PUBLIC WORKS NOTES:

1. All requirements relative to City Code and Public Works Design and Construction Standards shall be complied with before release of site plan.
2. All required bonds, escrows, insurances, cash, etc., shall be submitted and approved before release of site plans.
3. Plan and profile shall be submitted (inked mylar size 24" x 36") for all storm sewers and street projects in public right-of-ways or public easements and approved before release of site plans.
4. Contractor is responsible to notify all utlity companies before construction begins.
5. All datum shall be based on USC and GS datum.
6. Bonds shall not be released until the receipt and approval by the City of as-built site plans, plans and profiles, etc.
7. All underground utilities and transformers shall be shown on site plan and confirmed per location on as-built plan.
8. The owner shall notify the Director of Public Works in writing three days prior to the beginning of all street or storm sewer work shown on the site plan.
9. The installation of improvements as required in this article shall in no case serve to bind the city to accept such improvements for the maintenance, repair or operation thereof, but such acceptance, shall be subject to the existing regulations concerning the acceptance of each type of improvement.

FIRE MARSHALL NOTES:

All requirements relative to the City Fire Code and Virginia Building Code must be complied with.

1. Use group classfication _____.
2. Type of construction _____.

PUBLIC UTILITIES NOTES:

1. All water main and sanitary sewer construction shall comply with the requirements of the standard specification ans plans of the Department of Public Utilities.
2. All water mains shall have a minimum cover of 4.0' unless otherwise designated on the plans.
3. All water mains shall be installed 8' north or east of the center line of the street unless otherwise designated on the plans.
4. All water mains shall be Class 52 Ductile iron pipe unless otherwise designated on the plans.
5. All Branch valves shall be strapped.
6. All required sanitary sewer, including laterals and storm sewer shall be installed and their ditches compacted for full depth and approved by the agency having jurisdiction and all streets and easements rough graded prior to the installation of any water mains.
7. No water or sanitary sewer main shall be installed until the proper forms and recorded easements are submitted to the Department of Public Utilities.
8. Plans and profiles of any utility crossing of water mains shall be submitted and approved by the Department of Public Utilities prior to construction.
9. The Developer shall notify the Department of Public Utilities 3 days prior to commencing construction of any water or sanitary sewer mains.
10. If a public water service is obtained for temporary construction water or vehicle wash area, a backflow preventor shall be required.
11. If a private interior fire protection system is to be provided, it shall be subject to the approval of the Department of Public Utilities, Fire Marshall, and shall conform to the City plumbing code.
12. Working water pressure shall be _____ p.s.i.
13. If this property is located in a low pressure area, a booster pump may be required in the building plumbing system. If this property is located in an area where th pressure will exceed 80 p.s.i. a pressure regulating valve shall be installed by the property owner in accordance with the local plumbing code in order to eliminate water hammer and unnecessary wastage of water.
14. The Developer agrees to accept complete responsiblity and all costs for the installation of the mains and appurtenances and for any adjustments in alignments and grade or relocations to existing mains due to the development of this property, any repairs and maintenance therefore which may be required prior to the finish grading and surfacing of the streets an/or easements and final acceptance shall not be considered or granted until after the streets have been surfaced or the easements finally graded.

ARBORIST NOTES:

1. All requirements relative to the City Code and City Landscaping Standards shall be complied with.
2. Bonds are required for Existing Trees and new Landscaping prior to final signoff.

RPI MAP INFORMATION:

RPI Map No. N/A
Subdivision
Lot(s) N/A **Block** N/A
RPC 51-216-064

MISCELLANEOUS NOTES:

1. Upon satisfactory completion of the installation of required improvements, as shown on the approved site plan or a section thereof, the developer shall submit to the Department of Planning five copies of an as-built site plan certified by the engineer, architect and/or surveyor for approval for conformity with the approved site plan.
2. The As-Built Site Plan shall be submitted and approved prior to the issuance of the final Occupancy Permit.
3. Final approval by the Planning Commission of this site plan shall expire one year after the date of such approval if building permits have not been obtained for construction in accordance therewith, unless an extension is granted by the City.
4. In any development involving a condominium, cooperative, automatic owners' association or other form of ownership in which there is common area within the development, the documents pertaining to this form of ownership shall be approved by the City Attorney prior to issuance of any Occupany permit.
5. Any proposed changes or revisions during the execution of or subsequent to implementation of the approved site plan shall be subject to City review and approval.

PLANNING NOTES:

1. The property owner - Northern Virginia Regional Park Authority, 5400 Ox Road, Fairfax, VA 22039- joins in this Site Plan and agrees to be bound by all Site Plan Requirements.

RECORDATION DATA:

Easement(s):

Subdivision(s):

Dedication(s):

APPROVALS

PLANNING COMMISSION FINAL APPROVAL:
(Date and Conditions of Approval)

VARIANCES (With date(s) of Approval by BZA):

BOND(S) POSTED (Date(s) and Amount(s)):

FINAL STAFF APPROVAL:

	Signature:	Date
Planning		
Public Works		
Public Utilities		

SUBSEQUENT ACTIONS:

BUILDING PERMIT ISSUED (Date): _____
AS-BUILT APPROVED (Date): _____
COMMON AREA DOCUMENTS APPROVED (Date): _____
LANDSCAPE ESCROW ACCEPTED (Date): _____
CERTIFICATE OF OCCUPANCY (Date): _____
OTHER:

Revisions Approved prior to Certificate of Occupancy:

Description	Date Approved

APPLICATION FOR REVIEW & APPROVAL BY
CITY OF FALLS CHURCH, VIRGINIA

Certification

COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0406001542
LANDSCAPE ARCHITECT
10/30/2019
Signature

Expansion of the W&OD Trail
Name of Project

W&OD Trail Falls Church, VA
Address

Northern Virginia Regional Park Authority — 703-359-4621
Owner — Telephone No.

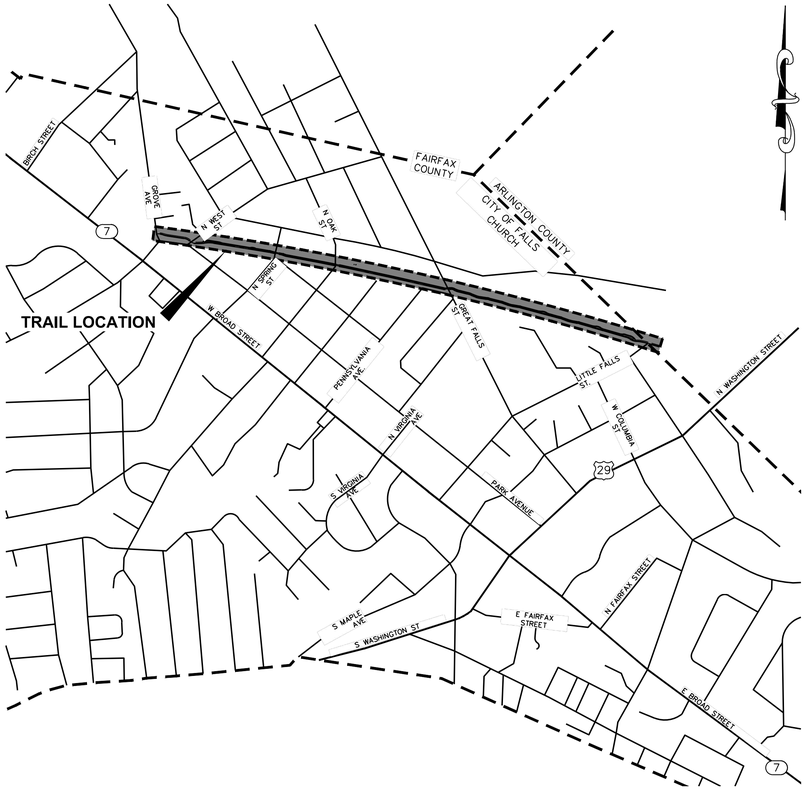
5400 Ox Road, Fairfax, VA 22039
Address

Steve Torgerson — 301-881-2545
Name of Certified Engineer or Surveyor Submitting Plan — Telephone No.

800 Kings Farm Blvd, Fourth Floor Rockville, MD 20850
Address

Site Plan S- **Sheet 1 of Sheets**

EXPANSION OF THE W&OD TRAIL
NORTHERN VIRGINIA
REGIONAL PARK AUTHORITY
UPC# 113612, STATE PROJECT EN18-110-208
DRAFT 60% CONSTRUCTION PLANS
OCTOBER 2019



PROJECT VICINITY MAP
SCALE: NTS

SHEET LIST	
Sheet Number	Sheet Title
GI1.0	COVER SHEET
GI1.1	PROJECT NOTES
GI1.2	KEY PLAN
CD1.0	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.1	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.2	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.3	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.4	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.5	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.6	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.7	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.8	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.9	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.10	EXISTING CONDITIONS & DEMOLITION PLAN
CD1.11	EXISTING CONDITIONS & DEMOLITION PLAN
CS1.0	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.1	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.2	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.3	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.4	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.5	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.6	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.7	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.8	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.9	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.10	HORIZONTAL AND VERTICAL ALIGNMENTS
CS1.11	HORIZONTAL AND VERTICAL ALIGNMENTS
CS2.0	PIPE PROFILES
CS2.1	PIPE PROFILES
CS3.0	TYPICAL SECTIONS
CG1.0	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.1	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.2	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.3	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.4	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.5	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.6	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.7	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.8	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.9	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.10	GRADING – UTILITY PLAN & MATERIALS PLAN
CG1.11	GRADING – UTILITY PLAN & MATERIALS PLAN
CS4.0	ENLARGEMENT FOR EAST & WEST CONNECTION
CS5.0	TRAIL MARKINGS & DETAILS
CS5.2	UTILITY DETAILS
CS5.3	PLANTING DETAILS
CE1.0	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.1	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.2	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.3	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.4	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.5	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.6	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.7	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.8	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.9	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.10	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE1.11	EROSION AND SEDIMENT CONTROL– PHASE I AND PHASE II
CE5.0	EROSION & SEDIMENT CONTROL NOTES AND DETAILS
CE5.1	EROSION & SEDIMENT CONTROL DETAILS
CW1.0	STORMWATER MANAGEMENT PLAN
CW1.1	STORMWATER MANAGEMENT PLAN
CW1.2	STORMWATER MANAGEMENT PLAN
CW1.3	STORMWATER MANAGEMENT PLAN
CW1.4	STORMWATER MANAGEMENT PLAN
CW1.5	STORMWATER MANAGEMENT PLAN
CW1.6	STORMWATER MANAGEMENT PLAN
CW1.7	STORMWATER MANAGEMENT PLAN
CW1.8	STORMWATER MANAGEMENT PLAN
CW1.9	STORMWATER MANAGEMENT PLAN
CW1.10	STORMWATER MANAGEMENT PLAN
CW1.11	STORMWATER MANAGEMENT PLAN
CW5.0	SWM NARRATIVE AND CALCULATIONS
CW5.1	STORMWWATER MANAGEMENT DETAILS
CT 1.0	MAINTENANCE OF TRAFFIC PLAN PHASE 1
CT 1.1	MAINTENANCE OF TRAFFIC PLAN PHASE 2
CT 1.2	MAINTENANCE OF TRAFFIC PLAN PHASE 2
CT 1.3	MAINTENANCE OF TRAFFIC PLAN PHASE 3
CT 1.4	MAINTENANCE OF TRAFFIC PLAN PHASE 3
CT 1.5	MAINTENANCE OF TRAFFIC PLAN PHASE 3
CT 1.6	MAINTENANCE OF TRAFFIC PLAN PHASE 4
CT 1.7	MAINTENANCE OF TRAFFIC PLAN PHASE 4
CT 1.8	MAINTENANCE OF TRAFFIC PLAN PHASE 4
CT 1.9	MAINTENANCE OF TRAFFIC PLAN PHASE 5
CT 1.10	MAINTENANCE OF TRAFFIC PLAN PHASE 5
CT 1.11	MAINTENANCE OF TRAFFIC PLAN PHASE 5
CT 1.12	MAINTENANCE OF TRAFFIC PLAN PHASE 5
CT 1.13	MAINTENANCE OF TRAFFIC PLAN PHASE 5
CT 1.14	MAINTENANCE OF TRAFFIC PLAN PHASE 5
CT 1.15	MAINTENANCE OF TRAFFIC PLAN PHASE 6
CW5.2	WATER QUALITY IMPACT ASSESSMENT
CW5.3	SOIL BORING LOGS
CW5.4	SOIL BORING LOGS
S1.0	CROSS SECTIONS
S1.1	CROSS SECTIONS
S1.2	CROSS SECTIONS
S1.3	CROSS SECTIONS
S1.4	CROSS SECTIONS
S1.5	CROSS SECTIONS
S1.6	CROSS SECTIONS

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
800 KING FARM BLVD, FOURTH FLOOR ROCKVILLE, MD 20850
(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA." LICENSE NO. 1542 , EXPIRATION DATE: 04/30/2021"

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	N.T.S.
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

COVER SHEET

SHEET

GI1.0

01 OF 100

COMMONWEALTH OF VIRGINIA — KEITH SINCLAIR, JR. — Lic. No. 11195 — 10/30/2019 — PROFESSIONAL ENGINEER

COMMONWEALTH OF VIRGINIA — STEVEN TORGERSON — Cert. No. 0606001542 — LANDSCAPE ARCHITECT — 10/30/2019

COMMONWEALTH OF VIRGINIA — JACK A. GOODE, II — LIC. NO. -02039202 — PROFESSIONAL ENGINEER — 10/30/19

CITY OF FALLS CHURCH
APPROVALS

PUBLIC WORKS

_____ _____
DIRECTOR SIGNATURE DATE

DEVELOPMENT SERVICES

_____ _____
DIRECTOR SIGNATURE DATE

811 Know what's below. Call before you dig.

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48 HOURS BEFORE YOU DIG
CALL "MISS UTILITY" AT 811
OR LOG ON TO www.missutility.net

MISS UTILITY

CALL "MISS UTILITY" AT 811 or 1-800-552-7001, 48 HOURS PRIOR TO THE START OF WORK. THE EXCAVATOR MUST NOTIFY ALL PUBLIC UTILITY COMPANIES WITH UNDER GROUND FACILITIES IN THE AREA OF PROPOSED EXCAVATION AND HAVE THOSE FACILITIES LOCATED BY THE UTILITY COMPANIES PRIOR TO COMMENCING EXCAVATION. THE EXCAVATOR IS RESPONSIBLE FOR COMPLIANCE WITH REQUIREMENTS OF THE TOWN OF BRIDGEWATER.

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENTS 2016 ROAD AND BRIDGE SPECIFICATIONS, 2016 ROAD AND BRIDGE STANDARDS, 2009 MUTCD, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 WORK AREA PROTECTION MANUAL AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.

X:\ROCKVILLE\18-0367 - NVRPA W-OD TRAIL EXPANSION\05-CAD\GI1.0-GI0-18036?.DWG, 10/31/2019 11:08 AM, KFRITZE

LEGEND:

- GRATE INLET
- STORM SEWER MANHOLE
- SANITARY SEWER MANHOLE
- CLEAN OUT
- ELECTRIC METER
- GROUND LIGHT
- ELECTRIC JUNCTION BOX
- A/C UNIT
- LIGHT POLE W/ CONCRETE BASE
- POWER POLE
- STREET LIGHT
- GUY WIRE
- TELEPHONE MARKER
- 322.96 GROUND SHOT
- STAND PIPE
- SPIGOT
- WATER VALVE
- FIRE HYDRANT
- WATER METER
- GAS METER
- GAS VENT PIPE
- GAS VALVE
- GASLINE MARKER
- MISCELLANEOUS
- SIGN
- BORING LOCATION
- ROOF DRAIN
- POST
- BOLLARD
- FLAG PLOE
- TELEPHONE MANHOLE
- FLY
- TRAVERSE
- BENCHMARK
- PROPOSED CURB
- EXISTING CURB
- PROPOSED EDGE OF ROADWAY
- EXISTING EDGE OF ROADWAY
- PROPOSED STORM SEWER
- EXISTING STORM SEWER
- WOODLINE
- EXISTING PERMANENT EASEMENT
- PL — PL — EXISTING PROPERTY LINE
- Z — Z — EXISTING LOT LINE
- FENCE
- CHAIN LINK FENCE
- WOODEN FENCE
- DITCH (C/L)
- UGE — UNDERGROUND ELECTRIC LINE (PAINT)
- WATERLINE (PAINT)
- GAS LINE (PAINT)
- UNDERGROUND COMMUNICATION LINE (PAINT)
- S — SANITARY SEWER
- OHE — OVERHEAD ELECTRIC LINE
- EXISTING CONTOUR
- PROPOSED CONTOUR
- GUARDRAIL
- WETLAND
- CLEAR ZONE
- RCP REINFORCED CONCRETE PIPE
- CMP CORRUGATED METAL PIPE
- PROPOSED PERMEABLE CONCRETE
- PROPOSED ASPHALT
- PROPOSED STAMPED ASPHALT
- PROPOSED LIGHT

GENERAL CONSTRUCTION NOTES

1. THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS APPLICABLE TO CONSTRUCTION OF THIS PROJECT.
2. ALL AREAS DISTURBED OUTSIDE OF THE LIMITS OF DISTURBANCE SHOWN ON THE DRAWINGS SHALL BE RESTORED TO THEIR ORIGINAL CONDITIONS AS DIRECTED BY NOVA PARKS CONSTRUCTION MANAGER AT NO ADDITIONAL COST TO THE OWNER.
3. THE TRAIL PATH IS TO BE GENERALLY CONSTRUCTED AT GRADE. GRADING WILL BE REQUIRED IN THE FOLLOWING AREAS:
   - 3.1. WHERE EXISTING ROADSIDE AND TRAIL DITCHES ARE SILTED AND/OR OBSTRUCTED, THEY SHALL BE TRIMMED TO MATCH EXISTING CROSS-SECTION WITH THE SIDE SLOPES NOT STEEPER THAN 3:1 OR DITCH SECTION
   - 3.2. WHEN REQUIRED, EXCAVATE DITCHES, REMOVE ALL UNDERBRUSH, VEGETATION AND REFUSE TO CROSS-SECTIONS SHOWN ON THE CONTRACT DRAWINGS AND MAINTAIN POSITIVE DRAINAGE.
4. LOCATION OF EXISTING UTILITIES AND STRUCTURES SHOWN ON THE DRAWINGS ARE IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY THEIR LOCATIONS AND PROVIDE FOR THEIR PROTECTION.
5. ALL EXCESS EXCAVATED MATERIAL THAT IS NOT REUSED ON THE TRAIL SHALL BE REMOVED, HAULED AND LEGALLY DISPOSED OFF-SITE.
6. ALL TRASH RESULTING FROM CONSTRUCTION IS TO BE PICKED UP WITHIN THE LIMITS OF DISTURBANCE AND DISPOSED OFF-SITE BY THE CONTRACTOR.
7. CONTRACTOR SHALL NOTIFY "MISS UTILITY" (VA811) AT LEAST 72 HOURS PRIOR TO ANY CONSTRUCTION.
8. ALL SEDIMENT AND EROSION CONTROL MEASURES AND DEVICES INDICATED ON THE DRAWINGS SHALL BE PROVIDED, INSTALLED AND MAINTAINED DURING ALL PHASES OF CONSTRUCTION (SEE DRAWING CE1.0-CE1.11 FOR "SEDIMENT AND EROSION CONTROL").
9. CONTRACTOR TO PROVIDE TRAIL STAKEOUT FOR APPROVAL PRIOR TO CONSTRUCTION.
10. ANY REFERENCE MADE TO THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATION REFER TO THE LATEST ADOPTED EDITION AND REVISIONS.
11. UNLESS OTHERWISE NOTED, SPECIFICATIONS WILL BE STANDARD VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS.
12. ALL ROCK, SOIL, AND OTHER MATERIAL THAT OBSTRUCTS THE TRAIL AND IS NOT USED SHALL BE COMPLETELY REMOVED AND DISPOSED OF IN APPROVED AREAS. THE CONTRACTOR IS TO REMOVE ANY ADDITIONAL MATERIAL THAT MAY HAVE ACCUMULATED SINCE THEN AND AT THE COMPLETION OF THE PROJECT. LEAVE THE TRAIL COMPLETELY CLEAR AND ACCESSIBLE.
13. HANDLING, TRANSPORTATION AND DISPOSAL OF THE WASTE MATERIALS CONTAINING HAZARDEOUS SUBSTANCES SHALL BE DONE IN STRICT ACCORDANCE WITH THE APPLICABLE ENVIRONMENTAL REGULATIONS.
14. ANY TREES THAT ARE LOCATED OUTSIDE THE LOD AND HAVE BRANCHES EXTENDING INTO THE LOD WILL NEED TO BE TRIMMED.
15. CONSTRUCTION EQUIPMENT AND DEBRIS MAY NOT BE LEFT ON THE EXISTING TRAIL.
16. THE W&OD TRAIL MUST REMAIN OPEN FOR PEDESTRIAN AND BICYCLE ACCESS EXCEPT WHERE TRAFFIC IS REROUTED.
17. THE SURVEY FOR THE TRAIL ALIGNMENT WAS PROVIDED BY THE CITY OF FALLS CHURCH, VA. WITH SUPPLEMENTAL STRUCTURE INVERT ELEVATIONS PROVIDED BY AMT.

DEMOLITION NOTES

1. LOCATION OF ALL UTILITIES SHOWN ARE APPROXIMATE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY AND DETERMINE THE EXACT LOCATION AND DEPTH OF ALL UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO COMMENCING WORK. REPORT ANY DISCREPANCY TO THE NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER. THE CONTRACTOR SHALL CONTACT MISS UTILITY AT 811 A MINIMUM OF 72 HOURS PRIOR TO ANY EXCAVATION TO DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL EXISTING UTILITIES.
2. THE DEMOLITION PLAN IS A GENERAL GUIDE OF WHAT ITEMS NEED TO DEMOLISHED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO IDENTIFY ALL ITEMS THAT REQUIRED DEMOLITION TO COMPLETE THE PROPOSED CONSTRUCTION.NO DEMOLITION CAN BEGIN UNTIL ALL EROSION AND SEDIMENT CONTROLS ARE IN PLACE, AND IS APPROVED BY AN EROSION AND SEDIMENT CONTROL INSPECTOR OF THE CLIENT.
3. ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MOST CURRENT APPLICABLE FEDERAL, STATE , AND LOCAL LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED, TO ENVIRONMENTAL PROTECTION AGENCY (EPA), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), VIRGINIA OCCUPATIONAL AND SAFETY HELATH COMPLIANCE PROGRAM (VOSH ENFORCEMENT), VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT, NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), AND NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH (NIOSH).
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF WORK WITH REPRESENTATIVE UTILITY COMPANIES AND FOR THE IMPLEMENTATION OF REQUIRED UTILITY-RELATED WORK.
5. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER UPON ENCOUNTERING ANY HAZARDOUS MATERIALS DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL DOCUMENT SAME TO THE NOVA PARKS AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
6. CONTRACTOR SHALL COORDINATE WITH THE NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER TO IDENTIFY ANY NECESSARY STAGING/STORAGE AREAS. PROPOSED STAGING AND STORAGE AREAS SHALL BE REVIEWED AND APPROVED BY THE NOVA PARKS CONSTRUCTION MANAGER, AND THE LIMITS OF WORK WILL BE ADJUSTED ACCORDINGLY.
7. ANY STOCKPILING, REGARDLESS OF LOCATION ON SITE, SHALL BE STABILIZED IMMEDIATELY AFTER ITS ESTABLISHMENT AND FOR THE DURATION OF THE PROJECT. STOCKPILES SHALL BE CONTAINED BY STRAW BALES OR EROSION CONTROL FENCING AND COVERED WITH PLASTIC OR CANVAS AT THE END OF EACH WORK DAY FOR THE DURATION OF THE PROJECT
8. DISCONNECTION OF SERVICES AND SYSTEMS SUPPLYING UTILITIES TO BE ABANDONED OR DEMOLISHED SHALL BE COMPLETED PRIOR TO OTHER SITE DEMOLITION IN FULL COMPLIANCE WITH APPLICABLE CODES, REGULATIONS, AND THE REQUIREMENTS OF UTILITY PURVEYORS HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE UTILITY PURVEYORS, PAYMENT OF ASSOCIATED FEES AND PROCUREMENT OF ALL NECESSARY PERMITS.
9. PRIOR TO REMOVAL OF MATERIALS OVER EXISTING UTILITY SYSTEMS, THE CONTRACTOR SHALL DOCUMENT EXISTING CONDITIONS AND, IF AT VARIANCE WITH CONDITIONS AS REPRESENTED ON THE PLANS, NOTIFY THE CITY AND OBTAIN DIRECTION(S) TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
10. PRIOR TO COMMENCING NEW WORK, THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING ADJACENT AREAS. ALL ADJACENT AREAS DAMAGED DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE CLIENT.
11. THE CONTRACTOR SHALL BACKFILL EXCAVATED AREAS WITH APPROVED MATERIALS AS PER THE REQUIREMENTS OF OF THE SPECIFICATIONS.
12. THE CONTRACTOR SHALL PROTECT AND PREVENT DAMAGE TO EXISTING ON-SITE UTILITY DISTRIBUTION FACILITIES. ACTIVE UTILITY DISTRIBUTION FACILITIES ENCOUNTERED DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES SHALL BE SHUT OFF AT THE SERVICE MAIN.
13. DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE NOVA PARKS PROJECT MANAGER UPON ENCOUNTERING ANY EXISTING UTILITIES AND/OR UTILITY SYSTEM STRUCTURES NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL DOCUMENT SAME TO THE OWNER'S REPRESENTATIVE AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
14. CONTRACTOR IS RESPONSIBLE FOR REMOVING AND DISPOSING FOR ALL ITEMS AS INDICATED ON THE PLANS AND SPECIFICATIONS
15. ALL MATERIAL FROM DEMOLITION NOT IDENTIFIED FOR REUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN ACCORDANCE WITH APPROPRIATE REGULATIONS.
16. ALL PAVEMENT REMOVED SHALL BE DONE SUCH THAT REMAINING PAVEMENT IS LEFT WITH CLEAN STRAIGHT EDGE. CONCRETE PAVEMENT/ CURBING SHALL BE REMOVED TO THE NEAREST JOINT.
17. EXISTING PAVEMENT SHALL BE SAW CUT WHEN NEXT TO REMAINING PAVEMENT BEFORE REMOVAL. ALL SAW CUTS SHALL BE STRAIGHT, EVEN CUTS; JAGGED CUTS WILL NOT BE PERMITTED.
18. ASPHALT REMOVAL: SHALL INCLUDE SURFACE, BASE AND SUBBASE MATERIALS.
19. CONTRACTOR SHALL REMOVE AND DISPOSE OF ANY SITE FURNISHINGS WITHIN THE LIMITS OF DISTURBANCE NOT REMOVED FROM SITE PRIOR TO COMMENCEMENT OF CONSTRUCTION (IE SIGNAGE, BENCHES, TRASH RECEPTACLES, ETC).
20. CONTRACTOR SHALL PROVIDE EXISTING DAMAGE PHOTOS PRIOR TO MOBILIZING OR PERFORMING ANY WORK. LOCATIONS OF PICTURES TO BE RECORDED ON SITE PLAN.
21. TO PREVENT DAMAGES OUTSIDE THE LIMITS OF DISTURBANCE, NO PARK AREAS OUTSIDE THE LOD SHALL BE USED FOR STAGING OR STORAGE.
22. UPON COMPLETION OF THE PROJECT, ALL EXCESS SOIL, SAND, MULCH, TEMPORARY FENCING, EROSION CONTROL MEASURES, STABILIZATION MATERIALS, AND OTHER DEBRIS SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY. ALL PAVED AREAS, WALLS, ETC. SHALL BE THOROUGHLY WASHED AND CLEANED UPON COMPLETION OF THE PROJECT.
23. REFER TO SITE CLEARING, DEMOLITION, & REMOVALS SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

LAYOUT NOTES:

1. ON-SITE VERIFICATION OF ALL DIMENSIONS AND CONDITIONS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. NOTED DIMENSIONS TAKE PRECEDENCE OVER SCALE, LARGER SCALE OVER SMALLER SCALE, ADDENDA AND CLARIFICATIONS OVER PREVIOUS DOCUMENTS.
2. CONTRACTOR TO LAY OUT HARDSCAPE ELEMENTS AND VERIFY LAYOUT WITH NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER PRIOR TO CONSTRUCTION.
3. ANY DISCREPANCIES OR CONFLICTS WITH EXISTING CONDITIONS OR OTHER DRAWINGS SHALL BE REPORTED TO THE PROJECT OFFICER IMMEDIATELY FOR PROPER CLARIFICATION OR ADJUSTMENT.
4. WHERE DIMENSIONS ARE CALLED AS "EQUAL," SPACE REFERENCED ITEMS EQUALLY, MEASURED TO THEIR CENTER LINES.
5. MEASUREMENTS ARE TO FACE OF BUILDING, WALL OR FIXED SITE IMPROVEMENT. DIMENSIONS TO CENTER LINES IS AS INDICATED.
6. INSTALL INTERSECTING ELEMENTS AT 90° ANGLES TO EACH OTHER UNLESS OTHERWISE NOTED.
7. PROVIDE EXPANSION JOINTS WHERE CONCRETE FLATWORK MEETS VERTICAL STRUCTURES SUCH AS WALLS, CURBS, STEPS AND BUILDING ELEMENTS.
8. NEW WORK SHALL MEET AND MATCH ALIGNMENT OF EXISTING FEATURES AND FINISHED GRADES AT LIMITS OF WORK AND AT EXISTING PAVEMENT OR OTHER FACILITIES TO REMAIN.
9. CONTRACTOR SHALL VERIFY THE CORRECT LOCATION OF ALL UTILITIES AND EXISTING TREES TO REMAIN IN THE FIELD PRIOR TO CONSTRUCTION.
10. CONTRACTOR SHALL STAKE ALIGNMENT FOR ALL CURBS, SIGNS, FURNISHINGS, BENCHES, TABLES, TRASH RECEPTACLES, RECYCLING RECEPTACLES, LIGHT POLES, STORMWATER MANAGEMENT FACILITIES, MANHOLES AND UTILITY STATIONS FOR NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER'S APPROVAL PRIOR TO INSTALLATION.
11. FOR LAYOUT, ALL ANGLES ARE 90° UNLESS OTHERWISE NOTED. WRITTEN DIMENSIONS SHALL PREVAIL. DO NOT SCALE FROM THE PLAN.
12. CONTRACTOR SHALL STAKE-OUT THE LOCATIONS OF BENCHES, BENCH PADS, LIGHT POLES, CHESS TABLES, AND STEP STONES FOR REVIEW AND APPROVAL BY NORTHERN VIRGINIA REGIONAL PARK AUTHORITY CONSTRUCTION MANAGER PRIOR TO CONTRACTOR INSTALLATION.

GRADING AND ADA COMPLIANCE NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL ELEMENTS ARE CONSTRUCTED IN ACCORDANCE WITH THE DESIGN DOCUMENTS AND CONTRACT CONDITIONS INCLUDING THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (ADA) AND THE VIRGINIA ACCESSIBILITY CODE AND ANY UPDATES. IF THE CONTRACTOR OBSERVES THAT PORTIONS OF THE PROJECT ARE NON-COMPLIANT WITH THE ADA, HE SHALL NOTIFY NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER SO THAT A FIELD ADJUSTMENT CAN BE MADE TO ENSURE COMPLIANCE. GRADE TOLERANCES SHALL BE MEASURED WITH A 2 FOOT DIGITAL LEVEL.
2. VERIFY ALL EXISTING AND PROPOSED GRADES PRIOR TO FINAL CONSTRUCTION. CONTRACTOR SHALL STAKE OUT GRADES IN THE FIELD FOR REVIEW BY NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER PRIOR TO FINAL CONSTRUCTION.
3. PROPOSED GRADING SHALL MEET EXISTING GRADE UNIFORMLY TO ENSURE A SMOOTH TRANSITION. NOTIFY NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER IMMEDIATELY IF THERE ARE ANY EDGE CONDITIONS THAT CREATE AREAS WITHOUT POSITIVE DRAINAGE.
4. ALL LONGITUDINAL SLOPES ALONG THE TRAIL SHALL BE NO STEEPER THAN 4.8% THE CROSS SLOPE SHALL BE MINIMUM 1% AND MAXIMUM 1.8% OR AS NOTED ON THE DRAWINGS. ALL LANDING AND TRANSITION AREAS SHALL BE LESS THAN 1.8% IN ALL DIRECTIONS. THESE LIMITS PROVIDE A 0.2% MARGIN FROM THE D.O.J. ADA REQUIREMENTS TO ALLOW FOR CONSTRUCTION TOLERANCES.
5. ANY HARDSCAPE SURFACE AREAS THAT ARE BUILT WITHOUT COMPLYING WITH THE ABOVE CODE MUST BE CORRECTED BY CONTRACTOR AT NO ADDITIONAL EXPENSE.
6. THE MAXIMUM VERTICAL CHANGE BETWEEN THE FINISH GRADES OF ADJACENT HARDSCAPE SURFACES IS ¼". THE MAXIMUM HORIZONTAL GAP BETWEEN THE EDGES OF ADJACENT HARDSCAPE SURFACES IS ⅜".
7. GRADING IS NOT COMPLETE UNTIL CONTRACTOR ACQUIRES APPROVAL FROM THE NORTHERN VIRGINIA REGIONAL PARK AUTHORITY MANAGER. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE CONSTRUCTION MANAGER.
8. SEE GRADING PLANS FOR SPOT ELEVATIONS AND NOTES.
9. ADA COMPLIANCE NOTE: THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL ELEMENTS ARE CONSTRUCTED IN ACCORDANCE WITH THE LATEST VERSION OF ADA STANDARDS FOR ACCESSIBLE DESIGN, BY THE DEPARTMENT OF JUSTICE. SHOULD ANY QUESTIONS ARISE DURING CONSTRUCTION, INSTALLATION, OR IF ANY CLARIFICATIONS ARE NEEDED, THE CONTRACTOR SHALL CONTACT THE NORTHERN VIRGINIA REGIONAL PARK AUTHORITY CONSTRUCTION MANAGER.

