLANS/NARRATIVE FOR ADDITIONAL INFORMATION.

7. THE CONTRACTOR SHALL PROTECT AND ADJUST, AS REQUIRED, ALL EXISTING MANHOLES AND VALVES WITHIN THE LIMITS OF DISTURBANCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR BY HIS FAILURE TO PROPERLY PROTECT THE EXISTING MANHOLES AND VALVES.

8. IF APPLICABLE, ANY UTILITIES AND UTILITY POLES TO BE BRACED DUE TO THIS IMPROVEMENT SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR PURSUANT TO THE TOWN'S PAY ITEM SCHEDULE. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND SCHEDULING ALL UTILITY WORK REQUIRED.

9. ALL STORM SEWER STRUCTURES AND PIPING WITHIN THE AREA OF CONSTRUCTION SHALL BE CLEANED OUT FOLLOWING THE COMPLETION OF CONSTRUCTION.

10. ANY DAMAGE TO EXISTING STREETS, PUBLIC UTILITIES OR PRIVATE UTILITIES, INCLUDING BUT NOT LIMITED TO, VALVE BOXES, WATER METER LIDS, FRAMES OR CROCKS AND WATER LATERALS, DUE TO CONSTRUCTION ACTIVITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR.

11. ALL CONSTRUCTION IS TO BE PERFORMED IN ACCORDANCE WITH THE STANDARDS SET FORTH BY THE STATE OF VIRGINIA AND THE TOWN OF VIENNA.

12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE TOWN AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM TOWN OF VIENNA, OR ANY OTHER AUTHORITY ISSUING PERMITS.

13. A SMOOTH GRADE SHALL BE MAINTAINED FROM CENTERLINE TO THE PROPOSED CURB AND GUTTER TO PRECLUDE THE FORMING OF FALSE GUTTERS AND/OR PONDING OF WATER ON ANY ROAD OR PARKING AREA.

14. STREET PLANS MAY NOT INCLUDE MINOR SITE FEATURES SUCH AS MAILBOXES, PRIVATE LIGHTING FIXTURES, SIGNS, ETC. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM A PRE-CONSTRUCTION SURVEY OF THE PROPOSED STREETS TO LOCATE THESE PRIVATE FEATURES AND RELOCATE THEM AS NECESSARY.

15. THE CONTRACTOR SHALL INSPECT ALL EXISTING UTILITIES FOR NECESSARY REPAIRS PRIOR TO INITIATION OF CONSTRUCTION ACTIVITIES. IF ANY SUCH UTILITY REPAIRS ARE REQUIRED, THE CONTRACTOR WILL COORDINATE THESE REPAIRS WITH THE TOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO EXISTING OR PROPOSED UTILITIES THAT OCCURS DURING CONSTRUCTION ACTIVITIES. DAMAGED UTILITIES SHALL BE REPAIRED IN A TIMELY FASHION TO LIMIT THE INTERRUPTION OF SERVICE TO THE AFFECTED RESIDENTS.

16. THE CONTRACTOR SHALL NOTIFY THE TOWN AND ENGINEER OF ANY DISCREPANCIES BETWEEN EXISTING FIELD CONDITIONS AND THOSE SHOWN ON THE CONTRACT DOCUMENTS THAT IMPACT PROPOSED CONSTRUCTION ACTIVITIES.

17. ALL WATER METERS CURRENTLY LOCATED OUTSIDE THE RIGHT-OF-WAY SHALL BE RELOCATED TO THE GRASS UTILITY STRIP BETWEEN THE CURB AND SIDEWALK BY TOWN STAFF.

18. DISTURBANCE PROPOSED ON PRIVATE LOTS WITHIN THIS PLAN IS SUBJECT TO THE TOWN'S PROCUREMENT OF A LETTER OF PERMISSION OR TEMPORARY CONSTRUCTION EASEMENT FROM THE LANDOWNER. CONTRACTOR TO VERIFY IF EITHER ITEM HAS BEEN SUCCESSFULLY OBTAINED BY THE TOWN PRIOR TO DISTURBANCE ON THE PRIVATE LOTS.

19. ALL DRIVEWAY AND PAVEMENT DEMOLITION/REMOVAL SHALL EMPLOY SAW CUT JOINTS.

20. ROOT PRUNING SHALL BE TO THE DEPTH OF EXCAVATION, OR 24 INCHES, WHICHEVER IS LESS. A TRENCHER OR VIBRATORY PLOW SHALL BE USED TO PRUNE ALL ROOTS. ROOTS OVER ONE AND ONE-HALF INCHES (1.5") IN DIAMETER SHALL BE CLEANLY CUT BY HAND.

21. A ROOT BIOSTIMULANT SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS TO ALL TREES THAT ARE ROOT PRUNED.

22. CONCRETE PIPE TO BE CLASS III UNLESS OTHERWISE SPECIFIED.

23. SIGHT DISTANCE AREA TO REMAIN CLEAR OF ANY OBSTRUCTION. BRANCHES FROM TREES THAT OVERHANG THE EASEMENT SHALL BE TRIMMED UP TO EIGHT FEET ABOVE GROUND LEVEL TO ENSURE AN UNOBSTRUCTED LINE OF SIGHT. PRUNING OPERATIONS TO BE PERFORMED BY TOWN STAFF.

24. THE CONTRACTOR SHALL PROVIDE A SMOOTH GRADE FROM THE LIMITS OF DISTURBANCE TO THE BACK OF SIDEWALK.

25. TREES NOT SHOWN ON THE DEMOLITION PLAN TO BE REMOVED SHALL BE PRESERVED IF POSSIBLE UPON DIRECTION OF TOWN ARBORIST.

26. ADD VDOT STD. IS-1 SHAPING TO THE BOTTOM OF ALL STORM SEWER STRUCTURES.

27. ALL FINISHED GRADING, SEEDING, SODDING OR PAVING SHALL BE DONE IN SUCH A MANNER TO PRECLUDE THE PONDING OF WATER ON THE SITE.

28. THE CONTRACTOR SHALL INSURE THAT ALL CONSTRUCTION CONFORMS WITH CURRENT FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS, INCLUDING FEDERAL REGULATIONS CONTAINED WITHIN "THE AMERICANS WITH DISABILITIES ACT," ENACTED ON JULY 26, 1990 ("ADA").

29. ALL EARTHWORK OPERATIONS SHALL CONFORM TO THE GEOTECHNICAL NOTES AND DETAILS IF PROVIDED.

30. PRIOR TO ANY LAND DISTURBANCE ACTIVITY WITHIN THE AREA OF WASHINGTON GAS, AND F.C.W.A. MAJOR TRANSMISSION LINES, THE CONTRACTOR MUST NOTIFY THESE UTILITY COMPANIES IN ADVANCE AND ALLOW THEM INSPECT AND APPROVE THE CONSTRUCTION ACTIVITY.

31. NO VISIBLE EVIDENCE OF ANY PLACE OF BURIAL OR HISTORIC SITE WAS ENCOUNTERED ON THE PROPERTY BY THIS FIRM. IF ANY GRAVE YARD OR HISTORIC SITE IS ENCOUNTERED DURING CONSTRUCTION THE CONTRACTOR SHALL CEASE WORK IN THE AREA IMMEDIATELY AND NOTIFY THE TOWN AND ENGINEER.

32. ALL CONSTRUCTION INVOLVING PROBLEM SOIL MUST BE PERFORMED UNDER THE FULL-TIME INSPECTION OF THE GEOTECHNICAL ENGINEER.

33. THE GEOTECHNICAL ENGINEER SHALL FURNISH A WRITTEN OPINION TO THE TOWN AS TO WHETHER OR NOT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS PRIOR TO THE ISSUANCE OF ANY OCCUPANCY OR USE PERMIT.

34. REVIEW AND APPROVAL OF PLANS, SPECIFICATION AND REPORTS BY THE TOWN, WITH OR WITHOUT RECOMMENDATIONS BY THE GEOTECHNICAL REVIEW BOARD, SHALL IN NO WAY RELIEVE THE DEVELOPER OF THE RESPONSIBILITY FOR THE DESIGN, CONSTRUCTION AND PERFORMANCE OF THE STRUCTURES, PAVEMENT AND SLOPES ON THE PROJECT AND DAMAGE TO SURROUNDING PROPERTIES.

35. TEMPORARY SIGNAGE, IF NEEDED, IS TO BE APPROVED BY THE TOWN PRIOR TO PLACEMENT.

36. ALL CLEARING, GRADING AND ACTUAL CONSTRUCTION ACTIVITY SHALL BE LIMITED TO BETWEEN THE HOURS OF 7:00 A.M. AND 6:00 P.M., MONDAY THROUGH FRIDAY, AND BETWEEN 8:00 A.M. AND 6:00 P.M. SATURDAY. CONSTRUCTION ACTIVITY ON SUNDAY SHALL BE PROHIBITED.

37. HANDRAILS ARE REQUIRED ON TOP OF ALL RETAINING WALLS GREATER THAN 2 FEET IN HEIGHT AND WILL REQUIRE A SEPARATE BUILDING PERMIT.

38. ANY FUTURE EASEMENT OR AUTHORIZATION FOR ELECTRIC, CABLE, TELEPHONE OR GAS SERVICE TO BE FURNISHED TO THE PROPERTY MUST COMPLY WITH THE PROVISIONS OF VA. CODE 15.2-2241(6).

39. NOTIFY THE TOWN OF VIENNA DEPARTMENT OF PUBLIC WORKS AT 703-255-6380 WHEN WORK IS TO BE STARTED.

40. ALL CONTRACTOR GENERATED DEBRIS MUST BE HAULED AWAY BY THE CONTRACTOR AND LAWFULLY DISPOSED.

41. ALL RUNOFF MUST SHEET FLOW ACROSS PROPERTY LINES UNLESS APPROVED OTHERWISE BY THE DIRECTOR OF PUBLIC WORKS.

42. PRIOR TO THE REMOVAL OF ANY TREES, CONTRACTOR SHALL CONTACT THE TOWN OF VIENNA ARBORIST AT 703-255-6360 TO COORDINATE HAVING THE TOWN ARBORIST, AT HIS DISCRETION, ONSITE DURING ALL TREE REMOVAL.

43. TREE PROTECTION FOR ANY TREE, AS SHOWN ON PLAN, MUST BE INSTALLED PRIOR TO ANY SITE WORK.

**ROAD CONSTRUCTION NOTES**

1. ALL CONSTRUCTION SHALL CONFORM TO CURRENT TOWN OF VIENNA AND VDOT STANDARDS AND SPECIFICATIONS.

2. THE CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE AND MAKE ALL INSPECTIONS NECESSARY IN ORDER TO DETERMINE THE FULL EXTENT OF WORK REQUIRED TO MAKE THE COMPLETED WORK CONFORM TO THE DRAWINGS AND SPECIFICATIONS.

3. WHERE CONFLICTS REQUIRE RELOCATION OF EXISTING UTILITIES, UTILITY COMPANIES SHALL BE NOTIFIED.

4. ALL EXISTING SIGNS, FENCES, ETC. DISTURBED BY THIS CONSTRUCTION SHALL BE RELOCATED BY THE CONTRACTOR AS NECESSARY PER TOWN AND VDOT REQUIREMENTS.

5. ALL EXISTING TOWN OF VIENNA TRAFFIC CONTROL EQUIPMENT WILL BE RELOCATED BY THE CONTRACTOR AS NECESSARY PER VDOT REQUIREMENTS.

6. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING ROADS AND UTILITIES WHICH OCCUR AS A RESULT OF PROJECT CONSTRUCTION WITHIN OR CONTIGUOUS TO THE SITE.

7. ANY EXISTING C&G AND PAVEMENT TO REMAIN THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/REPAIRED TO TOWN OF VIENNA SATISFACTION. C&G TO BE SAW CUT, OTHERWISE REMOVE TO THE NEAREST JOINT.

8. THE CONTRACTOR IS RESPONSIBLE FOR ALL PAVEMENT MARKINGS. THE CONTRACTOR SHALL OBTAIN TOWN OF VIENNA APPROVAL PRIOR TO THE APPLICATION OF PAVEMENT MARKINGS.

9. WHERE MANHOLES ARE TO BE PLACED IN THE ROAD TRAVELWAYS, THE TOPS SHALL BE PLACED TO ASSURE THAT THEY ARE POSITIONED TO MINIMIZE IMPACT TO VEHICULAR WHEEL PATHS.

10. THE APPROVAL OF THESE PLANS SHALL IN NO WAY RELIEVE THE CONTRACTOR OF COMPLYING WITH OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REQUIREMENTS.

11. ALL FILL MATERIAL REQUIRED TO RAISE GRADES AND UNDER SLABS, WHICH MAY CONSIST OF APPROVED ONSITE SOILS AND/OR OFFSITE BORROW MATERIAL, SHALL BE FREE OF ALL DEBRIS, ORGANIC MATERIAL, AND CLUMPS AND SHALL BE ADJUSTED TO THE PROPER MOISTURE CONTENT BEFORE BEING COMPACTED IN 8" MAXIMUM LAYERS. EACH LAYER TO BE COMPACTED TO 95% DENSITY MODIFIED PROCTOR PER ASTM D1557. BASE AND SUBBASE MATERIAL SHALL BE COMPACTED TO THE REQUIREMENTS OF SECTIONS 308.03, 309.04, AND 309.05 OF VDOT SPECIFICATIONS. SUBGRADE COMPACTION SHALL BE IN ACCORDANCE WITH SECTION 305.03.

12. STANDARD UD-2, UD-3, & UD-4 TO BE UTILIZED IN CONSTRUCTION WITH STANDARD PIPE UNDER DRAIN. UD-2, UD-3, & UD-4 TO BE INSTALLED IN ACCORDANCE WITH VDOT SECTION 108.02, 108.03, AND 108.05.

13. STANDARD GUARDRAILS AND/OR HANDRAILS SHALL BE INSTALLED AT HAZARDOUS LOCATIONS AS DESIGNATED DURING FIELD REVIEW BY THE TOWN OF VIENNA INSPECTOR.

14. THE CONTRACTOR IS RESPONSIBLE FOR ALL TRAFFIC CONTROL.

15. A 4" (MIN.) LAYER OF STONE IS REQUIRED BENEATH CURB AND GUTTER.

16. ADDITIONAL DITCH LININGS OR SILTATION AND EROSION CONTROL MEASURES SHALL BE PROVIDED AS DETERMINED BY THE TOWN OF VIENNA DURING FIELD REVIEW. ALL COSTS SHALL BE ASSUMED BY THE CONTRACTOR.

17. OVERLAY OF EXISTING PAVEMENT SHALL BE MINIMUM OF 1.5" DEPTH, ANY COSTS ASSOCIATED WITH PAVEMENT OVERLAY, OR THE MILLING OF EXISTING PAVEMENT TO OBTAIN REQUIRED DEPTH, SHALL BE ASSUMED BY THE CONTRACTOR.

**GLEN AVENUE - SURVEY NOTES**

TOPOGRAPHICAL SURVEY PERFORMED BY FIELD RUN BY URBAN, LTD.

**VERTICAL**

NOTE: ELEVATIONS SHOWN HEREON ARE BASED ON STATIC GPS OBSERVATIONS AS PROCESSED BY THE NATIONAL GEODETIC SURVEY, ONLINE POSITIONING USER SERVICE (OPUS), AND ARE REFERENCED TO NORTH AMERICAN VERTICAL DATUM (NAVD) OF 1988.

**HORIZONTAL**

NOTE: BEARINGS AND COORDINATES SHOWN HEREON ARE BASED ON STATIC GPS OBSERVATIONS AS PROCESSED BY THE NATIONAL GEODETIC SURVEY, ONLINE POSITIONING USER SERVICE (OPUS), AND ARE REFERENCED TO VIRGINIA STATE GRID NORTH ZONE NAD 83 - US SURVEY FOOT.

**AS-BUILT DATA**

AS-BUILT DATA FOR STORM AND SANITARY ARE ON X-S-AB-T AND X-SD-AB-T.

**UTILITIES**

UNDERGROUND UTILITIES WERE PAINTED BY UTILITIES SEARCH, INC. AND MAPPED INTO THE BASE BY URBAN, LTD.

**ADDITIONAL DATA**

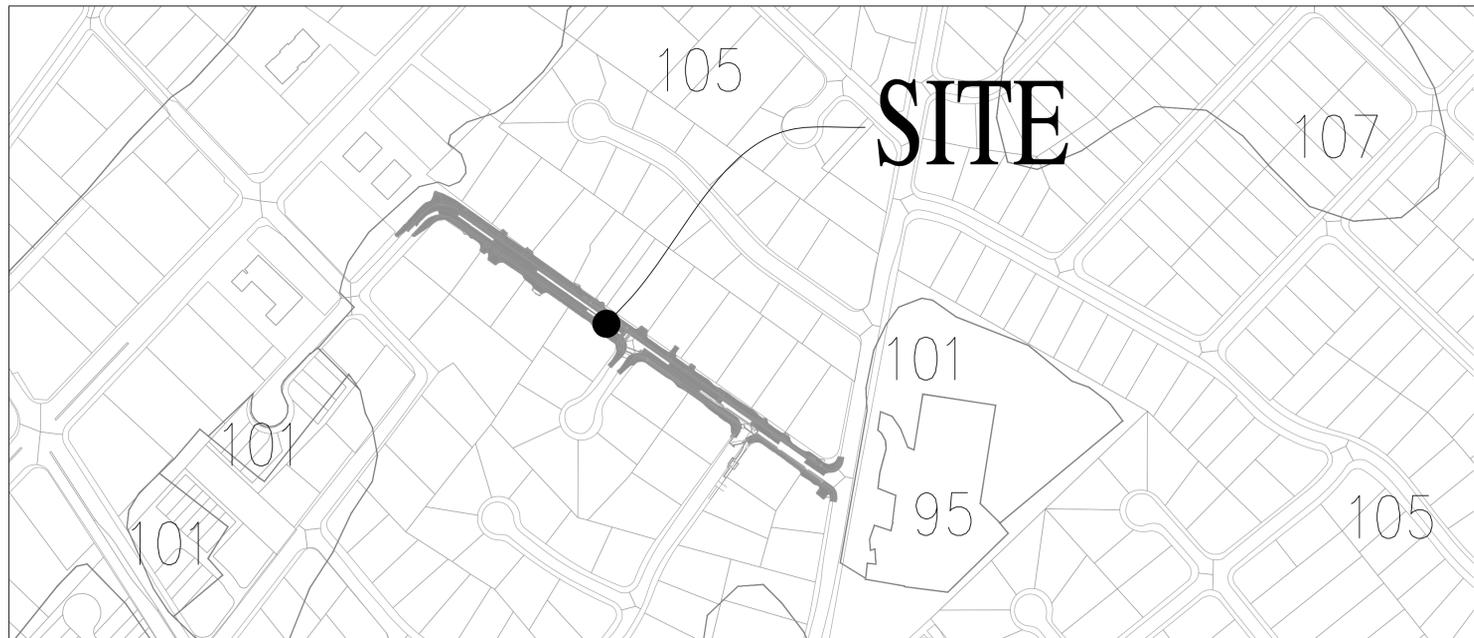
THERE IS ADDITIONAL VERTICAL DATA ON THE SURFACE LAYERS AND POINTS LAYERS.