HORIZONTAL CONTROL STANDARDS	
DESIGN SPEED (MPH)	18
MINIMUM RADIUS (FT)	50
DATA FROM "GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES" FROM AASHTO (2012, FOURTH EDITION)	

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COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	N.T.S.
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

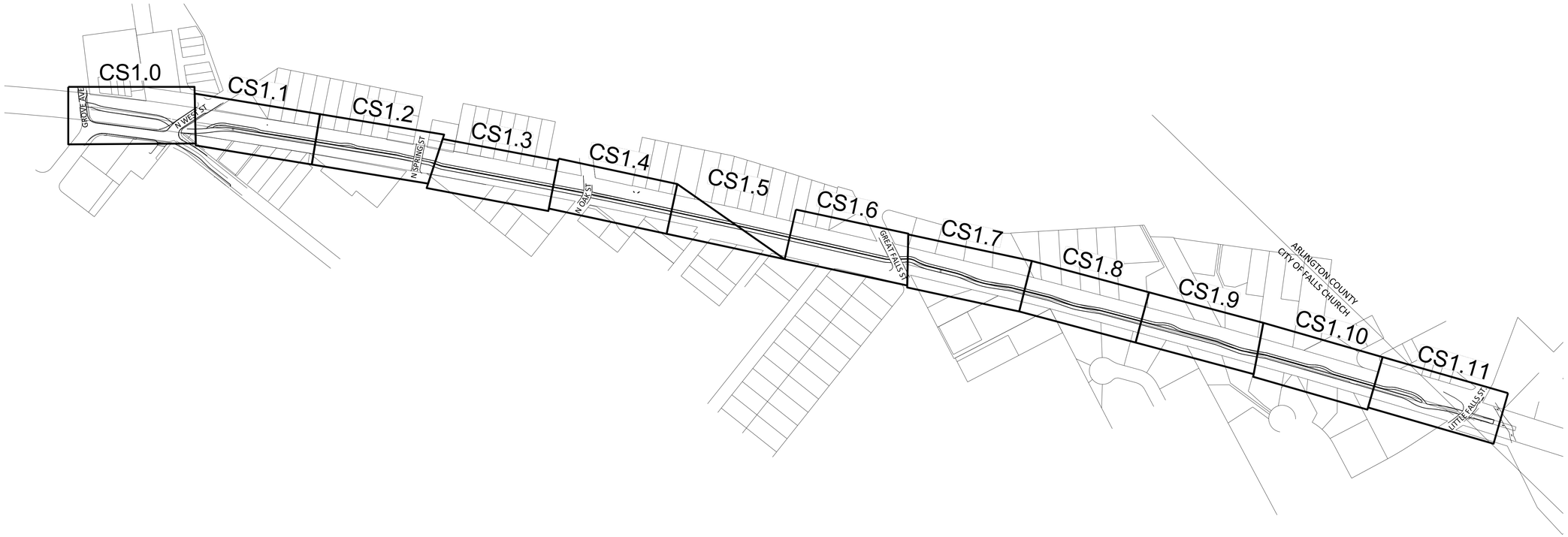
SHEET TITLE

PROJECT NOTES

SHEET

GI1.1

02 OF 100



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KEY PLAN

SHEET

GI1.2

03 OF 100

EXISTING CONDITIONS PLAN
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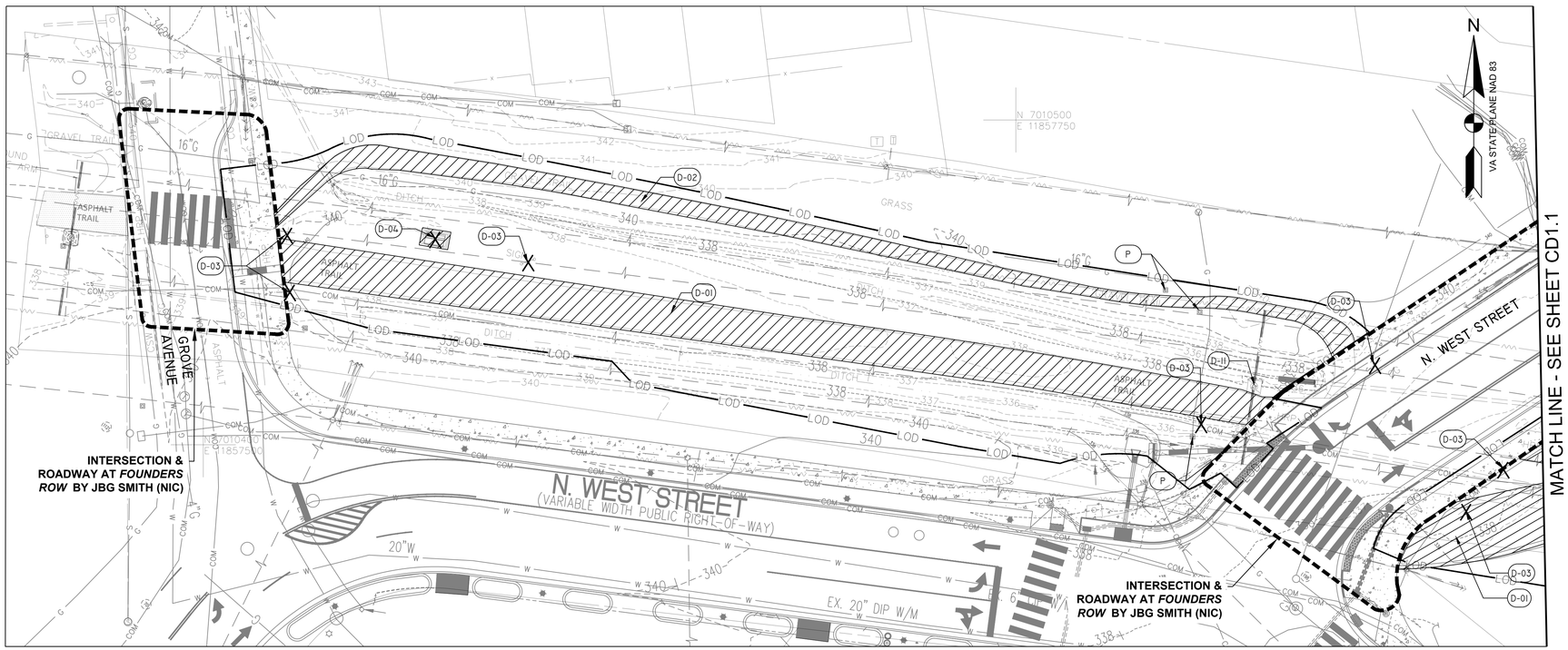

DEMOLITION PLAN
SCALE: 1"=20'

LEGEND

CHH	COMMUNICATION HAND-HOLE
EMH	ELECTRICAL MANHOLE
EB	ELECTRICAL BOX
T	ELECTRICAL TRANSFORMER
BN	BENCH
ICV	IRRIGATION CONTROL VALVE
SMH	SANITARY MANHOLE
STM	STORM STRUCTURE/MANHOLE
	SIGN
	WATER VALVE
	WATER METER
CONC	CONCRETE
CSW	CONCRETE SIDEWALK
	TREE
LOD	LIMIT OF DISTRUBANCE
LOD/TP	TREE PROTECTION FENCING AT LIMIT OF DISTRUBANCE
RP	ROOT PRUNING
RPA	RESOURCE PROTECTION AREA
299	TOPOGRAPHY
E	PAINTED EVIDENCE OF UNDERGROUND ELECTRIC UTILITY
T	PAINTED EVIDENCE OF UNDERGROUND COMMUNICATION UTILITY
W	PAINTED EVIDENCE OF UNDERGROUND WATER UTILITY
	GUY WIRE
	EXISTING UNDERGROUND PIPE
	FENCE
	OVERHEAD WIRE
	ELECTRICAL TOWER
	UTILITY POLE
	BENCH
CBPED	CABLE PEDESTAL
TMH	TELEPHONE MANHOLE
HRP	HANDICAP RAMP
CPP	CORRUGATED PLASTIC PIPE
S	SANITARY SEWER MANHOLE

DEMOLITION SCHEDULE

SYMBOL	DESCRIPTION
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D-02	REMOVE GRAVEL PATH
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D-09	REMOVE RETAINING WALL AND FOOTER
D-10	REMOVE SHELTER AND FOOTER
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D-16	REMOVE EXISTING FENCE AND FOOTER
D-17	REMOVE, PROTECT, REINSTALL MEMORIAL
D-18	REMOVE GUY WIRES AND LIGHT
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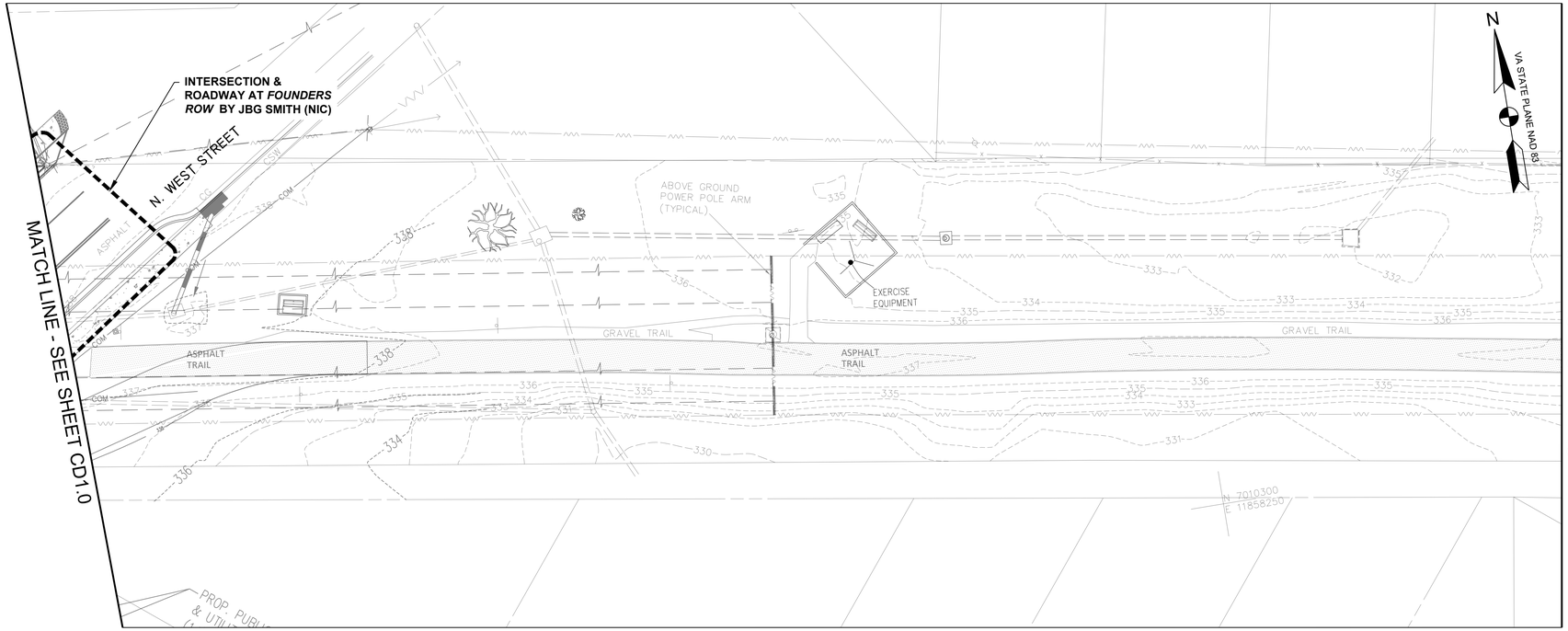
SHEET TITLE

EXISTING CONDITIONS & DEMOLITION PLAN

SHEET

CD1.0

04 OF 100



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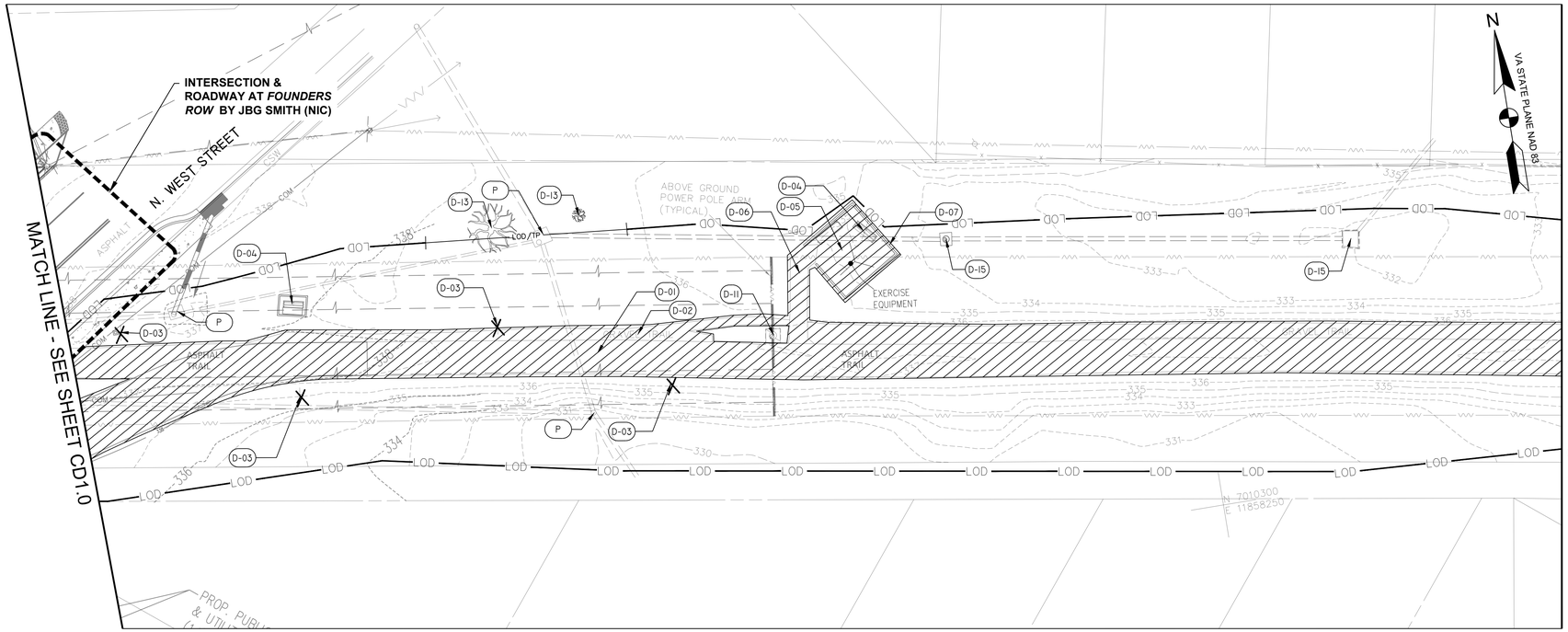

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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

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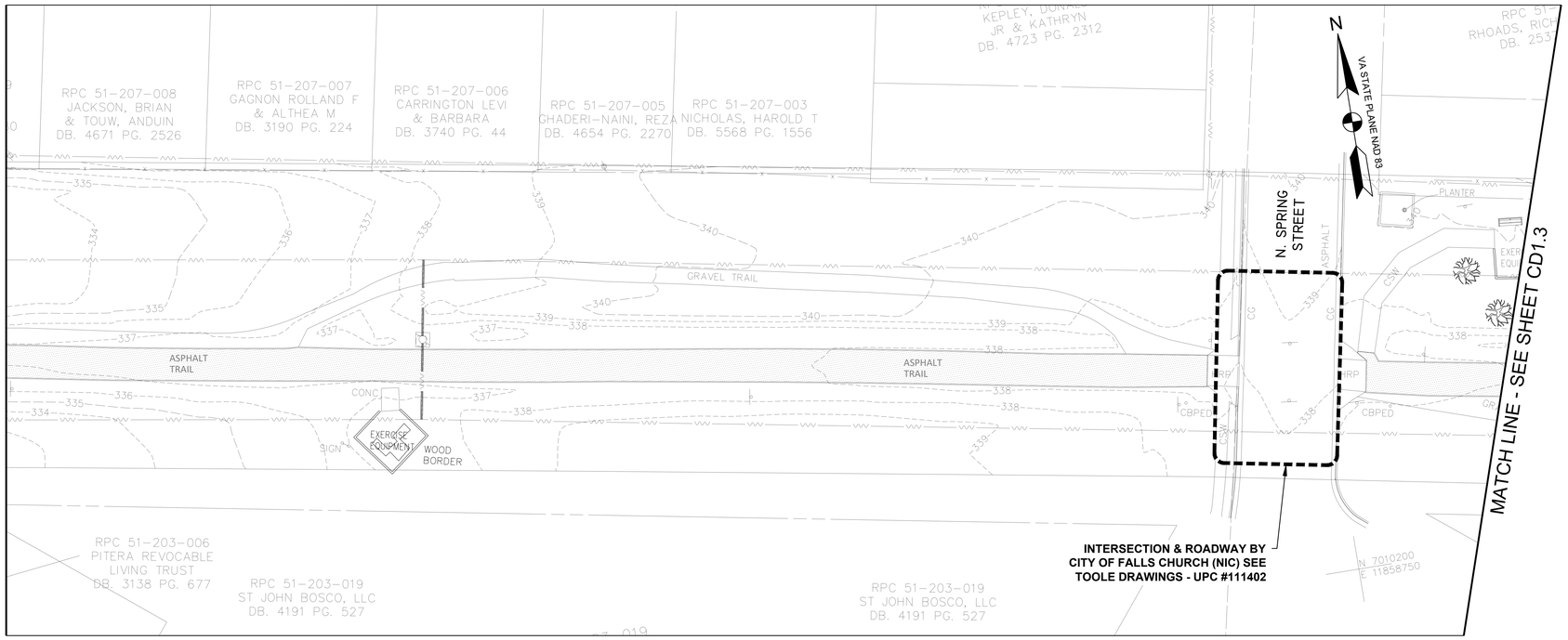
60% DESIGN

SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
CD1.1
05 OF 100



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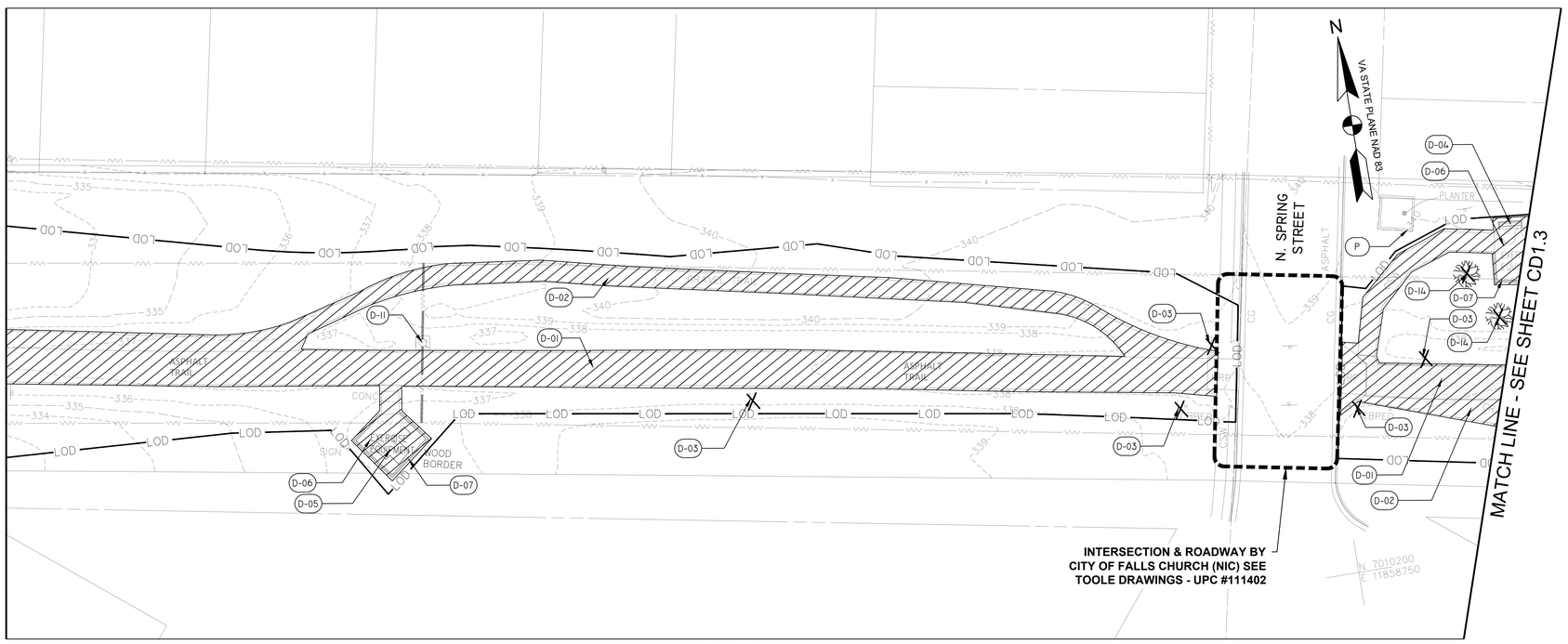

DEMOLITION PLAN
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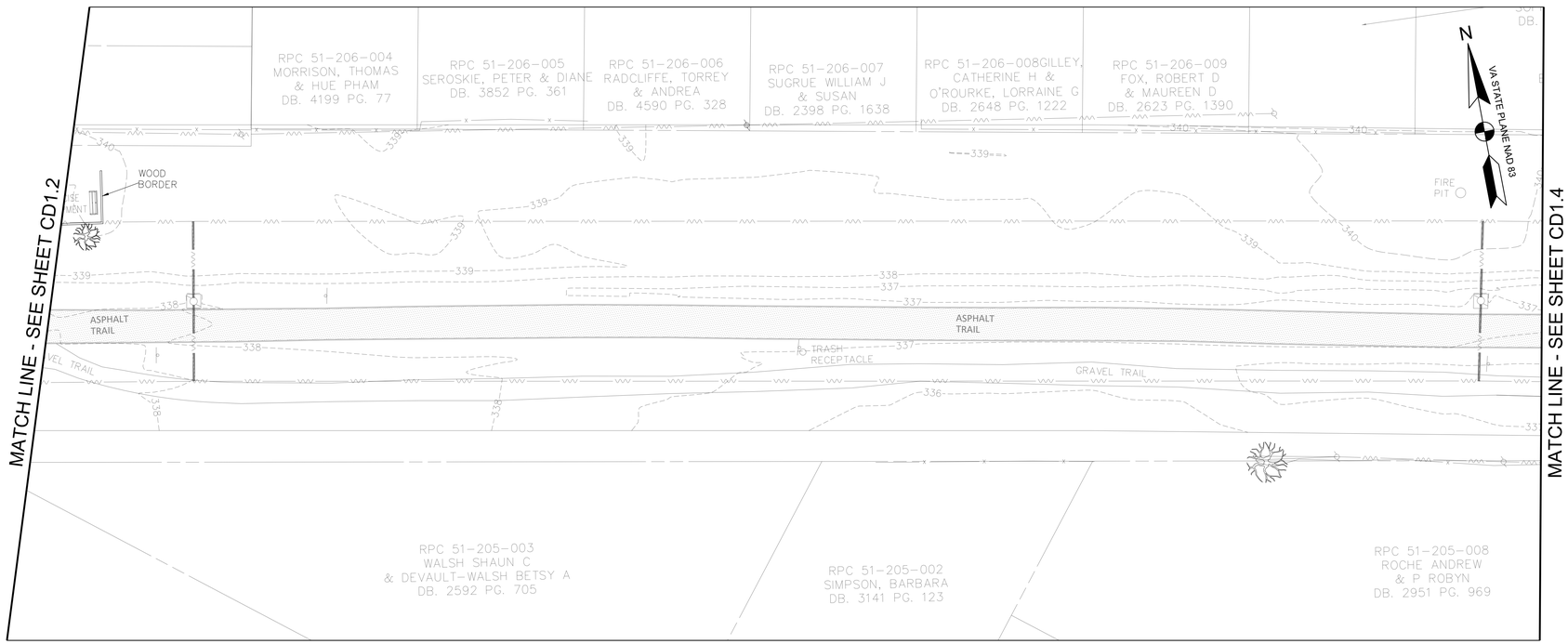

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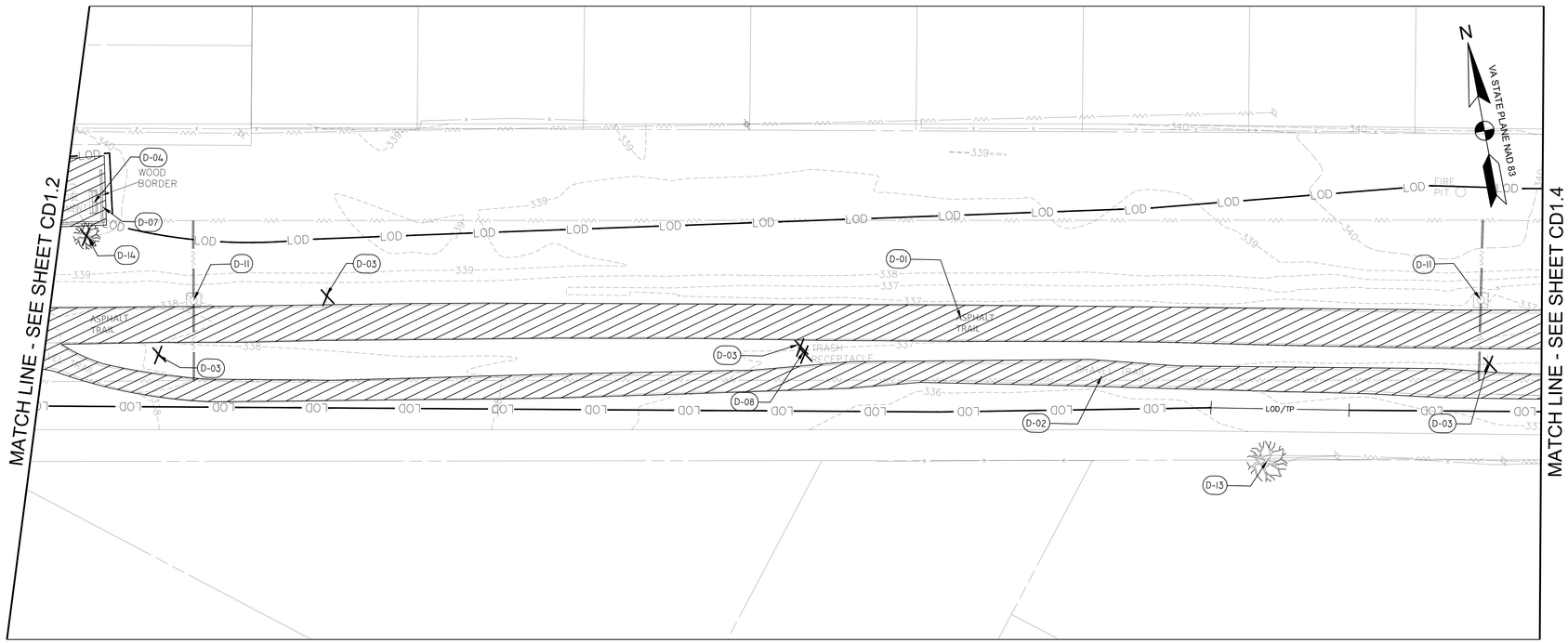

DEMOLITION PLAN
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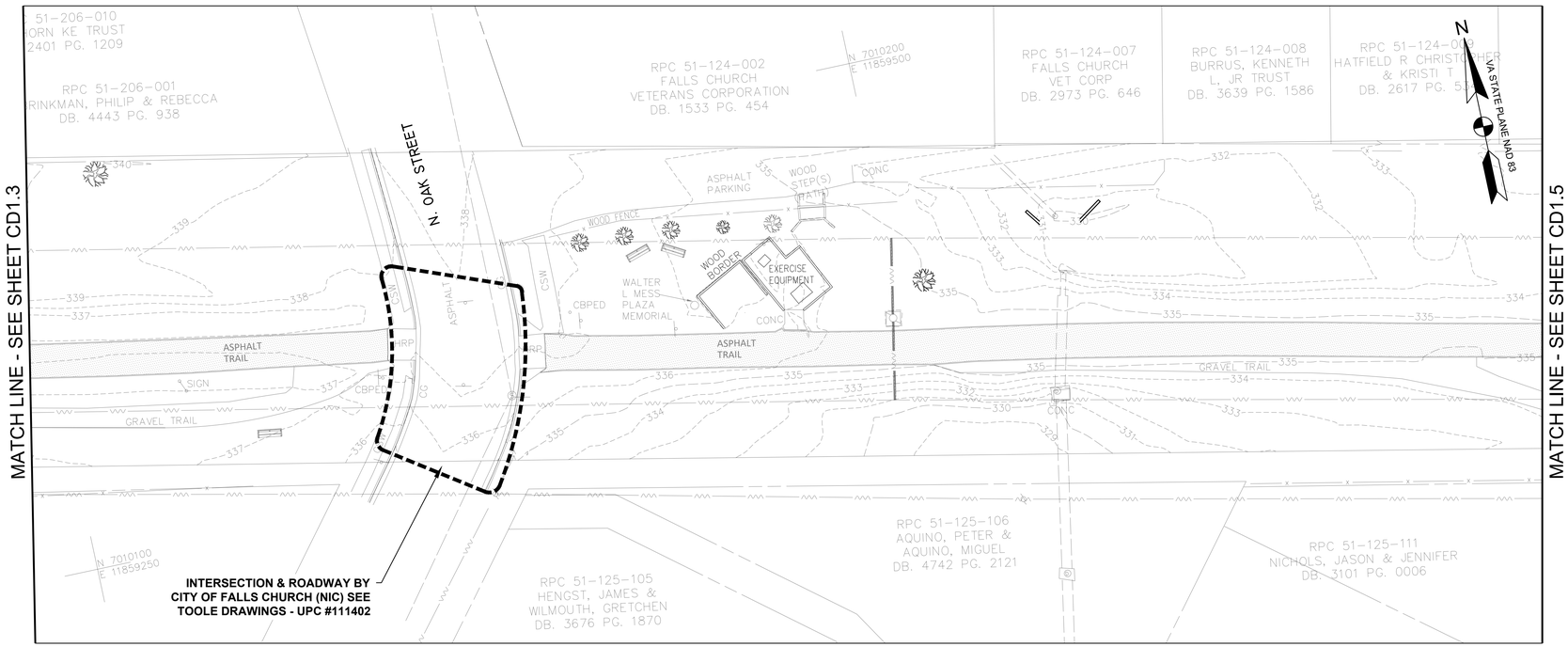
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

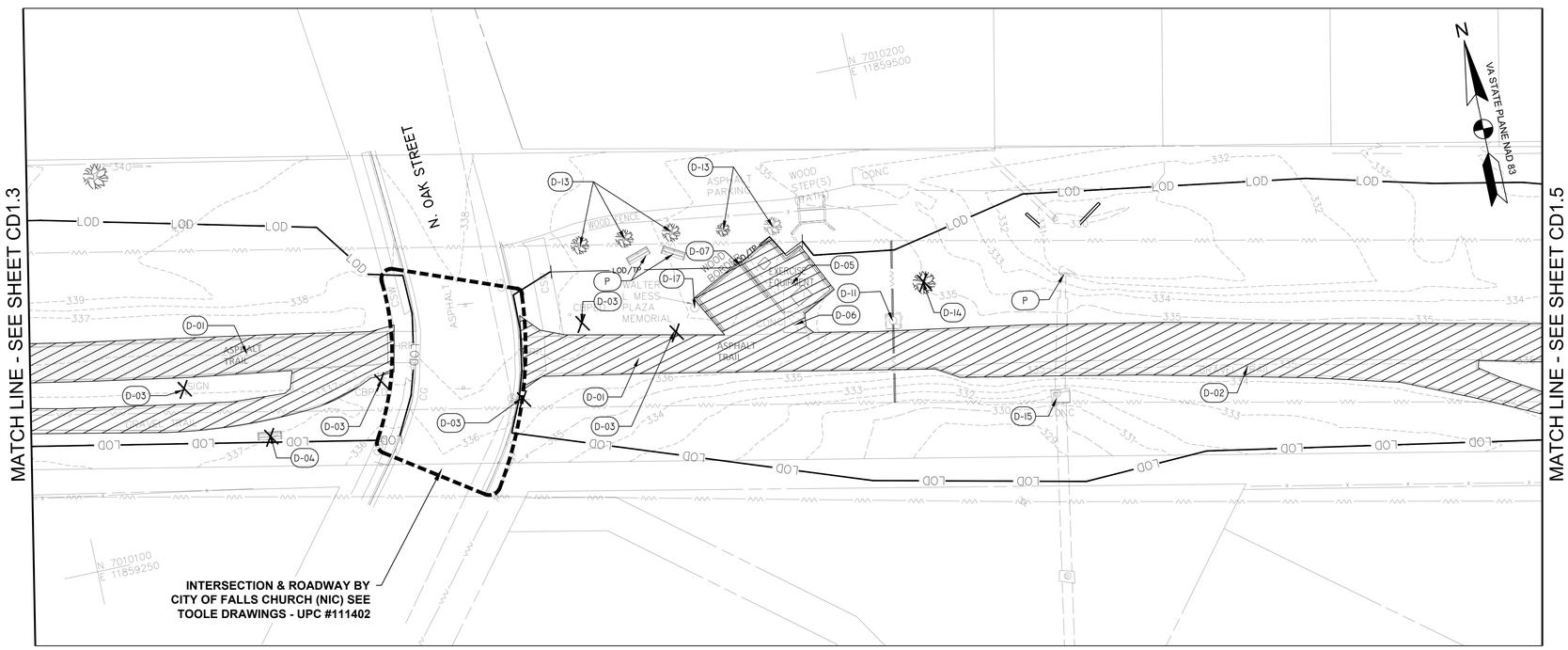
60% DESIGN

SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
CD1.3
07 OF 100



EXISTING CONDITIONS PLAN
SCALE: 1"=20'



DEMOLITION PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

LEGEND

CHH	COMMUNICATION HAND-HOLE
EMH	ELECTRICAL MANHOLE
EB	ELECTRICAL BOX
T	ELECTRICAL TRANSFORMER
BN	BENCH
ICV	IRRIGATION CONTROL VALVE
SMH	SANITARY MANHOLE
STM	STORM STRUCTURE/MANHOLE
	SIGN
	WATER VALVE
	WATER METER
CONC	CONCRETE
CSW	CONCRETE SIDEWALK
	TREE
LOD	LIMIT OF DISTRUBANCE
LOD/TP	TREE PROTECTION FENCING AT LIMIT OF DISTRUBANCE
RP	ROOT PRUNING
RPA	RESOURCE PROTECTION AREA
299	TOPOGRAPHY
E	PAINTED EVIDENCE OF UNDERGROUND ELECTRIC UTILITY
T	PAINTED EVIDENCE OF UNDERGROUND COMMUNICATION UTILITY
W	PAINTED EVIDENCE OF UNDERGROUND WATER UTILITY
	GUY WIRE
	EXISTING UNDERGROUND PIPE
x x x x	FENCE
	OVERHEAD WIRE
	ELECTRICAL TOWER
	UTILITY POLE
	BENCH
CBPED	CABLE PEDESTAL
TMH	TELEPHONE MANHOLE
HRP	HANDICAP RAMP
CPP	CORRUGATED PLASTIC PIPE
S	SANITARY SEWER MANHOLE

DEMOLITION SCHEDULE

SYMBOL	DESCRIPTION
D-01	REMOVE ASPHALT TRAIL AND SUBBASE
D-02	REMOVE GRAVEL PATH
D-03	REMOVE SIGNAGE AND FOOTER
D-04	REMOVE BENCH AND FOOTER
D-05	REMOVE EXERCISE EQUIPMENT AND ASSOCIATED PAVING AND FOOTERS
D-06	REMOVE EXISTING PAVEMENT AND SUBBASE
D-07	REMOVE WOOD BORDER
D-08	REMOVE TRASH RECEPTACLE
D-09	REMOVE RETAINING WALL AND FOOTER
D-10	REMOVE SHELTER AND FOOTER
D-11	PROTECT EXISTING ELECTRICAL TOWER
D-12	AT&T HANDHOLD TO BE RELOCATED BY AT&T
D-13	PROTECT TREE TO REMAIN
D-14	REMOVE TREE AND GRIND STUMP
D-15	REMOVE AND REBUILT INLET/MANHOLE
D-16	REMOVE EXISTING FENCE AND FOOTER
D-17	REMOVE, PROTECT, REINSTALL MEMORIAL
D-18	REMOVE GUY WIRES AND LIGHT
X	ITEM TO BE DEMOLISHED
	AREA TO BE DEMOLISHED
P	ITEM TO BE PROTECTED / PRESERVED DO NOT DISTURB

A. MORTON THOMAS AND ASSOCIATES, INC.
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COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0508001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA. LICENSE NO. 1542 , EXPIRATION DATE 04/30/2021."

PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
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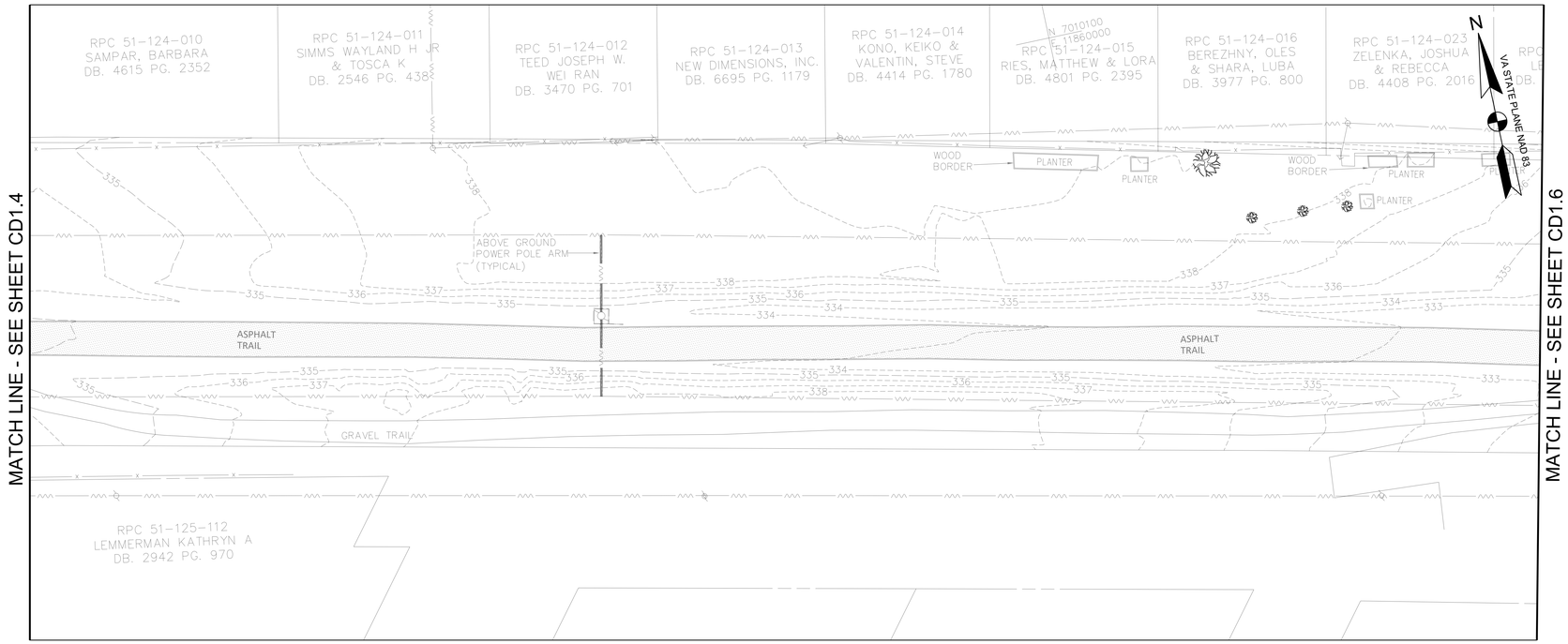
SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
CD1.4
08 OF 100



EXISTING CONDITIONS PLAN
SCALE: 1"=20'

DEMOLITION PLAN
SCALE: 1"=20'

LEGEND

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SMH	SANITARY MANHOLE
STM	STORM STRUCTURE/MANHOLE
	SIGN
	WATER VALVE
	WATER METER
CONC	CONCRETE
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DEMOLITION SCHEDULE

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

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60% DESIGN

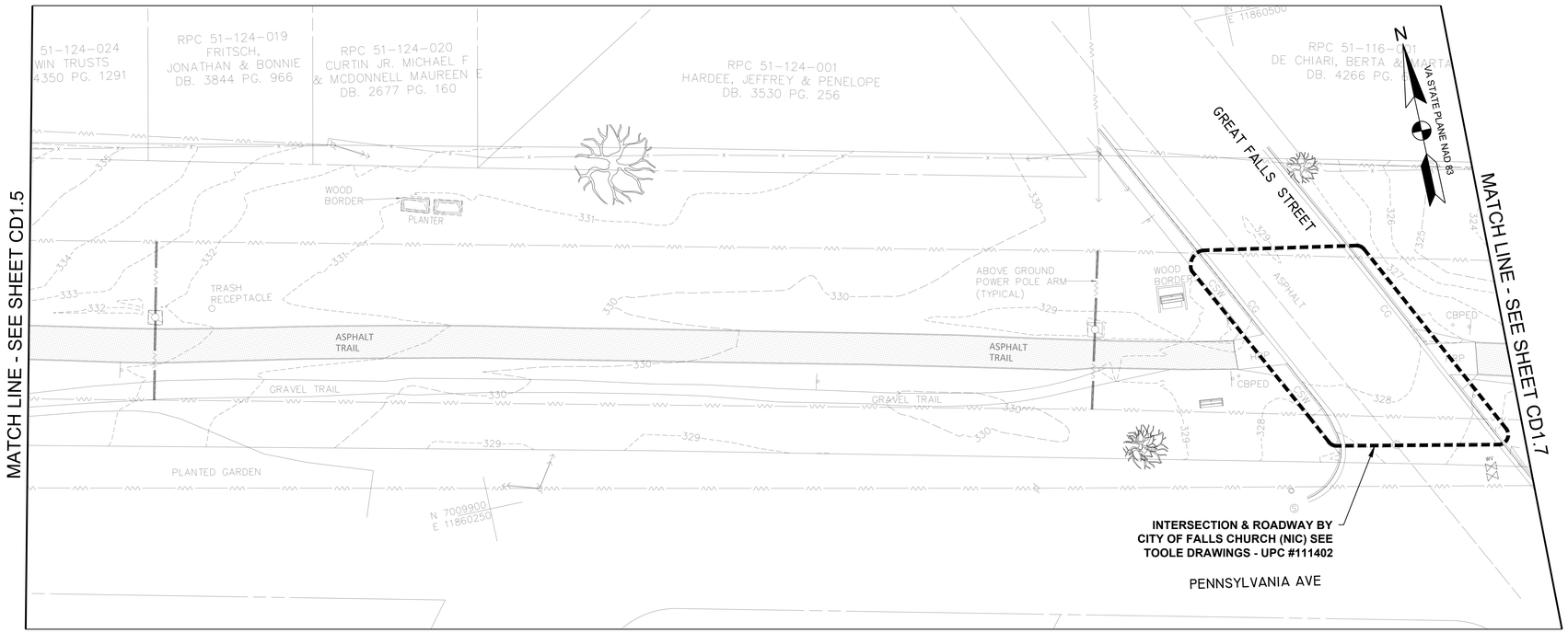
SHEET TITLE

EXISTING CONDITIONS & DEMOLITION PLAN

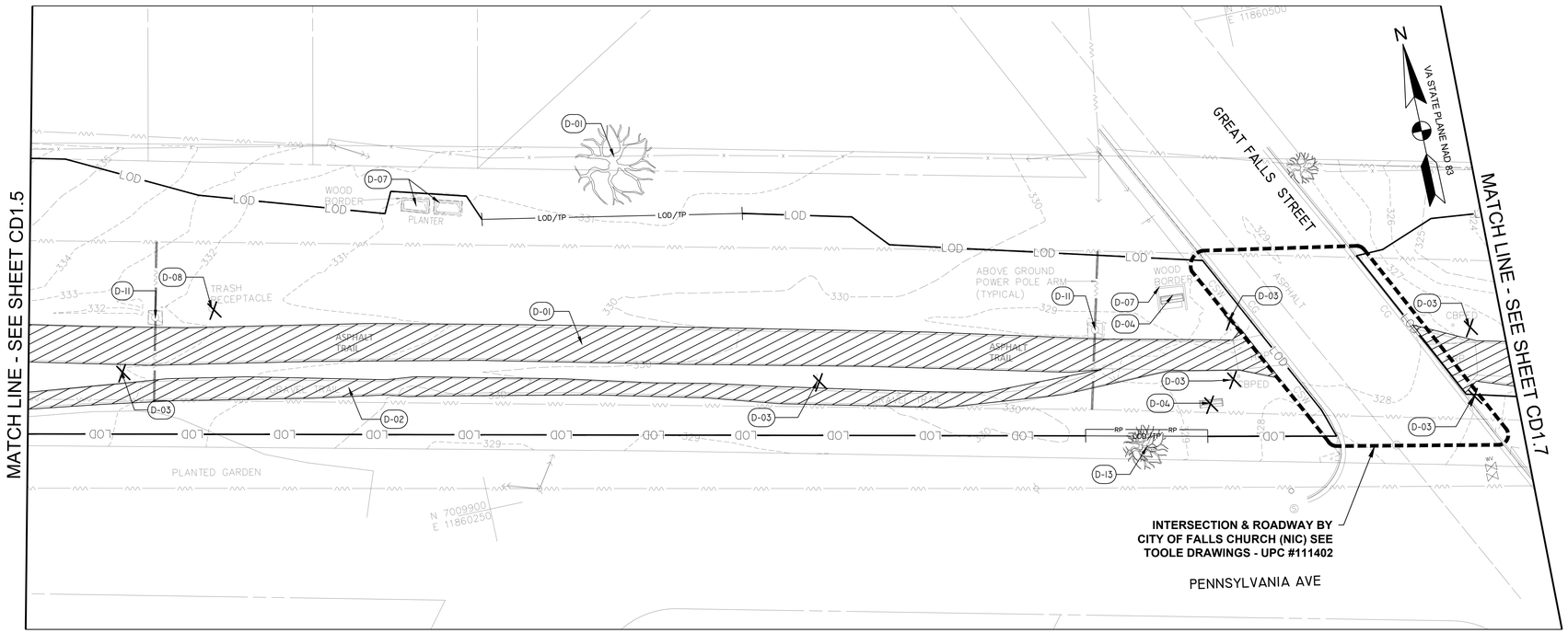
SHEET

CD1.5

09 OF 100



EXISTING CONDITIONS PLAN
SCALE: 1"=20'



DEMOLITION PLAN
SCALE: 1"=20'

LEGEND

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EMH	ELECTRICAL MANHOLE
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BN	BENCH
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	SIGN
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	GUY WIRE
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	FENCE
	OVERHEAD WIRE
	ELECTRICAL TOWER
	UTILITY POLE
	BENCH
CBPED	CABLE PEDESTAL
TMH	TELEPHONE MANHOLE
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DEMOLITION SCHEDULE

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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

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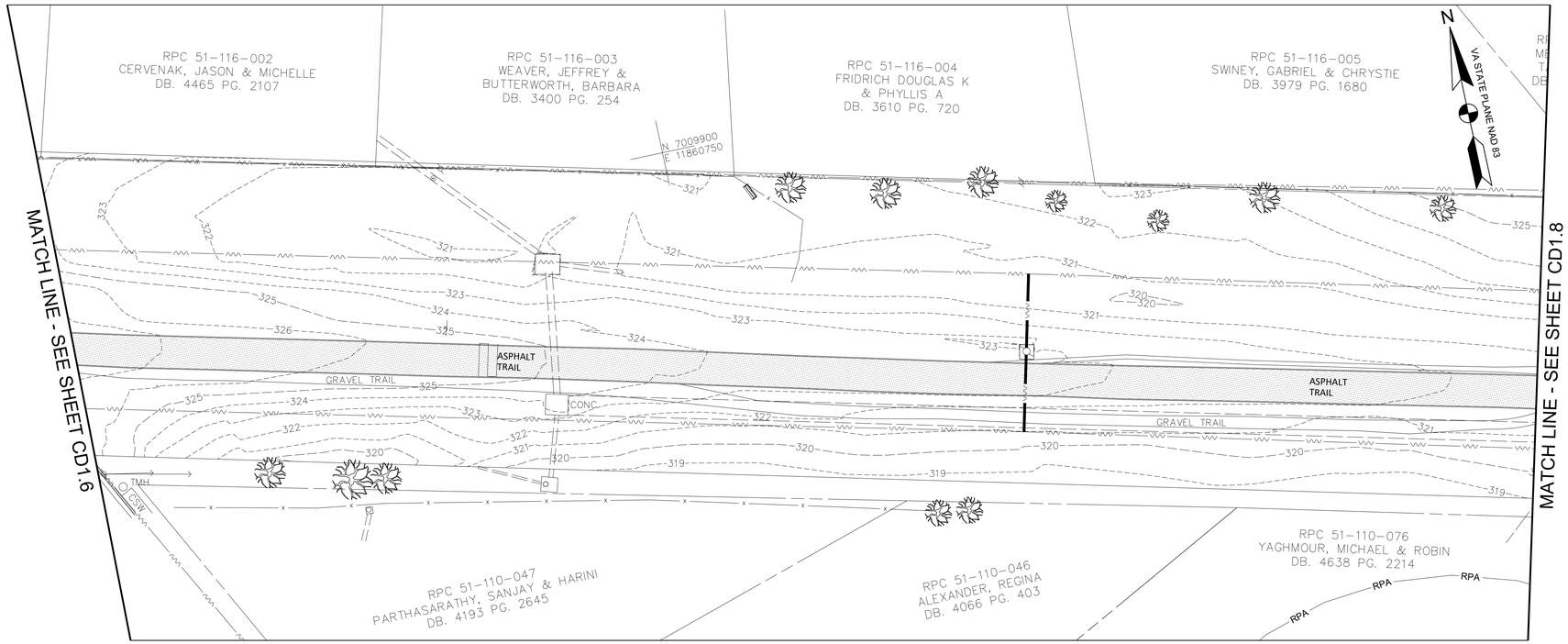
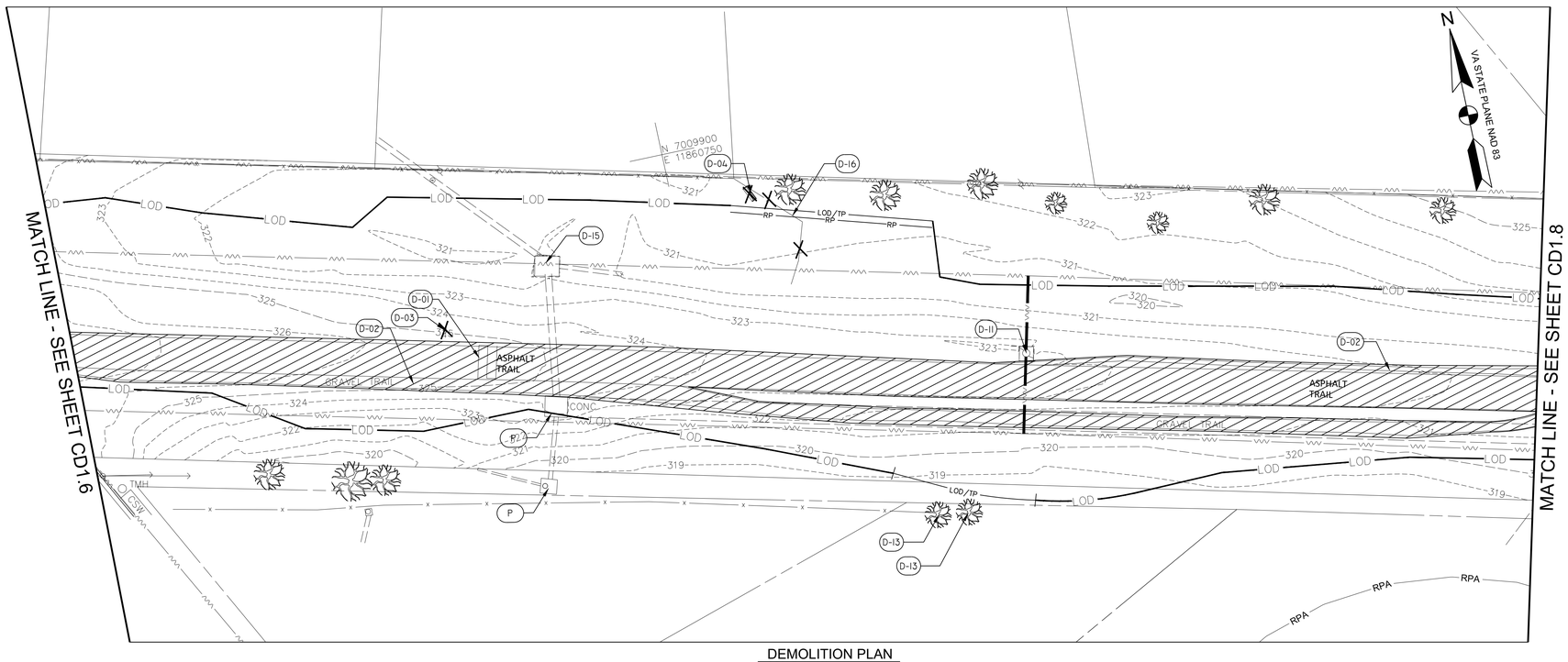
60% DESIGN

SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
CD1.6



EXISTING CONDITIONS PLAN
SCALE: 1"=20'



DEMOLITION PLAN
SCALE: 1"=20'

LEGEND

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	OVERHEAD WIRE
	ELECTRICAL TOWER
	UTILITY POLE
	BENCH
CBPED	CABLE PEDESTAL
TMH	TELEPHONE MANHOLE
HRP	HANDICAP RAMP
CPP	CORRUGATED PLASTIC PIPE
S	SANITARY SEWER MANHOLE

DEMOLITION SCHEDULE

SYMBOL	DESCRIPTION
D-01	REMOVE ASPHALT TRAIL AND SUBBASE
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PROJECT TITLE
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FALLS CHURCH, VA
UPC 113612

REVISIONS

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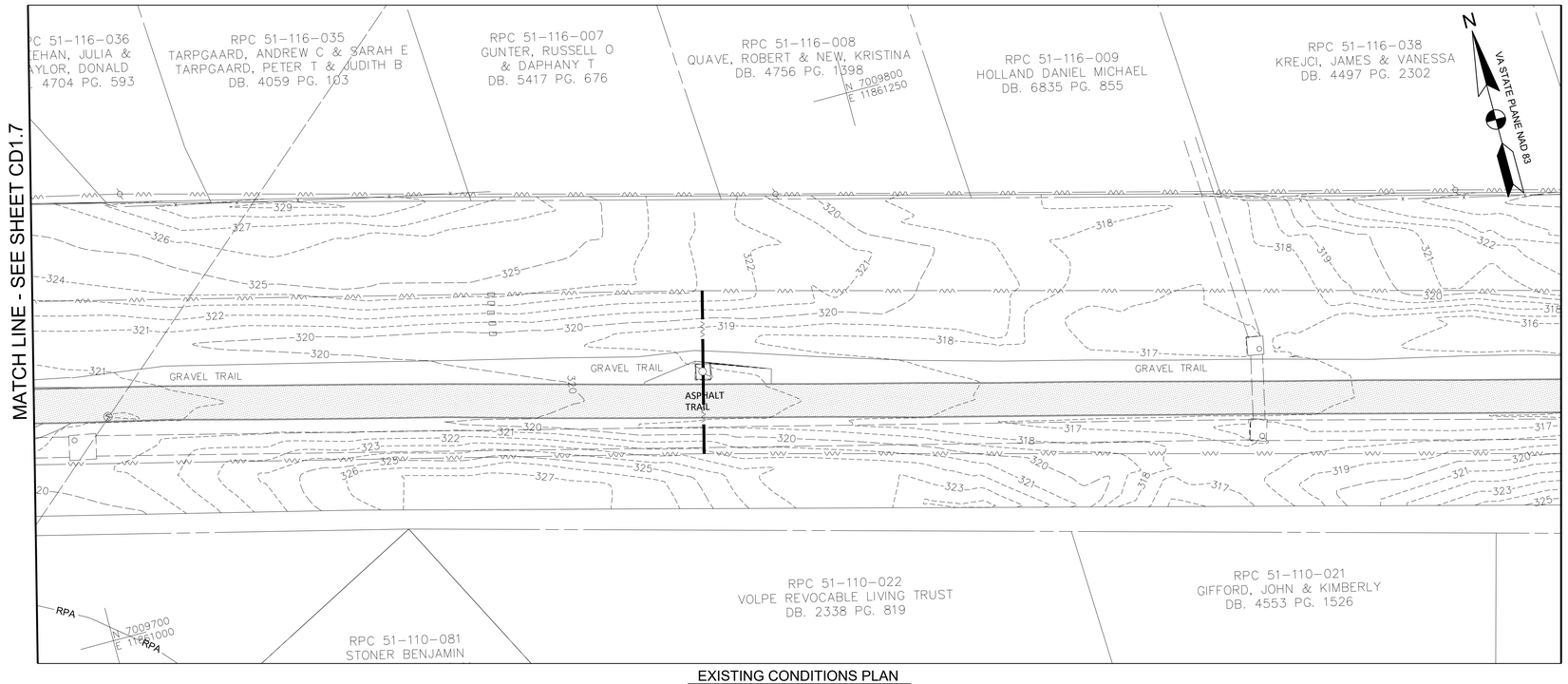
SHEET TITLE

EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
CD1.7
11 OF 100



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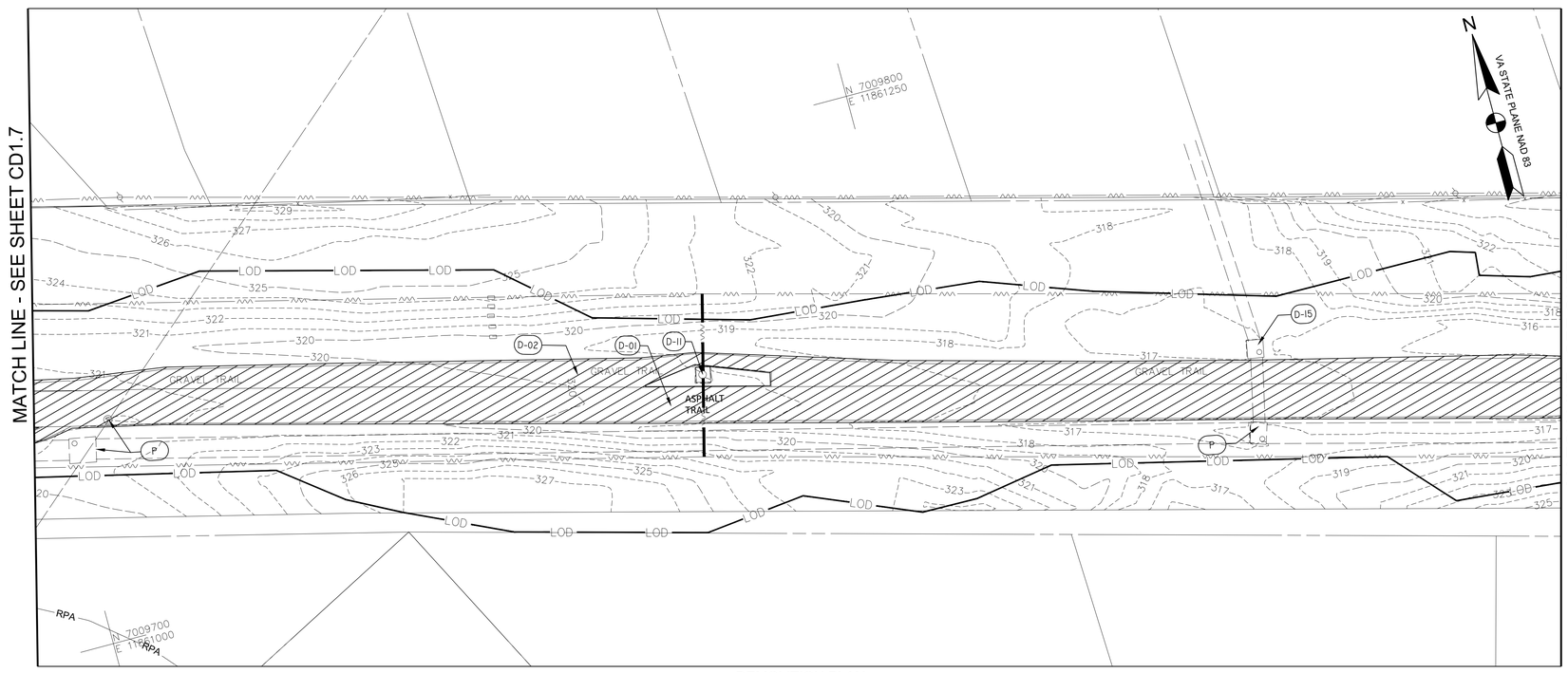

DEMOLITION PLAN
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LEGEND

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DEMOLITION SCHEDULE

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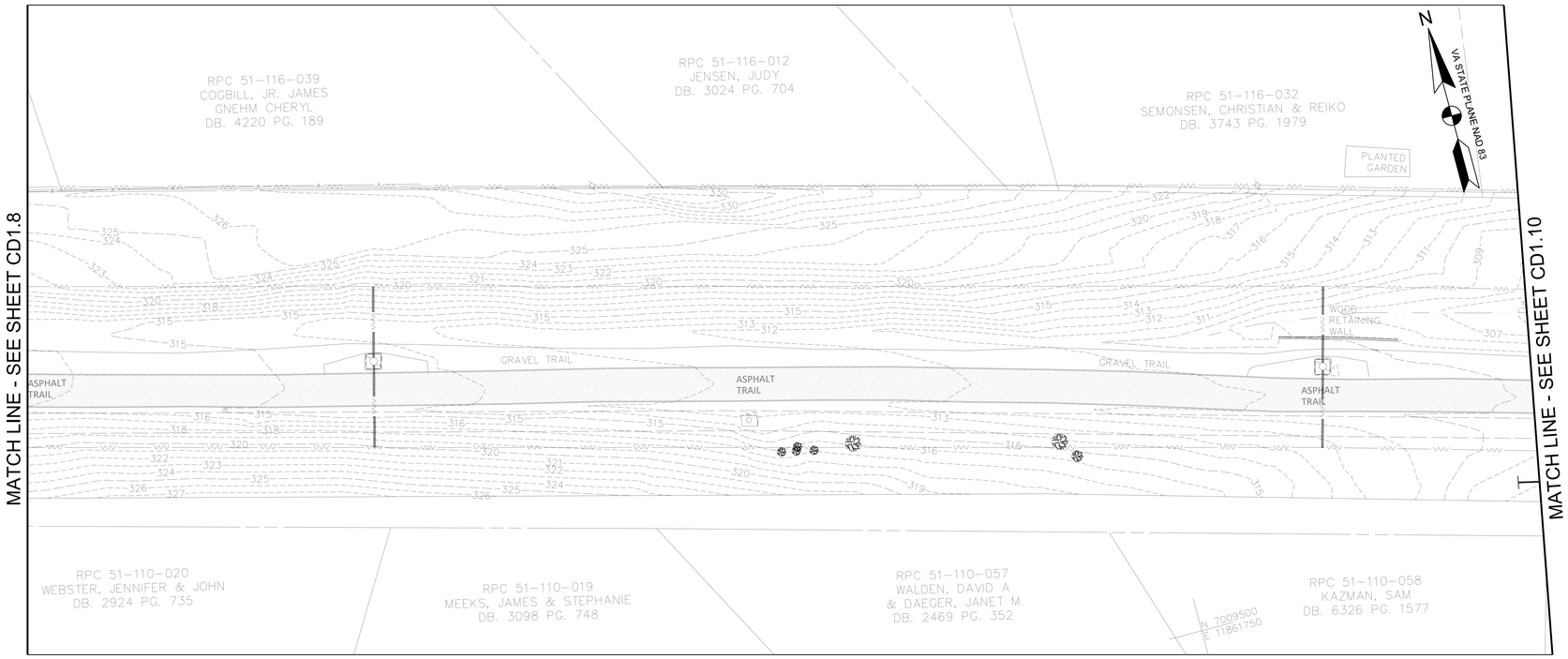

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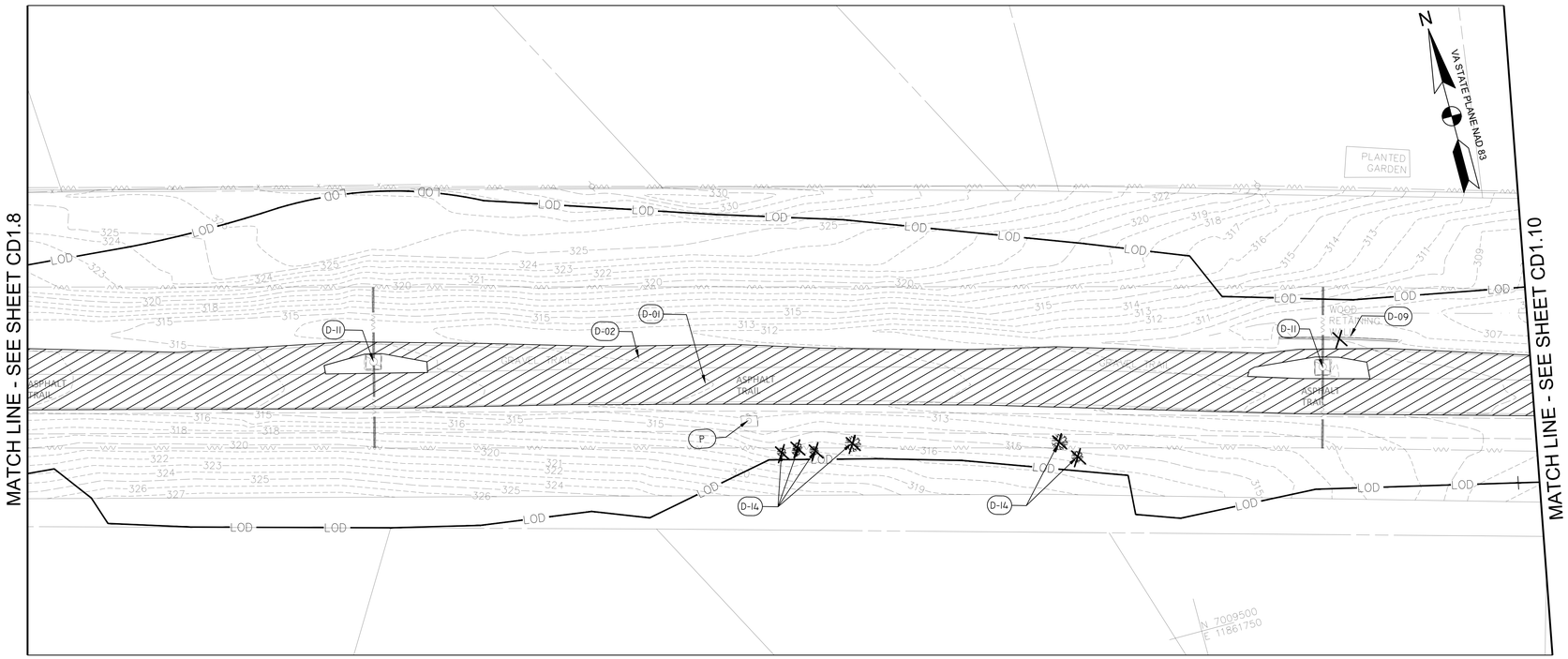

DEMOLITION PLAN
SCALE: 1"=20'

LEGEND

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X	ITEM TO BE DEMOLISHED
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P	ITEM TO BE PROTECTED / PRESERVED DO NOT DISTURB

0 10' 20' 40'
SCALE: 1"=20'

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
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EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
CERT. NO. 0508001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION
"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA; LICENSE NO. 1542 , EXPIRATION DATE 06/30/2021."

PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

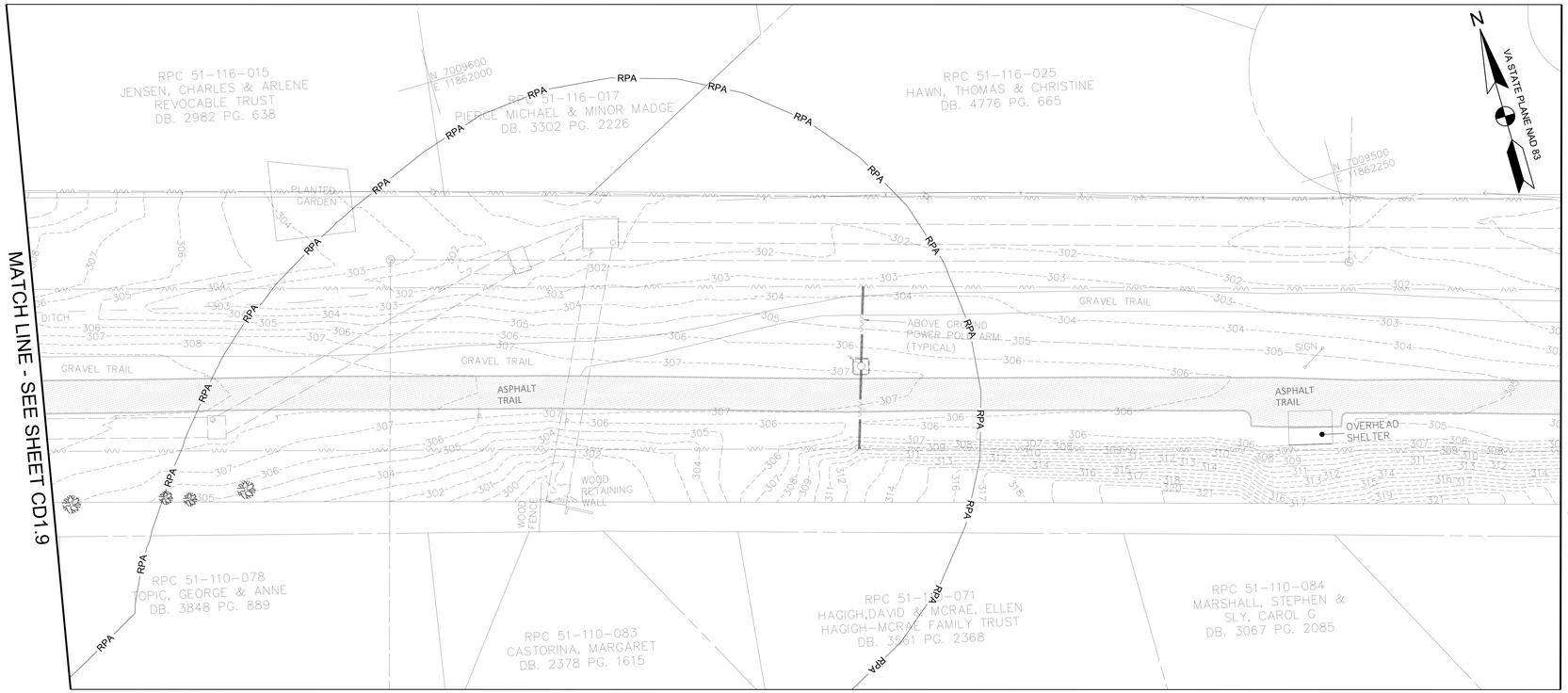
MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

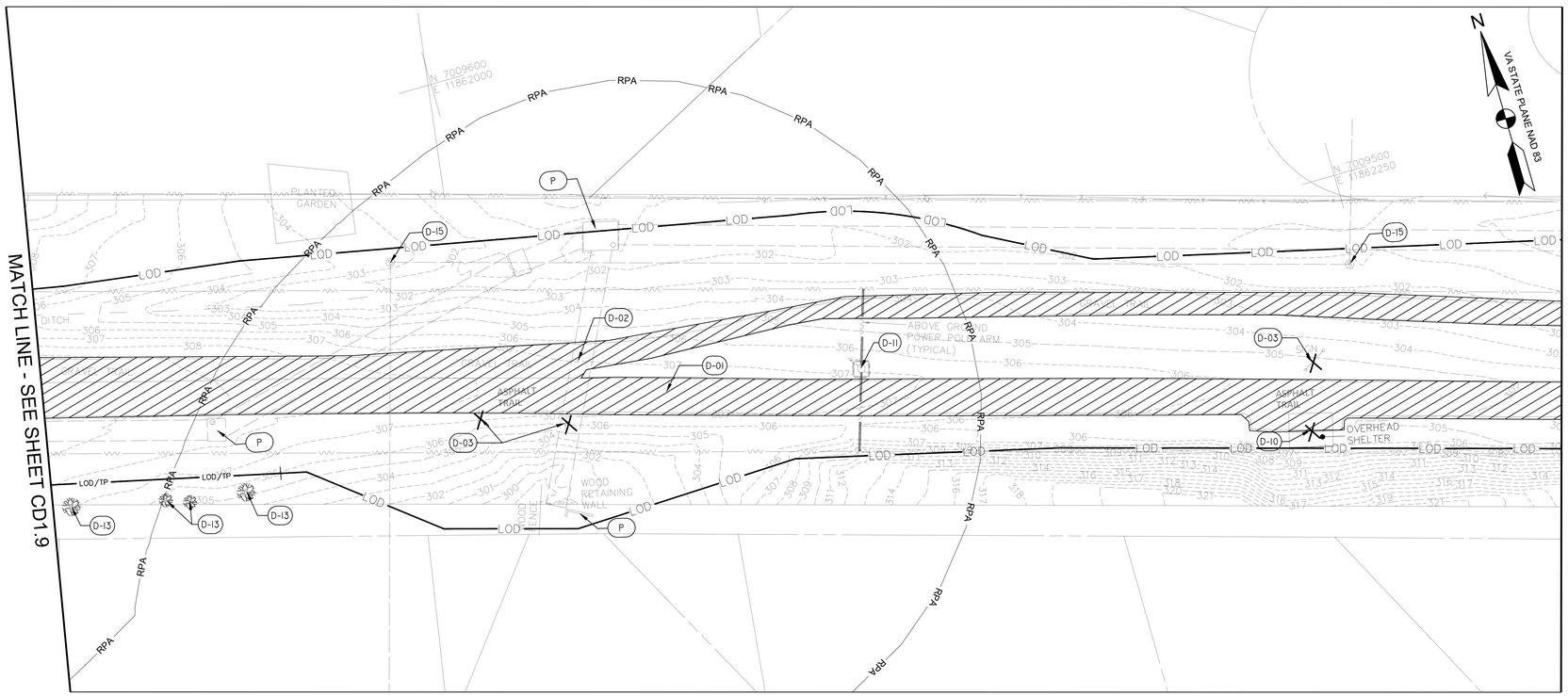
60% DESIGN

SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
CD1.9
13 OF 100



EXISTING CONDITIONS PLAN
SCALE: 1"=20'



DEMOLITION PLAN
SCALE: 1"=20'

LEGEND

CHH	COMMUNICATION HAND-HOLE
EMH	ELECTRICAL MANHOLE
EB	ELECTRICAL BOX
T	ELECTRICAL TRANSFORMER
BN	BENCH
ICV	IRRIGATION CONTROL VALVE
SMH	SANITARY MANHOLE
STM	STORM STRUCTURE/MANHOLE
	SIGN
	WATER VALVE
	WATER METER
CONC	CONCRETE
CSW	CONCRETE SIDEWALK
	TREE
LOD	LIMIT OF DISTRUBANCE
LOD/TP	TREE PROTECTION FENCING AT LIMIT OF DISTRUBANCE
RP	ROOT PRUNING
299	TOPOGRAPHY
RPA	RESOURCE PROTECTION AREA
E	PAINTED EVIDENCE OF UNDERGROUND ELECTRIC UTILITY
T	PAINTED EVIDENCE OF UNDERGROUND COMMUNICATION UTILITY
W	PAINTED EVIDENCE OF UNDERGROUND WATER UTILITY
	GUY WIRE
	EXISTING UNDERGROUND PIPE
	FENCE
	OVERHEAD WIRE
	ELECTRICAL TOWER
	UTILITY POLE
	BENCH
CBPED	CABLE PEDESTAL
TMH	TELEPHONE MANHOLE
HRP	HANDICAP RAMP
CPP	CORRUGATED PLASTIC PIPE
S	SANITARY SEWER MANHOLE

DEMOLITION SCHEDULE

SYMBOL	DESCRIPTION
D-01	REMOVE ASPHALT TRAIL AND SUBBASE
D-02	REMOVE GRAVEL PATH
D-03	REMOVE SIGNAGE AND FOOTER
D-04	REMOVE BENCH AND FOOTER
D-05	REMOVE EXERCISE EQUIPMENT AND ASSOCIATED PAVING AND FOOTERS
D-06	REMOVE EXISTING PAVEMENT AND SUBBASE
D-07	REMOVE WOOD BORDER
D-08	REMOVE TRASH RECEPTACLE
D-09	REMOVE RETAINING WALL AND FOOTER
D-10	REMOVE SHELTER AND FOOTER
D-11	PROTECT EXISTING ELECTRICAL TOWER
D-12	AT&T HANDHOLD TO BE RELOCATED BY AT&T
D-13	PROTECT TREE TO REMAIN
D-14	REMOVE TREE AND GRIND STUMP
D-15	REMOVE AND REBUILT INLET/MANHOLE
D-16	REMOVE EXISTING FENCE AND FOOTER
D-17	REMOVE, PROTECT, REINSTALL MEMORIAL
D-18	REMOVE GUY WIRES AND LIGHT
X	ITEM TO BE DEMOLISHED
	AREA TO BE DEMOLISHED
P	ITEM TO BE PROTECTED / PRESERVED DO NOT DISTURB

0 10' 20' 40'
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COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0508001542
LANDSCAPE ARCHITECT
10/30/2019

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

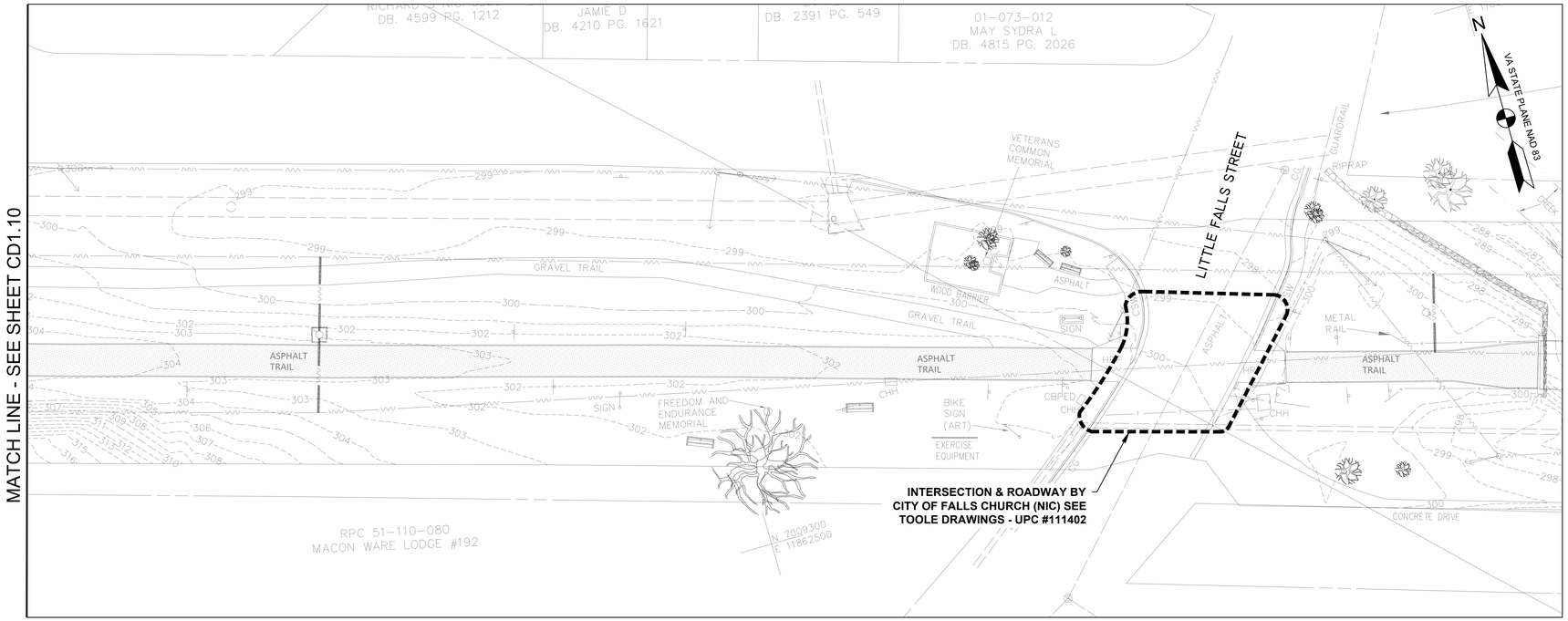
60% DESIGN

SHEET TITLE

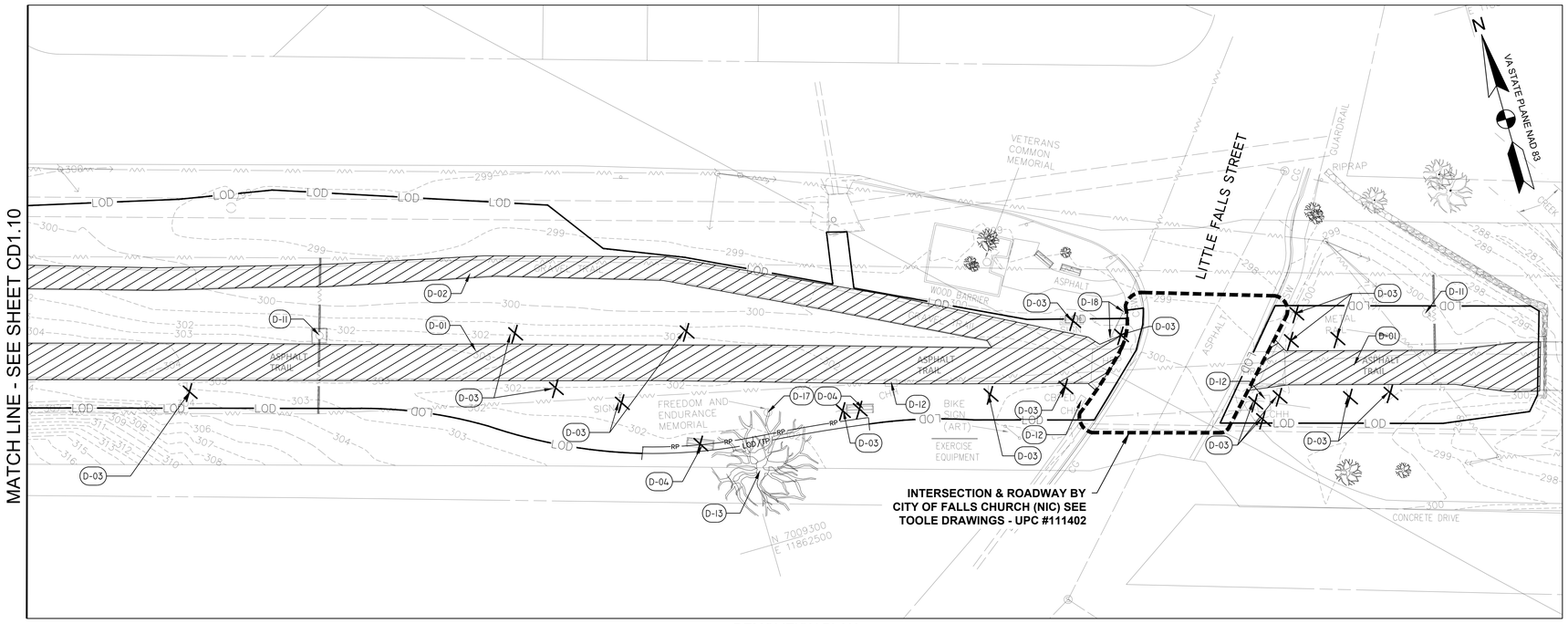
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET

CD1.10



EXISTING CONDITIONS PLAN
SCALE: 1"=20'



DEMOLITION PLAN
SCALE: 1"=20'

LEGEND

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W	PAINTED EVIDENCE OF UNDERGROUND WATER UTILITY
	GUY WIRE
	EXISTING UNDERGROUND PIPE
x x x x	FENCE
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	ELECTRICAL TOWER
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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
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SCALE:	1"=20'
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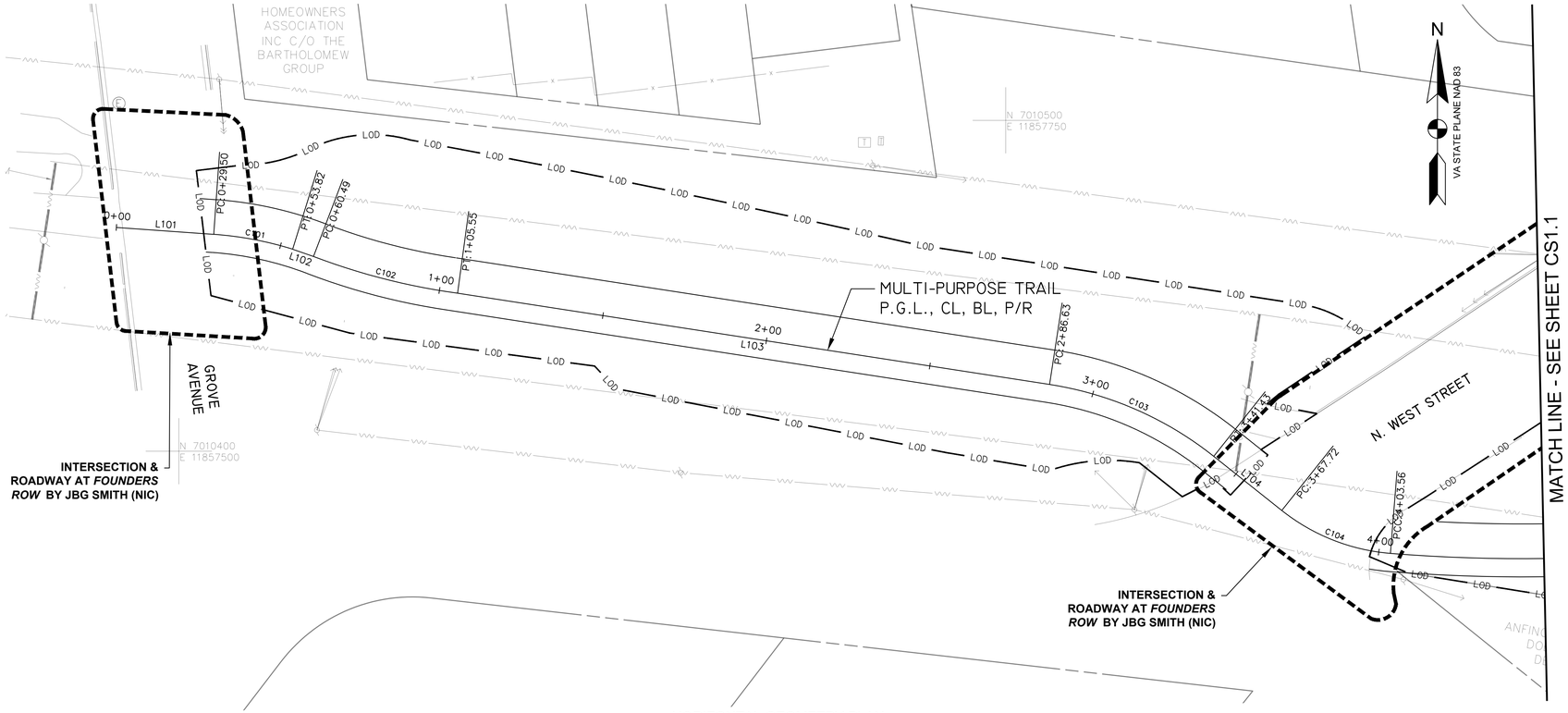
DRAWN BY:	AMT
CHECKED BY:	AMT

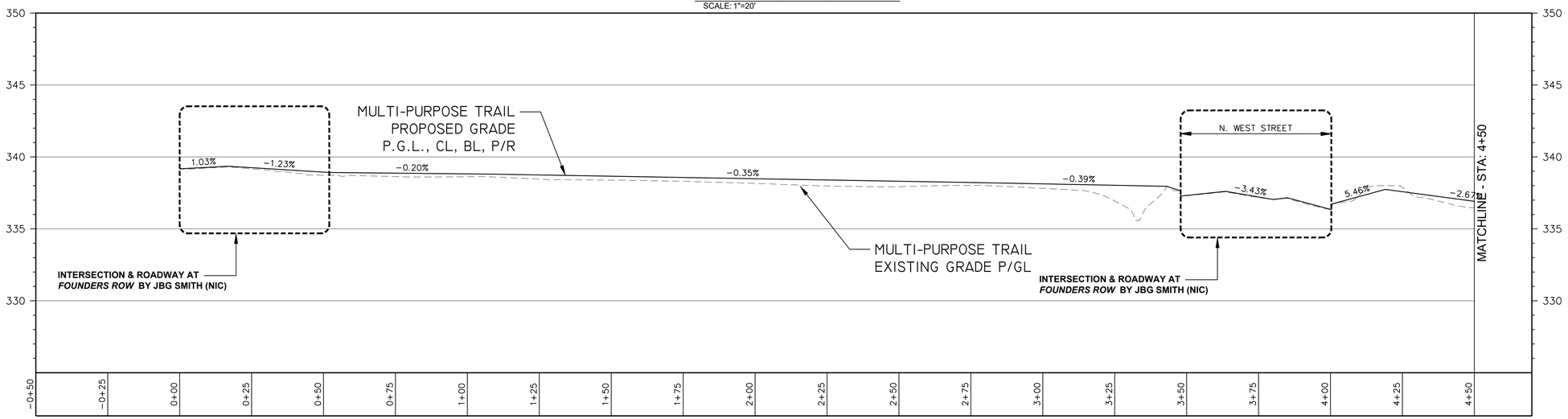
60% DESIGN

SHEET TITLE
EXISTING CONDITIONS & DEMOLITION PLAN

SHEET
CD1.11
15 OF 100



HORIZONTAL GEOMETRY PLAN
SCALE: 1"=20'



PROFILE STA. 0+00 TO STA. 4+50
SCALE: HORZ 1"=20'
VERT 1"=4'

CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C101	105.50'	24.32'	S79°19'47.01"E	N: 7010465.5392 E: 11857510.5632	N: 7010461.0455 E: 11857534.4133
C102	197.18'	45.06'	S75°41'33.96"E	N: 7010458.8663 E: 11857540.7117	N: 7010447.7550 E: 11857584.2803
C103	105.50'	54.80'	S66°21'32.07"E	N: 7010420.1725 E: 11857763.2480	N: 7010398.4450 E: 11857812.8833
C104	60.50'	35.84'	S68°27'00.03"E	N: 7010382.0717 E: 11857833.4521	N: 7010369.0990 E: 11857866.3011

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L101	29.501'	S85°56'04.73"E	N: 7010467.6307 E: 11857481.1361	N: 7010465.5392 E: 11857510.5632
L102	6.665'	S70°54'53.09"E	N: 7010461.0455 E: 11857534.4133	N: 7010458.8663 E: 11857540.7117
L103	181.081'	S81°14'18.75"E	N: 7010447.7550 E: 11857584.2803	N: 7010420.1725 E: 11857763.2480
L104	26.290'	S51°28'45.39"E	N: 7010398.4450 E: 11857812.8833	N: 7010382.0717 E: 11857833.4521

0 10' 20' 40'
SCALE: 1"=20'

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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

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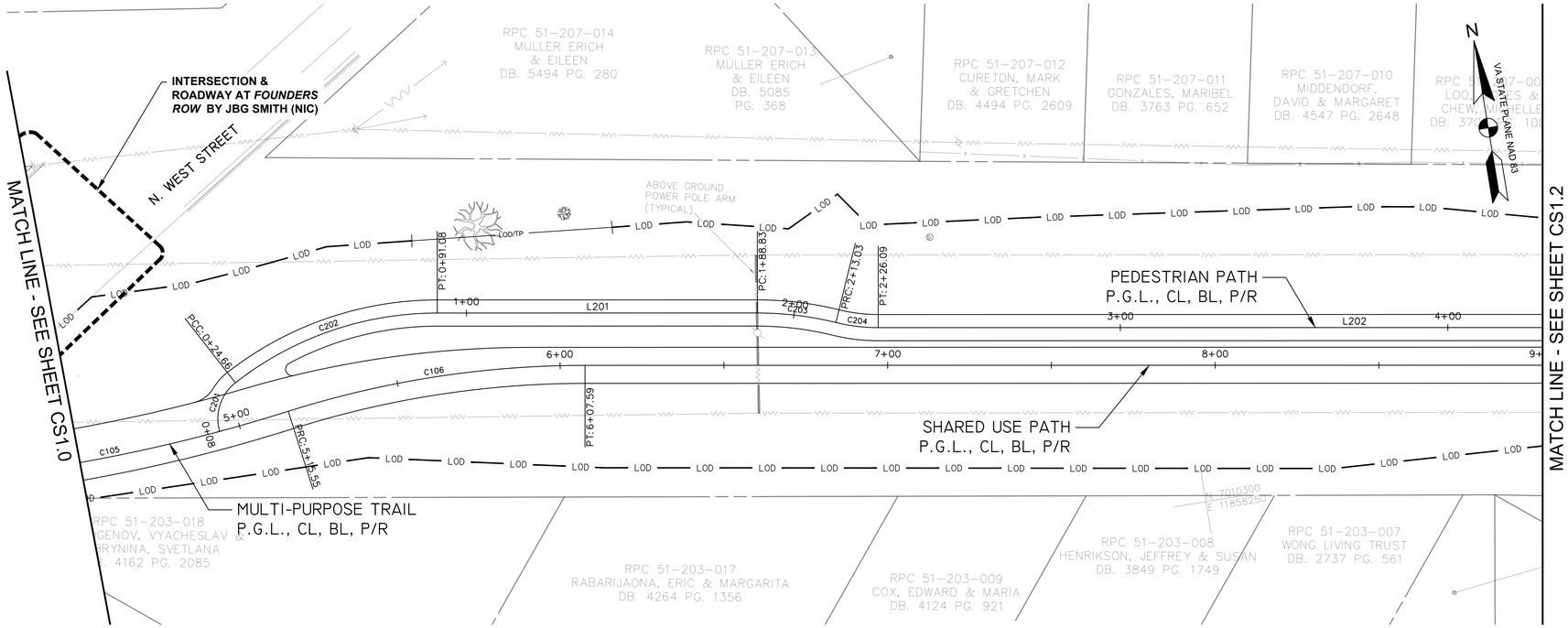
CHECKED BY:	AMT

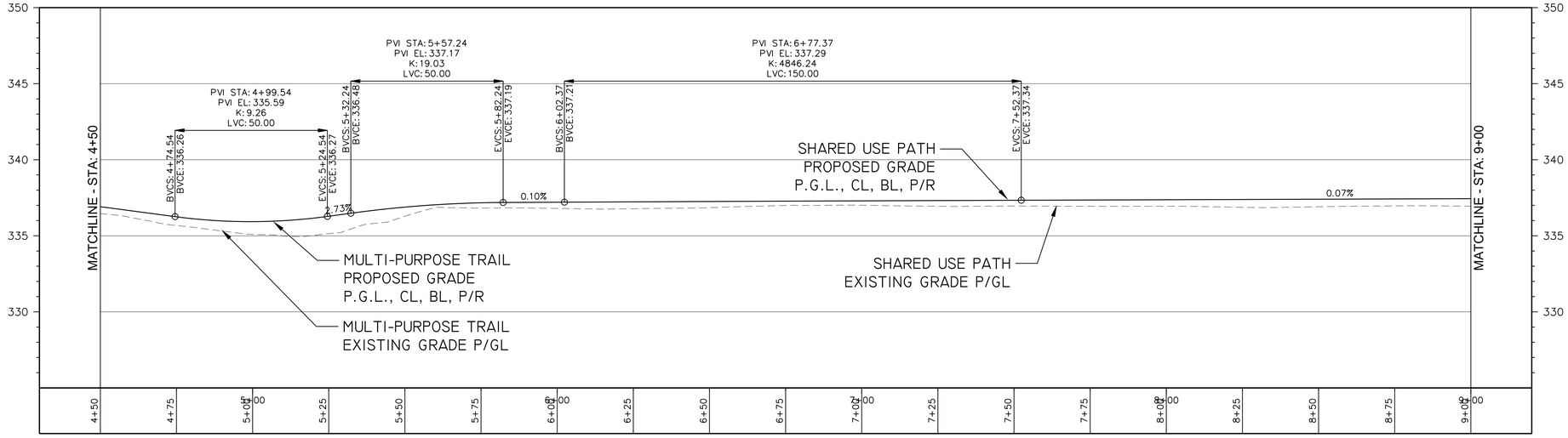
60% DESIGN

SHEET TITLE
HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET
CS1.0
16 OF 100



HORIZONTAL GEOMETRY PLAN
SCALE: 1"=20'



PROFILE STA. 4+50 TO STA. 9+00
SCALE: HORZ 1"=20'
VERT 1"=4'

CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C105	500.00'	111.99'	N88°09'45.22"E	N: 7010369.0990 E: 11857866.3011	N: 7010372.6824 E: 11857978.0022
C106	300.00'	92.04'	S89°27'52.34"E	N: 7010372.6824 E: 11857978.0022	N: 7010371.8256 E: 11858069.6820
C201	14.00'	16.57'	N27°20'48.81"E	N: 7010370.0196 E: 11857956.3232	N: 7010383.8912 E: 11857963.4972
C202	99.86'	66.42'	N80°16'24.81"E	N: 7010383.8912 E: 11857963.4972	N: 7010394.9066 E: 11858027.7614
C203	100.10'	24.20'	S73°44'48.94"E	N: 7010379.0641 E: 11858124.2212	N: 7010372.3072 E: 11858147.3987
C204	54.00'	13.06'	S73°44'48.94"E	N: 7010372.3072 E: 11858147.3987	N: 7010368.6621 E: 11858159.9019

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L201	97.752'	S80°40'23.08"E	N: 7010394.9066 E: 11858027.7614	N: 7010379.0641 E: 11858124.2212
L202	290.984'	S80°40'23.08"E	N: 7010368.6621 E: 11858159.9019	N: 7010321.5030 E: 11858447.0393

0 10' 20' 40'
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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

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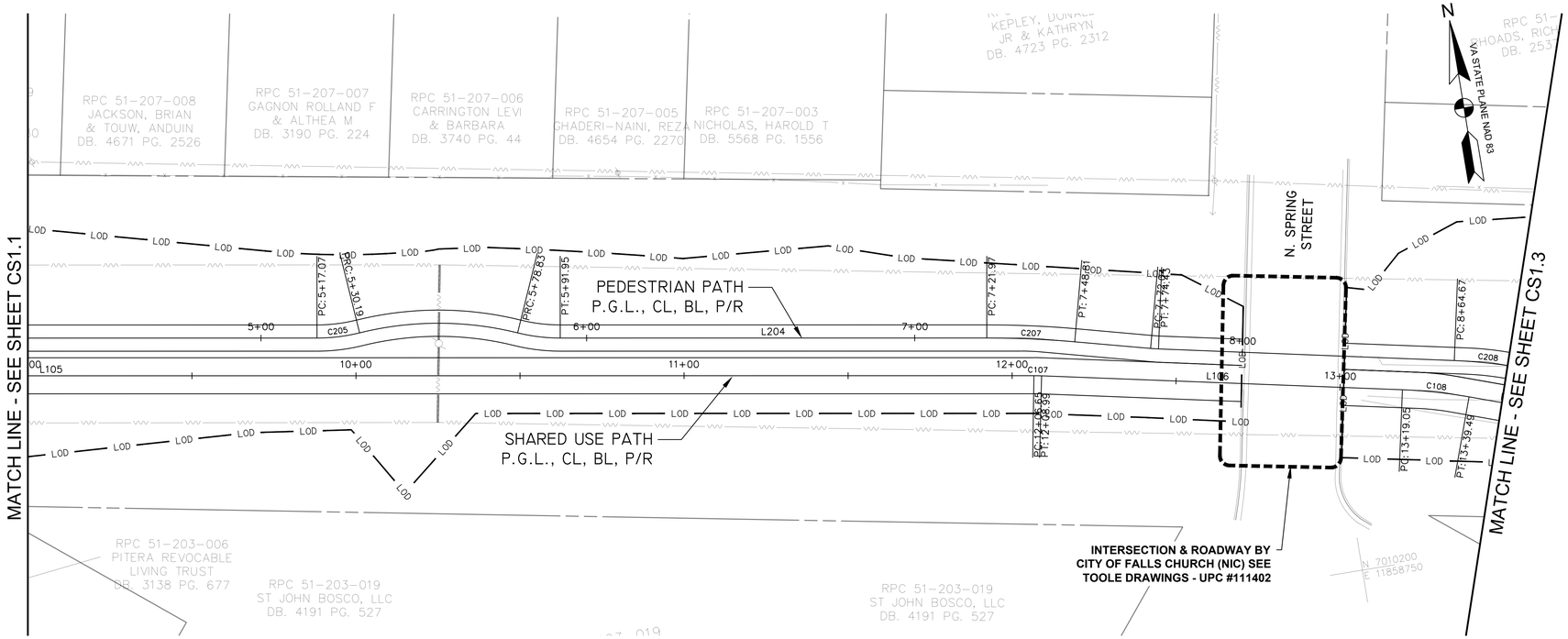
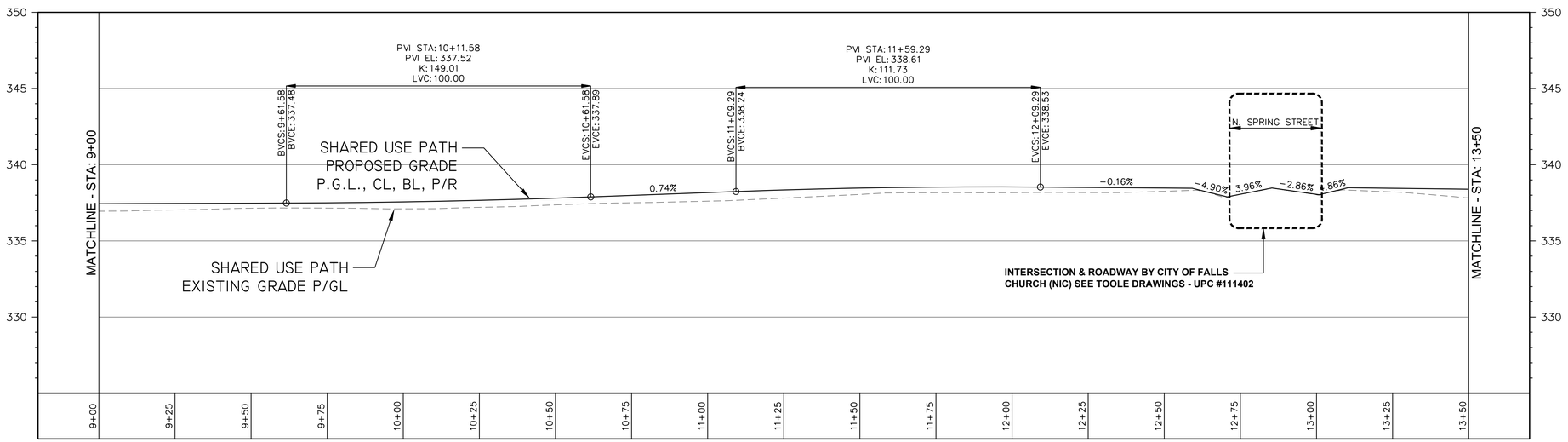
SHEET TITLE
HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET
CS1.1
17 OF 100





PROFILE STA. 9+00 TO STA. 13+50

SCALE: HORZ 1"=20'
VERT 1"=4'

CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C107	250.00'	2.34'	S79°33'50.25"E	N: 7010274.7387 E: 11858660.8143	N: 7010274.3145 E: 11858663.1177
C108	150.00'	20.45'	S74°32'59.69"E	N: 7010252.2871 E: 11858770.9509	N: 7010246.8444 E: 11858790.6429
C205	54.00'	13.12'	S87°37'57.84"E	N: 7010321.5030 E: 11858447.0393	N: 7010320.9624 E: 11858460.1146
C207	307.50'	26.83'	S78°10'23.00"E	N: 7010288.4144 E: 11858648.5054	N: 7010282.9163 E: 11858674.7618
C208	150.00'	20.33'	S74°31'40.98"E	N: 7010258.5038 E: 11858787.9992	N: 7010253.0841 E: 11858807.5791

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L105	599.052'	S80°40'23.08"E	N: 7010371.8256 E: 11858069.6820	N: 7010274.7387 E: 11858660.8143
L106	110.060'	S78°27'17.42"E	N: 7010274.3145 E: 11858663.1177	N: 7010252.2871 E: 11858770.9509
L204	130.026'	S80°40'23.08"E	N: 7010309.4873 E: 11858520.1988	N: 7010288.4144 E: 11858648.5054