**SOIL TYPES**

SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS	HYDROLOGIC SOIL GROUP
95	URBAN LAND	N/A	N/A	N/A	N/A	N/A
105	WHEATON-GLENELG COMPLEX	GOOD	GOOD	HIGH	IVB	D

**SOILS MAP**

1" = 200'



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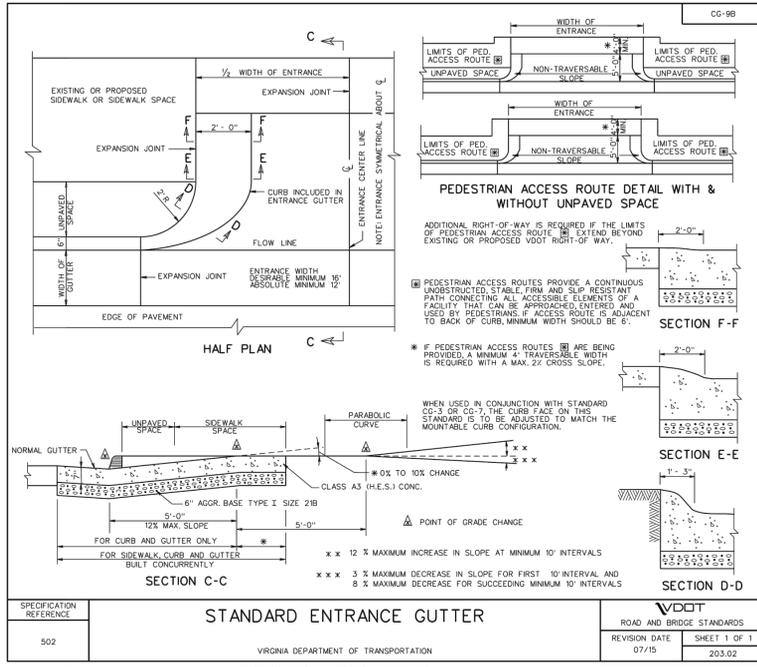
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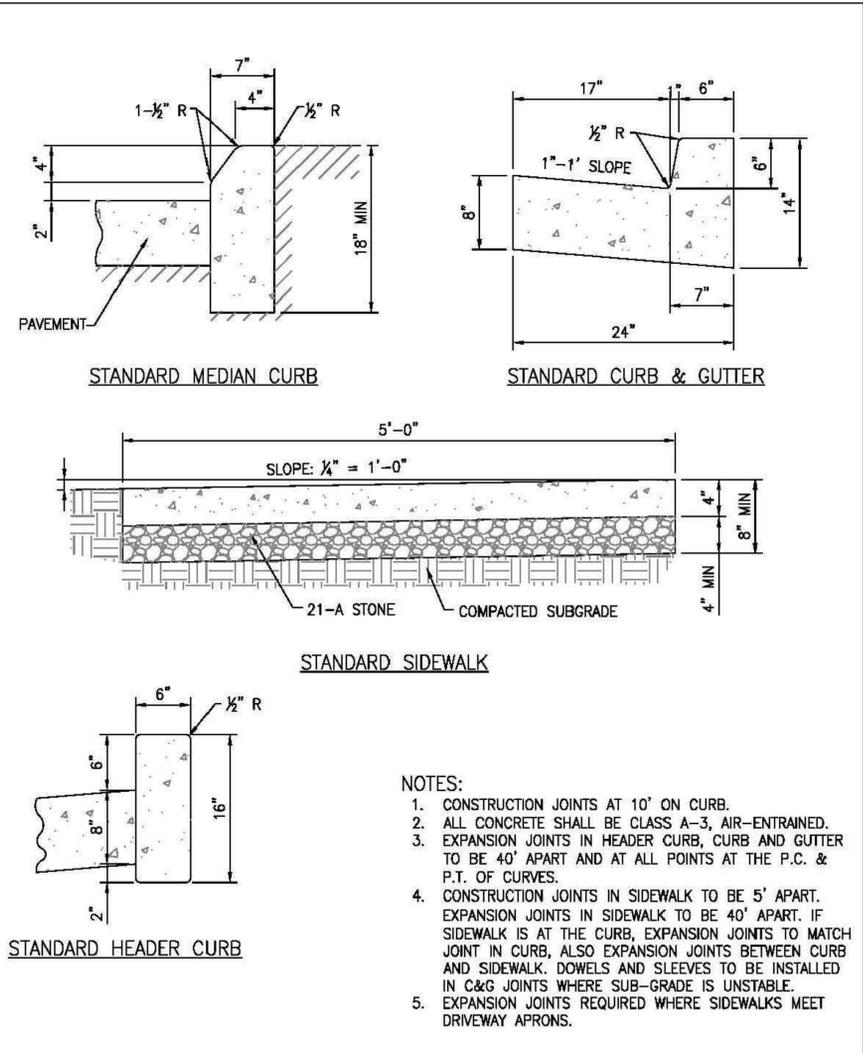
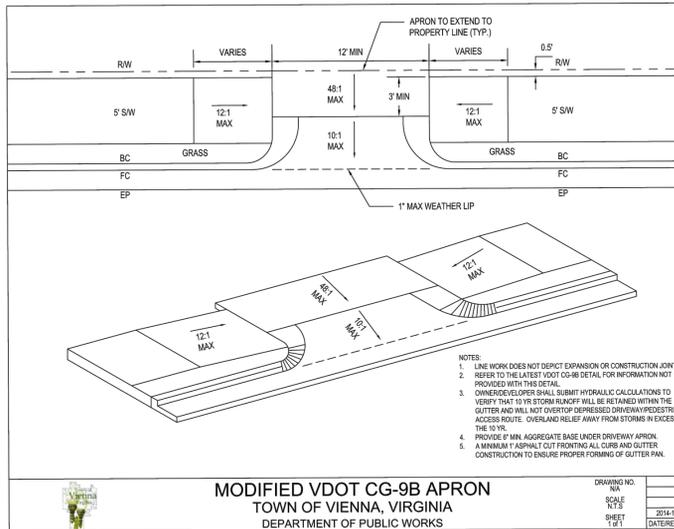
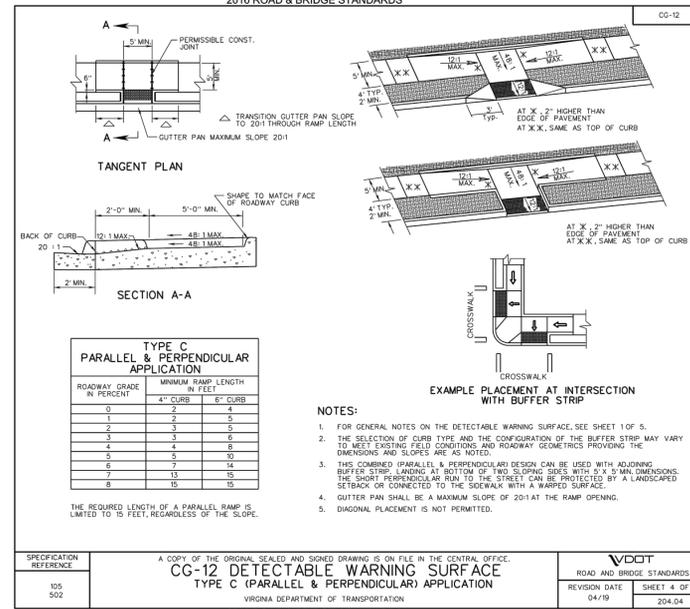
COMMONWEALTH OF VIRGINIA  
C. RYAN CONNOR  
Lic. No. 039631  
09/26/2024  
PROFESSIONAL ENGINEER

NOTES AND DETAILS  
GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA  
SCALE: 1"=200'  
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SHEET  
2  
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23  
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VDOT ROAD AND BRIDGE STANDARDS  
REVISION DATE: 07/15  
SHEET 1 OF 1  
203.02



- NOTES:**
- CONSTRUCTION JOINTS AT 10' ON CURB.
  - ALL CONCRETE SHALL BE CLASS A-3, AIR-ENTRAINED.
  - EXPANSION JOINTS IN HEADER CURB, CURB AND GUTTER TO BE 40' APART AND AT ALL POINTS AT THE P.C. & P.T. OF CURVES.
  - 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.
  - EXPANSION JOINTS REQUIRED WHERE SIDEWALKS MEET DRIVEWAY APRONS.

EXISTING	DESCRIPTION	PROPOSED
---	INDEX CONTOUR	---
---	INTERMEDIATE CONTOUR	---
---	EDGE OF PAVEMENT	---
---	CURB AND GUTTER	---
---	TRANSITION FROM SPILL TO CATCH CURB	---
---	HEADER CURB	---
---	PROPERTY LINE	---
---	DEPARTING PROPERTY LINE	---
---	LOT LINE	---
---	RIGHT-OF-WAY	---
---	CENTERLINE	---
---	FLOOD PLAIN	---
---	LIMIT OF DISTURBANCE	---
---	TREE LINE	---
---	FLOW LINE OF SWALE	---
---	STREAM	---
---	OVERLAND RELIEF PATHWAY	---
---	FENCE LINE	---
---	EASEMENT	---
---	WATER LINE	---
---	REUSE WATER MAIN	---
---	WATER VALVE	---
---	REDUCER	---
---	SANITARY SEWER	---
---	STORM SEWER	---
---	ELECTRIC LINE	---
---	COMMUNICATION LINE	---
---	GAS LINE	---
---	IRRIGATION LINE	---
---	OVERHEAD POWER LINES	---
---	FIBER OPTIC LINE	---
---	UNKNOWN LINE	---
---	SPOT ELEVATION	---
---	UTILITY POLE	---
---	GUY WIRE	---
---	MAILBOX	---
---	SIGN	---
---	SANITARY SEWER IDENTIFIER	---
---	STORM DRAIN IDENTIFIER	---
---	EASEMENT IDENTIFIER	---
---	WATER METER	---
---	WATER VALVE	---
---	FIRE HYDRANT	---
---	COMMUNICATION VAULT (MANHOLE)	---
---	COMMUNICATION PEDESTAL	---
---	PARKING INDICATOR	---
---	INDICATES THE NUMBER OF TYPICAL PARKING SPACES	---
---	STREET LIGHT	---
---	VEHICLES PER DAY (TRAFFIC COUNT)	---
---	TEST PIT REQUIRED	---
---	CRITICAL SLOPE	---
---	SLOPES TO BE STABILIZED PURSUANT TO VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK	---
---	HANDICAP RAMP	---
---	DENOTES LOCATION OF STANDARD RAMP CONSTRUCTION	---
---	DENOTES CLEAR SIGHT TRIANGLE	---
---	DECIDUOUS TREE	---
---	BENCHMARK	---
---	NEW ASPHALT	---
---	ASPHALT TRAIL	---
---	CONCRETE SIDEWALK	---
---	END WALLS	---
---	END SECTIONS	---
---	STOP SIGN	---
---	STREET SIGN	---
---	GEO THERMAL LINE	---

**urban**  
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7712 Little Blue Turnpike  
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COMMONWEALTH OF VIRGINIA  
C. RYAN CONNOR  
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**SIDEWALK IMPROVEMENT PLAN**  
GLEN AVE, SW  
TOWN OF VIENNA  
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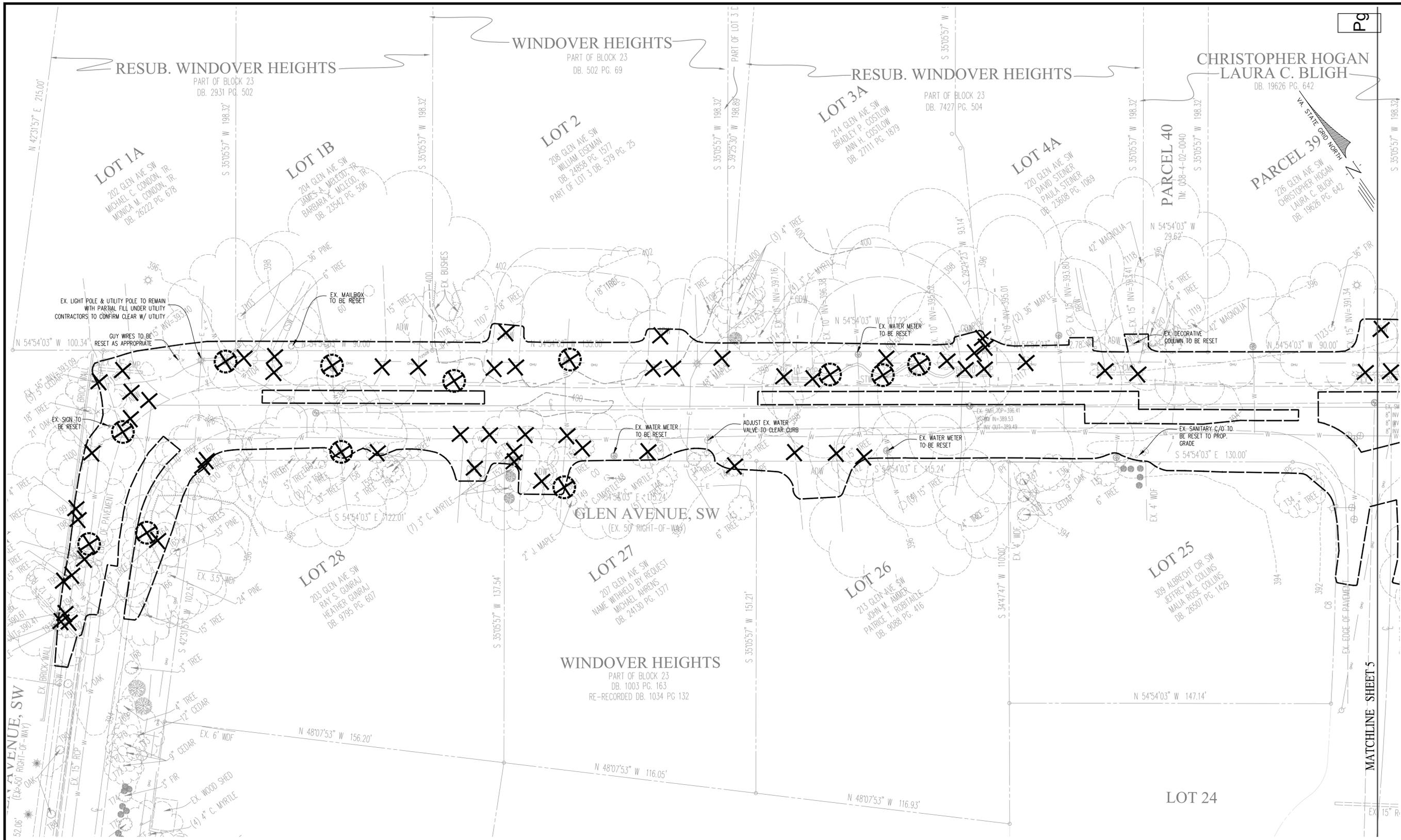
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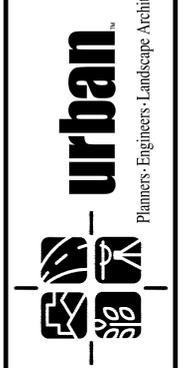
P9

VA. STATE GRID NORTH

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PLAN DATE
10/11/2023
08/14/2024
09/26/2024

Urban Ltd  
 7120 Blue Ridge Turnpike  
 Annandale, Virginia 22003  
 Tel. 703.642.8080  
 Fax. 703.642.8251  
 www.urband.com



COMMONWEALTH OF VIRGINIA  
 C. RYAN CONNOR  
 Lic. No. 039631  
 09/26/2024  
 PROFESSIONAL ENGINEER

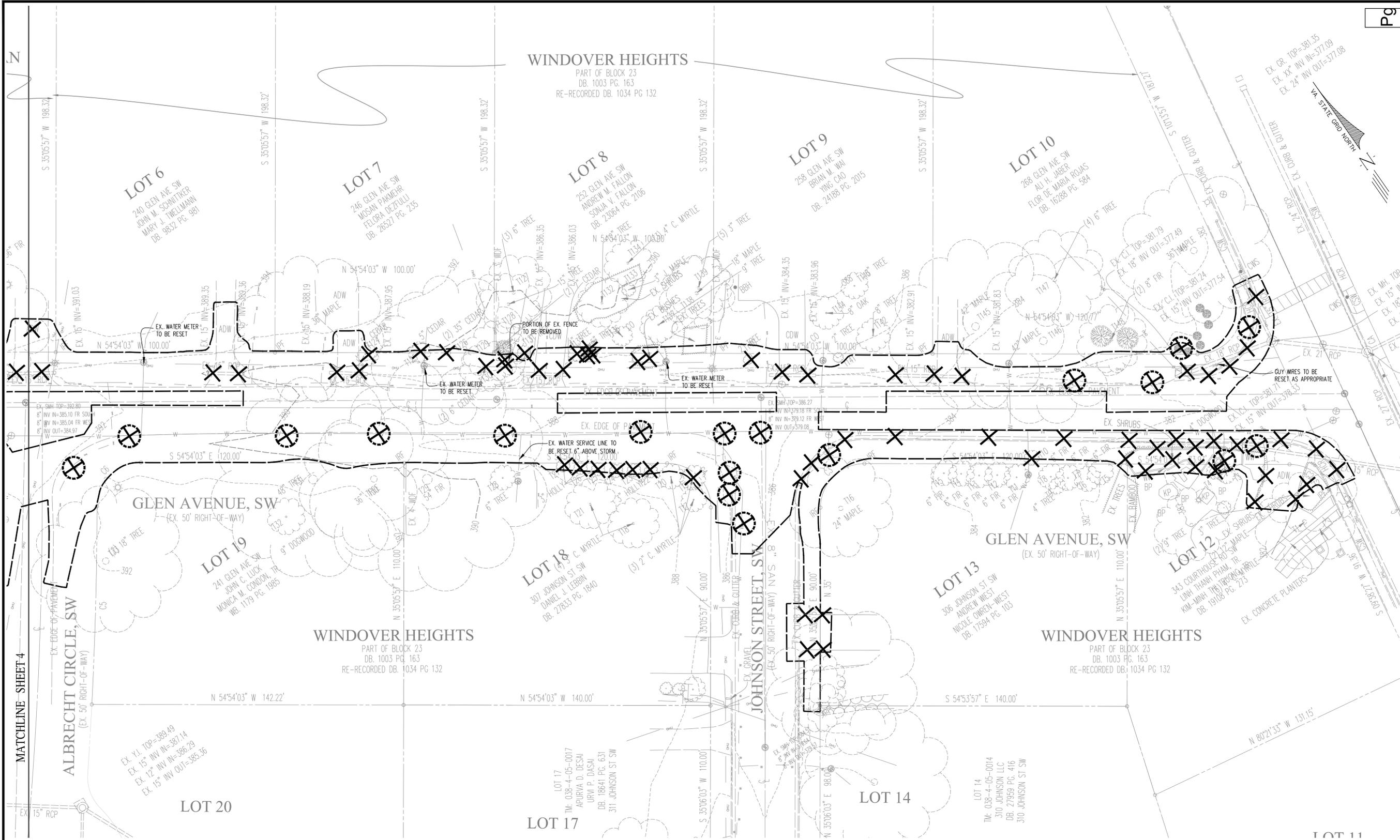
EXISTING CONDITIONS AND DEMOLITION PLAN  
**GLEN AVE, SW**  
**SIDEWALK IMPROVEMENT PLAN**  
 TOWN OF VIENNA  
 FAIRFAX COUNTY, VIRGINIA  
 SCALE: 1" = 20'  
 DATE: AUG 2024

SHEET  
 4  
 OF  
 23  
 FILE No.  
 PP-2531

**ELECTRICAL NOTE**  
 CONTRACTOR TO COORDINATE WITH POWER COMPANY PRIOR TO DISTURBANCE IN VICINITY OF UGE (UNDERGROUND ELECTRICAL) LINES OR POLE.

- ITEM TO BE REMOVED
- ITEM TO BE RELOCATED  
SEE SITE PLAN FOR NEW LOCATION

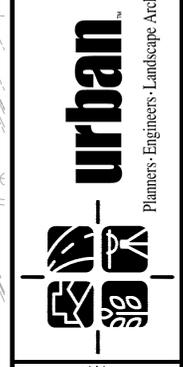
MATCHLINE SHEET 5



No.	DATE	DESCRIPTION	REVISIONS
3	09/26/24	95% PLAN UPDATE	
2	08/14/24	95% PLAN	
1	10/11/23	30% PLAN	

PLAN DATE
10-11-2023
08-14-2024
09-26-2024

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 712 Lile River Turnpike  
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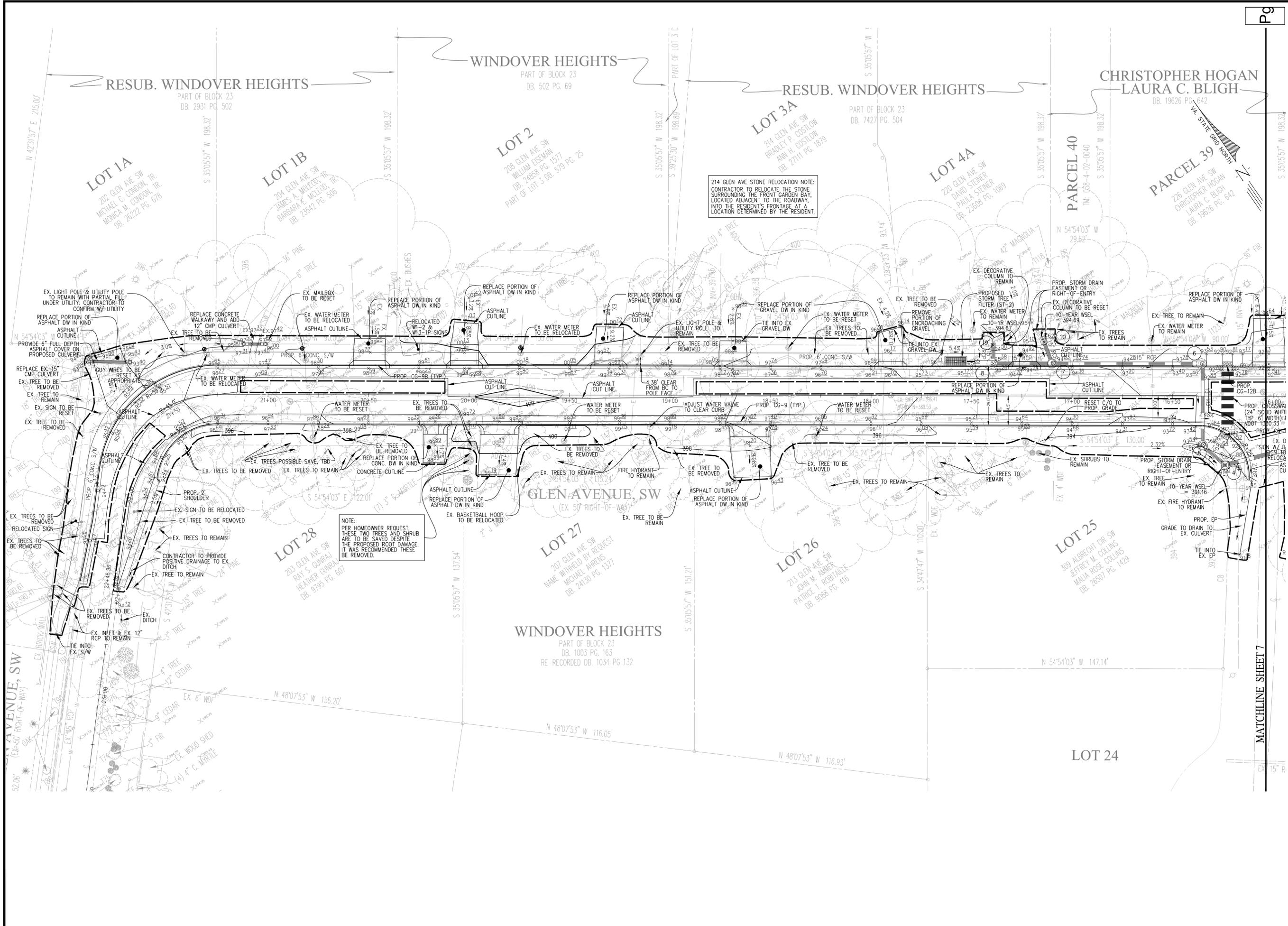


EXISTING CONDITIONS AND DEMOLITION PLAN  
**GLEN AVE, SW**  
**SIDEWALK IMPROVEMENT PLAN**  
 TOWN OF VIENNA  
 FAIRFAX COUNTY, VIRGINIA  
 DATE: AUG 2024  
 SCALE: 1" = 20'  
 C.I. = 2'

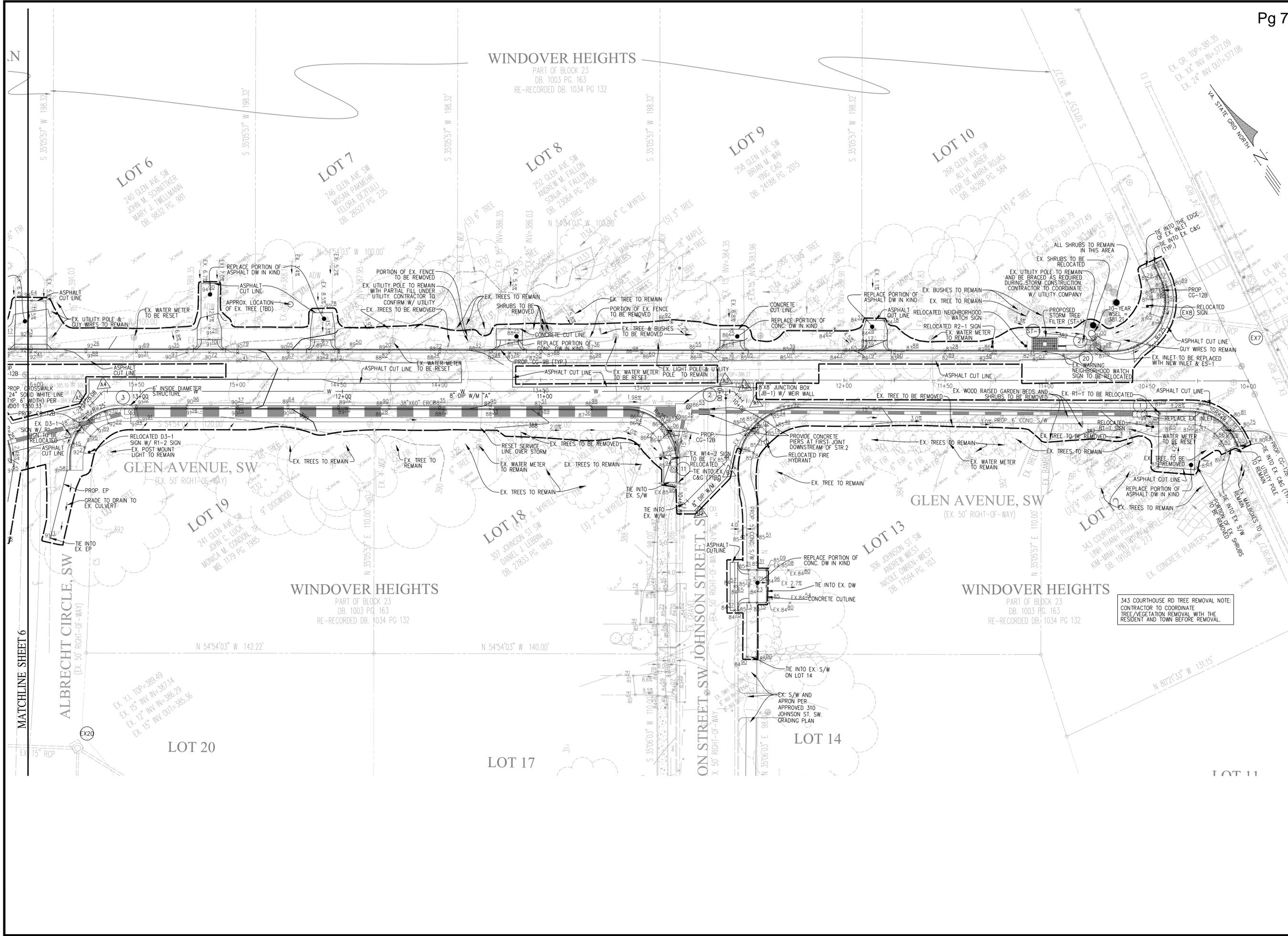
SHEET  
 5  
 OF  
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 FILE No.  
 PP-2531

**ELECTRICAL NOTE**  
 CONTRACTOR TO COORDINATE WITH POWER COMPANY PRIOR TO  
 DISTURBANCE IN VICINITY OF UGE (UNDERGROUND ELECTRICAL)  
 LINES OR POLE.