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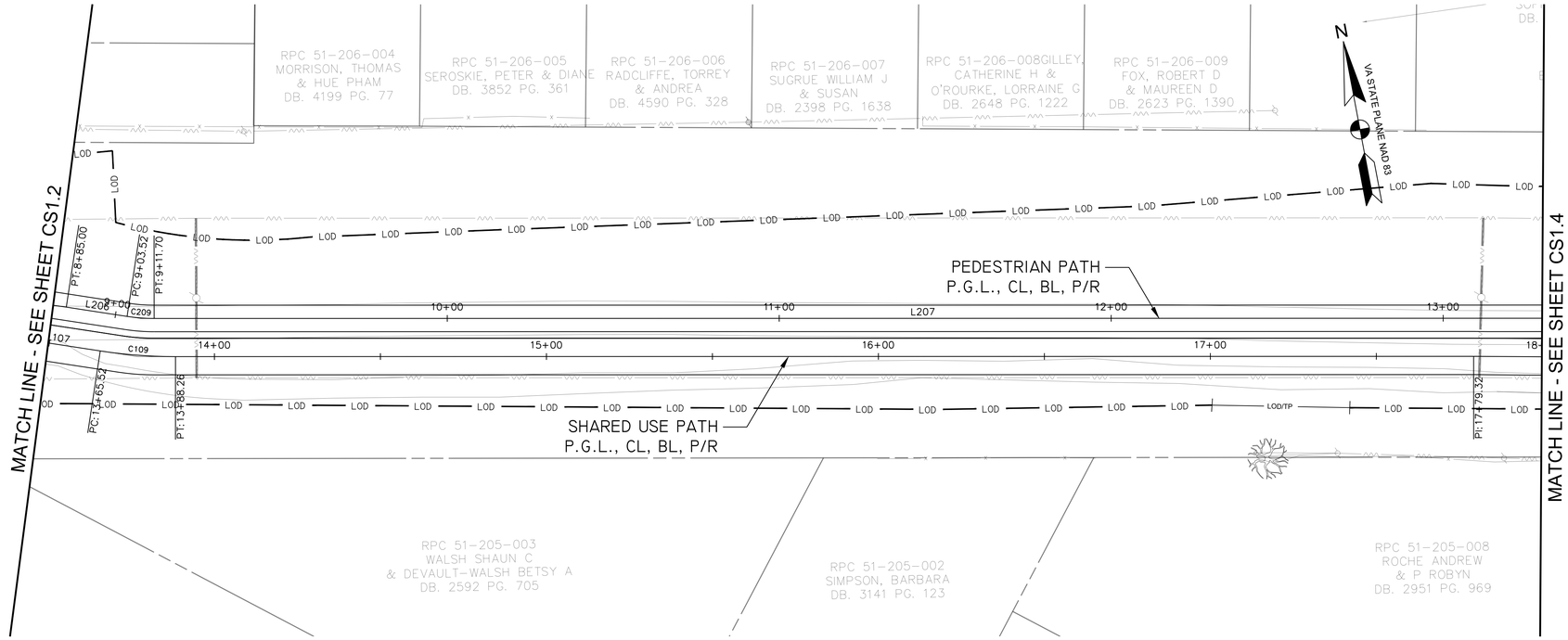
SHEET TITLE

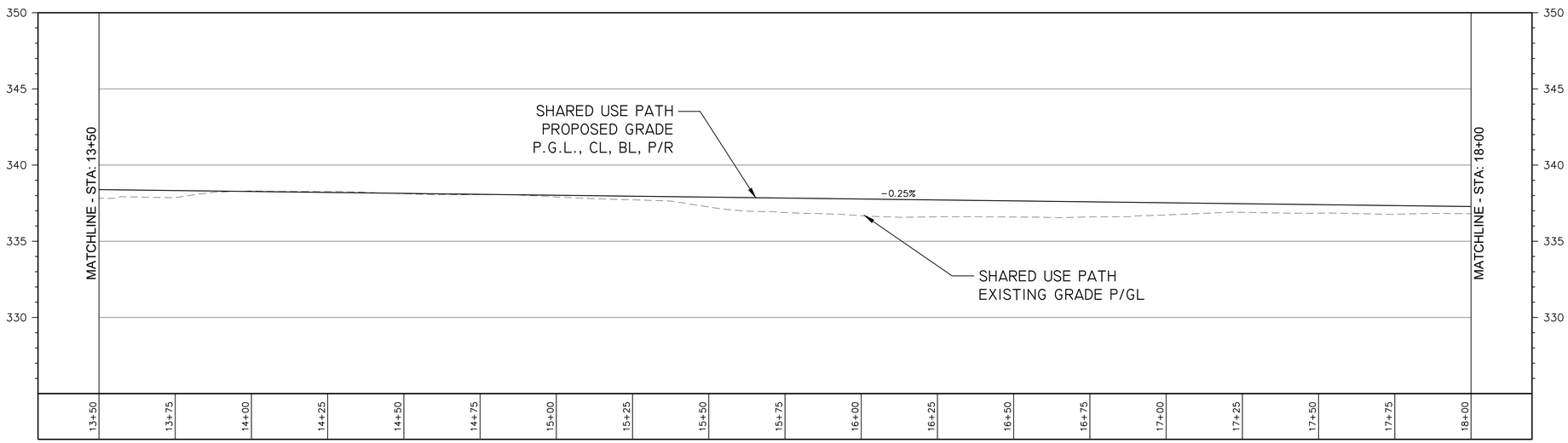
HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET

CS1.2

18 OF 100





PROFILE STA. 13+50 TO STA. 18+00

SCALE: HORZ 1"=20'
VERT 1"=4'

CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C109	150.00'	22.75'	S74°59'20.32"E	N: 7010238.2204 E: 11858815.1938	N: 7010232.3350 E: 11858837.1417
C209	53.97'	8.18'	S74°59'16.01"E	N: 7010246.9473 E: 11858825.0493	N: 7010244.8302 E: 11858832.9436

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L107	26.022'	S70°38'41.96"E	N: 7010246.8444 E: 11858790.6429	N: 7010238.2204 E: 11858815.1938
L206	18.517'	S70°38'41.96"E	N: 7010253.0841 E: 11858807.5791	N: 7010246.9473 E: 11858825.0493
L207	463.189'	S79°19'50.07"E	N: 7010244.8302 E: 11858832.9436	N: 7010159.0744 E: 11859288.1248

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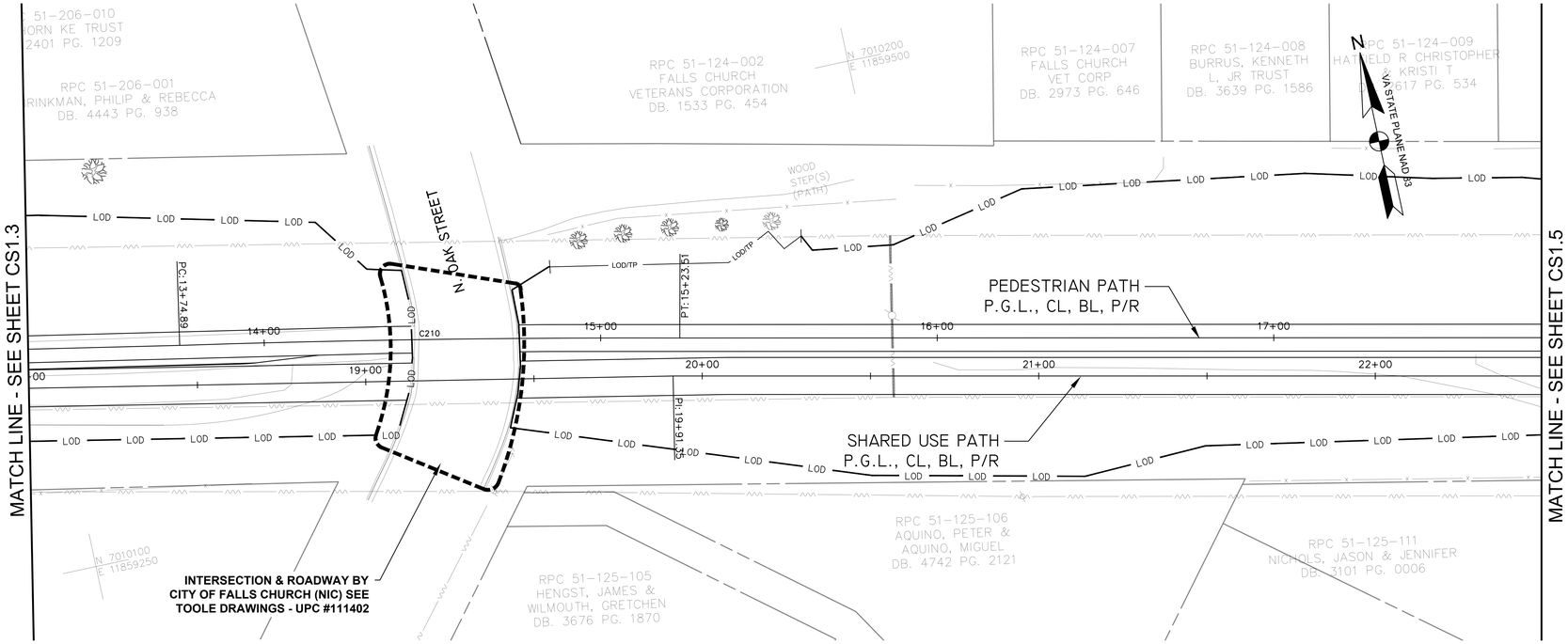
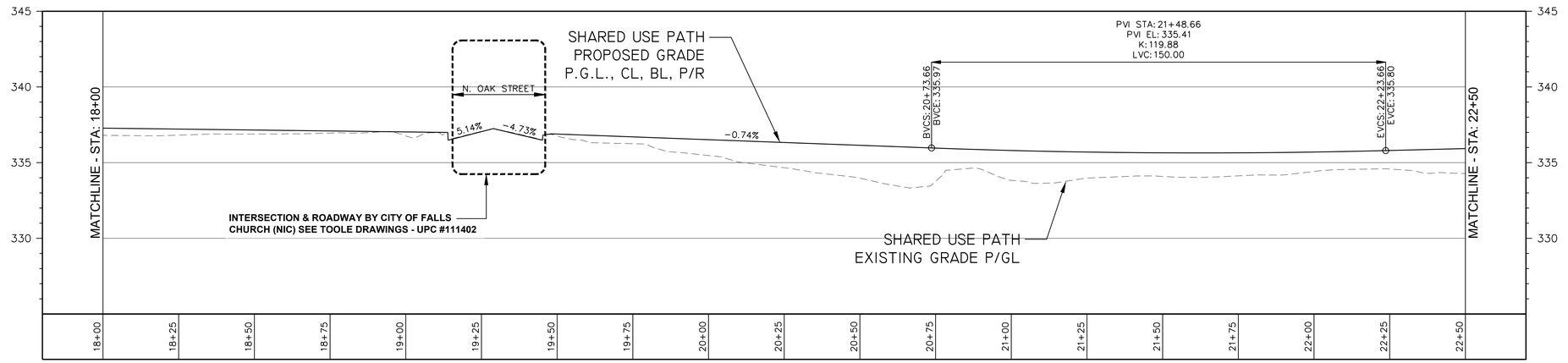
HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET
CS1.3
19 OF 100





PROFILE STA. 18+00 TO STA. 22+50

SCALE: HORZ 1"=20'
VERT 1"=4'

CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C210	4191.39'	148.62'	S78°43'10.91"E	N: 7010159.0744 E: 11859288.1248	N: 7010130.0040 E: 11859433.8685

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT

0 10' 20' 40'
SCALE: 1"=20'

A. MORTON THOMAS AND ASSOCIATES, INC.
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(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA;" LICENSE NO. 1542 , EXPIRATION DATE 04/30/2021."

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

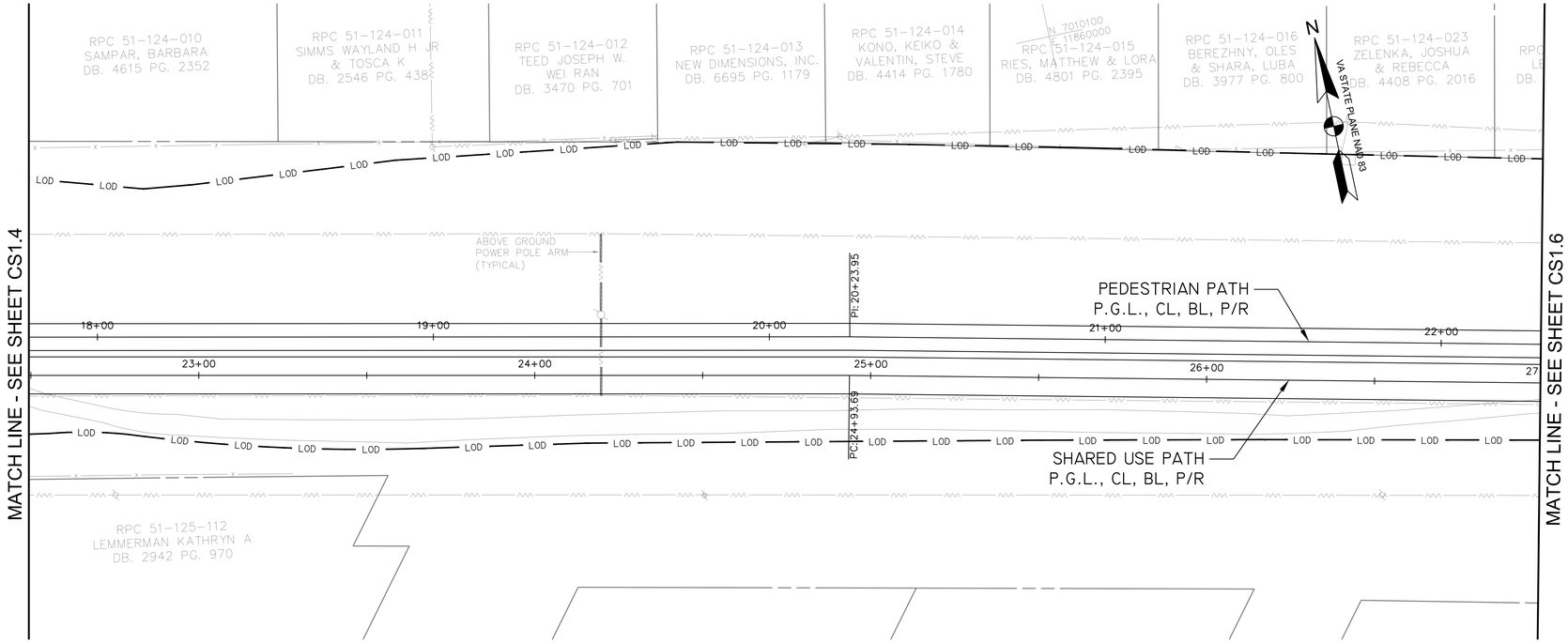
60% DESIGN

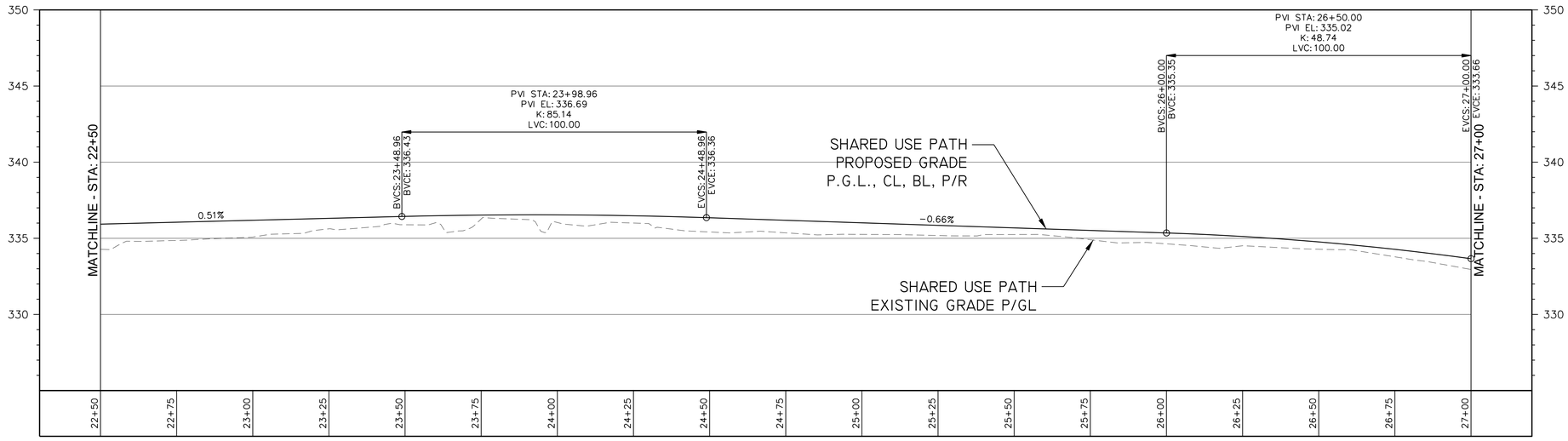
SHEET TITLE

HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET

CS1.4





PROFILE STA. 22+50 TO STA. 27+00

SCALE: HORZ 1"=20'
VERT 1"=4'

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT

0 10' 20' 40'
SCALE: 1"=20'

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

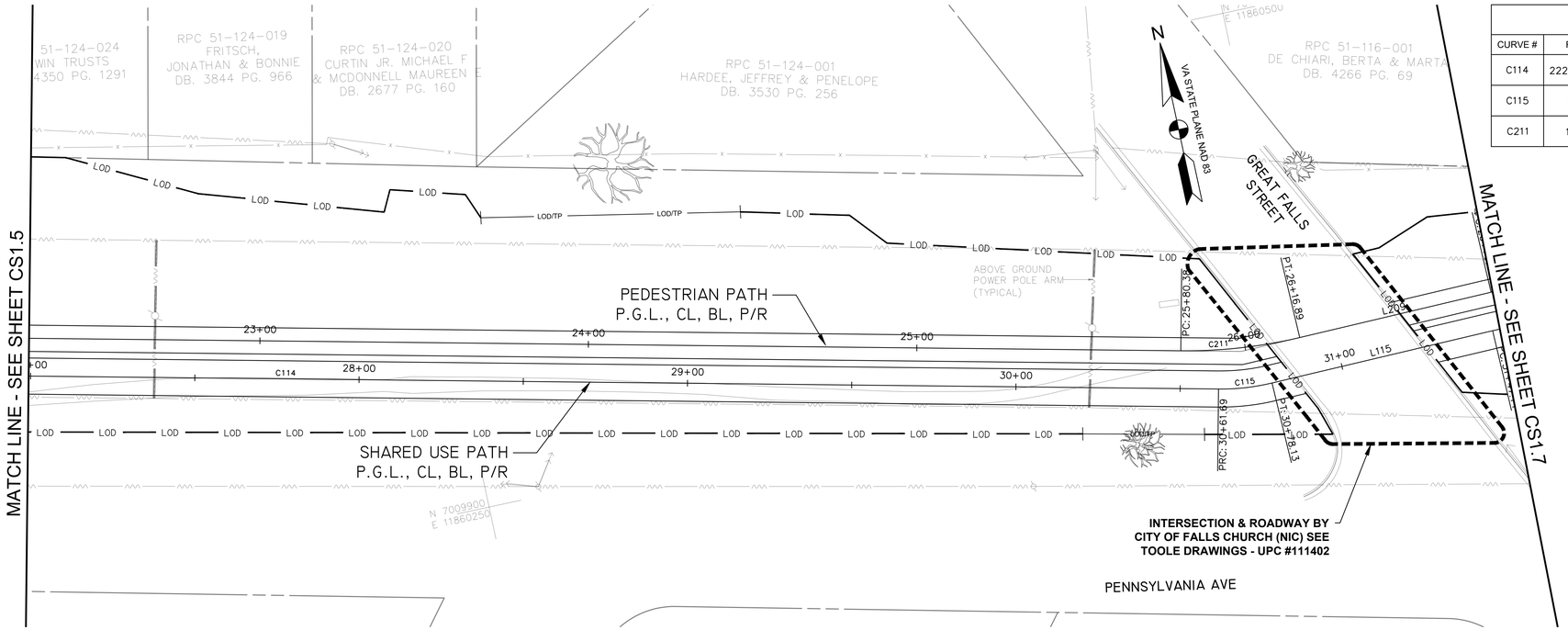
SHEET TITLE

HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET

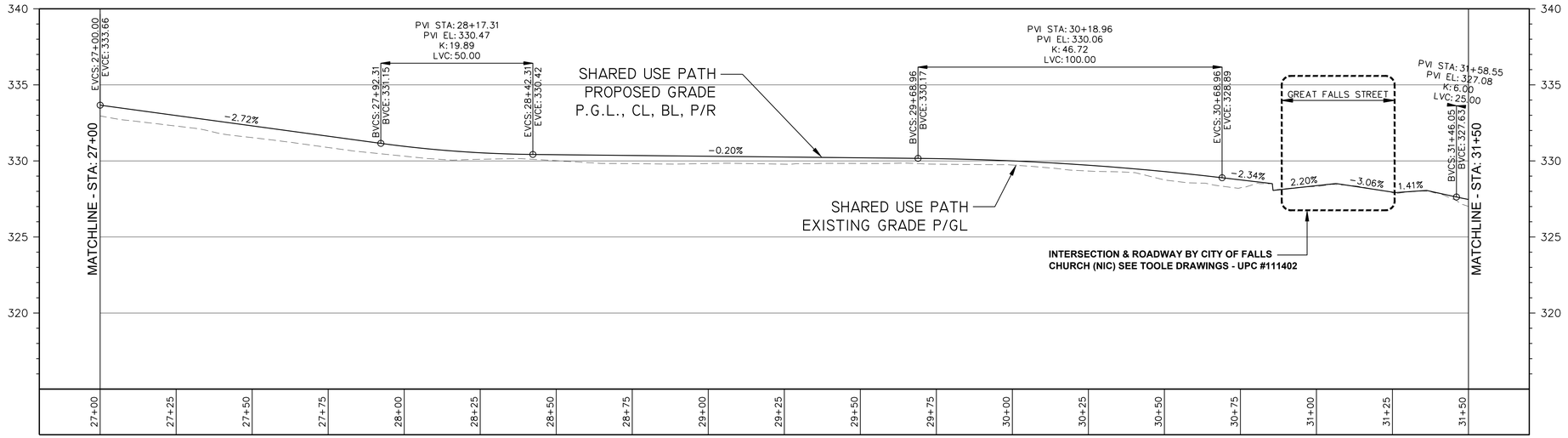
CS1.5

21 OF 100



CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C114	22256094.47'	568.00'	S77°14'57.10"E	N: 7010013.8360 E: 11859920.6804	N: 7009888.4718 E: 11860474.6743
C115	65.25'	16.44'	S84°17'30.23"E	N: 7009888.4718 E: 11860474.6743	N: 7009886.8410 E: 11860490.9894
C211	150.00'	36.51'	S84°13'23.80"E	N: 7009902.2545 E: 11860465.8881	N: 7009898.5883 E: 11860502.1273

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L115	69.013'	N88°47'34.72"E	N: 7009886.8410 E: 11860490.9894	N: 7009888.2947 E: 11860559.9875
L209	59.877'	N88°48'10.82"E	N: 7009898.5883 E: 11860502.1273	N: 7009899.8391 E: 11860561.9912



PROFILE STA. 27+00 TO STA. 31+50

SCALE: HORZ 1"=20'
VERT 1"=4'

0 10' 20' 40'
SCALE: 1"=20'

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

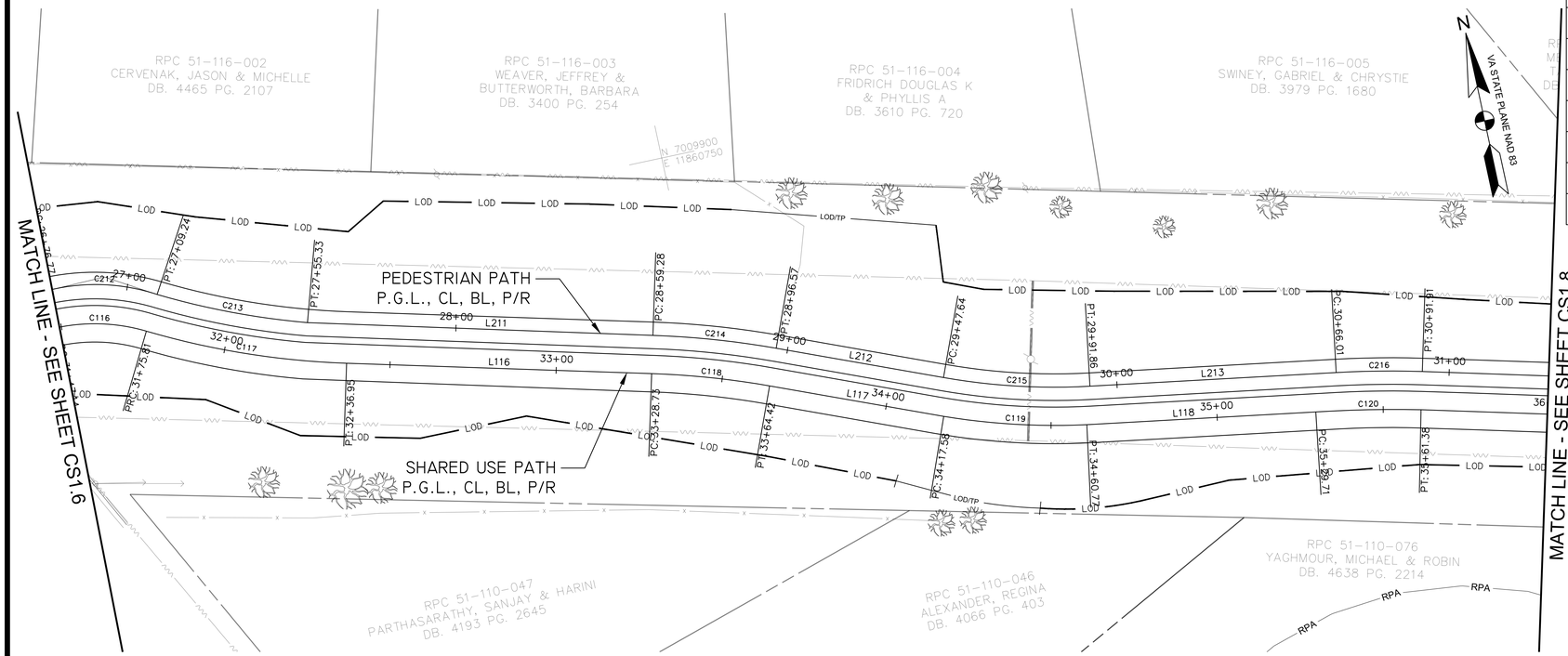
SHEET TITLE

HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET

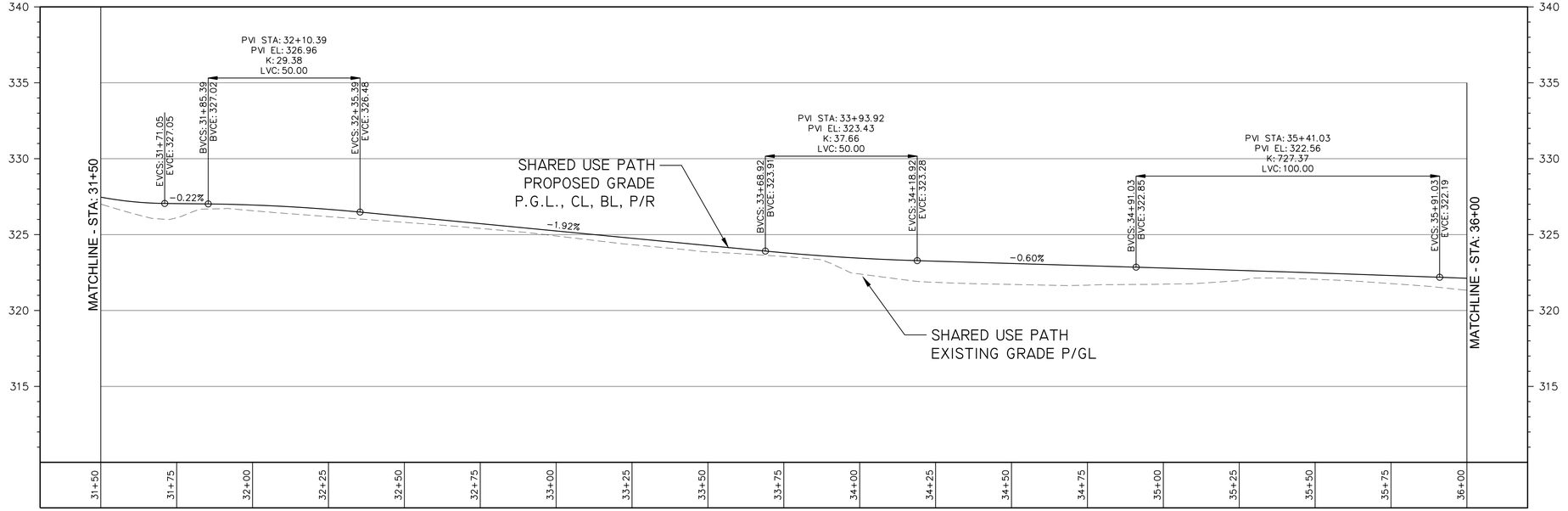
CS1.6

22 OF 100



CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C116	55.50'	28.67'	S76°23'55.77"E	N: 7009888.2947 E: 11860559.9875	N: 7009881.6277 E: 11860587.5435
C117	244.50'	61.14'	S68°45'52.78"E	N: 7009881.6277 E: 11860587.5435	N: 7009859.5396 E: 11860644.3859
C118	255.50'	35.69'	S71°55'37.82"E	N: 7009837.2259 E: 11860733.4091	N: 7009826.1636 E: 11860767.3086
C119	205.18'	43.19'	S74°33'12.30"E	N: 7009806.1956 E: 11860816.5756	N: 7009794.7140 E: 11860858.1272
C120	379.92'	31.68'	S79°04'58.06"E	N: 7009783.9915 E: 11860926.2286	N: 7009777.9940 E: 11860957.3228
C212	58.79'	32.47'	S75°22'27.52"E	N: 7009899.8391 E: 11860561.9912	N: 7009891.7437 E: 11860593.0131
C213	233.00'	46.09'	S67°16'02.22"E	N: 7009891.7437 E: 11860593.0131	N: 7009873.9628 E: 11860635.4516
C214	267.00'	37.29'	S71°55'37.82"E	N: 7009848.3808 E: 11860736.2051	N: 7009836.8206 E: 11860771.6304
C215	193.00'	44.22'	S74°29'20.33"E	N: 7009817.6281 E: 11860818.9566	N: 7009805.8294 E: 11860861.4698
C216	296.00'	25.90'	S78°32'44.50"E	N: 7009794.2958 E: 11860934.7222	N: 7009789.1543 E: 11860960.0973

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L116	91.777'	S75°55'43.20"E	N: 7009859.5396 E: 11860644.3859	N: 7009837.2259 E: 11860733.4091
L117	53.160'	S67°56'13.88"E	N: 7009826.1636 E: 11860767.3086	N: 7009806.1956 E: 11860816.5756
L118	68.940'	S81°03'08.23"E	N: 7009794.7140 E: 11860858.1272	N: 7009783.9915 E: 11860926.2286
L211	103.951'	S75°45'11.80"E	N: 7009873.9628 E: 11860635.4516	N: 7009848.3808 E: 11860736.2051
L212	51.070'	S67°55'32.44"E	N: 7009836.8206 E: 11860771.6304	N: 7009817.6281 E: 11860818.9566
L213	74.155'	S81°03'08.23"E	N: 7009805.8294 E: 11860861.4698	N: 7009794.2958 E: 11860934.7222



PROFILE STA. 31+50 TO STA. 36+00

SCALE: HORZ 1"=20'
VERT 1"=4'

0 10' 20' 40'
SCALE: 1"=20'

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10/30/2019

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

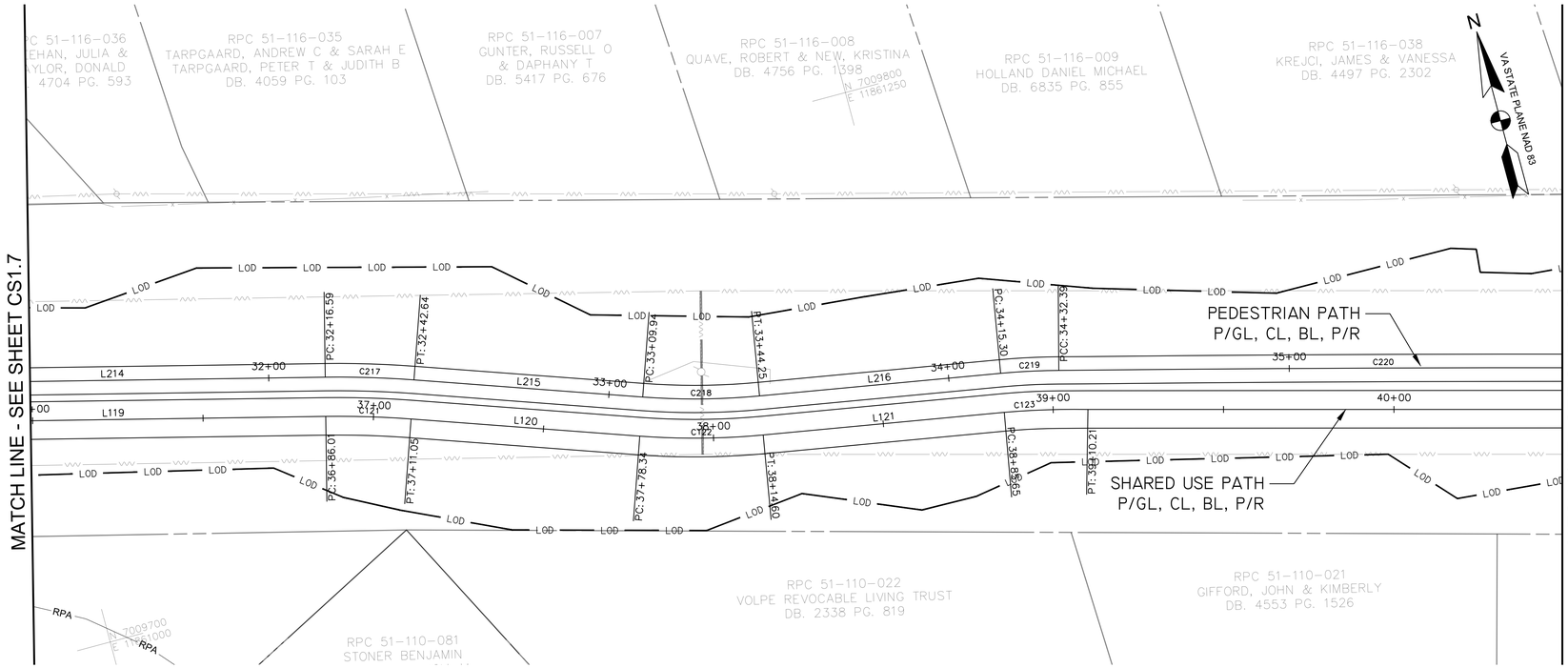
SHEET TITLE

HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET

CS1.7

23 OF 100

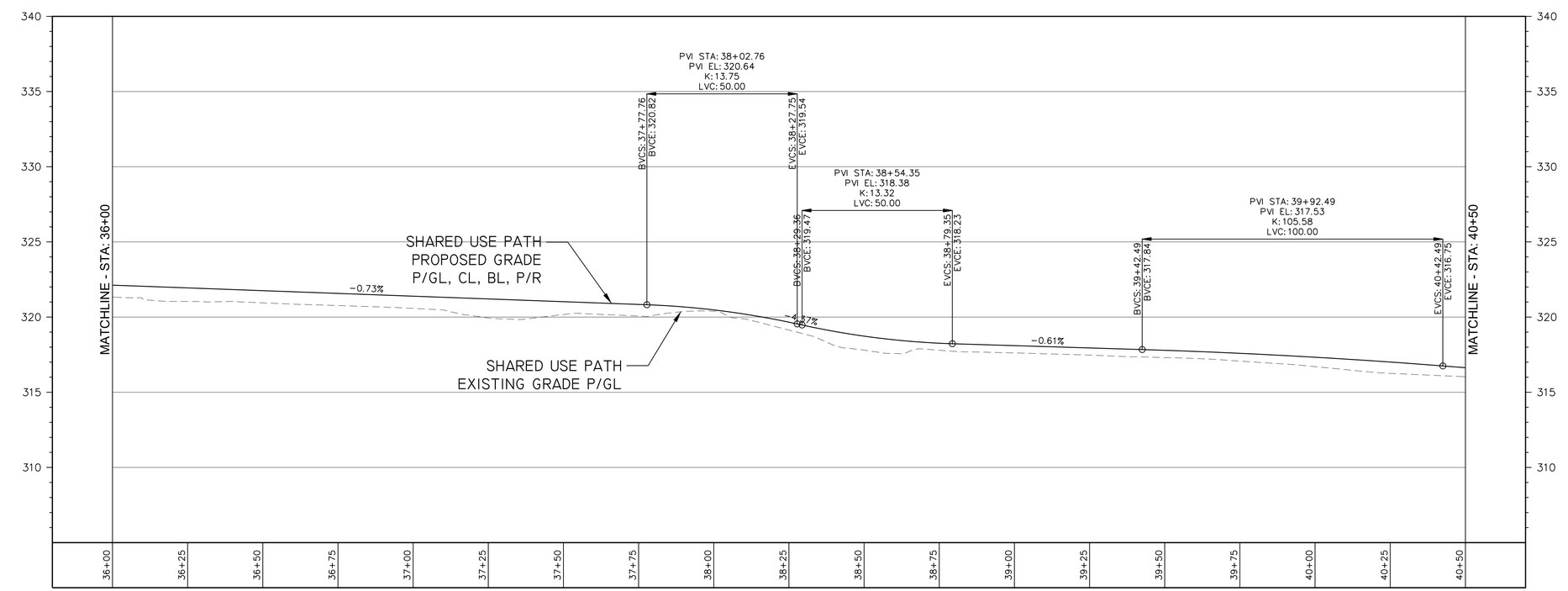


CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C121	284.50'	25.04'	S73°16'30.73"E	N: 7009747.6000 E: 11861078.1835	N: 7009740.3956 E: 11861102.1596
C122	215.50'	36.26'	S75°34'24.30"E	N: 7009718.2141 E: 11861165.6898	N: 7009709.1916 E: 11861200.7627
C123	241.80'	24.56'	S77°01'54.02"E	N: 7009697.3349 E: 11861270.8146	N: 7009691.8260 E: 11861294.7366
C217	296.00'	26.06'	S73°16'30.73"E	N: 7009758.7485 E: 11861081.0051	N: 7009751.2528 E: 11861105.9504
C218	203.90'	34.31'	S75°34'24.30"E	N: 7009729.0687 E: 11861169.4883	N: 7009720.5317 E: 11861202.6738
C219	196.00'	17.08'	S77°53'46.52"E	N: 7009708.6736 E: 11861272.7337	N: 7009705.0924 E: 11861289.4332
C220	13709.87'	190.45'	S75°15'08.07"E	N: 7009705.0924 E: 11861289.4332	N: 7009656.6104 E: 11861473.6100