**X** ITEM TO BE REMOVED  
**X** ITEM TO BE RELOCATED  
 SEE SITE PLAN FOR  
 NEW LOCATION



<b>PLAN DATE</b> 10/11/2023 08/14/2024 09/26/2024													
Urban Ltd 7120 Lee Blvd Annandale, Virginia 22003 Tel: 703.642.8080 Fax: 703.642.8251 www.urbanltd.com													
<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>No.</th> <th>DATE</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>09/26/24</td> <td>95% PLAN UPDATE</td> </tr> <tr> <td>2</td> <td>06/14/24</td> <td>95% PLAN</td> </tr> <tr> <td>1</td> <td>10/11/23</td> <td>30% PLAN</td> </tr> </tbody> </table>		No.	DATE	DESCRIPTION	3	09/26/24	95% PLAN UPDATE	2	06/14/24	95% PLAN	1	10/11/23	30% PLAN
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<b>PROFESSIONAL ENGINEER</b> COMMONWEALTH OF VIRGINIA C. RYAN CONNOR Lic. No. 039531 09/26/2024													
<b>SITE PLAN</b> <b>GLEN AVE, SW</b> <b>SIDEWALK IMPROVEMENT PLAN</b> TOWN OF VIENNA FAIRFAX COUNTY, VIRGINIA SCALE: 1" = 20' DATE: AUG 2024													
SHEET 6 OF 23 FILE No. PP-2531													



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Planners - Engineers - Landscape Architects - Land Surveyors

COMMONWEALTH OF VIRGINIA  
 C. RYAN CONNOR  
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 09/26/2024  
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SITE PLAN  
**GLEN AVE, SW**  
**SIDEWALK IMPROVEMENT PLAN**  
 TOWN OF VIENNA  
 FAIRFAX COUNTY, VIRGINIA

SCALE: 1" = 20'  
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 C.I. = 2'

SHEET  
 7  
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FILE No.  
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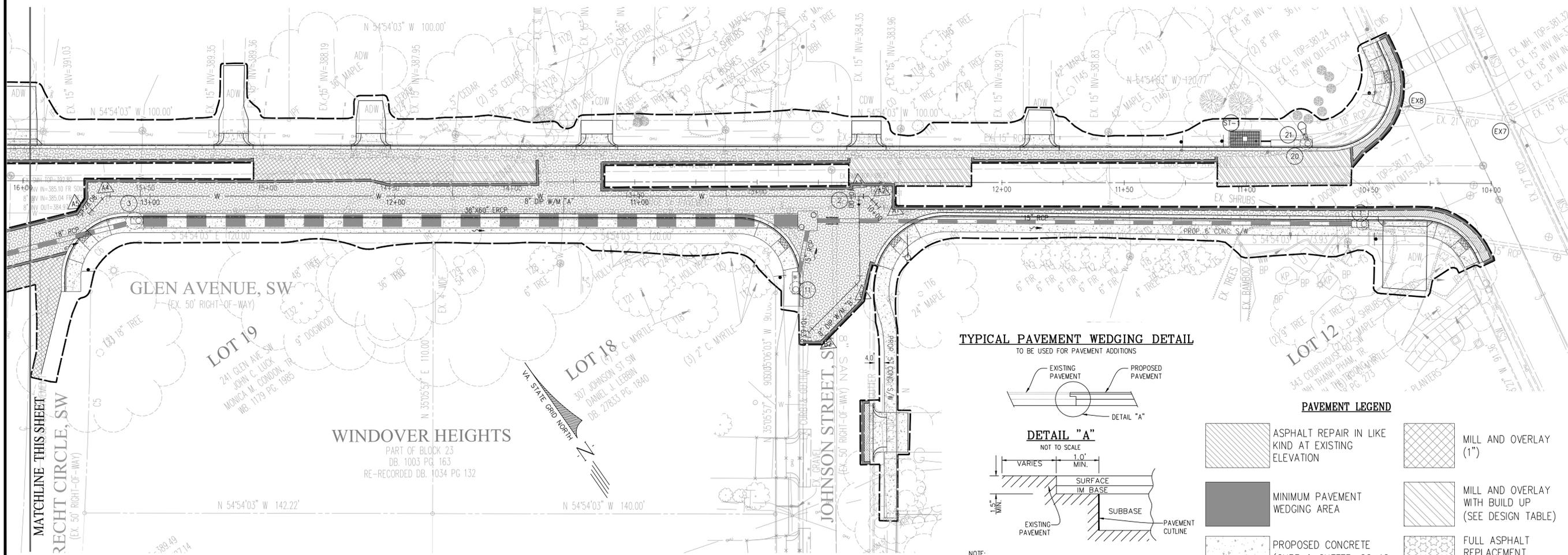
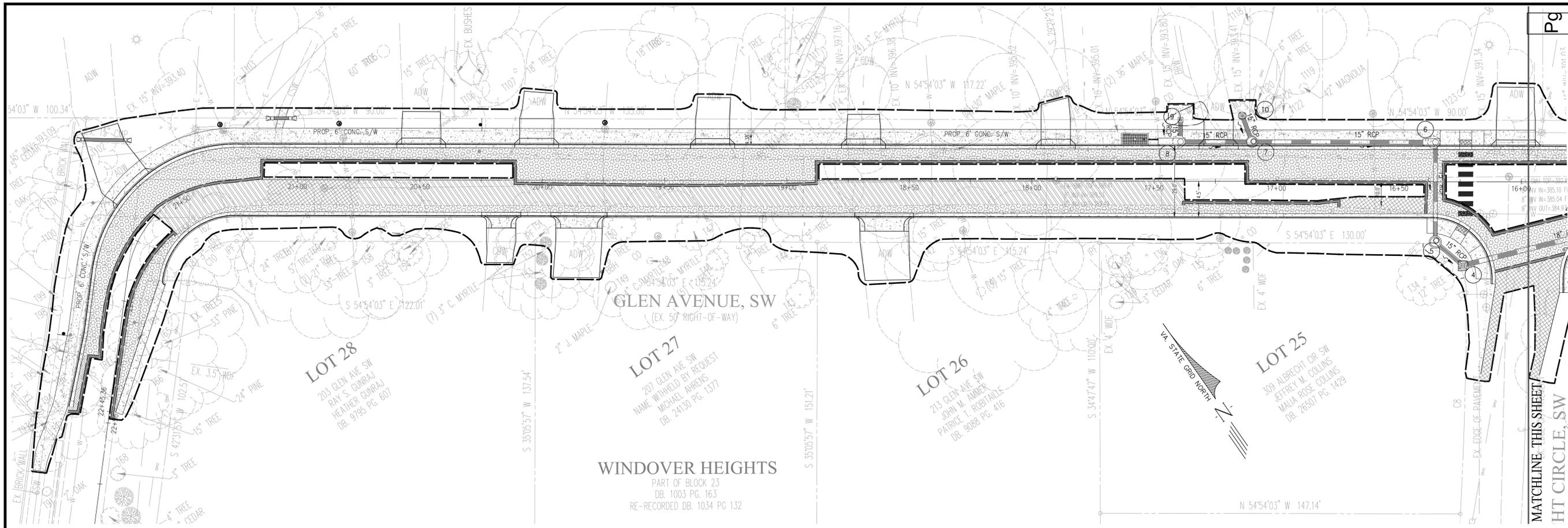
343 COURTHOUSE RD TREE REMOVAL NOTE:  
 CONTRACTOR TO COORDINATE  
 TREE/VEGETATION REMOVAL WITH THE  
 RESIDENT AND TOWN BEFORE REMOVAL.

RIGHT / NORTHEAST BOUND LANE OF PROJECT

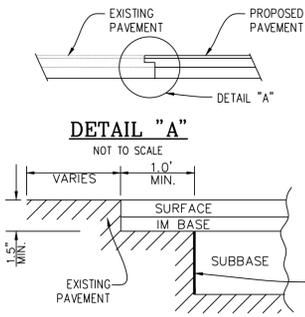
Sta	Existing Crown Elevation	Existing Right EP Width	Existing Right EP Elevation	Proposed Right EP Width from Existing Right EP	Existing Right Xslope from Existing Crown	Existing Longitude Slope	Proposed Right EP Width from Existing Crown	New Slope Crown to EP	Proposed Right Xslope	Prop Right EP Elevation	Prop. Right EP Longitude Slope	Prop. TC Elevation	TC to Back S/W Dist	Prop Back S/W Elevation	Prop Projected Grade at ROW	Ex Grade at ROW	Ex minus Prop.
1025	381.80	N/A	N/A	N/A	N/A	0.47%	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1050	381.86	N/A	N/A	N/A	N/A	0.24%	N/A	N/A	N/A	381.37	1.56%	381.75	N/A	N/A	381.97	381.58	-0.39
1075	382.06	15.01	380.97	-1.93	-7.26%	0.80%	13.08	-2.08%	-2.08%	381.79	1.56%	382.17	N/A	N/A	382.39	381.99	-0.40
1100	382.35	11.32	382.13	2.32	-1.94%	1.16%	13.64	-2.08%	-2.08%	382.07	1.11%	382.45	N/A	N/A	382.67	382.00	-0.67
1125	382.80	11.10	382.54	2.57	-2.34%	1.80%	13.67	no	-2.34%	382.48	1.65%	382.86	N/A	N/A	383.08	382.47	-0.61
1150	383.30	11.50	382.97	2.66	-2.87%	2.00%	14.16	no	-2.87%	382.89	1.66%	383.28	N/A	N/A	383.49	382.97	-0.52
1175	383.87	10.96	383.57	2.64	-2.74%	2.28%	13.60	no	-2.74%	383.50	2.42%	383.88	N/A	N/A	384.10	383.87	-0.23
1200	384.55	10.85	384.34	2.82	-1.94%	2.72%	13.67	no	-1.94%	384.29	3.15%	384.67	N/A	N/A	384.89	384.87	-0.02
1225	385.29	10.38	384.90	3.21	-3.76%	2.96%	13.59	-2.08%	-2.08%	385.01	2.89%	385.39	N/A	N/A	385.61	385.47	-0.14
1250	385.94	10.31	385.71	3.46	-2.23%	2.80%	13.77	-2.08%	-2.08%	385.65	2.59%	386.04	N/A	N/A	386.25	386.17	-0.08
1275	386.54	10.87	386.25	3.19	-2.67%	2.40%	14.06	no	-2.67%	386.16	2.05%	386.55	N/A	N/A	386.76	386.62	-0.14
1300	386.96	10.56	386.69	3.40	-2.56%	1.68%	13.96	no	-2.56%	386.60	1.75%	386.98	N/A	N/A	387.20	387.12	-0.08
1325	387.38	11.48	387.07	3.24	-2.70%	1.68%	14.72	no	-2.70%	386.98	1.52%	387.36	N/A	N/A	387.58	387.98	0.40
1350	387.85	11.76	387.58	3.40	-2.30%	1.88%	15.16	no	-2.30%	387.50	2.08%	387.88	N/A	N/A	388.10	388.40	0.30
1375	388.25	10.88	388.12	3.91	-1.19%	1.60%	14.79	-2.08%	-2.08%	387.94	1.76%	388.32	N/A	N/A	388.54	388.88	0.34
1400	388.63	9.66	388.25	4.45	-3.93%	1.52%	14.11	-2.08%	-2.08%	388.34	1.58%	388.72	N/A	N/A	388.94	389.05	0.11
1425	389.13	10.60	388.66	4.36	-4.43%	2.00%	14.96	-2.08%	-2.08%	388.82	1.93%	389.20	N/A	N/A	389.42	389.43	0.01
1450	389.55	11.80	389.21	3.21	-2.88%	1.68%	15.01	no	-2.88%	389.12	1.19%	389.50	N/A	N/A	389.72	389.92	0.20
1475	389.92	5.26	389.77	3.64	-2.85%	1.48%	8.9	no	-2.85%	389.67	2.19%	390.05	N/A	N/A	390.27	390.81	0.54
1500	390.64	9.65	390.47	3.67	-1.76%	2.88%	13.32	no	-1.76%	390.41	2.96%	390.79	N/A	N/A	391.01	391.10	0.09
1525	391.25	8.39	391.06	3.86	-2.26%	2.44%	12.25	no	-2.26%	390.97	2.27%	391.35	N/A	N/A	391.57	392.06	0.49
1550	391.78	9.95	391.44	3.91	-3.42%	2.12%	13.86	no	-3.42%	391.31	1.34%	391.69	N/A	N/A	391.91	392.62	0.71
1575	392.27	11.40	391.97	3.53	-2.63%	1.96%	14.93	no	-2.63%	391.88	2.28%	392.26	N/A	N/A	392.48	393.15	0.67
1600	392.74	12.50	392.48	3.28	-2.08%	1.88%	15.78	no	-2.08%	392.41	2.14%	392.79	N/A	N/A	393.01	393.60	0.59
1625	393.16	11.83	392.91	3.43	-2.11%	1.68%	15.26	no	-2.11%	392.84	1.70%	393.22	N/A	N/A	393.44	394.24	0.80
1650	393.70	10.78	393.54	3.63	-1.48%	2.16%	14.41	-2.08%	-2.08%	393.40	2.25%	393.78	6.50	393.92	394.00	394.28	0.28
1675	394.18	10.04	394.08	3.58	-1.00%	1.92%	13.62	-2.08%	-2.08%	393.90	1.99%	394.28	6.50	394.41	394.50	394.73	0.23
1700	394.63	9.81	394.49	3.11	-1.43%	1.80%	12.92	-2.08%	-2.08%	394.36	1.86%	394.74	6.50	394.88	394.96	394.90	-0.06
1725	395.04	10.26	394.83	3.02	-2.05%	1.64%	13.28	no	-2.05%	394.77	1.63%	395.15	6.50	395.29	395.37	394.92	-0.45
1750	395.46	10.56	395.24	3.47	-2.08%	1.68%	14.03	no	-2.08%	395.17	1.60%	395.55	6.50	395.68	395.77	394.85	-0.92
1775	395.94	9.90	395.79	4.02	-1.52%	1.92%	13.92	no	-1.52%	395.73	2.25%	396.11	6.50	396.25	396.33	395.62	-0.71
1800	396.57	9.81	396.32	4.25	-2.55%	2.52%	14.06	no	-2.55%	396.21	1.93%	396.59	6.50	396.73	396.81	396.70	-0.11
1825	397.11	9.97	396.82	4.00	-2.91%	2.16%	13.97	no	-2.91%	396.70	1.97%	397.09	6.50	397.22	397.30	397.29	-0.01
1850	397.66	9.78	397.44	3.76	-2.25%	2.20%	13.54	no	-2.25%	397.36	2.61%	397.74	6.50	397.87	397.96	397.95	-0.01
1875	398.34	9.19	398.22	4.00	-1.31%	2.72%	13.19	no	-1.31%	398.17	3.25%	398.55	6.50	398.68	398.77	398.25	-0.52
1900	399.05	9.59	398.96	4.57	-0.94%	2.84%	14.16	-2.08%	-2.08%	398.76	2.35%	399.14	6.50	399.27	399.36	399.13	-0.23
1925	399.61	10.31	399.64	4.01	0.29%	2.24%	14.32	-2.08%	-2.08%	399.31	2.23%	399.69	6.50	399.83	399.91	400.13	0.22
1950	399.97	9.91	399.89	4.61	-0.81%	1.44%	14.52	-2.08%	-2.08%	399.67	1.42%	400.05	6.50	400.18	400.27	400.52	0.25
1975	400.10	9.60	399.94	4.70	-1.67%	0.52%	14.3	-2.08%	-2.08%	399.80	0.54%	400.18	6.50	400.32	400.40	400.44	0.04
2000	399.97	9.79	399.99	4.28	0.20%	-0.52%	14.07	-2.08%	-2.08%	399.68	-0.50%	400.06	6.50	400.19	400.28	400.75	0.47
2025	399.58	9.72	399.33	4.00	-2.57%	-1.56%	13.72	no	-2.57%	399.23	-1.80%	399.61	6.50	399.74	399.83	400.04	0.21
2050	398.96	9.31	398.71	4.04	-2.69%	-2.48%	13.35	no	-2.69%	398.60	-2.50%	398.98	6.50	399.12	399.20	399.01	-0.19
2075	398.21	8.83	398.01	4.01	-2.27%	-3.00%	12.84	no	-2.27%	397.92	-2.73%	398.30	6.50	398.44	398.52	398.18	-0.34
2100	397.35	8.28	397.17	3.69	-2.17%	-3.44%	11.97	no	-2.17%	397.09	-3.32%	397.47	6.50	397.61	397.69	397.48	-0.21
2125	396.66	9.48	396.44	4.55	-1.27%	-3.16%	14.03	-2.08%	-2.08%	396.27	-3.29%	396.65	6.50	396.79	396.87	396.11	-0.76
2150	395.79	11.77	395.84	1.46	0.42%	-3.08%	13.23	-2.08%	-2.08%	395.51	-3.01%	395.90	6.50	396.03	396.11	395.00	-1.11
2175	395.24	12.08	395.22	-2.52	-0.17%	-2.20%	9.56	-2.08%	-2.08%	395.04	-1.89%	395.42	6.50	395.56	395.64	395.16	-0.48
2200	394.91	8.99	394.83	-3.05	-0.89%	-1.32%	5.94	-2.08%	-2.08%	394.79	-1.02%	395.17	6.50	395.30	395.20	394.06	-1.14
2225	394.83	10.76	394.61	-3.16	-2.04%	-0.32%	7.6	no	-2.04%	394.67	-0.45%	395.06	6.50	395.19	395.26	394.08	-1.18
2245.36	394.77	8.80	394.65	0.00	-1.36%	-0.29%	8.8	no	-1.36%	394.65	-0.12%	395.03	6.58	395.17	395.20	394.46	-0.74

LEFT / SOUTHWEST BOUND LANE OF PROJECT

Sta	Existing Left EP Width	Existing Left EP Elevation	Proposed Left EP Width from Existing Left EP	Existing Left Xslope from Existing Crown	Proposed Left EP Width from Existing Crown	New Slope Crown to EP	Proposed Left Xslope	Proposed Left EP Elevation	Prop. Left EP Longitude Slope	Prop. TC Elevation	TC to Back S/W Dist	Prop. Back S/W Elevation	Ex Grade at Back of S/W	Ex minus Prop.
1025														
1050														
1075														
1100														
1125														
1150														
1175														
1200														
1225														
1250														
1275														
1300														
1325	9.47	387.05	1.97	-3.48%	11.44	no	-3.48%	386.98	1.98%	387.36	6.50	387.50	387.05	-0.45
1350	9.09	387.57	1.90	-3.08%	10.99	no	-3.08%	387.51	2.12%	387.89	6.50	388.03	387.61	-0.42
1375	9.51	388.00	1.86	-4.21%	11.37	no	-2.63%	387.95	1.76%	388.33	6.50	388.47	388.05	-0.42
1400	10.28	388.39	1.77	-3.33%	12.05	no	-2.33%	388.35	1.59%	388.73	6.50	388.87	388.66	-0.21
1425	9.47	388.74	1.73	-4.12%	11.20	-2.08%	-2.08%	388.90	2.19%	389.28	6.50	389.41	389.08	-0.33
1450	9.40	389.21	1.75	-3.62%	11.15	-2.08%	-2.08%	389.32	1.68%	389.70	6.50	389.83	390.30	0.47
1475	15.61	389.67	1.78	-1.60%	17.39	no	-1.60%	389.64	1.29%	390.02	6.50	390.16	390.56	0.40
1500	11.39	390.16	1.46	-4.21%	12.85	-2.08%	-2.08%	390.37	2.92%	390.75	6.50	390.89	390.52	-0.37
1525	12.80	390.78	1.11	-3.67%	13.91	-2.08%	-2.08%	390.96	2.35%	391.34	6.50	391.48	391.16	-0.32
1550	11.79	391.37	0.51	-3.48%	12.30	-2.08%	-2.08%	391.52	2.25%	391.91	6.50	392.04	391.52	-0.52
1575	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1600	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1625	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1650	10.21	393.39	1.54	-3.04%	11.75	no	-3.04%	393.34	2.32%	393.72	6.50	393.86	393.44	-0.42
1675	9.90	393.98	2.64	-2.02%	12.54	no	-2.02%	393.93	2.33%	394.31	6.50	394.45	394.03	-0.42
1700	9.98	394.38	3.26	-2.51%	13.24	no	-2.51%	394.30	1.49%	394.68	6.50</			



**TYPICAL PAVEMENT WEDGING DETAIL**  
TO BE USED FOR PAVEMENT ADDITIONS



**PAVEMENT LEGEND**

	ASPHALT REPAIR IN LIKE KIND AT EXISTING ELEVATION		MILL AND OVERLAY (1")
	MINIMUM PAVEMENT WEDGING AREA		MILL AND OVERLAY WITH BUILD UP (SEE DESIGN TABLE)
	PROPOSED CONCRETE (CURB & GUTTER, CG-12, SIDEWALK ETC)		FULL ASPHALT REPLACEMENT SM-9.5A = 1.5" IM-19.0 = 3.0" 21-A = 12.0"

NOTE:  
BOTTOM AND ALL SIDES OF CUT TO BE PREPARED WITH ASPHALT PRIOR TO PLACING ASPHALT MIX.  
PAVEMENT WEDGING REQUIRED AT ALL CUTLINES.