LINE TABLE

LINE #	LENGTH	DIRECTION	START POINT	END POINT
L119	124.624'	S75°53'02.46"E	N: 7009777.9940 E: 11860957.3228	N: 7009747.6000 E: 11861078.1835
L120	67.291'	S70°45'12.45"E	N: 7009740.3956 E: 11861102.1596	N: 7009718.2141 E: 11861165.6898
L121	71.048'	S80°23'36.16"E	N: 7009709.1916 E: 11861200.7627	N: 7009697.3349 E: 11861270.8146
L214	124.672'	S75°53'02.51"E	N: 7009789.1543 E: 11860960.0973	N: 7009758.7485 E: 11861081.0051
L215	67.299'	S70°45'12.45"E	N: 7009751.2528 E: 11861105.9504	N: 7009729.0687 E: 11861169.4883
L216	71.056'	S80°23'36.16"E	N: 7009720.5317 E: 11861202.6738	N: 7009708.6736 E: 11861272.7337



PROFILE STA. 36+00 TO STA. 40+50

SCALE: HORZ 1"=20'
VERT 1"=4'

0 10' 20' 40'
SCALE: 1"=20'

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

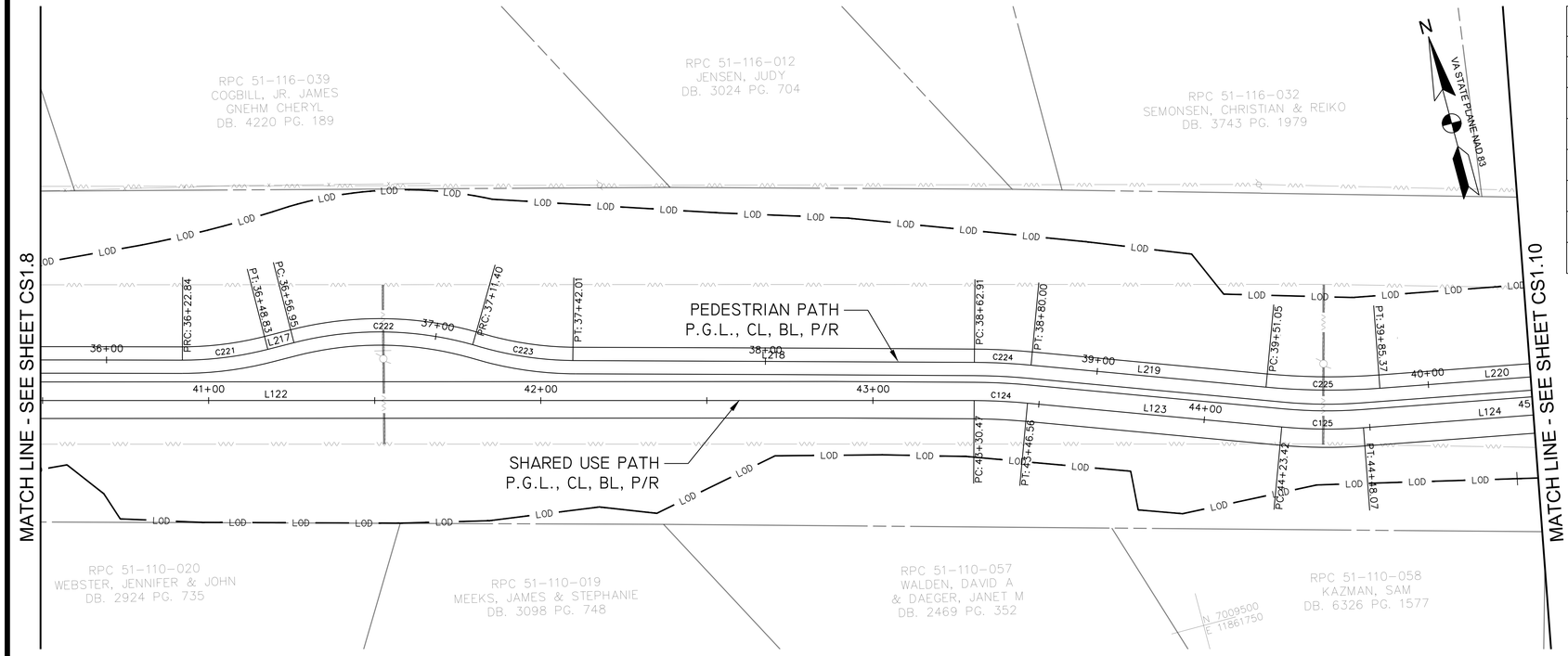
60% DESIGN

SHEET TITLE

HORIZONTAL AND VERTICAL ALIGNMENTS

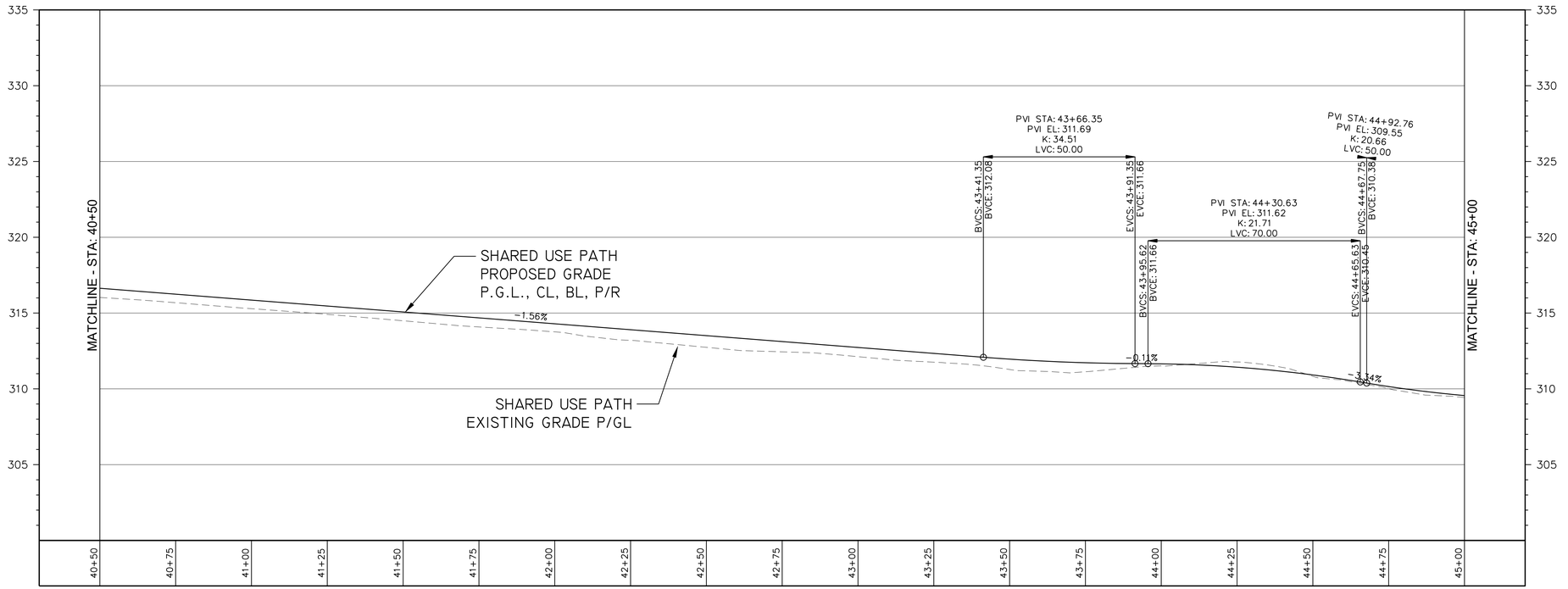
SHEET

CS1.8



CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C124	184.50'	16.08'	S72°10'45.21"E	N: 7009583.3008 E: 11861700.7511	N: 7009578.3805 E: 11861716.0567
C125	146.50'	24.65'	S74°30'06.76"E	N: 7009551.6903 E: 11861788.1407	N: 7009545.1121 E: 11861811.8639
C221	104.00'	25.99'	S82°13'55.66"E	N: 7009656.6104 E: 11861473.6100	N: 7009653.1063 E: 11861499.2974
C222	104.00'	54.45'	S74°23'31.40"E	N: 7009653.0202 E: 11861507.4143	N: 7009638.5360 E: 11861559.2632
C223	105.22'	30.60'	S66°00'57.08"E	N: 7009638.5360 E: 11861559.2632	N: 7009626.1398 E: 11861587.1264
C224	196.00'	17.08'	S72°10'45.21"E	N: 7009594.3919 E: 11861703.7902	N: 7009589.1650 E: 11861720.0499
C225	204.00'	34.32'	S74°30'07.42"E	N: 7009564.4950 E: 11861786.6775	N: 7009555.3347 E: 11861819.7132

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
L122	420.268'	S75°02'06.13"E	N: 7009691.8260 E: 11861294.7366	N: 7009583.3008 E: 11861700.7511
L123	76.867'	S69°40'55.57"E	N: 7009578.3805 E: 11861716.0567	N: 7009551.6903 E: 11861788.1407
L124	76.867'	S79°19'19.27"E	N: 7009545.1121 E: 11861811.8639	N: 7009530.8694 E: 11861887.4003
L217	8.117'	S89°23'31.74"E	N: 7009653.1063 E: 11861499.2974	N: 7009653.0202 E: 11861507.4143
L218	120.906'	S74°46'36.07"E	N: 7009626.1398 E: 11861587.1264	N: 7009594.3919 E: 11861703.7902
L219	71.048'	S69°40'55.57"E	N: 7009589.1650 E: 11861720.0499	N: 7009564.4950 E: 11861786.6775
L220	71.048'	S79°19'19.27"E	N: 7009555.3347 E: 11861819.7132	N: 7009542.1703 E: 11861889.5311



PROFILE STA. 40+50 TO STA. 45+00

SCALE: HORZ 1"=20'
VERT 1"=4'

0 10' 20' 40'
SCALE: 1"=20'

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

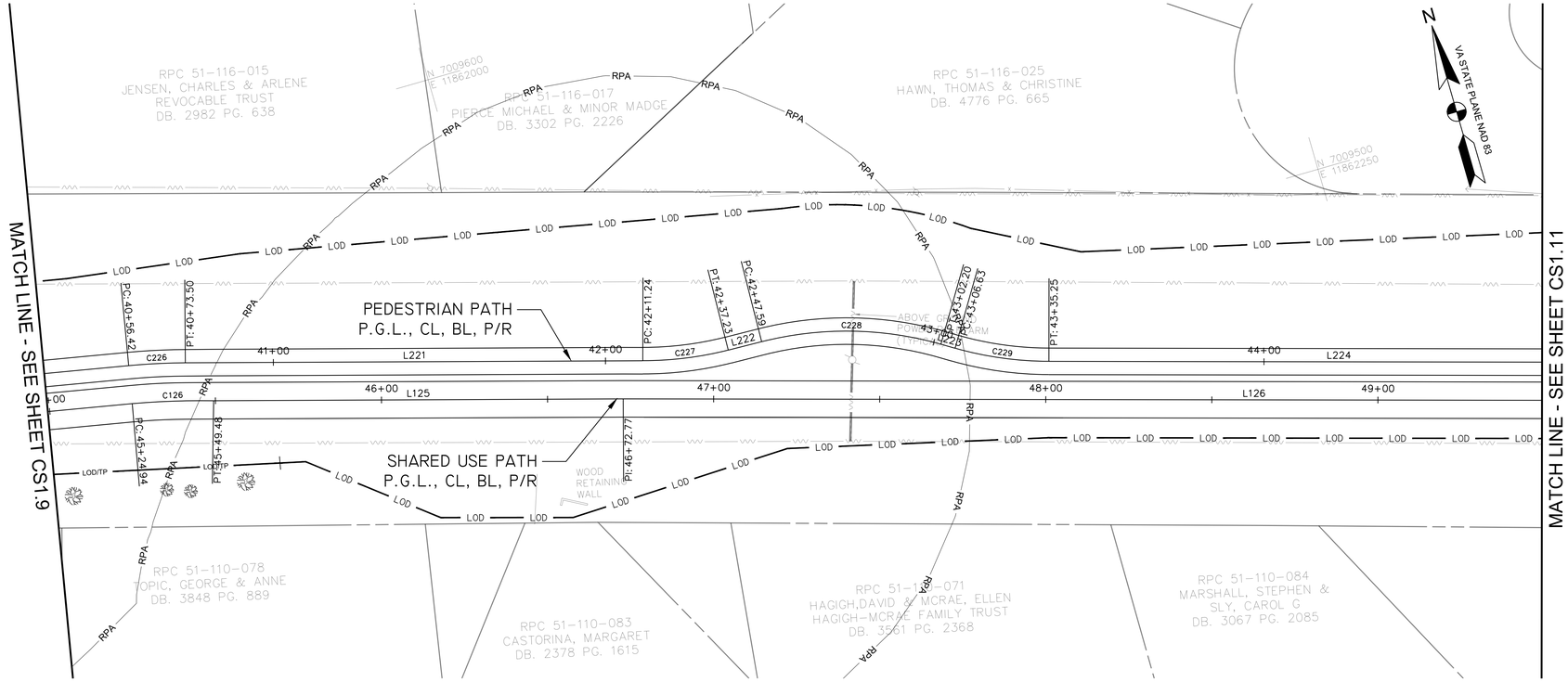
SHEET TITLE

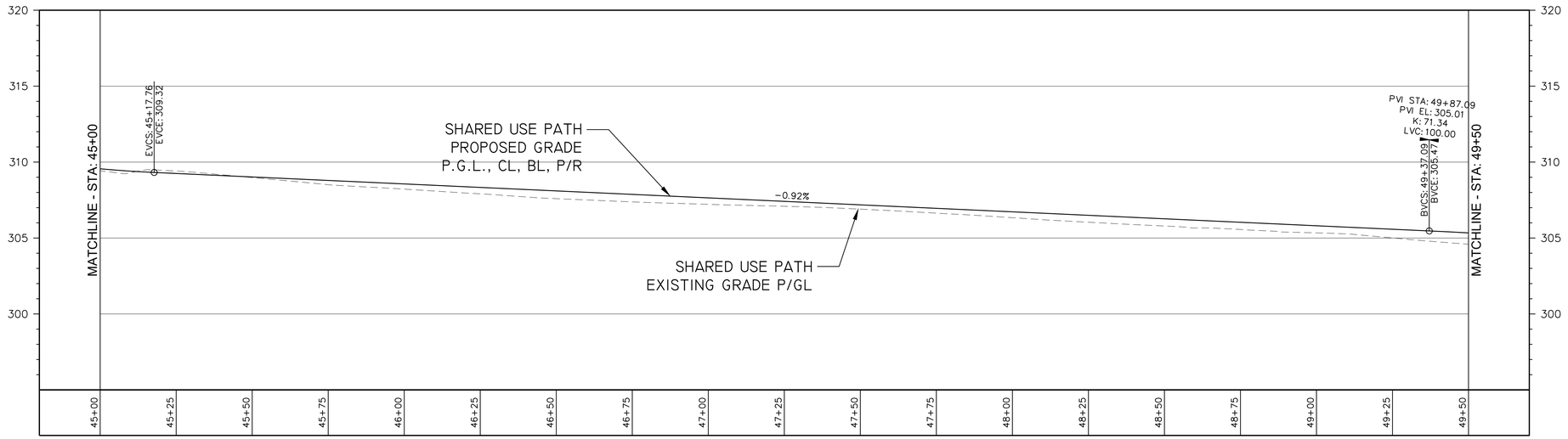
HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET

CS1.9

25 OF 100





PROFILE STA. 45+00 TO STA. 49+50

SCALE: HORZ 1"=20'
VERT 1"=4'

CURVE TABLE

CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C126	241.63'	24.54'	S75°57'41.67"E	N: 7009530.8694 E: 11861887.4003	N: 7009524.9188 E: 11861911.1989
C226	196.00'	17.08'	S76°49'29.64"E	N: 7009542.1703 E: 11861889.5311	N: 7009538.2775 E: 11861906.1607
C227	104.00'	26.00'	S81°01'08.09"E	N: 7009500.7814 E: 11862038.6950	N: 7009496.7339 E: 11862064.3045
C228	104.00'	54.61'	S73°08'14.54"E	N: 7009496.4048 E: 11862074.6596	N: 7009480.7457 E: 11862126.3207
C229	104.00'	28.61'	S65°58'36.38"E	N: 7009478.4029 E: 11862130.0839	N: 7009466.7913 E: 11862156.1355

LINE TABLE

LINE #	LENGTH	DIRECTION	START POINT	END POINT
L125	123.291'	S74°12'41.07"E	N: 7009524.9188 E: 11861911.1989	N: 7009491.3727 E: 11862029.8385
L126	379.955'	S73°51'29.94"E	N: 7009491.3727 E: 11862029.8385	N: 7009385.7401 E: 11862394.8144
L221	137.736'	S74°12'10.58"E	N: 7009538.2775 E: 11861906.1607	N: 7009500.7814 E: 11862038.6950
L222	10.360'	S88°10'46.24"E	N: 7009496.7339 E: 11862064.3045	N: 7009496.4048 E: 11862074.6596
L223	4.433'	S58°05'42.83"E	N: 7009480.7457 E: 11862126.3207	N: 7009478.4029 E: 11862130.0839
L224	174.819'	S73°51'29.45"E	N: 7009466.7913 E: 11862156.1355	N: 7009418.1889 E: 11862324.0623

0 10' 20' 40'
SCALE: 1"=20'

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EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
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SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

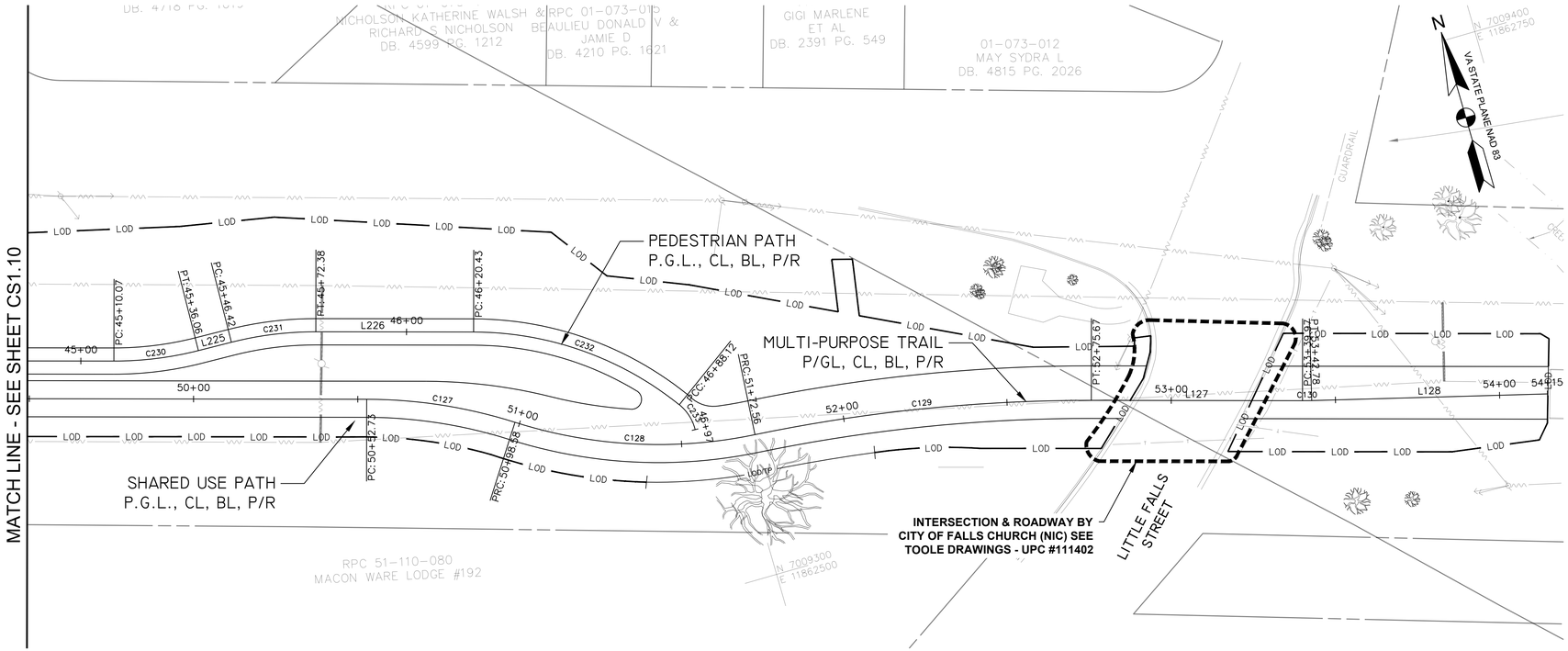
60% DESIGN

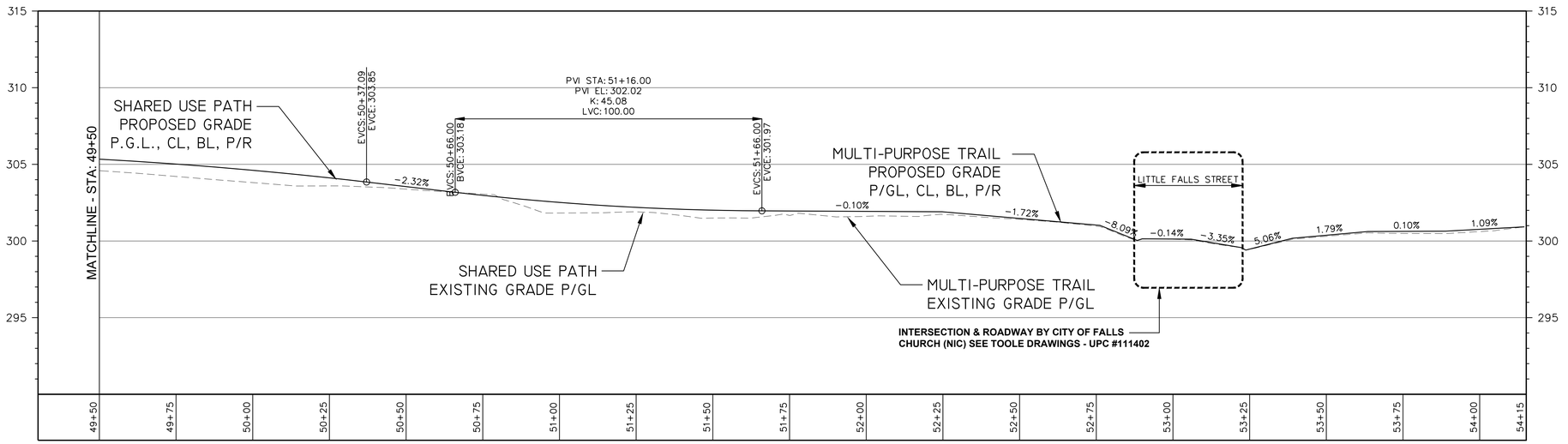
SHEET TITLE

HORIZONTAL AND VERTICAL ALIGNMENTS

SHEET

CS1.10





CURVE TABLE					
CURVE #	RADIUS	LENGTH	CHORD DIRECTION	START POINT	END POINT
C127	150.00'	45.86'	S65°06'00.02"E	N: 7009385.7401 E: 11862394.8144	N: 7009366.5072 E: 11862436.2482
C128	144.50'	73.98'	S71°00'28.25"E	N: 7009366.5072 E: 11862436.2482	N: 7009342.6945 E: 11862505.4359
C129	500.00'	103.11'	S79°45'58.16"E	N: 7009342.6945 E: 11862505.4359	N: 7009324.4076 E: 11862606.7271
C130	94.50'	2.81'	S74°42'31.91"E	N: 7009306.5318 E: 11862668.4906	N: 7009305.7919 E: 11862671.1968
C230	104.00'	25.99'	S81°01'08.44"E	N: 7009418.1889 E: 11862324.0623	N: 7009414.1416 E: 11862349.6715
C231	104.00'	25.96'	S81°00'35.97"E	N: 7009413.8124 E: 11862360.0267	N: 7009409.7659 E: 11862385.6045
C232	100.00'	67.69'	S54°27'58.78"E	N: 7009396.4089 E: 11862431.7547	N: 7009357.8144 E: 11862485.7950
C233	14.00'	9.14'	S16°22'06.39"E	N: 7009357.8144 E: 11862485.7950	N: 7009349.1989 E: 11862488.3256

LINE TABLE				
LINE #	LENGTH	DIRECTION	START POINT	END POINT
C127	45.858'	S65°06'00.02"E	N: 7009385.7401 E: 11862394.8144	N: 7009366.5072 E: 11862436.2482
C128	73.976'	S71°00'28.25"E	N: 7009366.5072 E: 11862436.2482	N: 7009342.6945 E: 11862505.4359
C129	103.111'	S79°45'58.16"E	N: 7009342.6945 E: 11862505.4359	N: 7009324.4076 E: 11862606.7271
C130	2.806'	S74°42'31.91"E	N: 7009306.5318 E: 11862668.4906	N: 7009305.7919 E: 11862671.1968
C230	25.995'	S81°01'08.44"E	N: 7009418.1889 E: 11862324.0623	N: 7009414.1416 E: 11862349.6715
C231	25.963'	S81°00'35.97"E	N: 7009413.8124 E: 11862360.0267	N: 7009409.7659 E: 11862385.6045
C232	67.692'	S54°27'58.78"E	N: 7009396.4089 E: 11862431.7547	N: 7009357.8144 E: 11862485.7950
C233	9.141'	S16°22'06.39"E	N: 7009357.8144 E: 11862485.7950	N: 7009349.1989 E: 11862488.3256

PROFILE STA. 49+50 TO STA. 54+15

SCALE: HORZ 1"=20'
VERT 1"=4'

0 10' 20' 40'
SCALE: 1"=20'

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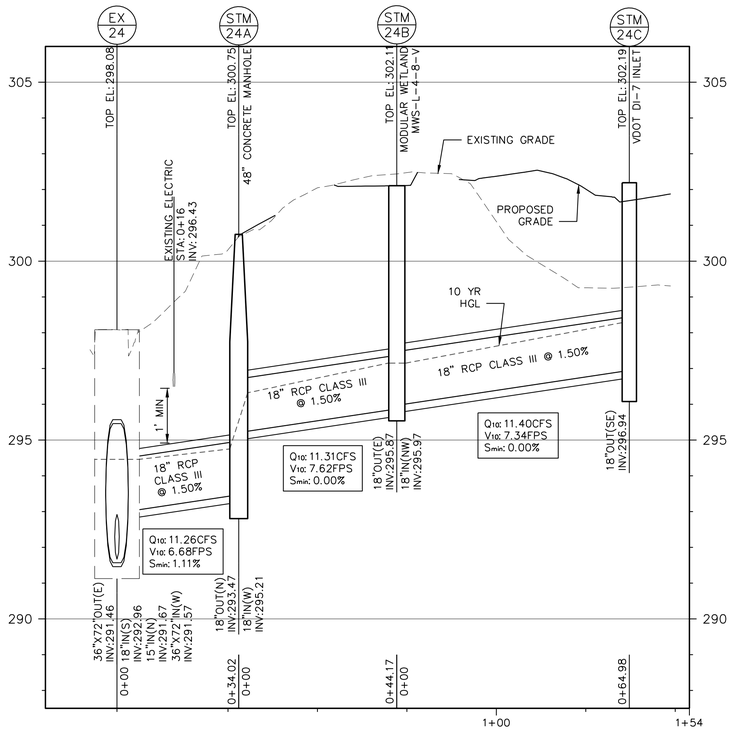
SHEET TITLE

HORIZONTAL AND VERTICAL ALIGNMENTS

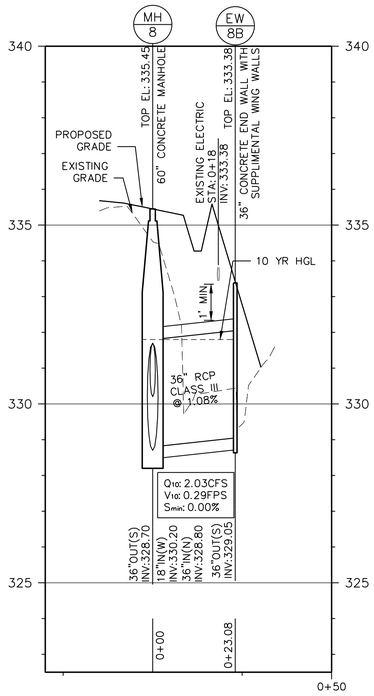
SHEET

CS1.11

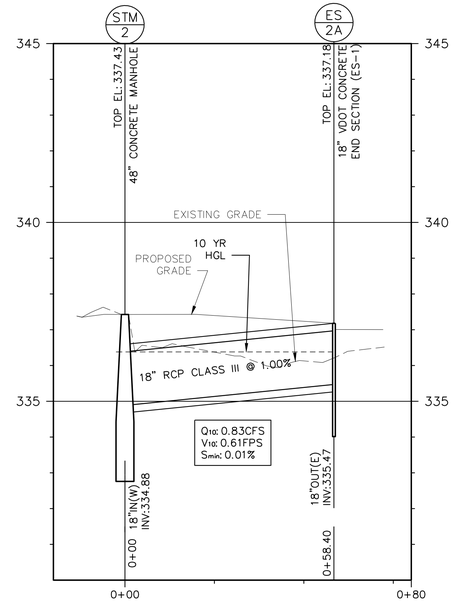
27 OF 100



STM 24C TO EX 24
SCALE: HORZ 1"=20'
VERT 1"=2'



MH8 TO EW8B
SCALE: HORZ 1"=20'
VERT 1"=2'



STM 2 TO STM 2A
SCALE: HORZ 1"=20'
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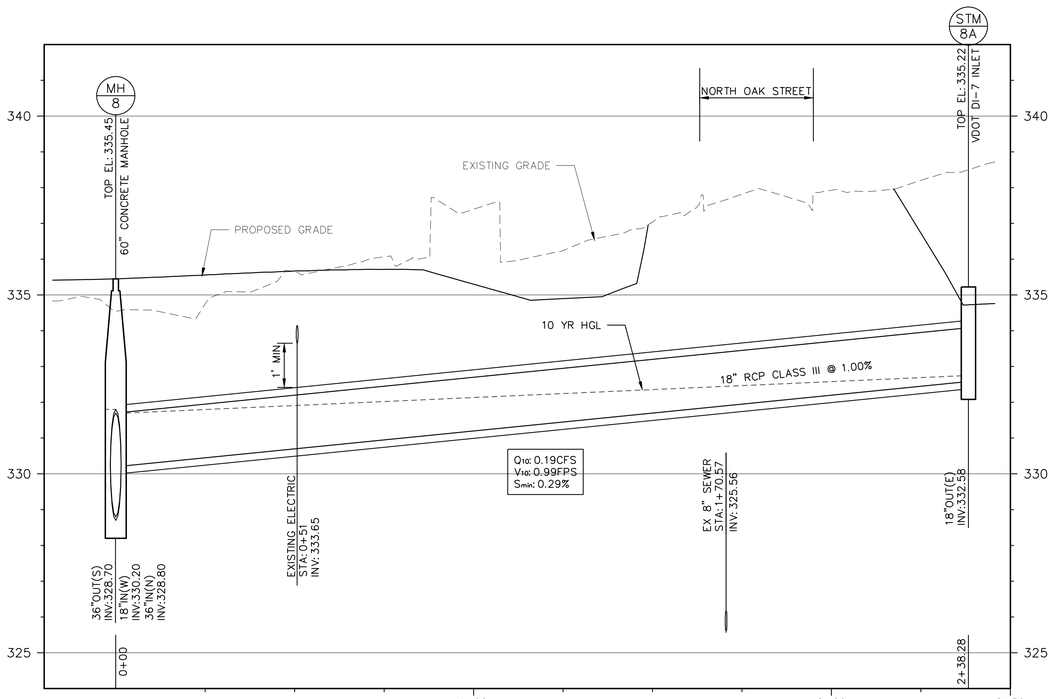
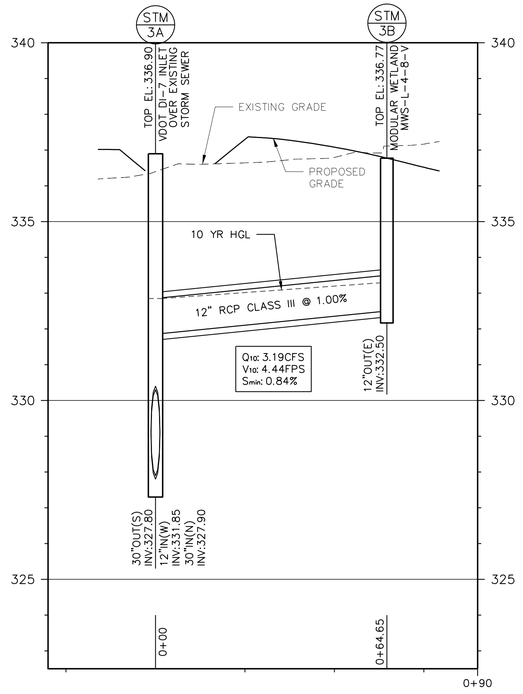