**REVISIONS**

No.	DATE	DESCRIPTION
3	09/26/24	95% PLAN UPDATE
2	06/14/24	95% PLAN
1	10/11/23	30% PLAN

**PLAN DATE**

10/11/2023	08/14/2024	09/26/2024
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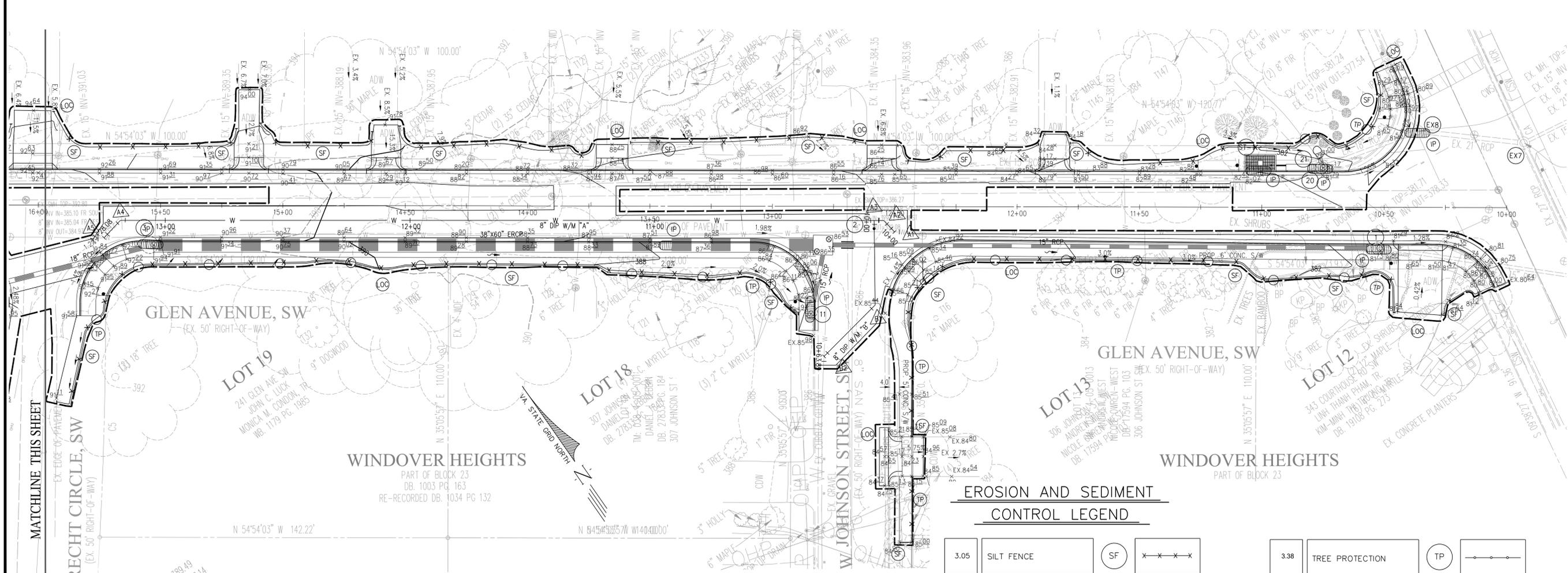
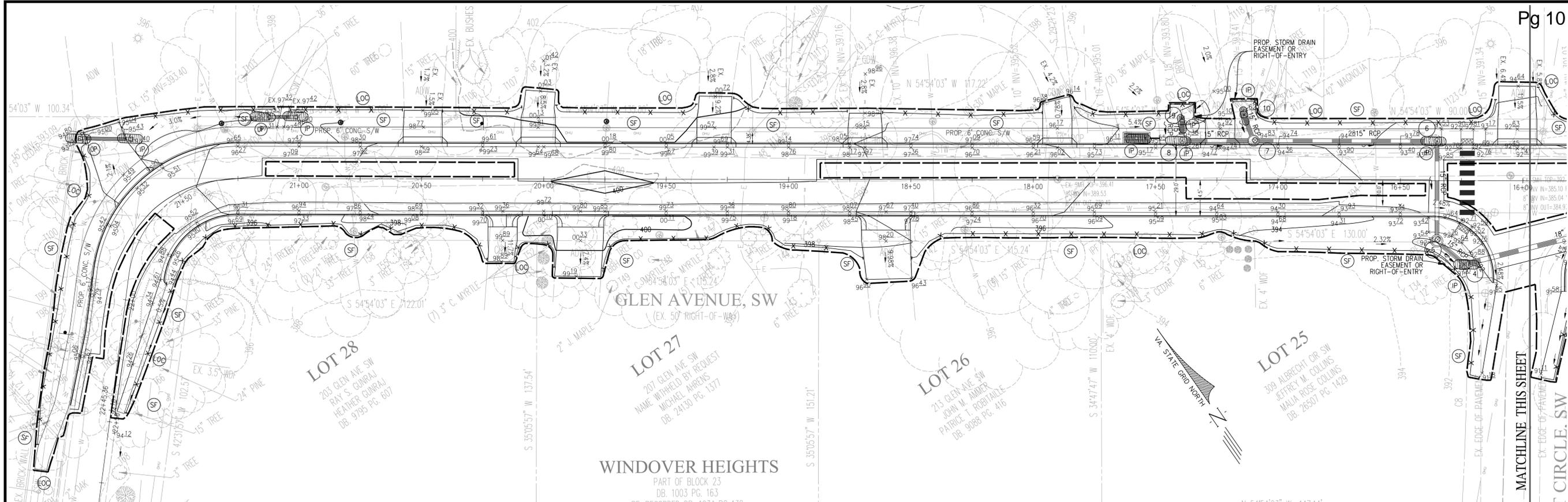
Urban Ltd  
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Tel. 703.642.8080  
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**PAVEMENT IMPROVEMENT PLAN**  
GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA

SHEET 9 OF 23  
FILE No. PP-2531  
SCALE: 1"=20'  
DATE: AUG 2024  
C.I. 2'



**EROSION AND SEDIMENT CONTROL LEGEND**

3.05	SILT FENCE	SF	x x x x	3.38	TREE PROTECTION	TP	—○—
3.07	STORM DRAIN INLET PROTECTION	IP	▬▬▬▬		LIMITS OF CLEARING & GRADING	LOC	— — — —

PLAN DATE

10/1/2023	08-14-2024	09-26-2024
3	109/26/24	95% PLAN UPDATE
2	08/14/24	95% PLAN
1	10/11/23	30% PLAN
No.	DATE	DESCRIPTION

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COMMONWEALTH OF VIRGINIA  
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09/26/2024  
PROFESSIONAL ENGINEER

EROSION AND SEDIMENT CONTROL PH I & II  
**GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN**  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA

SCALE: 1" = 20'  
DATE: AUG 2024

SHEET  
10  
OF  
23  
FILE No.  
PP-2531

# EROSION AND SEDIMENT CONTROL NARRATIVE

## PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF A SIDEWALK IMPROVEMENT PLAN FOR THE EXISTING STREET GLEN AVENUE SW. IMPROVEMENTS INCLUDE CURB AND GUTTER, SIDEWALK, DRIVEWAY ENTRANCES AND CG-12 DETECTABLE WARNING SURFACES. THE TOTAL DISTURBED ACREAGE FOR THE PROJECT IS 1.46 ACRES.

## EXISTING SITE CONDITIONS

THE SITE IS AN EXISTING ROAD, GLEN AVENUE SW WITH CURB & GUTTER, DRIVEWAY ENTRANCES, AND FRONT YARDS CONTAINING UTILITY POLES, FIRE HYDRANTS, WATER METERS, ETC.

## ADJACENT PROPERTIES

THE SITE IS SURROUNDED ON ALL SIDES BY SINGLE-FAMILY LOTS.

## OFF-SITE AREAS

THERE IS CONSTRUCTION ON OFFSITE AREAS ADJACENT TO ROADWAY. EROSION AND SEDIMENT CONTROL DEVICES WILL BE PLACED OFFSITE AS SHOWN ON PLAN.

## SOILS INFORMATION

SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS
105	WHEATON-GLENLG COMPLEX	GOOD	GOOD	HIGH	IVB

## CRITICAL EROSION AREAS

THERE ARE NO CRITICAL AREAS ASSOCIATED WITH THIS PROJECT. NO SLOPES ARE GREATER THAN 15%, AND THERE ARE NO RESOURCE PROTECTION AREAS WITHIN THE PROJECT LIMITS.

## EROSION AND SEDIMENT CONTROL MEASURES

THE EROSION AND SEDIMENT CONTROL MEASURES FOR THIS PROJECT AREA ARE DESCRIBED IN DETAIL IN THE EROSION AND SEDIMENT CONTROL PROGRAM ON THIS SHEET.

## OVERALL MANAGEMENT STRATEGY

THE OVERALL STRATEGY FOR THIS SITE IS TO TREAT THE ONSITE RUNOFF WITH PERIMETER SILT FENCE AND INLET PROTECTION.

## EROSION CONTROL PROGRAM (GENERAL GUIDELINES)

NOT MORE THAN 75% OF THE SITE IS TO BE DENUDED AT ONE TIME. TEMPORARY SEEDING AND MULCHING ARE TO BE APPLIED TO ANY AREA WITHIN THE SITE NOT CONTINUOUSLY WORKED FOR 5 DAYS AFTER CLEARING AND ROUGH GRADING. IN ADDITION, THE CONTRACTOR SHALL TAKE THE FOLLOWING STEPS TO MINIMIZE THE VOLUME OF SILT:

- CONTRACTOR SHALL EVALUATE THE SITE TO DETERMINE EXTENSIVE CUT AND FILL AREAS AND SHALL WORK THOSE AREAS TO MINIMIZE THE EXTENT OF HEAVY EQUIPMENT WORK. CONTRACTOR SHALL STRIVE TO BRING AREAS TO GRADE (ROUGH OR FINISH) AND TO STABILIZE. BY TEMPORARY OR PERMANENT VEGETATION, THESE DISTURBED AREAS PRIOR TO BEGINNING WORK IN OTHER AREAS.
- FILL AREAS SHALL BE COMPACTED COMPLETELY PRIOR TO THE END OF EACH WORK DAY. FILL SLOPE SURFACES SHALL BE LEFT ROUGHENED TO REDUCE SHEET EROSION OF THE SLOPES. CONTRACTOR SHALL REDIRECT CONCENTRATED RUNOFF, BY EARTH BERMS OR OTHER DEVICES, AROUND ACTIVELY DISTURBED AREAS TO STABILIZE OUTLETS.
- CUT SLOPE, AS NECESSARY, SHALL BE PROTECTED FROM CONCENTRATED FLOW BY BERMS ABOVE THE SLOPE AND DIRECTED AROUND THE DISTURBED AREA TO STABILIZED OUTLETS.
- IN NEW PAVEMENT AREAS, PLACE THE AGGREGATE BASE STONE ON THE FINISH SUBGRADE AT THE EARLIEST POSSIBLE TIME.
- MATERIALS AND METHODS USED IN CONSTRUCTION AND MAINTENANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES REQUIRED SHALL CONFORM TO THE CONSTRUCTION STANDARDS AND SPECIFICATIONS IN CHAPTER 3 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH), THIRD EDITION, 1992, AS WELL AS ANY OTHER APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
- WHERE APPROPRIATE AND FEASIBLE, AREAS IN WHICH NATURAL GRADES ARE NOT IMPACTED BY PROPOSED GRADING OR STOCKPILE AREAS, SHALL BE LEFT WITH THEIR EXISTING VEGETATION IN PLACE. ALL AREAS SUBJECT TO GRADING SHALL BE SEEDED AND MULCHED AS SOON AS PRACTICAL.
- PERMANENT OR 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 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN 1 YEAR.

## SEDIMENT CONTROL PROGRAM (PHASE I)

- INSTALL PERIMETER CONTROLS AS SHOWN ON THE PHASE I PLAN (SILT FENCE, ETC.)  
PERIMETER CONTROLS MUST BE APPROVED IN WRITING BY THE TOWN E & S INSPECTOR BEFORE CLEARING OF THE SITE CAN TAKE PLACE
- COMMENCE CONSTRUCTION OF ALL UTILITIES AND GRADING OF THE SITE.

## SEDIMENT CONTROL PROGRAM (PHASE II)

- COMMENCE CONSTRUCTION OF CURB AND GUTTER, PAVEMENT, AND SIDEWALK AS SHOWN ON THE CONSTRUCTION PLANS.
- INLET PROTECTION (IP) SHALL BE PROVIDED AT STORM DRAIN INLETS AS THEY ARE CONSTRUCTED.
- PERMANENTLY STABILIZE UNPAVED AREAS WITH SOD (PER SEC. 3.33 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK).
- THE CONTROL MEASURES MAY NOT BE REMOVED UNTIL ALL OF THE DISTURBED AREAS HAVE BEEN STABILIZED AND ONLY AS APPROVED AND DIRECTED BY THE INSPECTOR.

## MAINTENANCE

THE FOLLOWING IS A PROGRAM OF MAINTENANCE FOR THE MECHANICAL AND PERMANENT CONTROLS SPECIFIED IN THIS NARRATIVE AND ON THE PLAN:

- THE SITE SUPERINTENDENT, OR HIS REPRESENTATIVE, SHALL MAKE A VISUAL INSPECTION OF ALL MECHANICAL CONTROLS AND NEWLY STABILIZED AREAS (I.E., SEEDED OR SODDEN AREAS) ON A DAILY BASIS (ESPECIALLY AFTER A HEAVY RAINFALL) TO INSURE THAT ALL CONTROLS ARE IN PLACE AND THAT NONE HAVE BEEN DAMAGED. ANY DAMAGED CONTROL SHALL BE REPAIRED PRIOR TO END OF THE WORK DAY TO INCLUDE RESEEDING OR RESETTling, IF NECESSARY. WHEN IT IS CLEAR THAT PLANTS HAVE NOT GERMINATED ON AN AREA OR HAVE DIED, THESE AREAS MUST BE RE-SEEDED IMMEDIATELY TO PREVENT EROSION DAMAGE.
- AFTER ALL CONSTRUCTION OPERATIONS HAVE ENDED AND ALL DISTURBED AREAS ARE STABILIZED, MECHANICAL SEDIMENT CONTROLS SHALL BE REMOVED AND GROUND SHALL BE RESTORED ESTABLISHMENT OF VEGETATION, TO ITS NATURAL OR PROPOSED CONDITION. REMOVAL OF ANY CONTROL IS CONTINGENT UPON APPROVAL BY THE TOWN INSPECTOR.

## PERMANENT STABILIZATION

AFTER CONSTRUCTION IS COMPLETE ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH SEC. 3.32 AND 3.35 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.

## STORMWATER MANAGEMENT

N/A

## ADDITIONAL NOTES

- THE TOWN INSPECTOR SHALL HAVE THE AUTHORITY TO DIRECT THE ADDITION OR DELETION OF EROSION AND SEDIMENT CONTROLS AS SITE CONDITIONS WARRANT.
- EARTHEN STRUCTURES ARE TO BE STABILIZED IMMEDIATELY UPON COMPLETION.

## EROSION AND SEDIMENT CONTROL MEASURES:

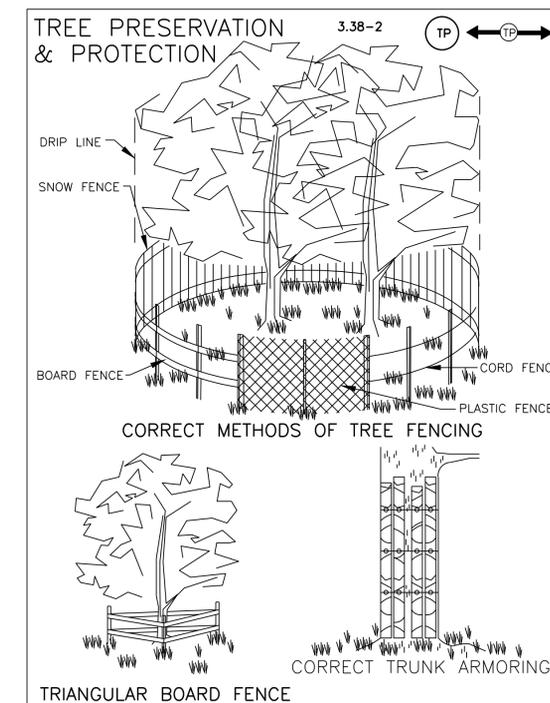
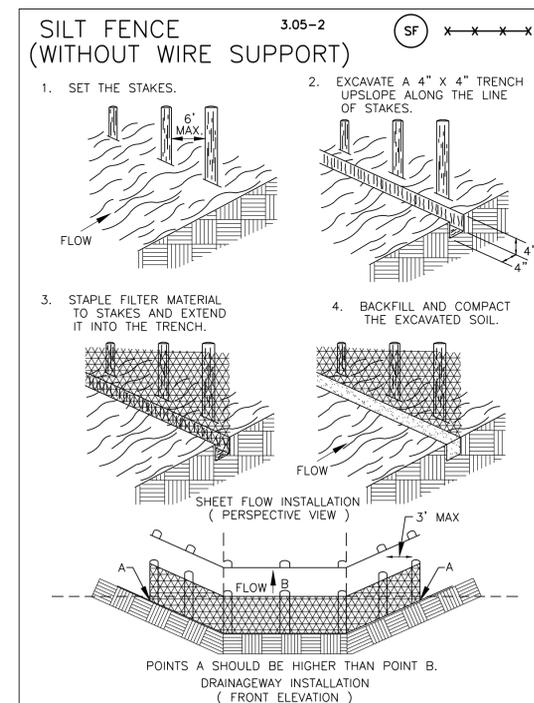
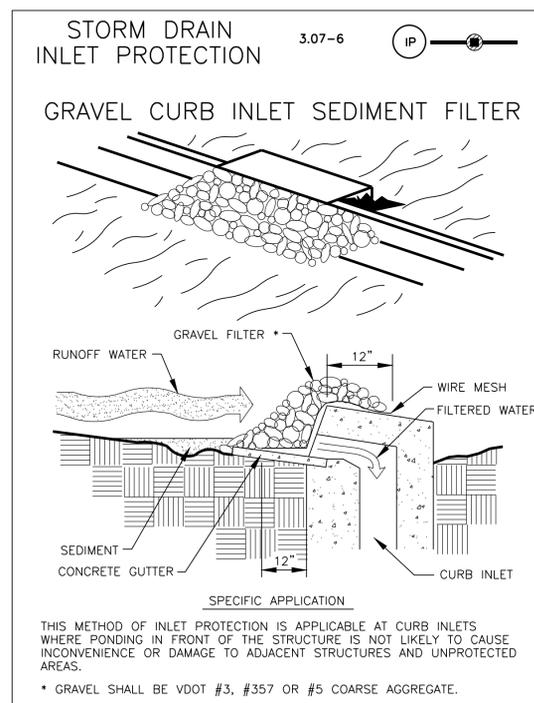
UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VESCH.

THE STRUCTURAL PRACTICES PROPOSED WITH THIS PLAN ARE AS FOLLOWS:

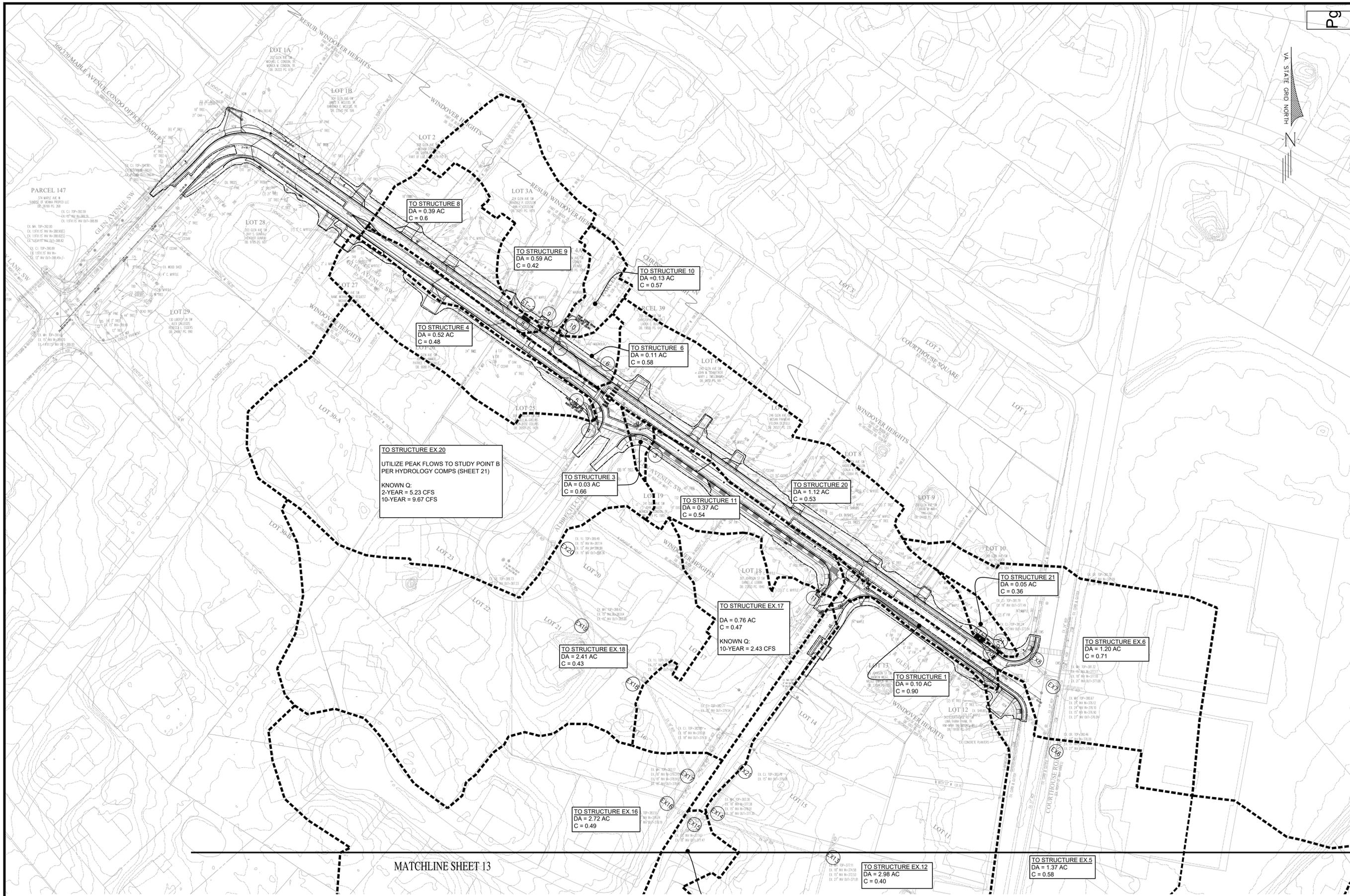
- SILT FENCE - 3.05**  
A TEMPORARY SEDIMENT BARRIER CONSISTING OF A SYNTHETIC FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED.
- STORM DRAIN INLET PROTECTION - 3.07**  
A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.
- TOPSOILING - 3.30**  
PRESERVING AND REUSING THE SURFACE LAYER OF SOIL FROM AREAS TO BE GRADED.
- TEMPORARY SEEDING - 3.31**  
THE ESTABLISHMENT OF A TEMPORARY VEGETATIVE COVER ON DISTURBED AREAS BY SEEDING WITH APPROPRIATE RAPIDLY GROWING ANNUAL PLANTS.
- SODDING - 3.33**  
STABILIZING FINE-GRADED DISTURBED AREAS BY ESTABLISHING PERMANENT GRASS STANDS WITH SOD
- MULCHING - 3.35**  
APPLICATION OF PLANT RESIDUES OR OTHER SUITABLE MATERIALS TO THE SOIL SURFACE.
- TREE PROTECTION - 3.38**  
PROTECTION OF DESIRABLE TREES FROM MECHANICAL AND OTHER INJURY DURING LAND DISTURBING AND CONSTRUCTION ACTIVITY.
- DUST CONTROL - 3.39**  
REDUCING SURFACE AND AIR MOVEMENT OF DUST DURING LAND DISTURBING, DEMOLITION, AND CONSTRUCTION ACTIVITIES, BY SPRAYING FROM A WATER TRUCK OR OTHER APPROVED METHOD.

## GENERAL LAND CONSERVATION NOTES

- ALL LAND CONSERVATION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK.
- NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 14 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE TOWN.
- ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN GRADING. FIRST AREAS TO BE CLEARED ARE TO BE THOSE REQUIRED FOR THE PERIMETER CONTROLS.
- ALL STORM SEWER LINES NOT IN STREETS ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ONE TIME.
- ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHES ARE TO BE COMPACTED, SEEDED AND MULCHED WITHIN 5 DAYS AFTER BACKFILL.
- ALL TEMPORARY EARTH BERMS, AND DIVERSIONS ARE TO BE MULCHED AND SEEDED FOR TEMPORARY VEGETATIVE COVER IMMEDIATELY AFTER GRADING. STRAW OR HAY MULCH IS REQUIRED. THE SAME APPLIES TO ALL SOIL STOCKPILES.
- DURING CONSTRUCTION, ALL STORM SEWER INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.
- AT THE COMPLETION OF CONSTRUCTION, ALL TEMPORARY SILTATION AND EROSION CONTROLS SHALL BE REMOVED AND ALL DISTURBED AREAS SHALL BE STABILIZED.



PLAN DATE	10/11/2023	REVISIONS
	08-14-2024	
	09-26-2024	
	3 09/26/24 95% PLAN UPDATE	
	2 08/14/24 95% PLAN	
	1 10/11/23 30% PLAN	
No.	DATE	DESCRIPTION
Urban Ltd 7110 Little Blue Tompkins Annandale, Virginia 22003 Tel. 703.642.8080 Fax. 703.642.8251 www.urban-ltd.com Planners - Engineers - Landscape Architects - Land Surveyors		
COMMONWEALTH OF VIRGINIA C. RYAN CONNOR Lic. No. 039531 09/26/2024 PROFESSIONAL ENGINEER		
EROSION AND SEDIMENT CONTROL NARRATIVE AND DETAILS		
GLEN AVE, SW SIDEWALK IMPROVEMENT PLAN TOWN OF VIENNA FAIRFAX COUNTY, VIRGINIA		
SCALE: N/A	C.I. N/A	DATE: AUG 2024
SHEET 11 OF 23		
FILE No. PP-2531		



TO STRUCTURE 8  
DA = 0.39 AC  
C = 0.6

TO STRUCTURE 9  
DA = 0.59 AC  
C = 0.42

TO STRUCTURE 10  
DA = 0.13 AC  
C = 0.57

TO STRUCTURE 4  
DA = 0.52 AC  
C = 0.48

TO STRUCTURE 8  
DA = 0.11 AC  
C = 0.58

TO STRUCTURE EX.20  
UTILIZE PEAK FLOWS TO STUDY POINT B  
PER HYDROLOGY COMPS (SHEET 21)  
KNOWN Q:  
2-YEAR = 5.23 CFS  
10-YEAR = 9.67 CFS

TO STRUCTURE 3  
DA = 0.03 AC  
C = 0.66

TO STRUCTURE 11  
DA = 0.37 AC  
C = 0.54

TO STRUCTURE 20  
DA = 1.12 AC  
C = 0.53

TO STRUCTURE 21  
DA = 0.05 AC  
C = 0.36

TO STRUCTURE EX.18  
DA = 2.41 AC  
C = 0.43

TO STRUCTURE EX.17  
DA = 0.76 AC  
C = 0.47  
KNOWN Q:  
10-YEAR = 2.43 CFS

TO STRUCTURE EX.8  
DA = 1.20 AC  
C = 0.71

TO STRUCTURE 1  
DA = 0.10 AC  
C = 0.90

TO STRUCTURE EX.16  
DA = 2.72 AC  
C = 0.49

TO STRUCTURE EX.12  
DA = 2.98 AC  
C = 0.40

TO STRUCTURE EX.5  
DA = 1.37 AC  
C = 0.58

MATCHLINE SHEET 13

PLAN DATE	DESCRIPTION	REVISIONS
10/11/2023	08-14-2024	
08-14-2024	09-26-2024	
3	09/26/24	95% PLAN UPDATE
2	06/14/24	95% PLAN
1	10/11/23	30% PLAN
No.	DATE	DESCRIPTION

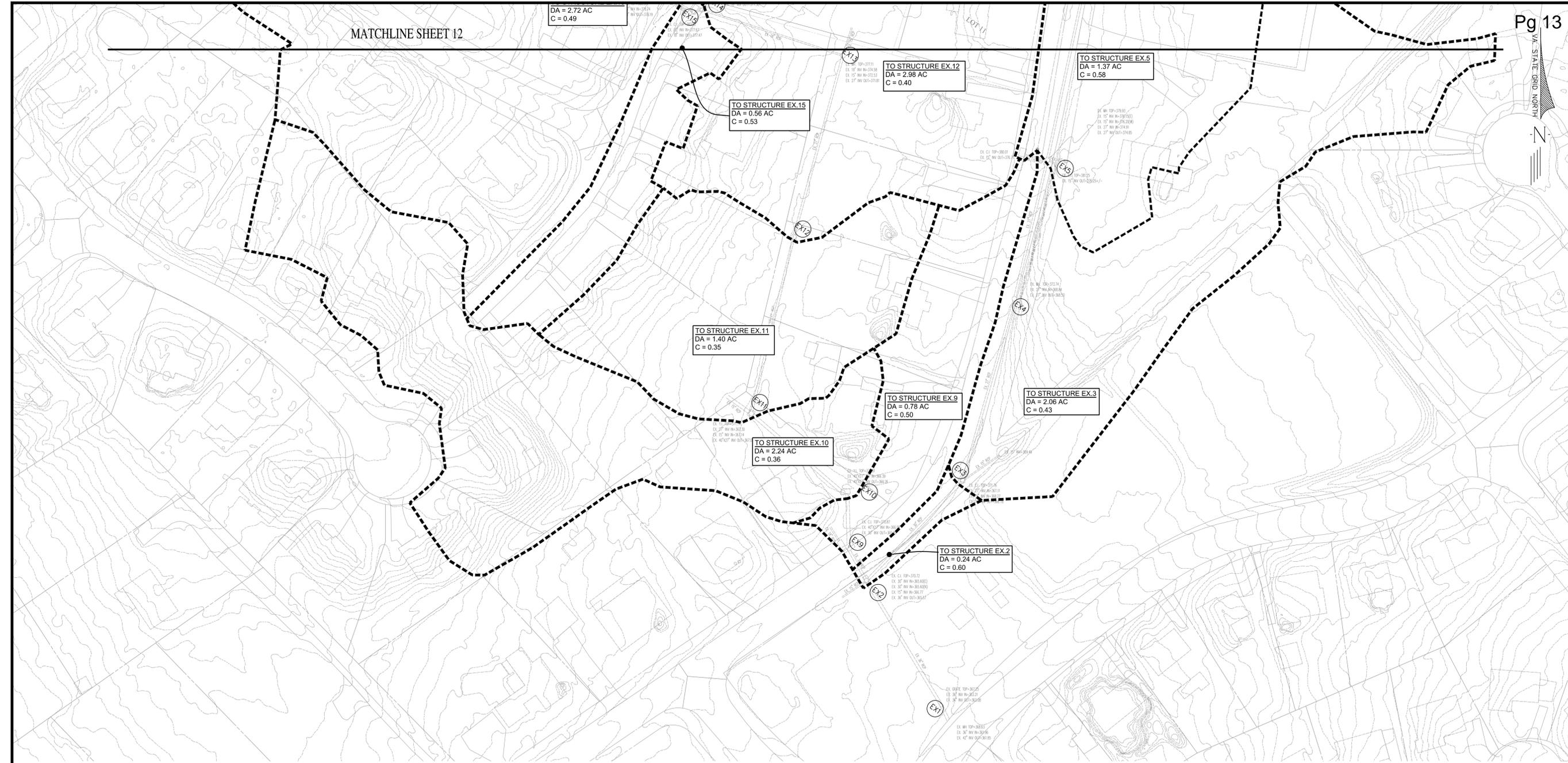
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COMMONWEALTH OF VIRGINIA  
C. RYAN CONNOR  
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09/26/2024  
PROFESSIONAL ENGINEER

STORM DRAINAGE DIVIDES  
GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA  
SCALE: 1" = 50'  
DATE: AUG 2024

SHEET  
12  
OF  
23  
FILE No.  
PP-2531



MATCHLINE SHEET 12

Pg 13

DA = 2.72 AC  
C = 0.49

TO STRUCTURE EX.15  
DA = 0.56 AC  
C = 0.53

TO STRUCTURE EX.12  
DA = 2.98 AC  
C = 0.40

TO STRUCTURE EX.5  
DA = 1.37 AC  
C = 0.58

TO STRUCTURE EX.11  
DA = 1.40 AC  
C = 0.35

TO STRUCTURE EX.9  
DA = 0.78 AC  
C = 0.50

TO STRUCTURE EX.3  
DA = 2.06 AC  
C = 0.43

TO STRUCTURE EX.10  
DA = 2.24 AC  
C = 0.36

TO STRUCTURE EX.2  
DA = 0.24 AC  
C = 0.60

No.	DATE	DESCRIPTION	REVISIONS
3	09/26/24	95% PLAN UPDATE	
2	08/14/24	95% PLAN	
1	10/11/23	30% PLAN	

PLAN DATE
10/11/2023
08/14/2024
09/26/2024

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STORM DRAINAGE DIVIDES  
GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA  
SCALE: 1" = 50'  
C.I. = 2'  
DATE: AUG 2024

SHEET  
13  
OF  
23  
FILE No.  
PP-2531



# PIPE COMPUTATIONS

LineID	DrainageArea	RunoffCoeff	IncrCx	TotalCx	Inlet Time	Tc	Rainfall Intensity	KnownQ	Runoff Q	InvertUp	InvertDn	Length	Slope	Diameter	Capacity	Actual Flow Velocity	Full Flow Vel
	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft)	(ft)	(ft)	(%)	(in)	(cfs)	(ft/s)	(ft/s)
2-3	0.03	0.66	0.02	0.86	5.00	6.50	6.29	0.00	5.38	381.90	380.55	269.40	0.50	38 x 60	108.77	0.44	8.50
3-4	0.52	0.42	0.22	0.84	5.00	6.20	6.37	0.00	5.32	382.47	382.10	73.91	0.50	15	4.95	4.34	4.03
4-5	0.00	0.00	0.00	0.62	0.00	6.20	6.39	0.00	3.95	382.75	382.67	14.56	0.55	15	5.19	3.22	4.23
5-6	0.11	0.59	0.06	0.62	5.00	6.00	6.46	0.00	3.98	383.16	382.95	41.21	0.51	15	4.99	3.25	4.07
6-7	0.00	0.00	0.00	0.55	0.00	5.50	6.59	0.00	3.64	388.72	383.36	74.63	7.18	15	18.75	3.78	15.28
7-8	0.39	0.59	0.23	0.49	5.00	5.10	6.73	0.00	3.30	389.57	388.92	29.13	2.23	15	10.45	5.24	8.52
8-9	0.59	0.44	0.26	0.26	5.00	5.00	6.77	0.00	1.76	390.00	389.77	8.91	2.58	15	11.25	3.56	9.17
7-10	0.13	0.48	0.06	0.06	5.00	5.00	6.77	0.00	0.42	389.04	388.92	11.27	1.06	15	7.22	1.58	5.88
2-11	0.36	0.53	0.19	0.19	5.00	5.00	6.77	0.00	1.29	381.26	381.09	24.38	0.70	15	5.84	1.05	4.76
EX1-EX2	0.00	0.00	0.00	0.73	0.00	9.90	5.46	0.96	76.87	365.57	363.21	148.09	1.59	36	91.21	12.02	12.90
EX2-EX3	0.00	0.00	0.00	0.73	0.00	9.50	5.56	10.27	25.75	366.78	365.60	142.50	0.83	30	40.43	6.06	8.24
EX3-EX4	0.00	0.00	0.00	0.73	0.00	8.70	5.74	0.00	15.61	368.50	367.11	192.92	0.72	27	28.47	5.30	7.16
EX4-EX5	0.00	0.00	0.00	0.73	0.00	8.10	5.88	0.00	15.71	374.85	368.84	145.78	4.12	27	68.11	7.46	17.13
EX5-EX6	0.00	0.00	0.00	0.73	0.00	7.00	6.16	3.84	15.91	375.99	374.91	257.72	0.42	27	21.72	5.97	5.46
EX6-1	0.11	0.84	0.09	0.09	5.00	5.00	6.77	0.00	8.21	378.33	377.53	83.88	0.95	15	6.83	6.69	5.57
1-2	0.00	0.00	0.00	0.00	5.00	5.00	6.77	0.00	7.53	380.55	378.53	224.00	0.90	15	6.64	6.18	5.41
EX6-EX7	0.00	0.00	0.00	0.64	0.00	6.10	6.43	0.00	4.10	376.09	376.00	60.02	0.15	27	12.99	1.16	3.27
EX7-EX8	0.00	0.00	0.00	0.64	0.00	5.70	6.55	0.00	4.18	377.08	376.12	43.60	2.20	21	25.46	2.99	10.59
EX8-20	1.12	0.53	0.59	0.64	5.00	5.40	6.64	0.00	4.23	377.39	377.18	41.23	0.51	18	8.12	4.48	4.59
20-21	0.10	0.44	0.04	0.04	5.00	5.00	6.77	0.00	0.30	381.00	380.50	5.40	9.26	15	21.29	4.17	17.35
EX2-EX9	0.00	0.00	0.00	0.00	0.00	3.50	0.00	2.63	50.23	365.99	365.60	37.15	1.05	30.00	45.52	10.23	9.27
EX9-EX10	0.00	0.00	0.00	0.00	0.00	3.30	0.00	5.40	47.60	366.26	366.09	58.53	0.29	27 x 40	30.15	8.08	6.14
EX10-EX11	0.00	0.00	0.00	0.00	0.00	3.10	0.00	3.35	42.20	367.09	366.39	126.51	0.55	27 x 40	41.61	7.16	8.48
EX11-EX12	0.00	0.00	0.00	0.00	0.00	2.70	0.00	7.99	38.85	369.80	367.30	185.55	1.35	27	38.94	9.77	9.79
EX12-EX13	0.00	0.00	0.00	0.00	0.00	2.30	0.00	0.00	30.86	371.81	369.90	191.90	1.00	27	33.47	7.76	8.42
EX13-EX14	0.00	0.00	0.00	0.00	0.00	2.20	0.00	0.00	30.86	377.30	374.58	152.43	1.78	18	15.20	17.46	8.60
EX14-EX15	0.00	0.00	0.00	0.00	0.00	0.70	0.00	2.03	30.22	377.47	377.38	8.38	1.07	18	11.79	17.10	6.67
EX15-EX16	0.00	0.00	0.00	0.00	0.00	0.70	0.00	9.05	28.19	378.19	377.67	34.24	1.52	18	14.02	15.95	7.93
EX16-EX17	0.00	0.00	0.00	0.00	0.00	0.60	0.00	2.43	19.14	378.81	378.74	42.61	0.16	18	4.61	10.83	2.61
EX17-EX18	0.00	0.00	0.00	0.00	0.00	0.40	0.00	7.04	16.71	380.55	379.37	129.70	0.91	18	10.85	9.46	6.14
EX18-EX19	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	9.67	383.50	380.65	93.00	3.06	15	12.25	7.88	9.98
EX19-EX20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.67	9.67	385.36	383.64	103.93	1.85	15	9.00	7.88	7.33
EX14-EX21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.64	379.08	378.01	68.09	1.57	15	8.77	0.52	7.15

\*PIPE RUNS WITH AN ASTERISK HAVE BEEN INCLUDED HERE ONLY FOR PIPE CAPACITY COMPUTATIONS IN THE ULTIMATE CONDITION FOR THE DOWNSTREAM RUN. A KNOWN Q WAS INSERTED INTO THESE SEGMENTS TO REPRESENT THE RUNOFF FLOW FROM THE ULTIMATE DRAINAGE AREA. THESE RUNS ARE NOT TO BE CONSTRUCTED WITH THIS PLAN.