MH8 TO STM 8A
SCALE: HORZ 1"=20'
VERT 1"=2'



STM 3A TO STM 3B
SCALE: HORZ 1"=20'
VERT 1"=2'

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COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

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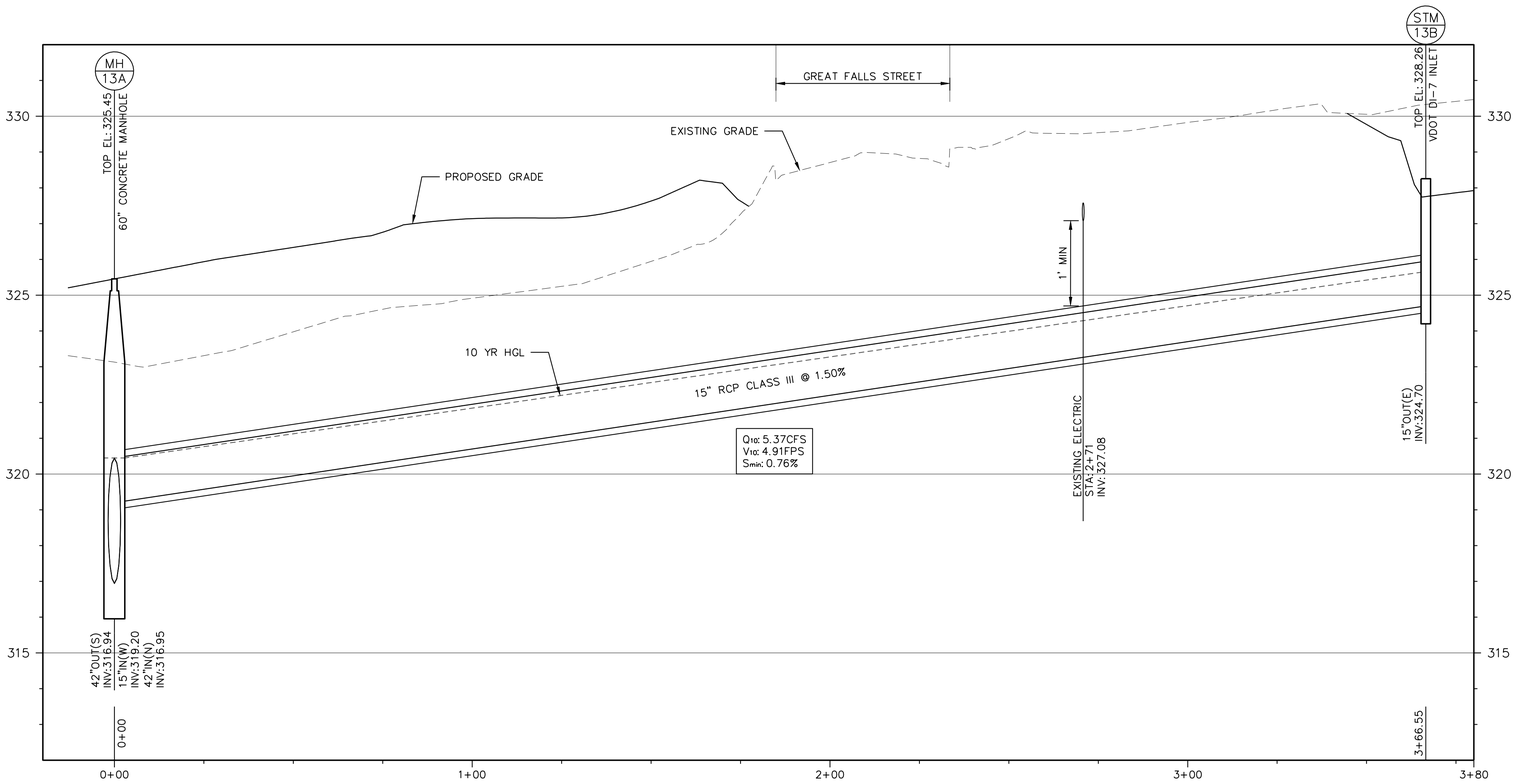
60% DESIGN

SHEET TITLE

PIPE PROFILES

SHEET

CS2.0



STM 13B TO STM 13A

SCALE: HORZ 1"=20'
VERT 1"=2'

10 YR STORM DRAIN FLOW CHART

LineID	Invert Up	Invert Dn	HGL Up	HGL Dn	Flow Rate	Vel	Sf	Line Slope	Drainage Area	Runoff Coeff	Incr CXA	Incr Q	n-value Pipe	Line Size	Total Area	Total CxA
	(ft)	(ft)	(ft)	(ft)	(cfs)	(ft/s)	(%)	(%)	(ac)	(C)		(cfs)		(in)	(ac)	
2A TO MH2	335.47	334.88	336.38	336.38	0.83	0.61	0.01	1.01	0.21	0.58	0.12	0.83	0.013	18	0.21	0.12
8A TO MH8	332.58	330.20	332.74	331.70	0.19	0.99	0.29	1.00	0.07	0.40	0.03	0.19	0.013	18	0.07	0.03
8B TO MH8	329.05	328.80	331.80	331.80	2.03	0.29	0.00	1.08	0.74	0.40	0.30	2.03	0.013	36	0.74	0.3
3B TO 3A	332.50	331.85	333.29	332.85	3.19	4.44	0.84	1.01	0.79	0.59	0.47	3.19	0.013	12	0.79	0.47
13B TO 13A	324.70	319.20	325.64	320.45	5.37	4.91	0.76	1.50	1.48	0.53	0.78	5.37	0.013	15	1.48	0.78
24C TO 24B	296.94	295.97	298.28	297.15	11.40	7.34	0.00	1.51	3.33	0.50	1.67	11.40	0.013	18	3.33	1.67
24B TO 24A	295.87	295.21	297.15	296.32	11.31	7.62	0.00	1.50	-	-	-	-	0.013	18	3.33	1.67
24A TO 24	293.47	292.96	294.75	294.46	11.26	6.68	1.11	1.50	-	-	-	-	0.013	18	3.33	1.67

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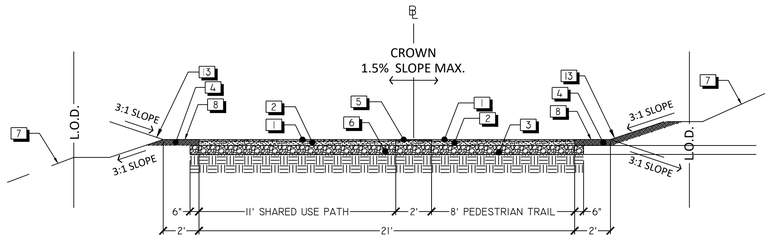
SHEET TITLE

PIPE PROFILES

SHEET

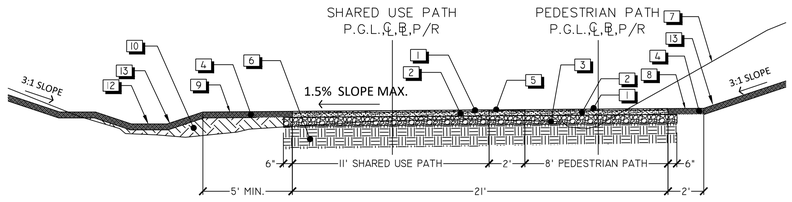
CS2.1



STA. 7+00-9+85, 10+65-12+07, 13+53-18-65, 19+95-30+62, 31+40-39+90, 42+00-46+75, 48+00-49+75

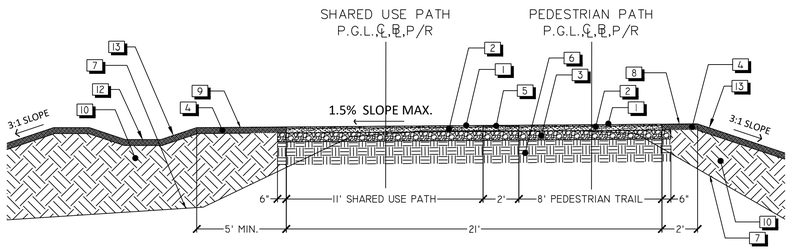
1 W&OD TRAIL TYPICAL SECTION

3" = 1'-0" 3402-27



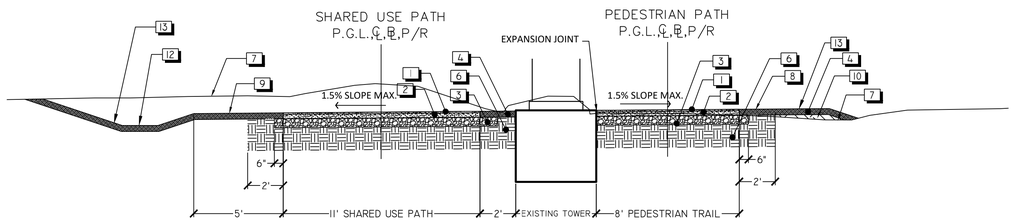
2 W&OD TRAIL TYPICAL CUT SECTION

3" = 1'-0" 3402-26



3 W&OD TRAIL TYPICAL FILL SECTION

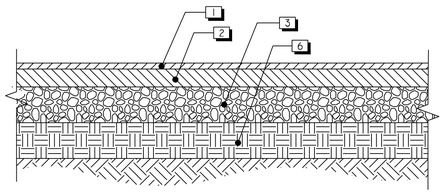
3" = 1'-0" 3402-29

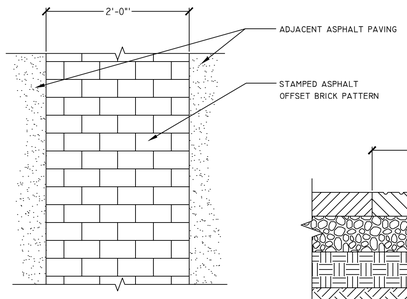


STA. 10+25, 41+53, 47+42, 50+40

4 W&OD TRAIL TYPICAL AT ELECTRIC TOWER

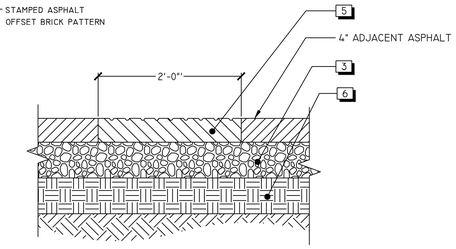
3" = 1'-0" 3402-30





NOTES:

1. SEE THE PROJECT SITE PLANS FOR THE SIZE AND SHAPE OF THE AREA TO BE STAMPED. THIS DETAIL IS FOR SCHEMATIC PURPOSES ONLY.
2. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. CONFIRM PATTERN,TEXTURE, AND COLOR PRIOR TO INSTALLATION.



SCHEMATIC PLAN VIEW

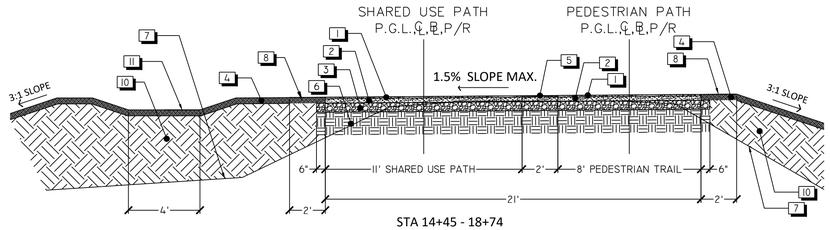
SCHEMATIC SECTION VIEW

5 W&OD ASPHALT TRAIL

1" = 1'-0" 3402-32

6 W&OD STAMPED ASPHALT

1" = 1'-0" 3402-33



STA 14+45 - 18+74

7 W&OD TRAIL TYPICAL FILL AND CHANNEL SECTION

3" = 1'-0" 3402-37

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION
1	1" ASPHALT CONCRETE, TYPE SM-9.0A ESTIMATED AT 115 LBS/SY
2	3" ASPHALT CONCRETE, TYPE IM-19.0A, ESTIMATED AT 363 LBS/SY
3	6" SUBBASE AGGREGATE BASE MATERIAL TYPE 1, SIZE NO. 21B
4	4" TOPSOIL (GRADE TO MATCH EXISTING CONDITIONS)
5	STAMPED ASPHALT
6	95% COMPACTED SUBSOIL
7	EXISTING GRADE, VARIES
8	SHOULDER
9	STORMWATER MANAGEMENT FILTER
10	FILL
11	STORMWATER MANAGEMENT CHANNEL
12	STORMWATER MANAGEMENT SWALE DETAIL 1&2/CW5.1
13	PROPOSED GRADE

STAMPED ASPHALT

PART 1 - GENERAL

1.1 SUMMARY

A. SECTION INCLUDES EMBOSSING PATTERNS IN NEW ASPHALT PAVEMENT.

1.2 PREINSTALLATION MEETINGS

A. PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT W&OD TRAIL.

1.3 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

B. SAMPLES: FOR EACH EXPOSED PRODUCT AND FOR EACH COLOR AND TEXTURE SPECIFIED.

1.4 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: IMPRINTED-ASPHALT MANUFACTURER'S AUTHORIZED INSTALLER WHO IS TRAINED AND APPROVED FOR INSTALLATION OF IMPRINTED ASPHALT REQUIRED FOR THIS PROJECT.

B. INSTALLER TO PROVIDE A 5'X5' MOCK-UP ON SITE FOR APPROVAL.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. ALTERNATIVE PAVING CONCEPTS
P.O. BOX 9201, RESTON, VA 20195
1-866-697-4338

B. OR APPROVED MANUFACTURER.

2.2 MATERIALS

A. TEMPLATES: IMPRINTED-ASPHALT MANUFACTURER'S STANDARD FLEXIBLE TEMPLATES FOR IMPRINTING PATTERN INTO HOT ASPHALT PAVING.

1. PATTERN: RUNNING BOND BRICK.

B. COATING SYSTEM: IMPRINTED-ASPHALT MANUFACTURER'S STANDARD SYSTEM FORMULATED FOR EXTERIOR APPLICATION ON ASPHALT PAVING SURFACES.

1. COLORANT: UV-STABLE PIGMENT BLEND, ADDED TO EACH COATING LAYER.

2. COLOR: BRICK RED.

PART 3 - EXECUTION

3.1 EXAMINATION

A. VERIFY THAT UTILITIES, TRAFFIC LOOP DETECTORS, AND OTHER ITEMS REQUIRING A CUT AND INSTALLATION BENEATH THE ASPHALT SURFACE OR REPAIRS TO THE ASPHALT SURFACE HAVE BEEN COMPLETED AND THAT ASPHALT SURFACE IS FLUSH WITH ADJACENT ASPHALT PRIOR TO BEGINNING INSTALLATION OF IMPRINTED ASPHALT.

3.2 IMPRINTING ASPHALT

A. GENERAL: IMPRINT ASPHALT ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, USING MANUFACTURER'S RECOMMENDED EQUIPMENT.

B. FRESHLY LAID ASPHALT: IMMEDIATELY AFTER ASPHALT HAS BEEN LAID AND COMPACTED BUT STILL PLASTIC, BEGIN THE SURFACE-IMPRINTING PROCESS.

1. MONITOR ASPHALT SURFACE TEMPERATURE TO COMPLY WITH IMPRINTED-ASPHALT MANUFACTURER'S WRITTEN RECOMMENDATIONS TO ENSURE REQUIRED TEMPERATURE TO PERFORM SURFACE IMPRINTING.

2. REHEAT ASPHALT IF SURFACE TEMPERATURE DROPS BELOW THAT REQUIRED.

C. APPLYING COATING: AFTER IMPRINTED SURFACE HAS COOLED, APPLY TWO LAYERS OF BASE COATING FOLLOWED BY TWO LAYERS OF TOP COATING. DO NOT ALLOW TRAFFIC UNTIL COATING HAS COMPLETELY DRIED AND CURED.

END OF SECTION 321223

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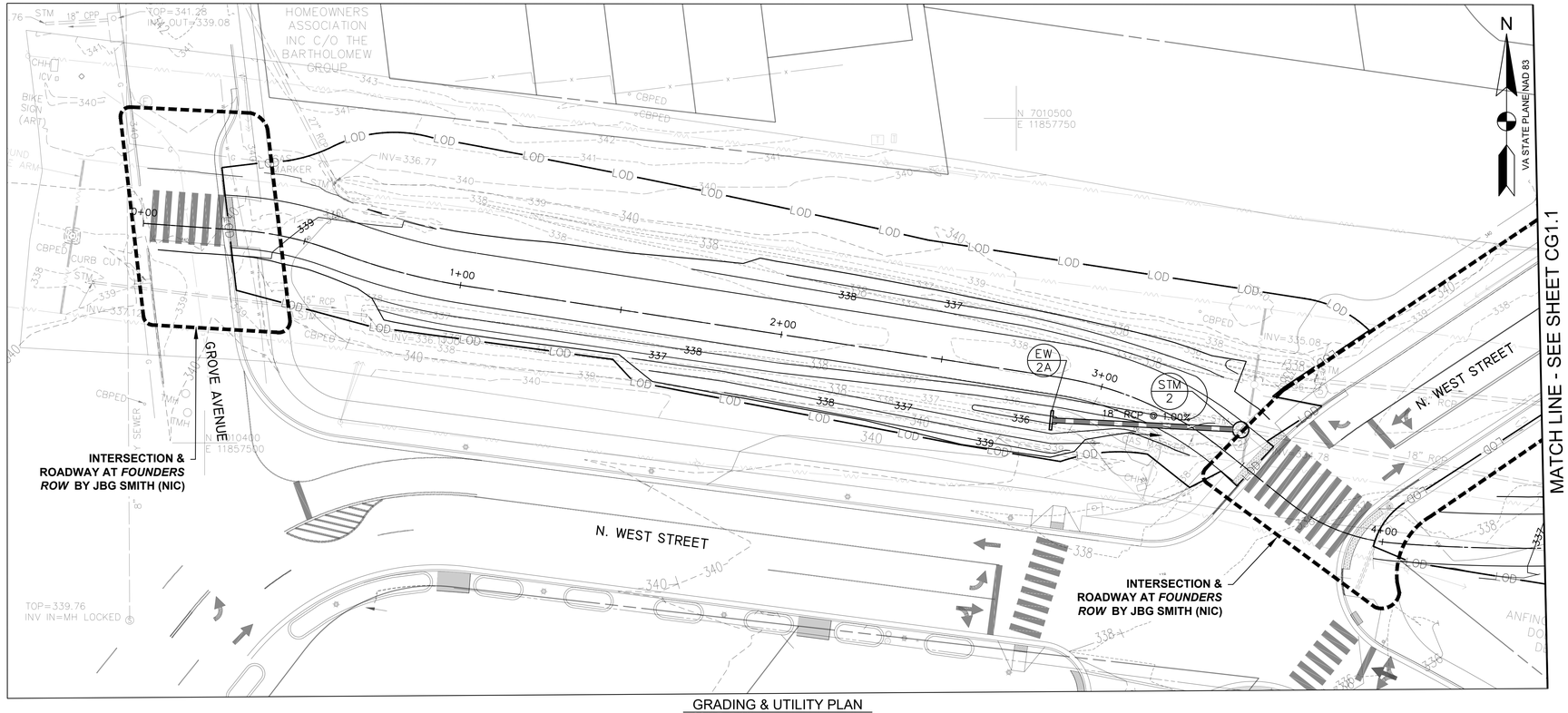
SHEET TITLE

TYPICAL SECTIONS

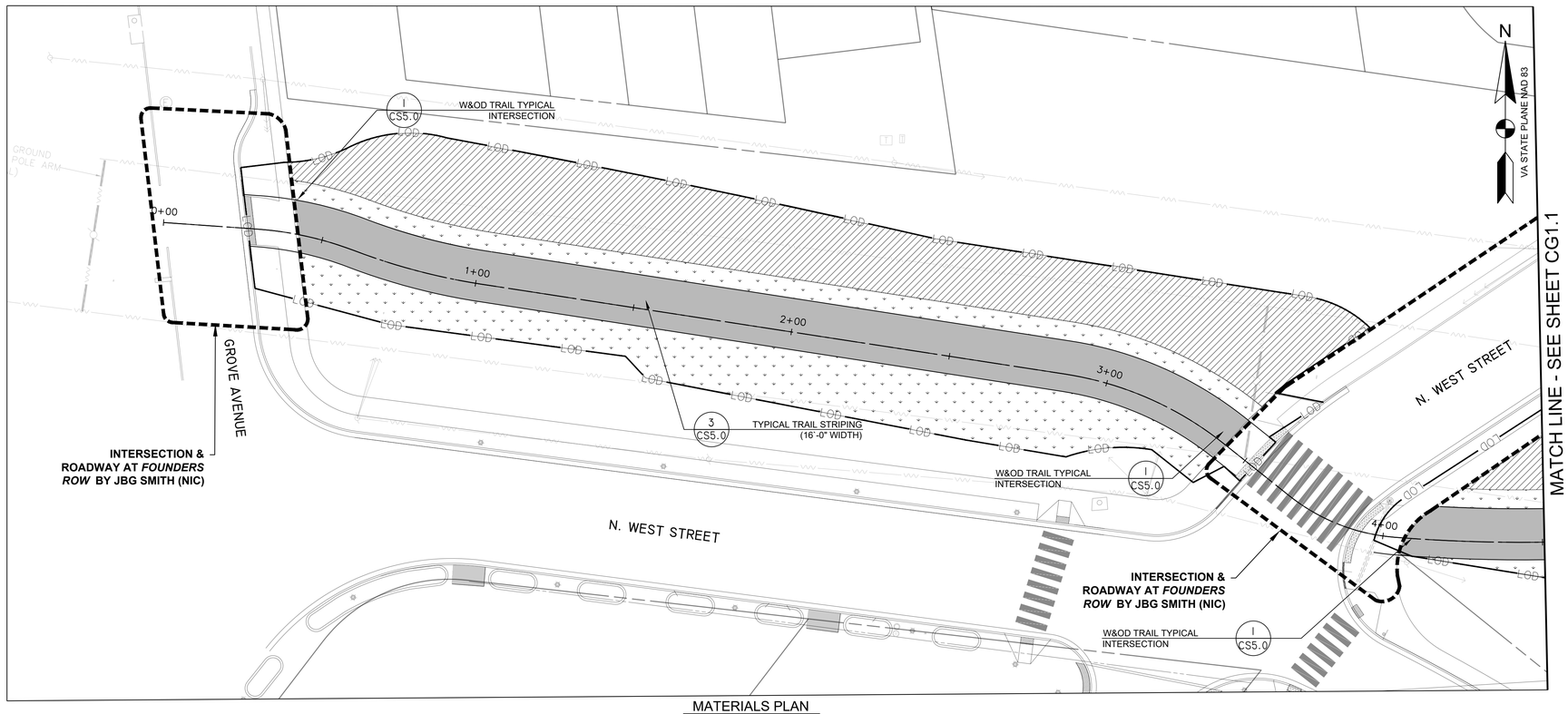
SHEET

CS3.0

30 OF 100



GRADING & UTILITY PLAN
SCALE: 1"=20'



MATERIALS PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

LEGEND

- LOD — LIMITS OF DISTURBANCE
- LOD/TP — TREE PROTECTION FENCING AT LIMITS OF DISTURBANCE
- PROPOSED PEDESTRIAN TRAIL
- PROPOSED BICYCLE TRAIL
- 339 — PROPOSED MINOR CONTOUR
- 340 — PROPOSED MAJOR CONTOUR
- PROPOSED STORMWATER MANAGEMENT - DRY SWALE (336.0 G)
- SF — PROPOSED SILT FENCE
- RP — PROPOSED ROOT PRUNING
- C — CUT LINE
- F — FILL LINE
- CHECK DAMS
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

MATERIAL SCHEDULE

- TURFGRASS SEEDING - REFER TO CS5.3 FOR SCHEDULE
- MEADOW PLANTING - REFER TO CS5.3 FOR SCHEDULE
- PERENNIAL PLANTING - REFER TO CS5.3 FOR SCHEDULE
- ASPHALT TRAIL - REFER TO DETAIL 5/CS3.0
- STAMPED ASPHALT BUFFER (2' TYP.) - REFER TO DETAIL 5/CS3.0
- PERMEABLE CONCRETE PAVEMENT - REFER TO DETAIL 4/CWS.1

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EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

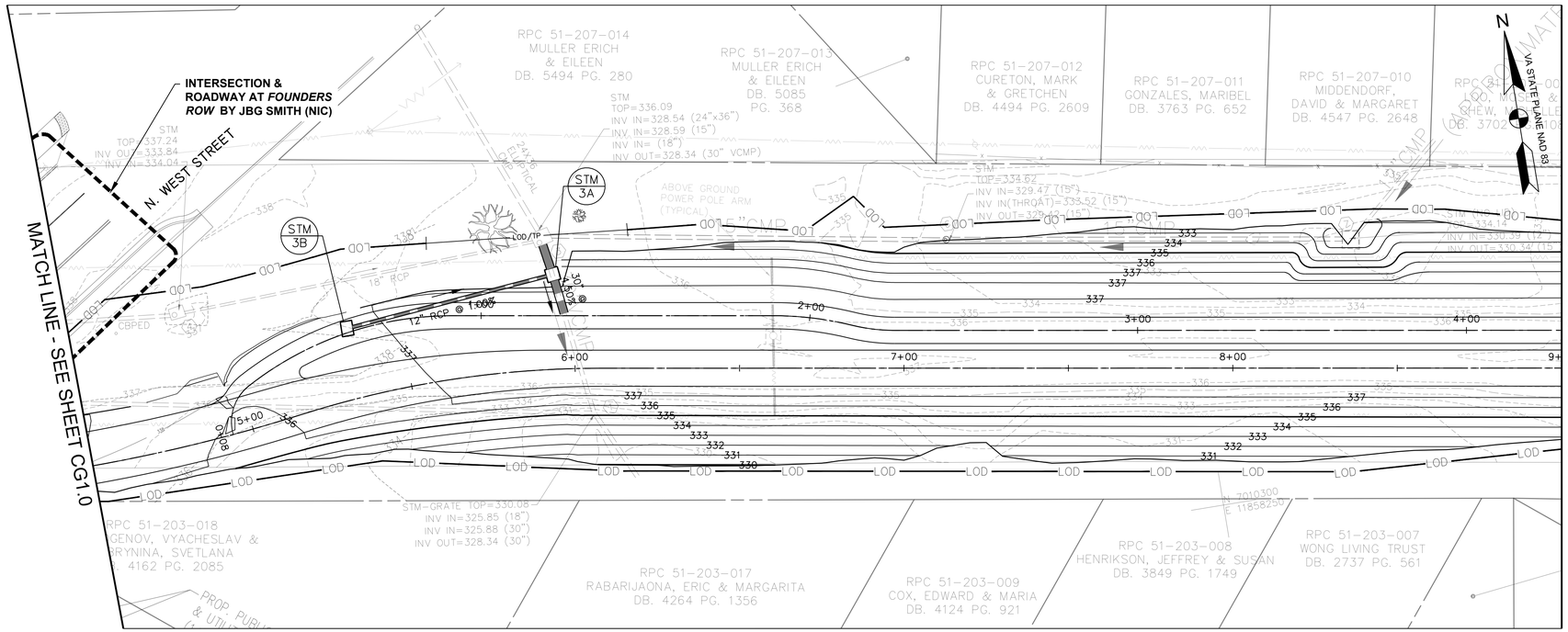
SHEET TITLE

GRADING - UTILITY PLAN & MATERIALS PLAN

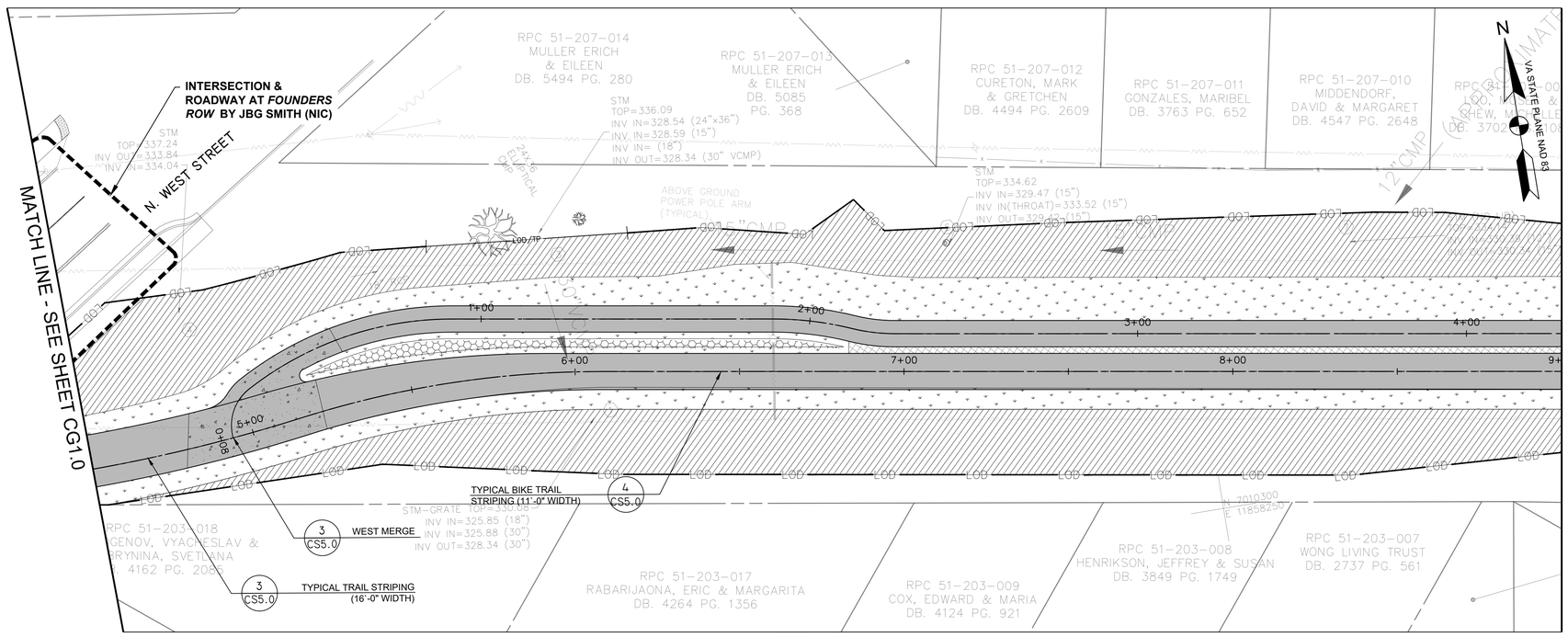
SHEET

CG1.0

31 OF 100



GRADING & UTILITY PLAN
SCALE: 1"=20'



MATERIALS PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

LEGEND

- LOD — LIMITS OF DISTURBANCE
- LOD/TP — TREE PROTECTION FENCING AT LIMITS OF DISTURBANCE
- PROPOSED PEDESTRIAN TRAIL
- PROPOSED BICYCLE TRAIL
- 339 — PROPOSED MINOR CONTOUR
- 340 — PROPOSED MAJOR CONTOUR
- 336.0 G — PROPOSED STORMWATER MANAGEMENT - DRY SWALE
- SF — PROPOSED SILT FENCE
- RP — PROPOSED ROOT PRUNING
- C — CUT LINE
- F — FILL LINE
- CHECK DAMS
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

MATERIAL SCHEDULE

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PROJECT TITLE

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FALLS CHURCH, VA
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REVISIONS

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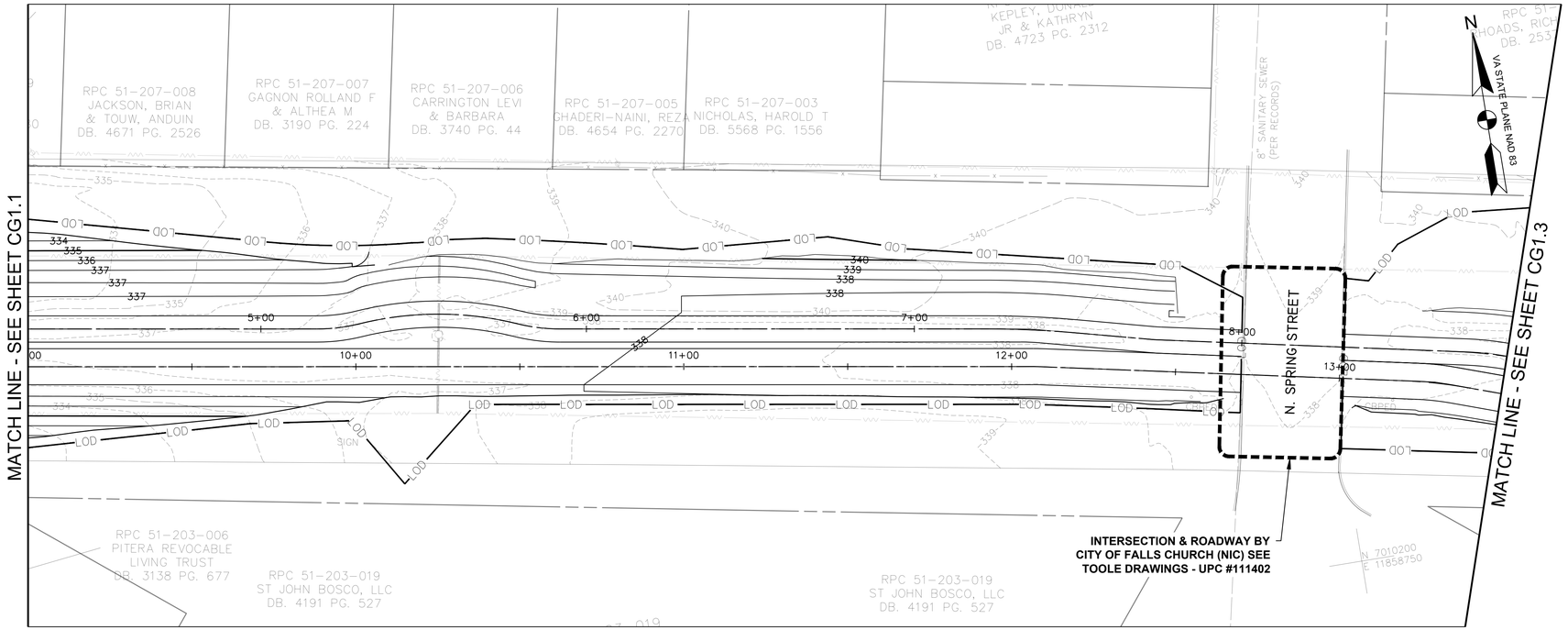
60% DESIGN