# HGL COMPUTATIONS

InletID	Outlet WSE	Do	Qo	Lo	Sfo	Vo	Qi	Vi	Hi	Angle	MinorLoss	Final H	HGLJct	Inlet WSE	Rim Elev
(ft)	(ft)	(in)	(cfs)	(ft)	(%)	(ft)	(cfs)	(ft/s)	(ft)	(Deg)	(ft)	(ft)	(ft)	(ft)	(ft)
3	384.70	38 x 60	5.38	269.40	0.00	0.13	0.45	0.00	-144.94	0.00	0.00	2.91	384.81	384.81	391.94
4	384.81	15	5.32	73.91	0.58	0.29	1.48	4.34	0.29	-14.05	0.37	3.14	385.61	385.24	391.00
5	385.61	15	3.95	14.56	0.32	0.16	0.00	3.21	0.16	53.05	0.13	3.04	385.79	385.66	392.35
6	385.79	15	3.98	41.21	0.32	0.16	0.44	3.25	0.16	51.56	0.25	3.01	386.17	385.92	393.46
7	386.17	15	3.64	74.63	0.27	0.14	0.00	4.59	0.33	-90.44	n/a	0.77	389.49	389.49	394.83
8	389.49	15	3.30	29.13	0.00	0.30	1.58	4.42	0.30	-0.67	n/a	0.73	390.30	390.30	395.38
9	390.30	15	1.76	8.91	0.00	0.20	1.76	3.58	0.20	84.10	n/a	0.53	390.53	390.53	394.50
10	389.49	15	0.42	11.27	0.00	0.09	0.42	2.38	0.09	65.12	n/a	0.25	389.29	389.29	394.62
11	384.70	15	1.29	24.38	0.03	0.02	1.29	1.05	0.02	155.04	0.02	3.47	384.73	384.71	385.94
*EX2	365.61	36	76.87	148.09	0.00	2.01	0.96	11.36	2.01	-121.33	1.95	2.74	368.31	368.31	370.72
*EX3	368.31	30	25.75	142.50	0.34	0.43	10.27	6.87	0.73	75.33	0.39	2.17	368.95	368.56	371.76
*EX4	368.95	27	15.61	192.92	0.00	0.58	0.00	6.12	0.58	-28.06	n/a	1.38	369.88	369.88	373.74
*EX5	369.88	27	15.71	145.78	0.00	0.59	0.00	6.14	0.59	-2.86	n/a	1.38	376.23	376.23	379.93
*EX6	376.34	27	15.91	257.72	0.42	0.56	3.84	5.98	0.56	-0.99	0.49	1.92	377.91	377.42	380.46
1	378.78	15	8.21	83.88	1.38	0.70	0.63	6.69	0.70	-59.75	0.35	1.95	380.28	379.93	381.73
2	380.28	15	7.53	224.00	1.18	0.59	7.58	6.18	0.59	-6.74	0.59	2.96	383.51	382.91	386.35/386.53
*EX7	377.91	27	4.10	60.02	0.01	0.02	0.00	1.18	0.02	-1.53	0.02	1.85	377.94	377.92	380.67
*EX8	377.94	21	4.18	43.60	0.06	0.05	0.00	4.24	0.28	-59.75	0.14	0.89	377.97	377.83	381.32
20	377.97	18	4.23	41.23	0.00	0.32	4.02	4.50	0.32	-26.78	0.47	0.79	378.18	378.18	382.17
21	380.60	15	0.30	5.40	0.00	0.07	0.30	2.17	0.07	106.93	0.07	0.21	381.21	381.21	...
*EX9	368.31	30.00	50.23	37.15	1.28	1.63	2.63	10.23	1.63	2.35	0.83	3.62	369.81	368.78	370.87
*EX10	371.24	27 x 40	47.60	58.53	0.72	1.02	5.40	8.08	1.02	27.02	0.80	6.21	372.47	371.67	370.81
*EX11	373.48	27 x 40	42.20	126.51	0.57	0.80	3.35	7.16	0.80	-48.82	0.73	7.85	374.94	374.2	371.74
*EX12	374.94	27	38.85	185.55	1.34	1.48	7.99	9.77	1.48	64.17	0.22	7.85	377.65	377.43	373.50
*EX13	377.65	27	30.86	191.90	0.85	0.94	0.00	7.76	0.94	2.01	0.94	8.40	380.21	379.27	377.11
*EX14	380.21	18	30.86	152.43	7.36	4.74	0.00	17.46	4.74	-87.45	4.74	18.87	396.17	391.43	383.38
*EX15	396.17	18	30.22	8.38	7.06	4.55	2.03	17.10	4.55	-35.31	3.46	22.75	400.22	396.77	383.52
*EX16	400.22	18	28.19	34.24	6.14	3.96	9.05	15.95	3.96	46.17	3.96	28.09	406.28	402.33	383.51
*EX17	406.28	18	19.14	42.61	2.83	1.82	2.43	10.83	1.82	97.12	1.66	30.34	409.15	407.49	383.17
*EX18	409.15	18	16.71	129.70	2.16	1.39	7.04	9.46	1.39	-62.99	0.53	31.93	412.48	411.95	384.35
*EX19	412.48	15	9.67	93.00	1.91	0.97	0.00	7.88	0.97	-19.03	0.42	31.18	414.68	414.25	388.62
*EX20	414.68	15	9.67	103.93	1.91	0.97	9.67	7.88	0.97	22.85	0.97	32.27	417.63	416.67	389.49
*EX21	396.17	15	0.64	68.09	0.01	0.00	0.64	0.52	0.00	105.96	0.00	17.10	396.18	396.18	382.78

\*EXISTING PIPE RUNS WITH AN ASTERISK HAVE BEEN INCLUDED HEREIN ONLY FOR PIPE CAPACITY COMPUTATIONS

# INLET COMPUTATIONS

Inlet ID	Inlet Type	Length	DrainageArea	C	CA	I	Q incr.	QCarryover	QCaptured	QBypass	Gutter Long. Slope	CrossSlope, Sx	T (Grade) Spread	T (Sump) Spread	W	Sw	d	E	h	Grate Area	10yr WSEL
		(ft)	(ac)	(C)		(in/hr)	(cfs)	(cfs)	(cfs)	(cfs)	(ft/ft)	(ft/ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft)	(%)	(in)	(sf)	
3	DI-3B	4	0.03	0.66	0.02	4	0.08	0	0.08	0.00	0.022	0.02	0.91	....	1.42	0.083	0.16	100	5.5		

**BMP SITE REQUIREMENT COMPUTATIONS**

"SITE AREA" ONLY - DESCRIBED IN NARRATIVE ON THIS SHEET

Project Name: **Glen Ave**  
 Date: **8/6/2024**  
 Linear Development Project?  No

**CLEAR ALL** (Ctrl+Shift+R)  
 constant values  
 calculation cells  
 final results

**Site Information**

**Post-Development Project (Treatment Volume and Loads)**

Enter Total Disturbed Area (acres) → **1.46**

Check:  
 BMP Design Specifications List: 2013 Draft Stds & Specs  
 Linear project?  No  
 Land cover areas entered correctly?   
 Total disturbed area entered?

Maximum reduction required: **20%**  
 The site's net increase in impervious cover (acres) is: **0.36**  
 Post-Development TP Load Reduction for Site (lb/yr): **0.97**

**Pre-ReDevelopment Land Cover (acres)**

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.80	0.80
Impervious Cover (acres)				0.66	0.66
<b>Totals</b>					<b>1.46</b>

**Post-Development Land Cover (acres)**

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.44	0.44
Impervious Cover (acres)				1.02	1.02
<b>Totals</b>					<b>1.46</b>

Area Check: **OK** **OK** **OK** **OK**

**Constants**

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.76
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
TP (unitless correction factor)	0.90

**Runoff Coefficients (Rv)**

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

**LAND COVER SUMMARY -- PRE-REDEVELOPMENT**

Pre-ReDevelopment	Listed	Adjusted <sup>1</sup>
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv (forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.80	0.44
Weighted Rv (turf)	0.25	0.25
% Managed Turf	55%	40%
Impervious Cover (acres)	0.66	0.66
Rv (impervious)	0.95	0.95
% Impervious	45%	60%
<b>Total Site Area (acres)</b>	<b>1.46</b>	<b>1.10</b>
Site Rv	0.57	0.67

**LAND COVER SUMMARY -- POST DEVELOPMENT**

Post-Development	Final Post-Development	Post-Development	Final Post-Development
Forest/Open Space Cover (acres)	0.00	Forest/Open Space Cover (acres)	0.00
Weighted Rv (forest)	0.00	Weighted Rv (forest)	0.00
% Forest	0%	% Forest	0%
Managed Turf Cover (acres)	0.44	Managed Turf Cover (acres)	0.44
Weighted Rv (turf)	0.25	Weighted Rv (turf)	0.25
% Managed Turf	30%	% Managed Turf	40%
Impervious Cover (acres)	1.02	ReDev. Impervious Cover (acres)	0.66
Rv (impervious)	0.95	Rv (impervious)	0.95
% Impervious	70%	% Impervious	60%
<b>Final Site Area (acres)</b>	<b>1.46</b>	<b>Total ReDev. Site Area (acres)</b>	<b>1.10</b>
Final Post Dev Site Rv	0.74	ReDev Site Rv	0.67

**Treatment Volume and Nutrient Load**

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0689	0.0614
Pre-ReDevelopment Treatment Volume (cubic feet)	3,002	2,675
Pre-ReDevelopment TP Load (lb/yr)	1.89	1.68
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	1.29	1.53
Baseline TP Load (lb/yr) (0.41 lb/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		0.45

**Treatment Volume and Nutrient Load**

Final Post-Development Treatment Volume (acre-ft)	0.0899	Post-Development Treatment Volume (acre-ft)	0.0285
Final Post-Development Treatment Volume (cubic feet)	3,917	Post-Development Treatment Volume (cubic feet)	1,241
Final Post-Development TP Load (lb/yr)	2.46	Post-Development TP Load (lb/yr)	0.78
Final Post-Development TP Load per acre (lb/acre/yr)	1.69	Post-Development TP Load per acre (lb/acre/yr)	1.53
Max. Reduction Required (Below Pre-Development Load)	70%		

<sup>1</sup> Adjusted Land Cover Summary:  
 Pre-ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.  
 Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).  
 Column 1 shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lb/acre/yr).

**Post-Development Requirement for Site Area**

TP Load Reduction Required (lb/yr) **0.97**

**Nitrogen Loads (Informational Purposes Only)**

Pre-ReDevelopment TN Load (lb/yr)	13.49	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	17.60
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NOTE: THE COMPUTATIONS SHOWN ON THIS SHEET WERE DETERMINED USING VERSION 3.0 OF THE VIRGINIA RUNOFF REDUCTION METHOD (VRRM) RE-DEVELOPMENT COMPLIANCE SPREADSHEET RELEASED AUGUST, 2017.

**BMP NARRATIVE**

THE "SITE AREA" UTILIZED IN THE WATER QUALITY REQUIREMENTS CONSISTS OF ONLY OF THE DISTURBED AREA. THE MAJORITY OF THIS SITE DRAINS TO A COMBINATION OF THE EXISTING INLETS AND PROPOSED INLETS THAT ULTIMATELY ENTER INTO THE EXISTING STORM SYSTEM WITHIN THE PUBLIC ROW TO THE WEST AND EAST OF THE SITE.

PER THE BMP CALCULATIONS ON THIS SHEET AND IN COMPLIANCE WITH VSPM (VRRM) WATER QUALITY CONTROL REQUIREMENTS PER TOWN OF VIENNA (TOV) SECTION 23-17, THE PHOSPHORUS REMOVAL REQUIREMENT OF 0.97 POUNDS/YEAR HAS BEEN MET/EXCEEDED UTILIZING TWO STORM TREE FILTER DEVICES (ST-1 AND ST-2). FOR THE RESULTANT TREATED AREA FOR EACH DEVICE, THE AREA THAT FALLS WITHIN THE "SITE AREA" AS WELL AS OFFSITE AREA IS UTILIZED. SEE THIS SHEET AND SHEETS 17-18 FOR COMPUTATIONS, MAPS, AND DETAILS FOR THE PROPOSED DEVICES.

NOTE: ALL SOILS TYPE D

**TO STORM TREE FILTER (ST-1) - TOTAL AREA ("SITE AREA" + OFFSITE)**

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)				0.68	0.68	0.25
Impervious Cover (acres)				0.39	0.39	0.95
<b>Total</b>					<b>1.07</b>	

Total Phosphorus Available for Removal in D.A. A (lb/yr) **1.23**  
 Post Development Treatment Volume in D.A. A (ft<sup>3</sup>) **1,962**

**Stormwater Best Management Practices (RR = Runoff Reduction)**

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft <sup>3</sup> )	Runoff Reduction (ft <sup>3</sup> )	Remaining Runoff Volume (ft <sup>3</sup> )	Total BMP Treatment Volume (ft <sup>3</sup> )	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
<b>14. Manufactured Treatment Devices (no RR)</b>													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0	0.68	0.39	0	0	1,962	1,962	62	0.00	1.23	0.76	0.47	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

**TO STORM TREE FILTER (ST-2) - TOTAL AREA ("SITE AREA" + OFFSITE)**

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)					0.00	0.00
Managed Turf (acres)				0.17	0.17	0.25
Impervious Cover (acres)				0.22	0.22	0.95
<b>Total</b>					<b>0.39</b>	

Total Phosphorus Available for Removal in D.A. B (lb/yr) **0.57**  
 Post Development Treatment Volume in D.A. B (ft<sup>3</sup>) **913**

**Stormwater Best Management Practices (RR = Runoff Reduction)**

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft <sup>3</sup> )	Runoff Reduction (ft <sup>3</sup> )	Remaining Runoff Volume (ft <sup>3</sup> )	Total BMP Treatment Volume (ft <sup>3</sup> )	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
<b>14. Manufactured Treatment Devices (no RR)</b>													
14.a. Manufactured Treatment Device-Hydrodynamic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	
14.b. Manufactured Treatment Device-Filtering	0	0.17	0.22	0	0	913	913	62	0.00	0.57	0.36	0.22	
14.c. Manufactured Treatment Device-Generic	0			0	0	0	0	20	0.00	0.00	0.00	0.00	

**Site Results (Water Quality Compliance)**

Area Checks	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
FOREST/OPEN SPACE (ac)	0.00	0.00	0.00	0.00	0.00	OK.
IMPERVIOUS COVER (ac)	0.39	0.22	0.00	0.00	0.00	OK.
IMPERVIOUS COVER TREATED (ac)	0.39	0.22	0.00	0.00	0.00	OK.
MANAGED TURF AREA (ac)	0.68	0.17	0.00	0.00	0.00	OK.
MANAGED TURF AREA TREATED (ac)	0.68	0.17	0.00	0.00	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Site Treatment Volume (ft<sup>3</sup>) **5,345**

**Runoff Reduction Volume and TP By Drainage Area**

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	TOTAL
RUNOFF REDUCTION VOLUME ACHIEVED (ft <sup>3</sup> )	0	0	0	0	0	0
TP LOAD AVAILABLE FOR REMOVAL (lb/yr)	1.23	0.57	0.00	0.00	0.00	1.81
TP LOAD REDUCTION ACHIEVED (lb/yr)	0.74	0.34	0.00	0.00	0.00	1.08
TP LOAD REMAINING (lb/yr)	0.49	0.23	0.00	0.00	0.00	0.72
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00	0.00	0.00	0.00	0.00	0.00

**Total Phosphorus**

FINAL POST-DEVELOPMENT TP LOAD (lb/yr)	2.46
TP LOAD REDUCTION REQUIRED (lb/yr)	0.97
TP LOAD REDUCTION ACHIEVED (lb/yr)	1.08
TP LOAD REMAINING (lb/yr)	1.38
REMAINING TP LOAD REDUCTION REQUIRED (lb/yr):	0.00 **
** TARGET TP REDUCTION EXCEEDED BY 0.11 LB/YEAR **	
<b>Total Nitrogen (For Informational Purposes)</b>	
POST-DEVELOPMENT LOAD (lb/yr)	17.60
NITROGEN LOAD REDUCTION ACHIEVED (lb/yr)	0.00
REMAINING POST-DEVELOPMENT NITROGEN LOAD (lb/yr)	17.60

TOTAL TP LOAD REDUCTION ACHIEVED UTILIZED BOTH "SITE AREA" AND OFFSITE AREA TO ST-1 AND ST-2.

PROPOSED BMP DEVICES MEETS WATER QUALITY CRITERIA PER TOWN OF VIENNA CODE SECTION 23-17.

PLAN DATE: 10/11/2023  
 08/14/2024  
 09/26/2024

Urban Ltd  
 7120 Glade Road  
 Annandale, Virginia 22003  
 Tel: 703.642.8080  
 Fax: 703.642.8251  
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Planners-Engineers-Landscape Architects-Land Surveyors

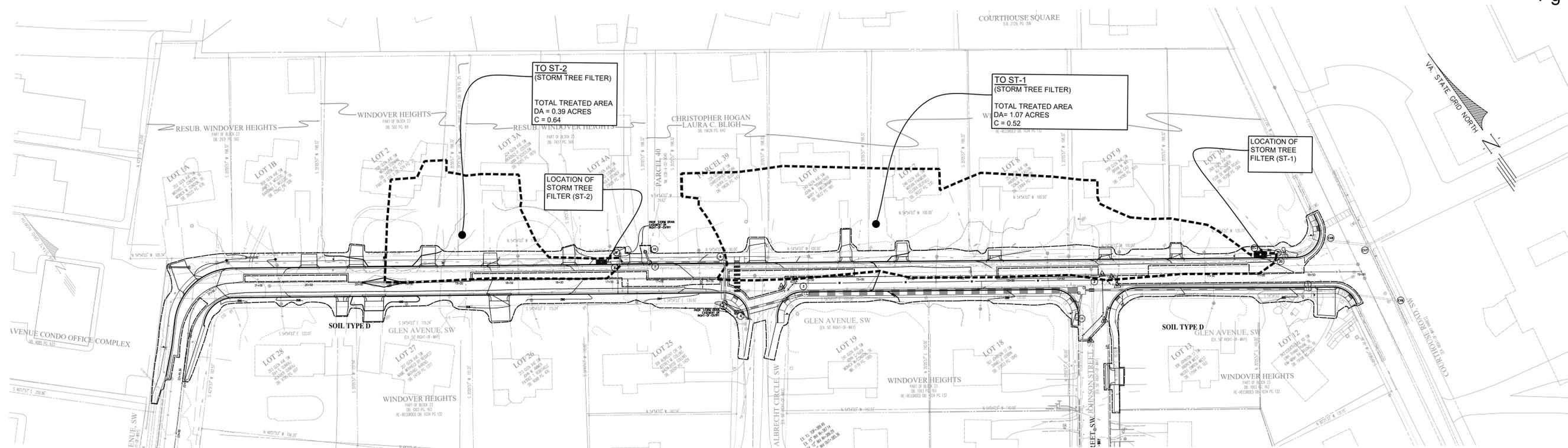
REVISIONS

No.	DATE	DESCRIPTION
3	09/26/24	95% PLAN UPDATE
2	08/14/24	95% PLAN
1	10/11/23	30% PLAN

COMMONWEALTH OF VIRGINIA  
 C. RYAN CONNOR  
 Lic. No. 039531  
 09/26/2024  
 PROFESSIONAL ENGINEER

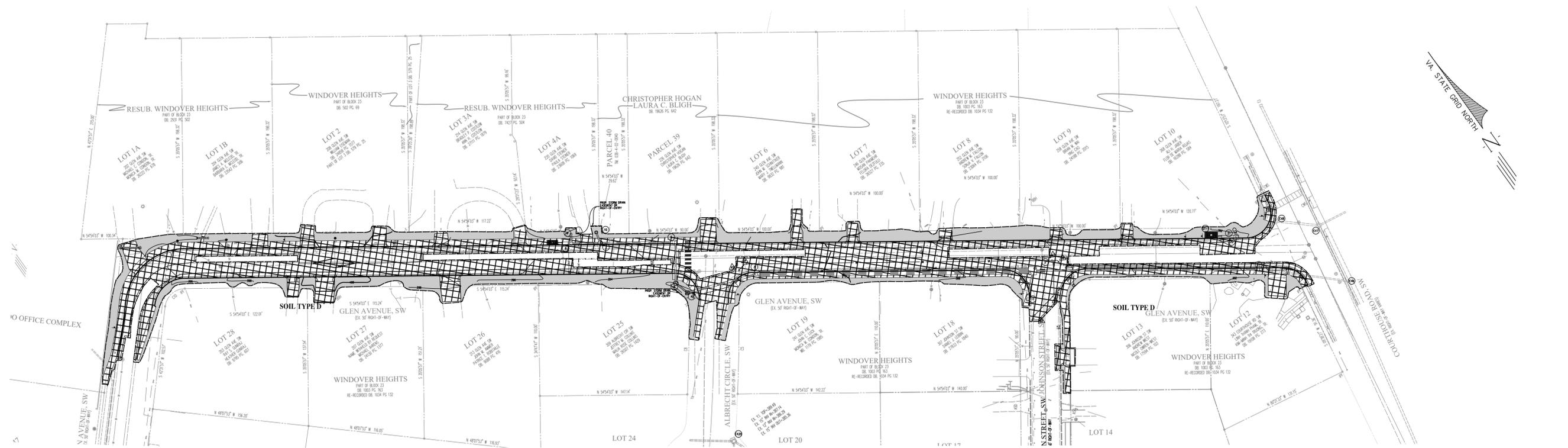
VRRM SPREADSHEET & WATER QUALITY NARRATIVE  
 GLEN AVE, SW  
 SIDEWALK IMPROVEMENT PLAN  
 TOWN OF VIENNA  
 FAIRFAX COUNTY, VIRGINIA  
 SCALE: N/A  
 DATE: AUG 2024  
 C.I. = 2'

SHEET  
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 OF  
 23  
 FILE No.  
 PP-2531



**DRAINAGE AREA MAP TO STORM TREE FILTERS (ST-1 & ST-2)**

SCALE: 1" = 50'



**LAND COVER MAP FOR VRRM COMPUTATIONS (POST-DEVELOPMENT CONDITION)**

SCALE: 1" = 50'

**BMP DRAINAGE AREA MAP**

-  IMPERVIOUS AREA (PER VRRM COMPUTATIONS)
-  MANAGED TURF (PER VRRM COMPUTATIONS)

PLAN DATE	No.	DATE	DESCRIPTION	REVISIONS
10/11/2023	1	10/11/23	30% PLAN	
08-14-2024	2	08/14/24	95% PLAN	
09-26-2024	3	09/26/24	95% PLAN UPDATE	

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COMMONWEALTH OF VIRGINIA  
 C. RYAN CONNOR  
 Lic. No. 039531  
 09/26/2024  
 PROFESSIONAL ENGINEER

BMP MAPS  
**GLEN AVE, SW**  
**SIDEWALK IMPROVEMENT PLAN**  
 TOWN OF VIENNA  
 FAIRFAX COUNTY, VIRGINIA  
 SCALE: AS SHOWN C.I. = 2' DATE: AUG 2024

SHEET  
 17  
 OF  
 23  
 FILE No.  
 PP-2531





**Operation and Maintenance Plan  
for  
StormTree® Tree Filter System  
(Base Models)**

The following Operation and Maintenance (O&M) Plan was prepared by StormTree® to assist the designated owner/operator in providing for the successful long-term operation of the tree filter system. It is understood that the O&M Plan will become effective immediately following construction and system installation. Maintenance will be performed as described and required by the owner/operator, assignee, or other third-party entity.

Post Installation:

Following the installation of the tree filter (system), including backfilling the area surrounding the system to final grade, the system is considered to be "active" since water, sand, sediment, trash, etc. could potentially enter the system. Should the site not be secured, in that construction activities including grading, paving, or final landscaping have not been completed, the system could be impacted by large quantities of construction debris entering the system. This impact could compromise the system's ability to function properly causing a reduction in infiltration efficiency and overall performance. It is **highly recommended** that the throat entry and grating surface be covered with wood sheeting, non-woven filter fabric or other materials to restrict the movement of water (and debris) from entering the system until the site is fully secured.

Watering:

The engineered media of a tree filter system is very porous and designed to provide high water conductivity (infiltration) but also sufficient organic material to maintain essential water holding capacity to allow for successful plant growth. Due to the inherent high infiltration capacity of the media, particular attention is required to the installation of plant material and irrigation needs.

The ideal season to install plant material (e.g., trees, shrubs) is Fall (September 1 thru November 1); Spring (April 1 thru June 1) is also a preferred season to install plant material. The acclimation of plant material is most successful during these two seasonal periods. Following plant installation, and at least one month thereafter, it is recommended that twice weekly (deep) watering take place, particularly during periods of drought or minimal rain events. Slow release watering bags are also very beneficial.

If possible, avoid installing plant material during the heat of summer, between approximately June 1 and August 31, due to the potential for placing tremendous stress on plant material following transplanting. Daily watering over a period of several weeks may be required to prevent mortality and allow for the establishment of a healthy root system.

General Maintenance:

Maintenance should optimally be performed on a twice-yearly basis: in fall after leaves have fallen; in spring, following all winter sanding operations. If winter sanding operations are not customarily performed as to impact the system, or minimal accumulation occurs, once yearly maintenance may only be necessary.

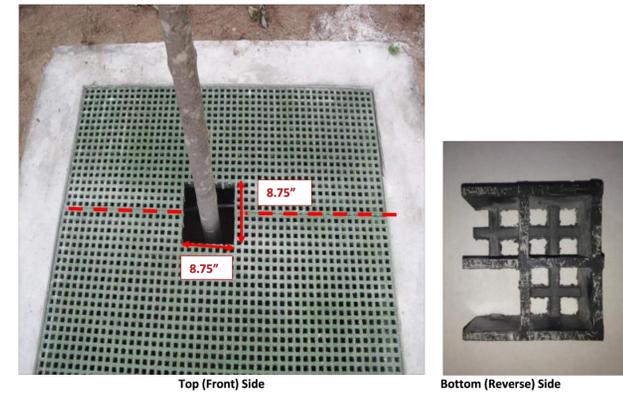
1. Remove any debris or trash from the concrete surface and/or grating.
2. Remove surface grating surrounding the tree and media bed; remove any visible debris and trash. Should any accumulated sands or sediment be observed on the media surface (including mulch layer), remove to ensure a loose and unobstructed media layer. If the system utilizes a fiberglass grate, refer to No. 5 for additional instructions.
3. Evacuate accumulated debris, sands and sediment within sump via vector equipment. If hand tools are to be utilized, shovel out as necessary.
4. If overflow/bypass port and piping exist, remove any debris or obstruction surrounding the atrium grate or exposed inlet.
5. Fiberglass grate: Inspect the grate opening surrounding the tree trunk to determine if the exterior trunk is in contact with, or in close proximity to the grate. If so, with the use of a powered reciprocating saw, or other cutting device, increase the opening by removing portions of the grating material as necessary. Refer to the attached grate cutting specification for proper cutting technique.
6. Replace all grating and securely fasten any hardware. Sand and debris may have accumulated in the gap between the sides of the grate and the concrete ledge. Remove as necessary to allow for proper setting of the grate. **IMPORTANT: If the system utilizes a fiberglass grate, carefully return the grate to the notched ledge, paying careful attention to not allowing the grate to make contact with the trunk of the tree. Severe damage and death of the tree may result if the grate scrapes the tree's bark. DO NOT attempt to drop the grate into place from a standing position.**
7. Complete any required maintenance logs or paperwork.
8. Properly dispose of sands, sediment, debris, and trash.

After several years of operation, depending upon the extent and frequency of winter sanding operations and system maintenance, the system may experience excessive sand loading. This condition may require more thorough cleaning, and possibly renovation to include the removal of the top 4 to 6 inches of surface material (media/mulch), and subsequent replenishing. Although not a proprietary product, the engineered media is a specially blended mixture of several components formulated to maintain a specific infiltration capacity. The mulch is typically a coarsely shredded or chipped, (preferably) hardwood which can be sourced at many box stores or agricultural suppliers.

Please consult StormTree directly regarding media addition/replacement.

For additional information please contact StormTree® ([www.storm-tree.com](http://www.storm-tree.com)) 401-626-8999.

**ADA Compliant Fiberglass Grate Cutting Instructions**



Assuming that the tree has been planted in final location. A circular or cut-off saw with commercial blade works well to crosscut (lateral with short side) the grate in two sections. Have the crosscut bisect the two sections in line with the opening (see red line in pic). If you look at the backside of the grate you will notice that it is made up of 1.25" (ID) square closed cells. When you crosscut the grate, try to cut one end along the closed cell so only one side will have open cuts.

When cutting the opening for the tree trunk, a sawzall/reciprocating saw works well. Once again, try making cuts to leave closed cells. If cut correctly, the sides that form the opening should be approximately 8.75" in length. It is important to try making cuts to form closed cells. Ragged cuts could damage the tree trunk. **It is also important that the trunk of the tree is centered within the cut opening to allow for expanded trunk growth to prevent premature chaffing.**



PLAN DATE	DESCRIPTION	REVISIONS
10/11/23	30% PLAN	
10/11/23	50% PLAN	
06/14/24	95% PLAN	
08/14/24	95% PLAN UPDATE	
09/26/24	95% PLAN UPDATE	

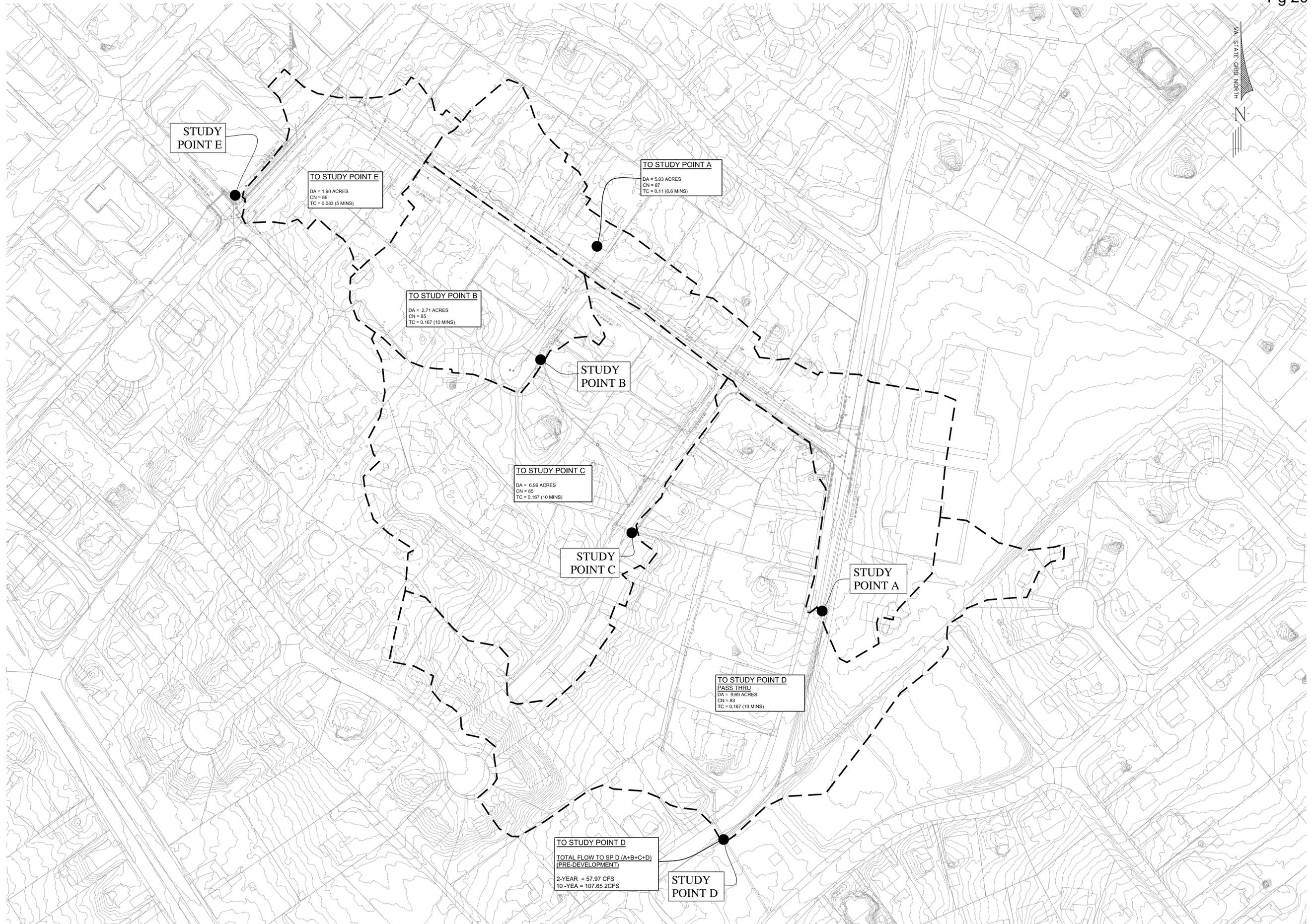
PLAN DATE	DESCRIPTION	REVISIONS
10/11/23	30% PLAN	
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06/14/24	95% PLAN	
08/14/24	95% PLAN UPDATE	
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BMP OPERATION AND MAINTENANCE PLAN  
GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA  
SCALE: N/A C.I. N/A DATE: AUG 2024

SHEET  
19  
OF  
23  
FILE No.  
PP-2531



PLAN DATE	DESCRIPTION	REVISIONS
10/1/2023		
08/14/2024		
09/26/2024		
3 09/26/24	95% PLAN UPDATE	
2 06/14/24	95% PLAN	
1 10/11/23	30% PLAN	
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PRE-DEVELOPMENT STORMWATER MANAGEMENT MAP  
**GLEN AVE, SW**  
**SIDEWALK IMPROVEMENT PLAN**  
 TOWN OF VIENNA  
 FAIRFAX COUNTY, VIRGINIA

SCALE: 1" = 80'  
 DATE: AUG 2024  
 C.I. = 2'

**STORMWATER MANAGEMENT/OUTFALL ANALYSIS NARRATIVE**

**WATER QUANTITY REQUIREMENTS NOTE:**

PER TOWN OF VIENNA CODE OF ORDINANCES SECTION 23-17.A, WATER QUANTITY DESIGN CRITERIA SHALL COMPLY WITH THE CODE OF VIRGINIA CHAPTER 875 (VIRGINIA EROSION AND STORMWATER MANAGEMENT REGULATION) > 9VAC25-875-600 (WATER QUANTITY) AS WELL AS LIMITATION APPLIED IN THE FAIRFAX COUNTY PUBLIC FACILITIES MANUAL (PFM). IN THE NARRATIVE BELOW, ALL REQUIREMENTS WILL REFER TO 9VAC25-875-600 OR PFM SECTION 6-0203.

FOR WATER QUANTITY PURPOSES, SIMILARLY TO THE WATER QUALITY PURPOSES, THE "SITE AREA" IS APPROXIMATELY 1.35 ACRES AND CONSISTS OF ENTIRELY HYDROLOGIC GROUP D SOILS. AS SHOWN ON THE SWM MAP ON THIS SHEET, THE SUBJECT SITE CONSISTS OF FIVE (5) STUDY POINTS (A, B, C, D, AND E). STUDY POINTS A, B, AND C WERE DETERMINED AS THE POINTS OF DISCHARGE AT WHICH THE RUNOFF FROM THE SITE ENTERS THE EXISTING STORM SYSTEM TO THE EAST OF THE SITE. STUDY POINT D IS DETERMINED TO BE THE CONFLUENCE POINT OF WHERE THE INTERMITTENT STUDY POINTS (A, B, AND C) CONJOIN. THIS STUDY POINT (D) WILL BE UTILIZED AS THE FINAL STUDY POINT TO ANALYZE THE DETENTION REQUIREMENTS PER PFM 6-0203.4.B. AS WELL AS THE CHANNEL AND FLOOD PROTECTION REQUIREMENTS PER 9VAC25-875-600.B.1.0 AND 9VAC25-875-600.C.6. ADDITIONALLY, STUDY POINT E WILL BE ANALYZED TO SHOW THE PRE VS POST PEAK FLOW COMPARISON. SEE BELOW FOR THE FULL ANALYSIS OF BOTH CHANNEL AND FLOOD PROTECTION FOR THE STUDY POINTS STATED ABOVE.

**STUDY POINT D (NET TOTAL PEAK FLOW OF STUDY POINTS A, B, AND C)**

**DETENTION (6-0203.A.B)**

THE POST-DEVELOPMENT PEAK FLOW FOR THE 2- AND 10-YEAR 24-HOUR STORM SHALL BE RELEASED AT A RATE THAT IS EQUAL TO OR LESS THAN THE PRE-DEVELOPMENT PEAK FLOW FROM THE 2- AND 10-YEAR 24-HOUR STORM EVENT, PER SECTION NOTED ABOVE. UTILIZING THIS SECTION OF THE COUNTY CODE, THE 2- AND 10-YEAR POST-DEVELOPMENT PEAK FLOWS FROM STUDY POINT A SHALL BE LESS THAN OR EQUAL TO THE PRE-DEVELOPMENT PEAK FLOWS OF THE RESPECTIVE STUDY POINT. AS SHOWN IN THE DETENTION METHOD EQUATION TABLE ON THIS SHEET, THE 2- AND 10-YEAR COMBINED POST-DEVELOPMENT PEAK FLOWS MEET THE REQUIREMENTS OF THIS SECTION FOR STUDY POINT D.

**CHANNEL PROTECTION (9VAC25-875-600.B.1.A) (9VAC25-875-600.B.4)**

THIS APPLICATION PROPOSES A CONTROL STRUCTURE INSIDE THE MANHOLE AT STRUCTURE 2 WITHIN THE PROPOSED STORM SYSTEM. THE CONTROL STRUCTURE CONSISTS OF A WEIR WALL WITH AN ORIFICE THAT IS DETAILED ON SHEET XX. UTILIZING THE DETENTION CAPABILITIES OF THE CONTROL STRUCTURE, STUDY POINT D ACHIEVES THE DETENTION REQUIREMENTS FOR THE 2- AND 10-YEAR STORM LISTED ABOVE. THEREFORE, THE EXISTING MANMADE CONVEYANCE SYSTEM THAT THE PROPOSED SYSTEM ENTERS SHALL BE ANALYZED WHERE THE 2-YEAR FLOW DOES NOT CAUSE EROSION TO THE EXISTING SYSTEM. THIS ANALYSIS IS PROVIDED IN THE STORM COMPUTATIONS TO SHOW THAT EVEN THE 10-YEAR PEAK FLOW DOES NOT CAUSE EROSION TO THE SYSTEM.

**FLOOD PROTECTION (9VAC25-875-600.C.1) (PFM 6-0203.2.A)**

THE POINT OF DISCHARGE (STUDY POINT D) RELEASES STORMWATER INTO A STORMWATER CONVEYANCE SYSTEM THAT, FOLLOWING THE LAND-DISTURBING ACTIVITY, CONFINED THE POST-DEVELOPMENT PEAK FLOW RATE FROM THE 10-YEAR 24-HOUR STORM EVENT WITH THE STORMWATER CONVEYANCE SYSTEM. THE 10-YEAR STORM EVENT IS ANALYZED FOR CONFINED CONVEYANCE TO A POINT THAT IS AT LEAST 150' DOWNSTREAM OF A POINT WHERE THE RECEIVING PIPE IS JOINED BY ANOTHER THAT HAS A DRAINAGE AREA THAT IS AT LEAST 90 PERCENT OF THE SIZE OF THE FIRST DRAINAGE AREA.

AS SHOWN ON THIS SHEET AND THE COMPUTATIONS PROVIDED ON SHEET 15, IT IS VERIFIED THAT BOTH THE 2-YEAR AND 10-YEAR PEAK FLOWS DO NOT CAUSE EROSION TO THE EXISTING SYSTEM UP TO 150' DOWNSTREAM OF THE CONFLUENCE POINT, WHICH IN THIS SCENARIO IS THE SAME AS STUDY POINT D.

**STUDY POINT E**

THE PROPOSED APPLICATION PROVIDES A COMPARISON IN PEAK FLOWS FOR THE 2- AND 10-YEAR STORM EVENTS BETWEEN THE PRE-DEVELOPMENT AND POST-DEVELOPMENT CONDITIONS. AS SHOWN IN THE PRE- VS POST- TOTAL FLOW TABLE ON THIS SHEET, THE POST-DEVELOPMENT HAS A SLIGHT INCREASE IN RUNOFF FROM THE PRE-DEVELOPMENT CONDITION. IT IS THE OPINION OF THE SIGNING ENGINEER THAT THE TOTAL FLOW HAS BEEN REDUCED ENOUGH FROM THE EASTERN SIDE OF THE SITE (TO STUDY POINT D) TO COUNTERACT THE SLIGHT INCREASE IN RUNOFF AT STUDY POINT E. THEREFORE, WE BELIEVE THAT STUDY POINT E MEETS THE REQUIREMENTS STATED ABOVE.

**PRE- VS POST- DEVELOPMENT PEAK FLOW COMPARISON TABLE**

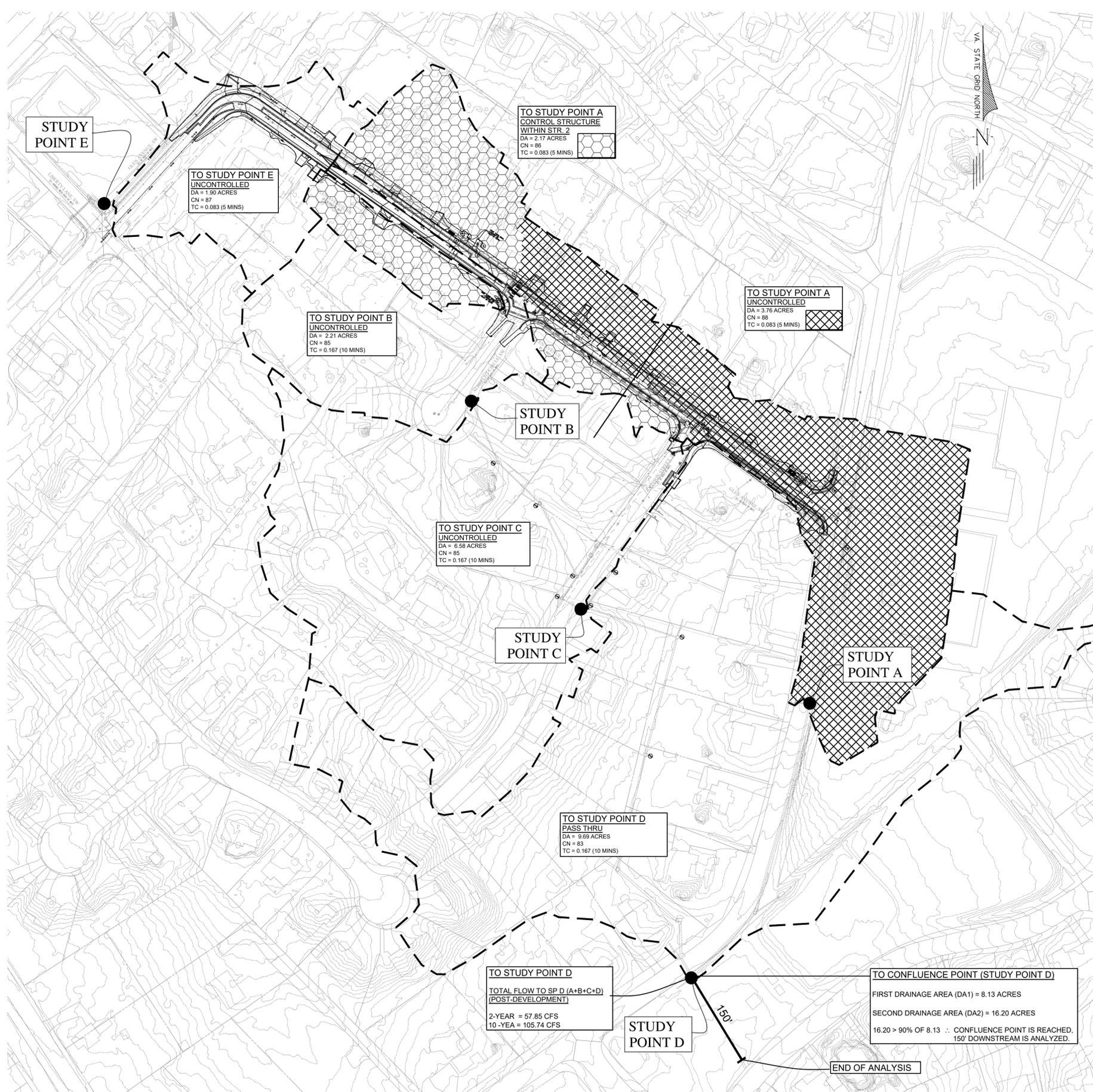
- PER HYDROLOGY COMPUTATIONS ON SHEET 22

	TOTAL FLOW - SP A		TOTAL FLOW - SP B		TOTAL FLOW - SP C		TOTAL FLOW - SP D		TOTAL FLOW TO STUDY POINT D (A+B+C+D)	
	2-YEAR	10-YEAR	2-YEAR	10-YEAR	2-YEAR	10-YEAR	2-YEAR	10-YEAR	2-YEAR	10-YEAR
PRE	13.99	25.08	6.41	11.85	16.54	30.57	21.03	40.15	57.97	107.65
POST	17.71	31.58	5.23	9.67	15.57	28.78	21.03	40.15		
POST w/ Detention	16.02	27.14							57.85	105.74

MEETS DETENTION REQUIREMENTS PER 124-4-4.D (TOWN OF VIENNA CODE: SECTION 23-17)

	TOTAL FLOW - SPE	
	2-YEAR	10-YEAR
PRE	5.38	9.81
POST	5.61	10.06

"STUDY POINT E" RUNOFF ULTIMATELY CONVERGES WITH THE RUNOFF FROM "STUDY POINT D" TO THE SOUTHEAST OF THE SITE WITHIN THE ACCOTINK CREEK WATERSHED. THIS RESULTS IN A NET DECREASE IN RUNOFF ONCE THEY CONVERGE.



PLAN DATE: 10-11-2023, 09-26-2024, 09-26-2024

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COMMONWEALTH OF VIRGINIA  
C. RYAN CONNOR  
Lic. No. 039531  
09/26/2024  
PROFESSIONAL ENGINEER

SWM POST-DEVELOPMENT DIVIDES AND NARRATIVE  
GLEN AVE, SW  
SIDEWALK IMPROVEMENT PLAN  
TOWN OF VIENNA  
FAIRFAX COUNTY, VIRGINIA

SCALE: 1" = 80'  
DATE: AUG 2024  
C.I. = 2

SHEET 21 OF 23  
FILE No. PP-2531

REVISIONS

No.	DATE	DESCRIPTION
1	10/11/23	30% PLAN
2	09/14/24	95% PLAN
3	09/26/24	95% PLAN UPDATE

# HYDROLOGY PRE- VS POST- DEVELOPMENT

## PRE-DEVELOPMENT

### STUDY POINT A

Label: **Total Area to SP A**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	2.940	80.000
Impervious - D	98.000	2.090	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	5.030	87.479

Label: **Total Area to SP A**

Time of Concentration Results		Segment #3: Length and Velocity	
Segment #1: TR-55 Sheet Flow		Hydraulic Length	663.00 ft
Hydraulic Length		Velocity	3.50 ft/s
Manning's n		Segment Time of Concentration	0.05262 hours
Slope		Segment #4: Length and Velocity	
2 Year 24 Hour Depth		Hydraulic Length	147.00 ft
Average Velocity		Velocity	5.00 ft/s
Segment Time of Concentration		Segment Time of Concentration	0.00817 hours
0.03310 hours		Time of Concentration (Composite)	
Segment #2: TR-55 Shallow Concentrated Flow		Time of Concentration (Composite)	0.11477 hours
Hydraulic Length		184.00 ft	
Is Paved?		False	
Slope		0.023 ft/ft	
Average Velocity		2.45 ft/s	
Segment Time of Concentration		0.02089 hours	

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
SP A	2 Yr	2	0.790	11.95000	13.99
SP A	10-yr	10	1.442	11.93333	25.08

## POST-DEVELOPMENT

### STUDY POINT A

Label: **AREA TO CONTROL STRUCTURE TO SP A**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	1.430	80.000
Impervious - D	98.000	0.740	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	2.170	86.138

- ASSUME 5 MINUTE TIME OF CONCENTRATION

Label: **UNCONTROLLED AREA TO SP A**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	2.020	80.000
Impervious - D	98.000	1.740	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	3.760	88.33

- ASSUME 5 MINUTE TIME OF CONCENTRATION

#### Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
UNCONTROLLED AREA TO SP A	2 Yr	2	0.617	11.917	11.56
UNCONTROLLED AREA TO SP A	10-yr	10	1.110	11.917	20.37
AREA TO CONTROL STRUCTURE (Str. 2)	2 Yr	2	0.327	11.917	6.15
AREA TO CONTROL STRUCTURE (Str. 2)	10-yr	10	0.604	11.917	11.21

#### Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
Oversized Pipe (IN)	2 Yr	2	0.327	11.917	6.15	(N/A)	(N/A)
Oversized Pipe (OUT)	2 Yr	2	0.327	12.017	4.97	382.65	0.025
Oversized Pipe (IN)	10-yr	10	0.604	11.917	11.21	(N/A)	(N/A)
Oversized Pipe (OUT)	10-yr	10	0.604	12.033	7.53	384.70	0.07

#### Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
STUDY POINT A	2 Yr	2	0.943	11.933	16.02
STUDY POINT A	10-yr	10	1.714	11.917	27.14

### STUDY POINT B

Label: **Total Area to SP B**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	2.010	80.000
Imp - D	98.000	0.700	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	2.710	84.649

- ASSUME 10 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
SP B	2 Yr	2	0.390	12.00000	6.41
SP B	10-yr	10	0.732	11.98333	11.85

### STUDY POINT C

Label: **Total Area to SP C**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	5.010	80.000
Imp - D	98.000	1.980	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	6.990	85.099

- ASSUME 10 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
SP C	2 Yr	2	1.007	12.00000	16.54
SP C	10-yr	10	1.888	11.98333	30.57

### STUDY POINT B

Label: **UNCONTROLLED AREA TO SP B**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	1.550	80.000
Impervious - D	98.000	0.660	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	2.210	85.376

- ASSUME 10 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
STUDY POINT B	2 Yr	2	0.318	12.000	5.23
STUDY POINT B	10-yr	10	0.597	11.983	9.67

### STUDY POINT C

Label: **UNCONTROLLED AREA TO SP C**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	4.700	80.000
Impervious - D	98.000	1.880	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	6.580	85.143

- ASSUME 10 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
STUDY POINT C	2 Yr	2	0.948	12.000	15.57
STUDY POINT C	10-yr	10	1.777	11.983	28.78

### STUDY POINT D

Label: **Total Area to SP D**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	8.140	80.000
Imp - D	98.000	1.550	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	9.690	82.879

- ASSUME 5 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
SP D	2 Yr	2	1.276	12.00000	21.03
SP D	10-yr	10	2.463	11.98333	40.15

### STUDY POINT E

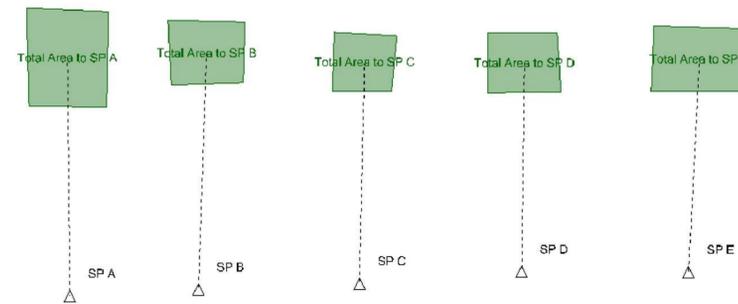
Label: **Total Area to SP E**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	1.250	80.000
Imp - D	98.000	0.650	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	1.900	86.158

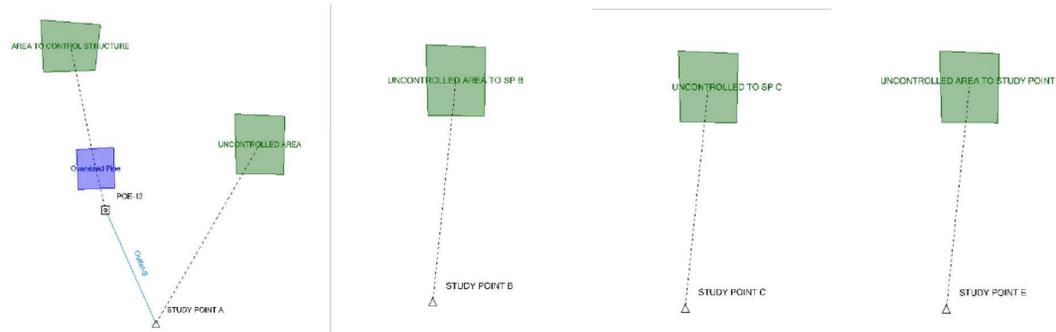
- ASSUME 5 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
SP E	2 Yr	2	0.286	11.91667	5.38
SP E	10-yr	10	0.529	11.91667	9.81

## PRE-DEVELOPMENT PONDPACK MODEL SCHEMATIC



## POST-DEVELOPMENT PONDPACK MODEL SCHEMATICS



### STUDY POINT D

- SAME COMPUTATIONS UTILIZED IN PRE-DEVELOPMENT CONDITON

Label: **Total Area to SP D**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	8.140	80.000
Imp - D	98.000	1.550	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	9.690	82.879

- ASSUME 5 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
SP D	2 Yr	2	1.276	12.00000	21.03
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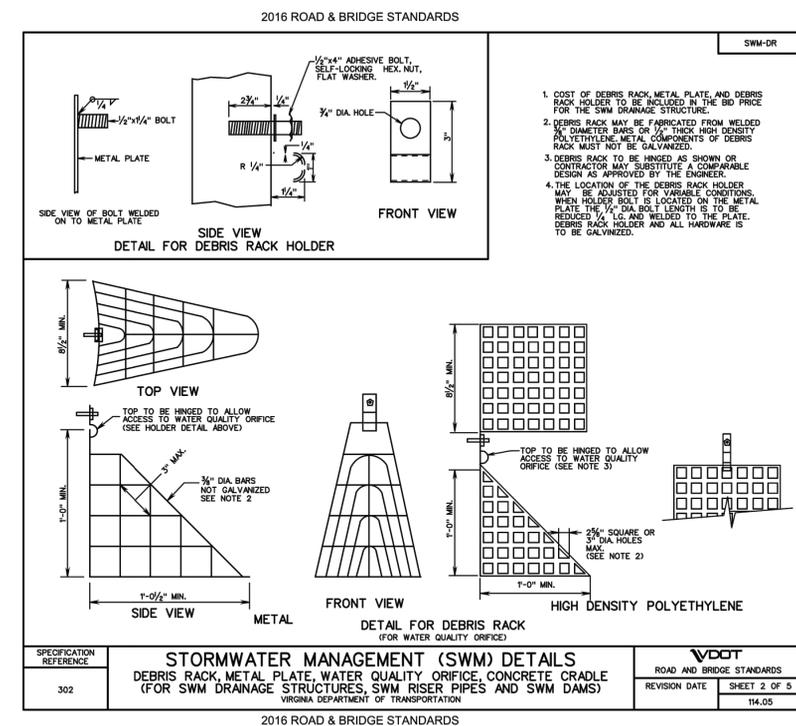
### STUDY POINT E

Label: **UNCONTROLLED AREA TO STUDY POINT E**

Soil/Surface Description	CN	Area (acres)	Adjusted CN
Managed Turf - D	80.000	1.170	80.000
Impervious - D	98.000	0.730	98.000
COMPOSITE AREA & WEIGHTED CN -->	(N/A)	1.900	86.916

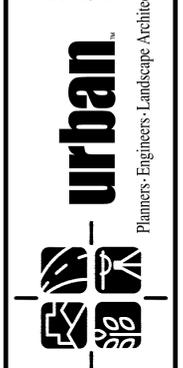
- ASSUME 5 MINUTE TIME OF CONCENTRATION

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (cfs)
STUDY POINT E	2 Yr	2	0.299	11.917	5.61
STUDY POINT E	10-yr	10	0.545	11.917	10.06



PLAN DATE	DESCRIPTION	REVISIONS
10/11/2023	08-14-3024	
09-26-2024	09-26-2024	
3	09/26/24 95% PLAN UPDATE	
2	09/14/24 95% PLAN	
1	10/11/23 30% PLAN	
No.	DATE	DESCRIPTION

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HYDROLOGY  
 GLEN AVE, SW  
 SIDEWALK IMPROVEMENT PLAN  
 TOWN OF VIENNA  
 FAIRFAX COUNTY, VIRGINIA  
 SCALE: N/A  
 DATE: AUG 2024  
 C.I. = 2'  
 SHEET  
 22  
 OF  
 23  
 FILE No.  
 PP-2531

**ELEVATION-VOLUME-FLOW TABLE**

Infiltration	
Infiltration Method (Computed)	No Infiltration
Initial Conditions	
Elevation (Water Surface, Initial)	380.55 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 cfs
Flow (Initial Infiltration)	0.00 cfs
Flow (Initial, Total)	0.00 cfs
Time Increment	0.017 hours

**PIPE VOLUME TABLE**

48" PIPE (STR. 2-3 AND STR. 2-11)  
(38"x60" ERCP EQUIVALENT)

Volume Results (Pipe)	
Pipe Storage Upstream Invert	381.90 ft
Pipe Storage Downstream Invert	380.55 ft
Pipe Storage Length	269.400 ft
Pipe Storage Diameter	48.0 in
Pipe Storage Number of Barrels	1
Pipe Storage Slice Width	0.10 ft
Pipe Storage Vertical Increment	0.10 ft

**OUTLET INPUT DATA**

Requested Pond Water Surface Elevations	
Minimum (Headwater)	380.55 ft
Increment (Headwater)	0.10 ft
Maximum (Headwater)	385.90 ft

**Outlet Connectivity**

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Area	Orifice - 1	Forward	Culvert - 1	380.55	385.90
Rectangular Weir	Weir - 1	Forward	Culvert - 1	382.75	385.90
Culvert-Circular	Culvert - 1	Forward	TW	380.55	385.90
Tailwater Settings	Tailwater		(N/A)	(N/A)	(N/A)

Structure ID: Culvert - 1	
Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	15.0 in
Length	387.860 ft
Length (Computed Barrel)	387.872 ft
Slope (Computed)	0.008 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.023
Kr	0.200
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.091
T2 ratio (HW/D)	1.193
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.  
Use submerged inlet control 0 equation above T2 elevation.

In transition zone between unsubmerged and submerged inlet control, interpolate between flows at T1 & T2...

T1 Elevation	381.91 ft	T1 Flow	4.80 cfs
T2 Elevation	382.04 ft	T2 Flow	5.49 cfs

Structure ID: Orifice - 1	
Structure Type: Orifice-Area	
Number of Openings	1
Elevation	380.55 ft
Orifice Area	1.25 ft <sup>2</sup>
Top Elevation	381.65 ft
Datum Elevation	381.15 ft
Orifice Coefficient	0.600

Structure ID: Weir - 1	
Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	382.75 ft
Weir Length	6.000 ft
Weir Coefficient	3.00 (ft <sup>0.5</sup> )

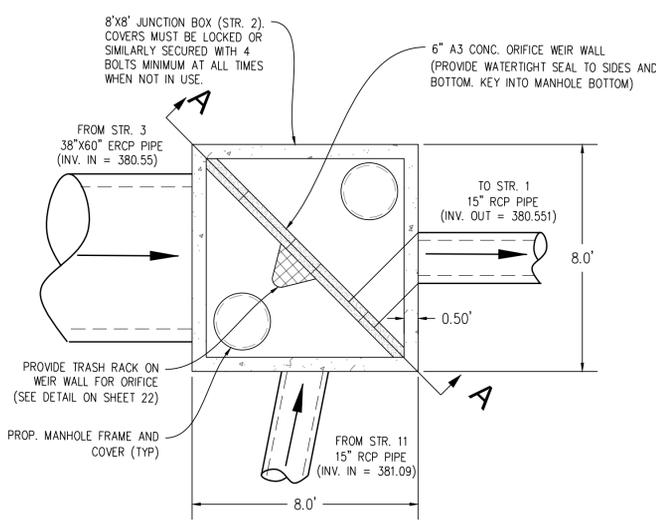
Structure ID: TW	
Structure Type: TW Setup, DS Channel	
Tailwater Type	Downstream Channel
Catalog Conduit	Conduit Catalog - 1
Channel Slope	0.014 ft/ft
Channel Invert Elevation	375.99 ft

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft <sup>3</sup> /s
Flow Tolerance (Maximum)	10.000 ft <sup>3</sup> /s

**COMPOSITE OUTLET RATING TABLE**

Composite Rating Table Tailwater Elevation = 375.99 ft (Composite Outlet Structure - 1)					
Water Surface Elevation (ft)	Flow (cfs)	Tailwater Elevation (ft)	Convergence Error (ft)	Contributing Structures	
380.55	0.00	375.99	0.00	(no Q; Orifice - 1, Weir - 1, Culvert - 1)	
380.65	0.03	376.04	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
380.75	0.11	376.08	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
380.85	0.22	376.11	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
380.95	0.37	376.15	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.05	0.55	376.18	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.15	0.77	376.21	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.25	1.03	376.25	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.35	1.32	376.28	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.45	1.63	376.31	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.55	2.01	376.35	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.65	2.49	376.39	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.75	2.77	376.41	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.85	3.04	376.43	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
381.95	3.31	376.45	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.05	3.57	376.46	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.15	3.82	376.48	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.25	4.07	376.50	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.35	4.30	376.51	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.45	4.53	376.52	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.55	4.76	376.54	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.65	4.98	376.55	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.75	5.20	376.56	0.00	Orifice - 1, Culvert - 1 (no Q; Weir - 1)	
382.85	5.75	376.59	0.00	Orifice - 1, Weir - 1, Culvert - 1	
382.95	6.20	376.62	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.05	6.33	376.62	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.15	6.44	376.63	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.25	6.54	376.63	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.35	6.63	376.64	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.45	6.71	376.64	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.55	6.78	376.64	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.65	6.85	376.65	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.75	6.92	376.65	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.85	6.99	376.65	0.00	Orifice - 1, Weir - 1, Culvert - 1	
383.95	7.06	376.66	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.05	7.13	376.66	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.15	7.19	376.66	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.25	7.26	376.67	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.35	7.32	376.67	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.45	7.38	376.67	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.55	7.45	376.68	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.65	7.51	376.68	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.75	7.55	376.68	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.85	7.63	376.69	0.00	Orifice - 1, Weir - 1, Culvert - 1	
384.95	7.69	376.69	0.00	Orifice - 1, Weir - 1, Culvert - 1	
385.05	7.76	376.69	0.00	Orifice - 1, Weir - 1, Culvert - 1	
385.15	7.82	376.69	0.00	Orifice - 1, Weir - 1, Culvert - 1	
385.25	7.88	376.70	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	
385.35	7.94	376.70	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	
385.45	8.00	376.70	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	
385.55	8.05	376.71	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	
385.65	8.11	376.71	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	
385.75	8.17	376.71	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	
385.85	8.23	376.71	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	
385.90	8.25	376.71	0.00	Culvert - 1 (no Q; Orifice - 1, Weir - 1)	

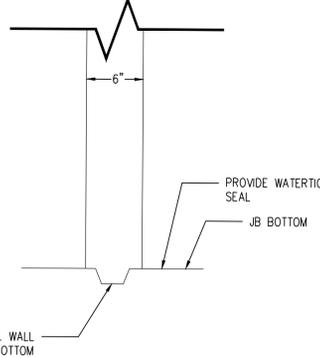
**STRUCTURE 2 - DETAIL TOP VIEW N.T.S**



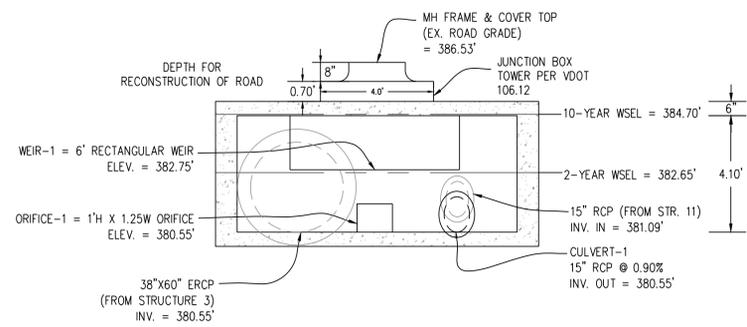
STORM STRUCTURE #2 NOTE:

CONTRACTOR SHALL FURNISH DETAILED SHOP DRAWINGS FOR THE FINAL STRUCTURAL DESIGN OF THE STRUCTURE IN ITS ENTIRETY. SHOP DRAWINGS SHALL INCLUDE ALL STRUCTURAL INFORMATION, CONCRETE DESIGN, AND ADHERE TO ALL THE CRITICAL DESIGN DIMENSIONS. DRAWINGS SHALL BE CERTIFIED BY A STRUCTURAL ENGINEER. SHOP DRAWINGS SHALL BE REVIEWED AND APPROVED PRIOR TO FABRICATION AND INSTALLATION.

**WEIR WALL IN STR. 2 DETAIL SIDE VIEW N.T.S**



**STRUCTURE 2 - DETAIL (A-A) SIDE VIEW N.T.S**



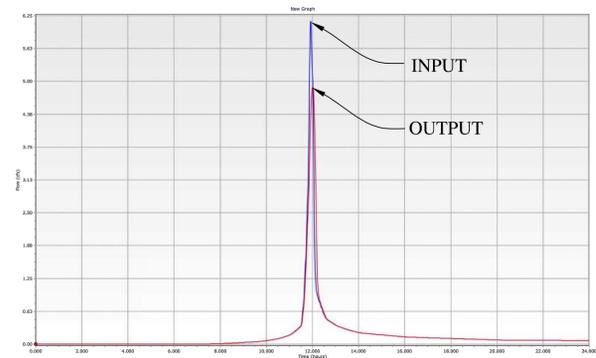
**2-YEAR ROUTING HYDROGRAPH**

Initial Conditions	
Elevation (Water Surface, Initial)	380.55 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 cfs
Flow (Initial Infiltration)	0.00 cfs
Flow (Initial, Total)	0.00 cfs
Time Increment	0.017 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	6.15 cfs	Time to Peak (Flow, In)	11.917 hours
Flow (Peak Outlet)	4.97 cfs	Time to Peak (Flow, Outlet)	12.017 hours

Elevation (Water Surface, Peak)	
Elevation (Peak)	382.65 ft
Volume (Peak)	0.025 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.327 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet/Outflow)	0.327 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %



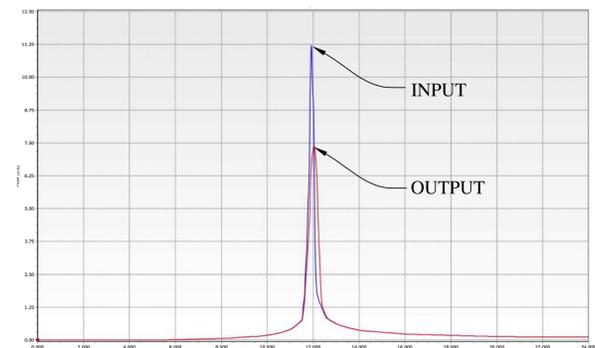
**10-YEAR ROUTING HYDROGRAPH**

Initial Conditions	
Elevation (Water Surface, Initial)	380.55 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 cfs
Flow (Initial Infiltration)	0.00 cfs
Flow (Initial, Total)	0.00 cfs
Time Increment	0.017 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	11.21 cfs	Time to Peak (Flow, In)	11.917 hours
Flow (Peak Outlet)	7.54 cfs	Time to Peak (Flow, Outlet)	12.033 hours

Elevation (Water Surface, Peak)	
Elevation (Peak)	384.70 ft
Volume (Peak)	0.070 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.604 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet/Outflow)	0.604 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %



PLAN DATE	10/11/2023	REVISIONS	
	08-14-2024		
	09-26-2024		
	3 09/26/24 95% PLAN UPDATE		
	2 09/14/24 95% PLAN		
	1 10/11/23 30% PLAN		
No.	DATE	DESCRIPTION	
Urban Ltd 7120 Littleton Turnpike Annandale, Virginia 22003 Tel. 703.642.8080 Fax. 703.642.8251 www.urban-ltd.com			
Planners - Engineers - Landscape Architects - Land Surveyors			
<b>urban</b>			
COMMONWEALTH OF VIRGINIA C. RYAN CONNOR Lic. No. 039531 09/26/2024 PROFESSIONAL ENGINEER			
SWM ROUTING AND DETAILS			
GLEN AVE, SW			
SIDEWALK IMPROVEMENT PLAN			
TOWN OF VIENNA			
FAIRFAX COUNTY, VIRGINIA			
SCALE:	N/A	DATE:	AUG 2024
SHEET 23 OF 23			
FILE No. PP-2531			