SHEET TITLE

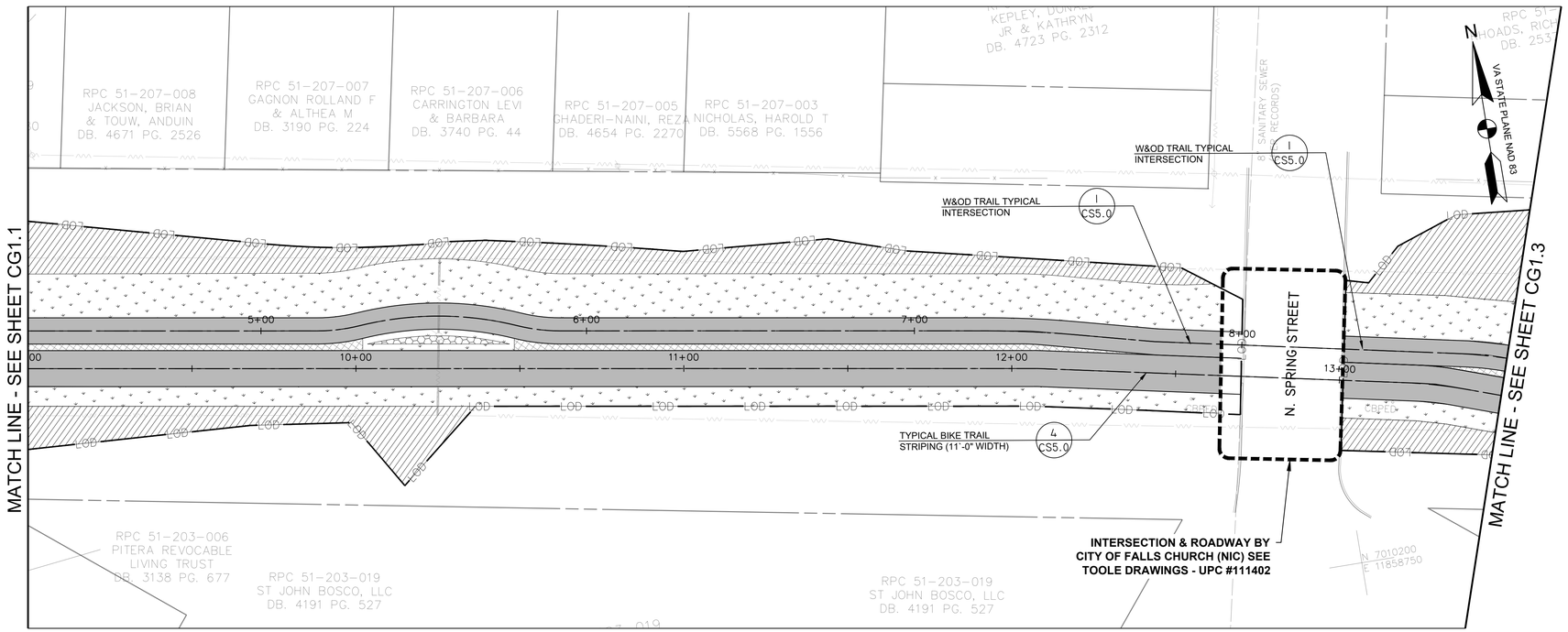
GRADING - UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.1



GRADING & UTILITY PLAN
SCALE: 1"=20'



MATERIALS PLAN
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- 4" PERF. PVC SCHD 40 PIPE

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SCALE: 1"=20'

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PROJECT TITLE

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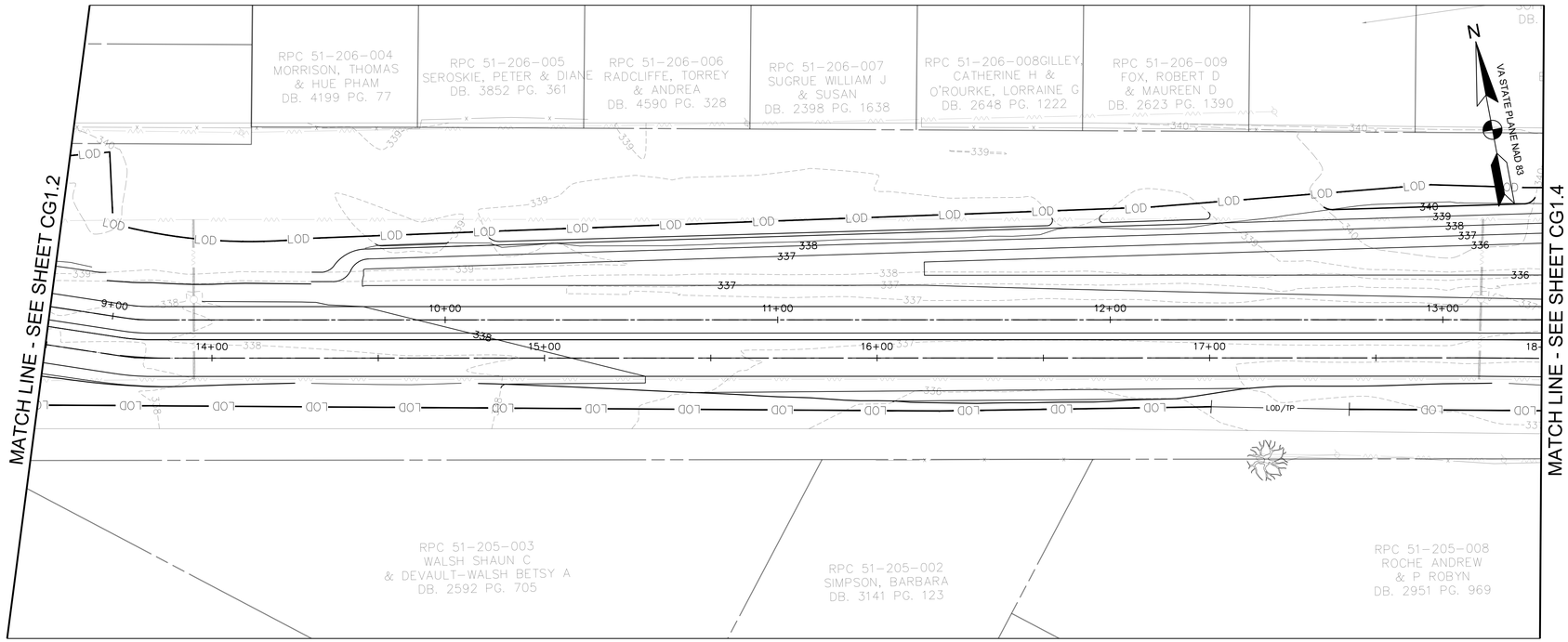
60% DESIGN

SHEET TITLE

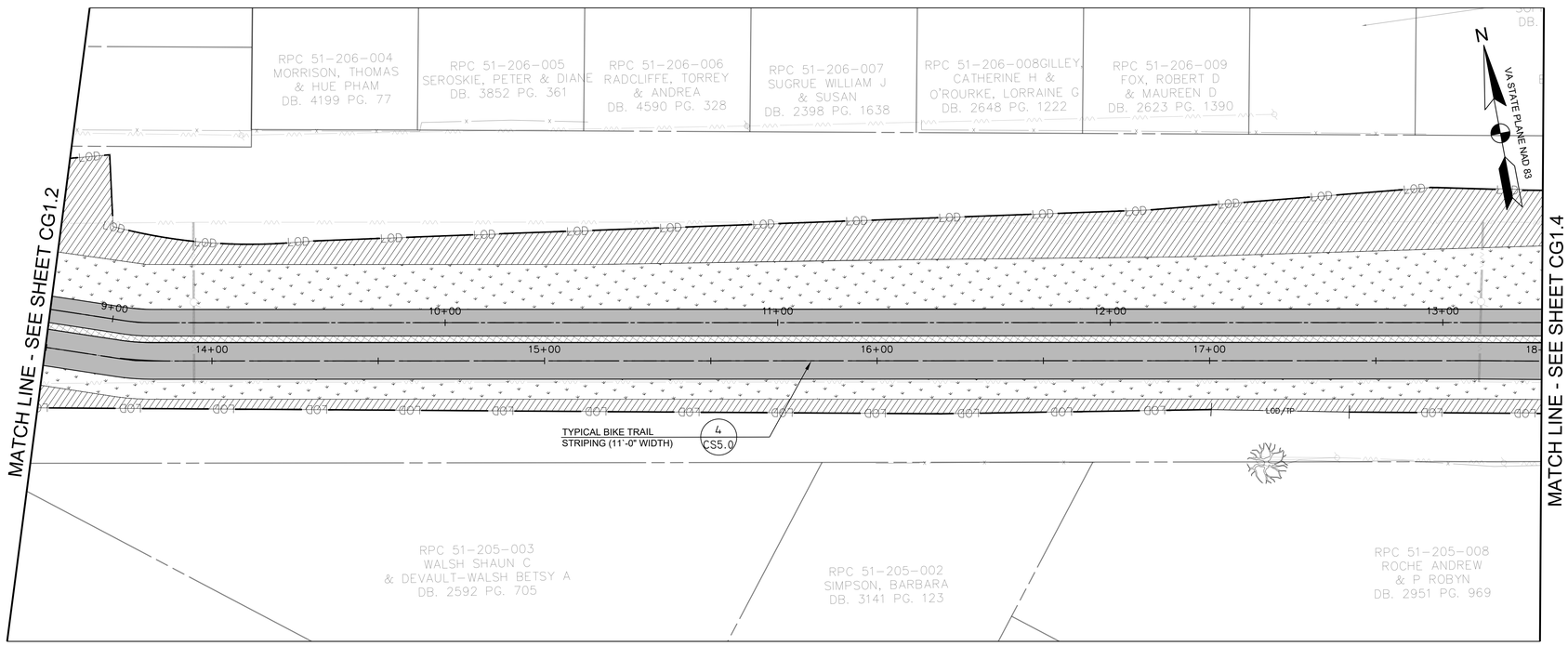
GRADING - UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.2



GRADING & UTILITY PLAN
SCALE: 1"=20'



MATERIALS PLAN
SCALE: 1"=20'

LEGEND

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

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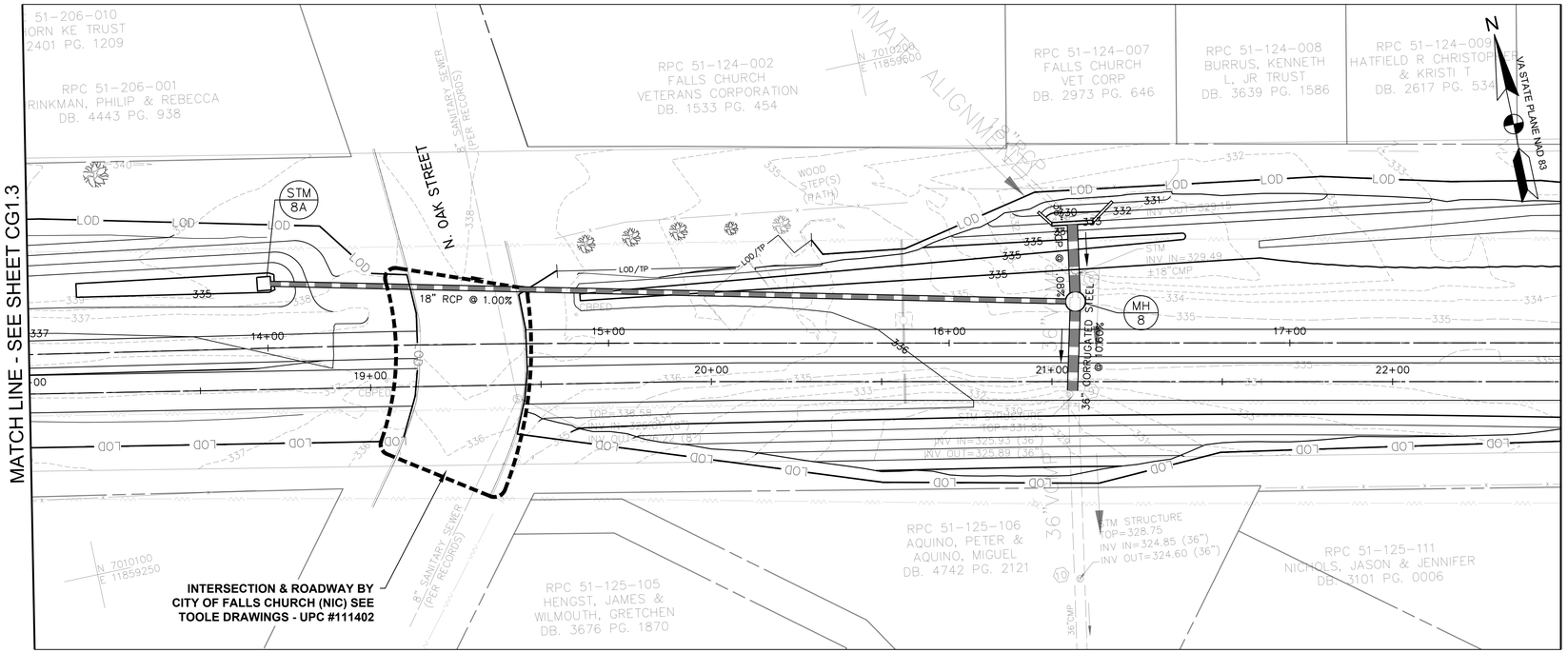
60% DESIGN

SHEET TITLE

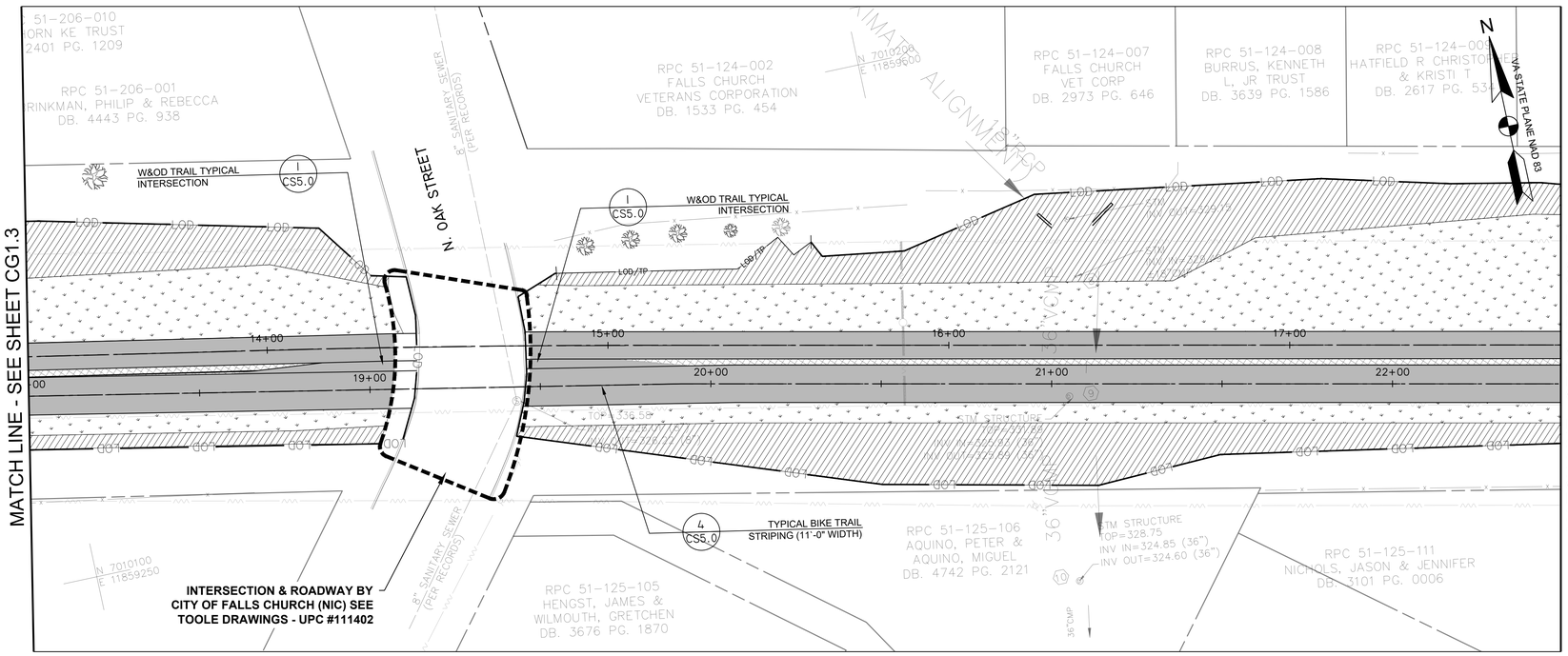
GRADING - UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.3



GRADING & UTILITY PLAN
SCALE: 1"=20'



MATERIALS PLAN
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LEGEND

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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

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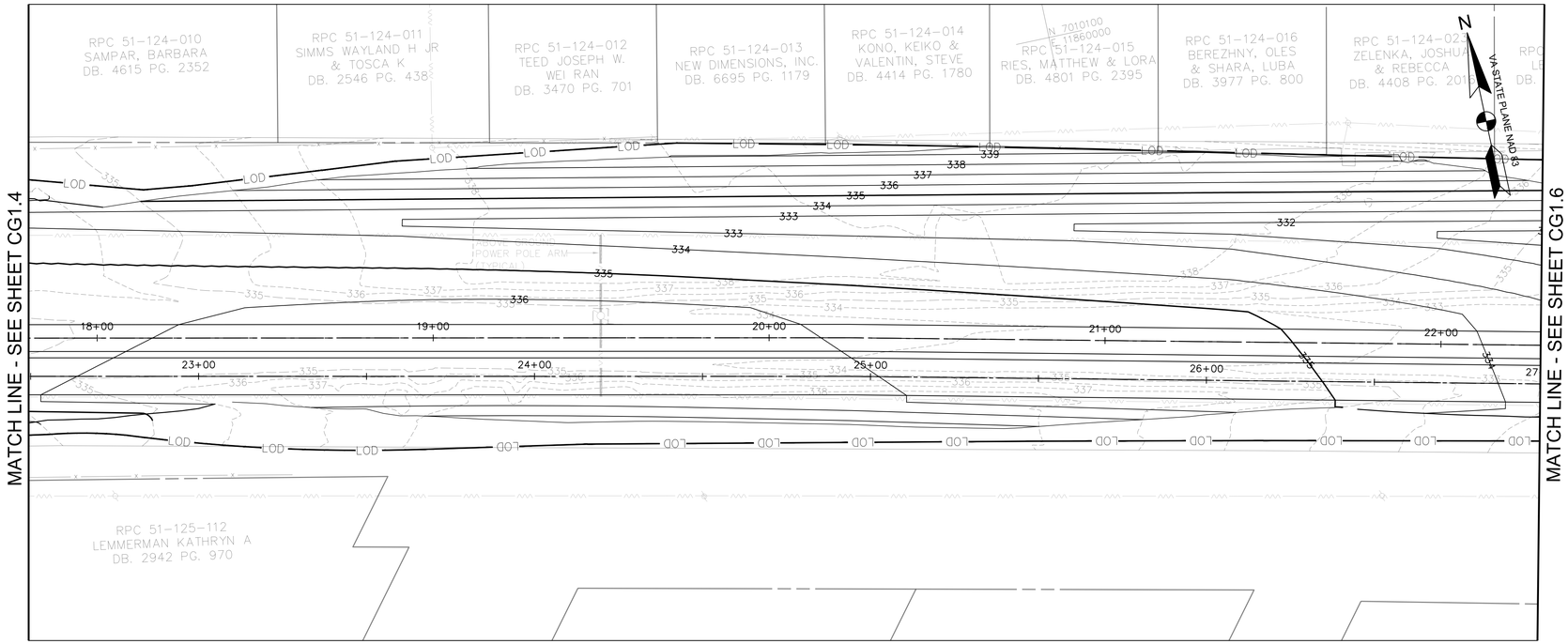
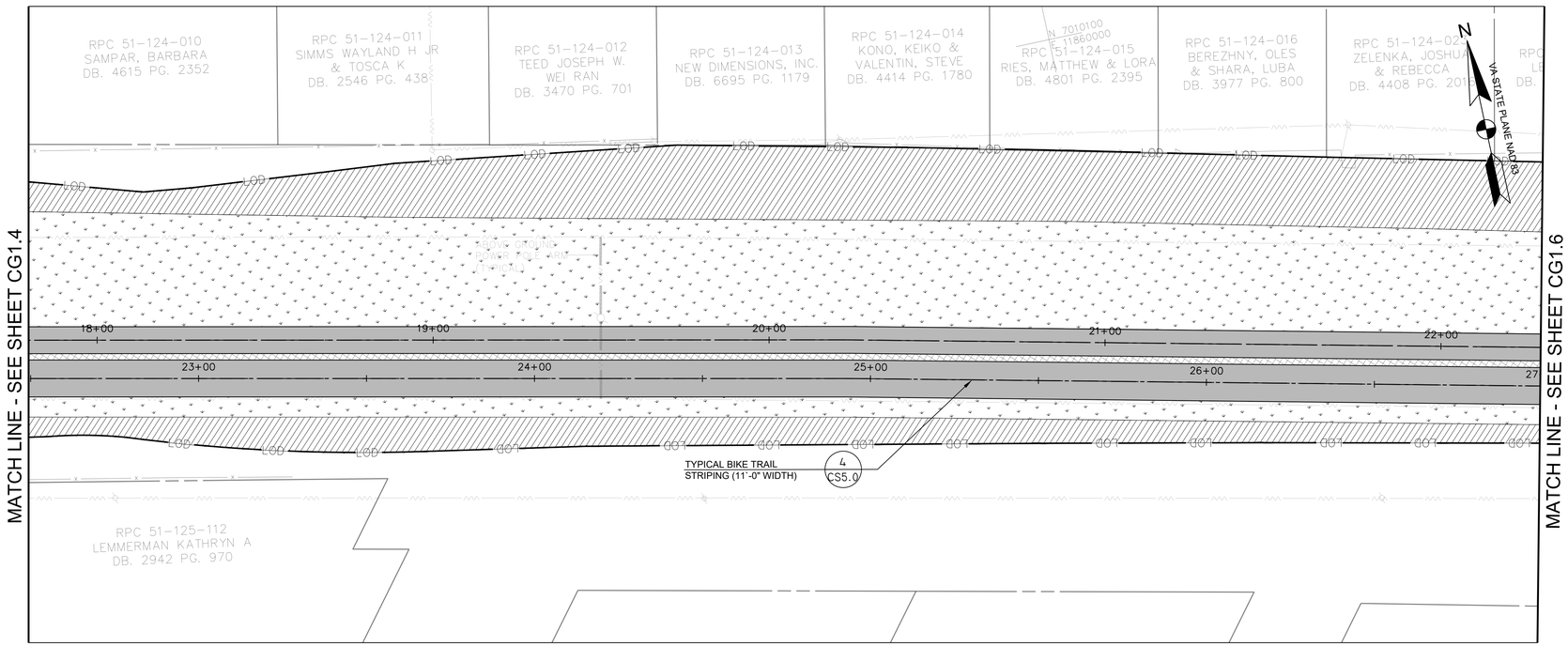
60% DESIGN

SHEET TITLE
GRADING - UTILITY PLAN & MATERIALS PLAN

SHEET
CG1.4
35 OF 100



GRADING & UTILITY PLAN
SCALE: 1"=20'



MATERIALS PLAN
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LEGEND

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

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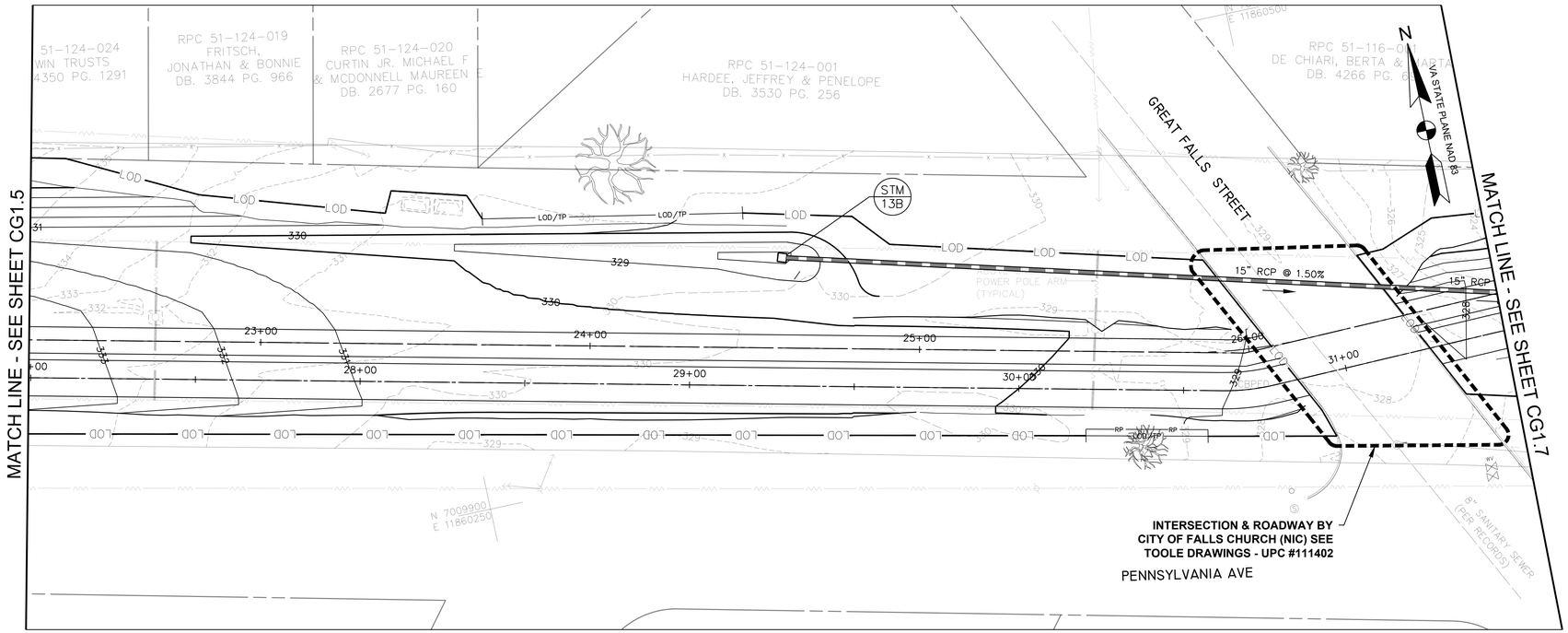
SHEET TITLE

GRADING - UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.5



GRADING & UTILITY PLAN
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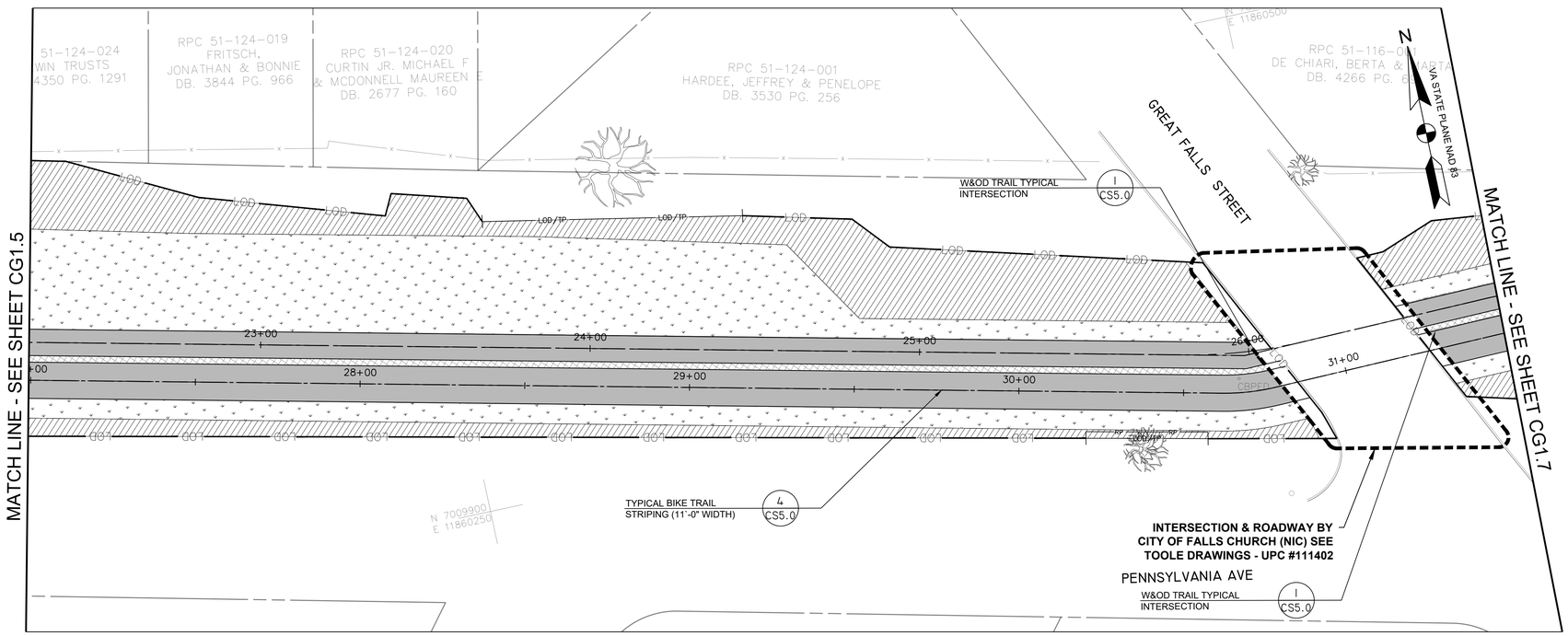

MATERIALS PLAN
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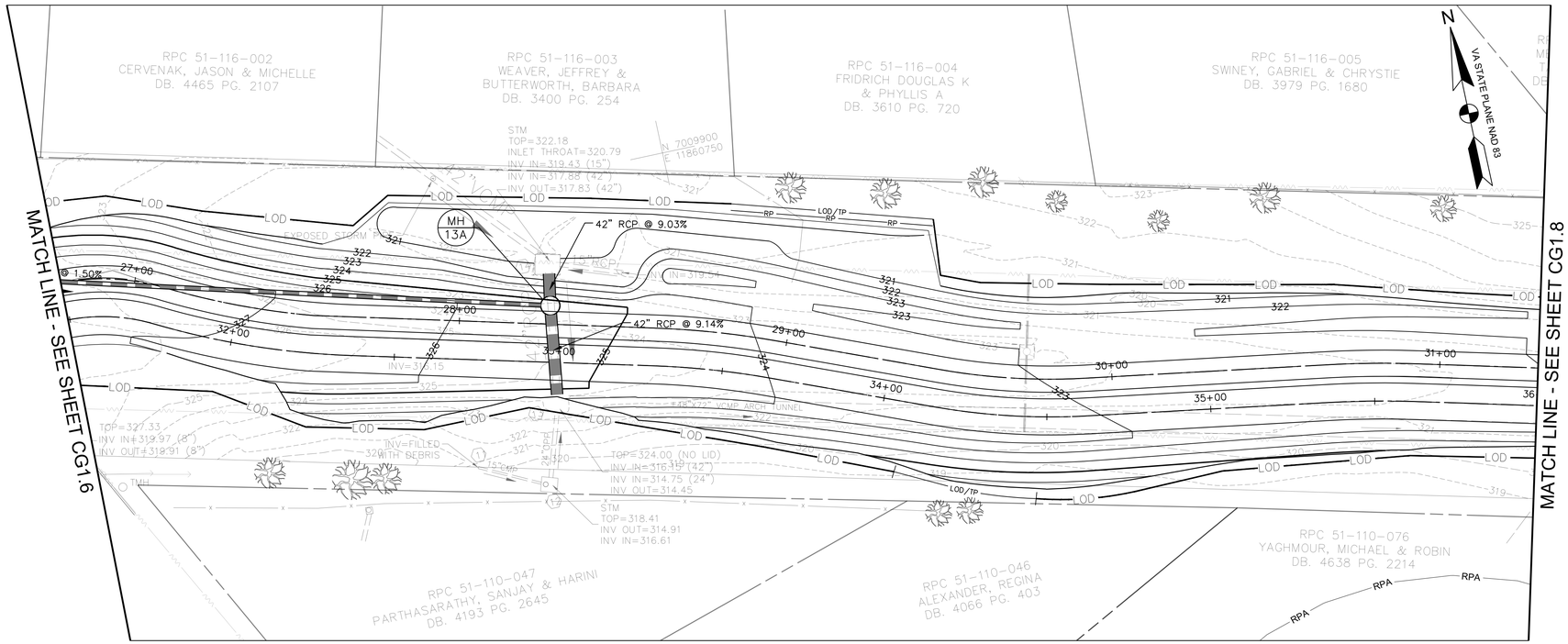
SHEET TITLE

GRADING - UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.6

37 OF 100



GRADING & UTILITY PLAN
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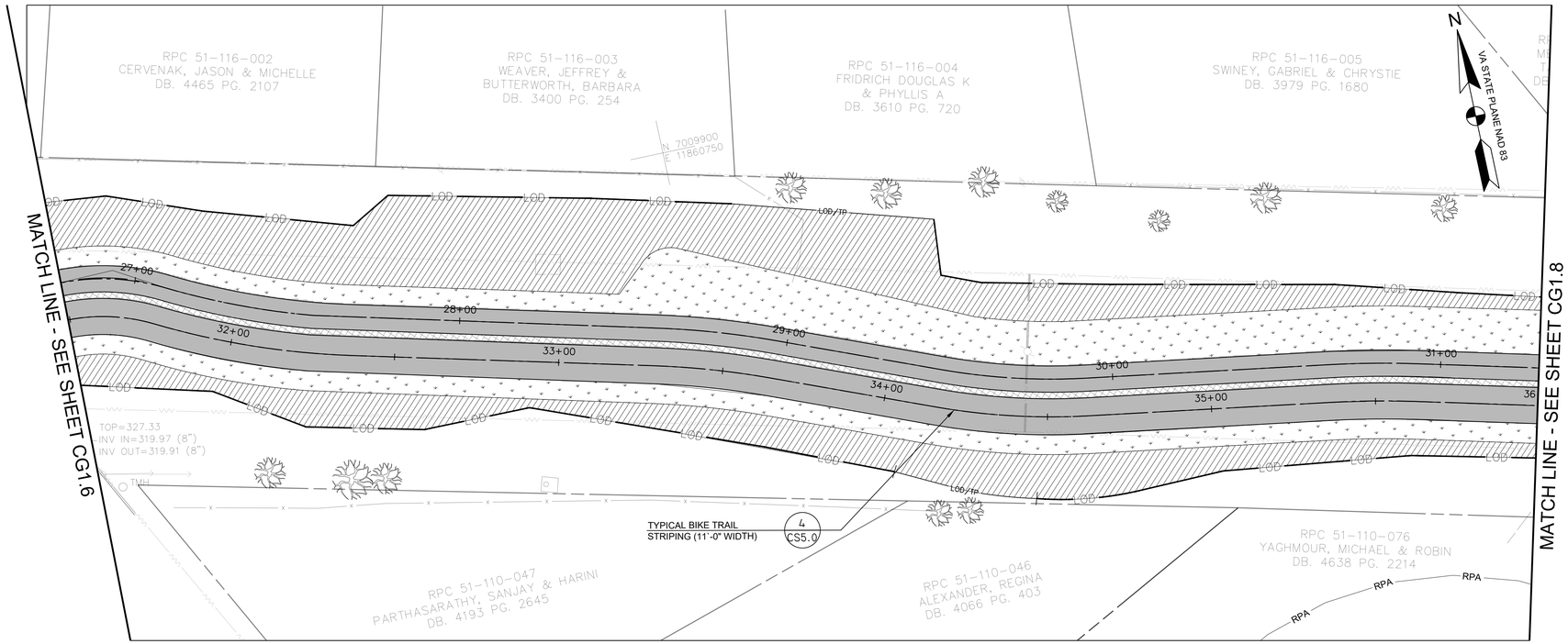

MATERIALS PLAN
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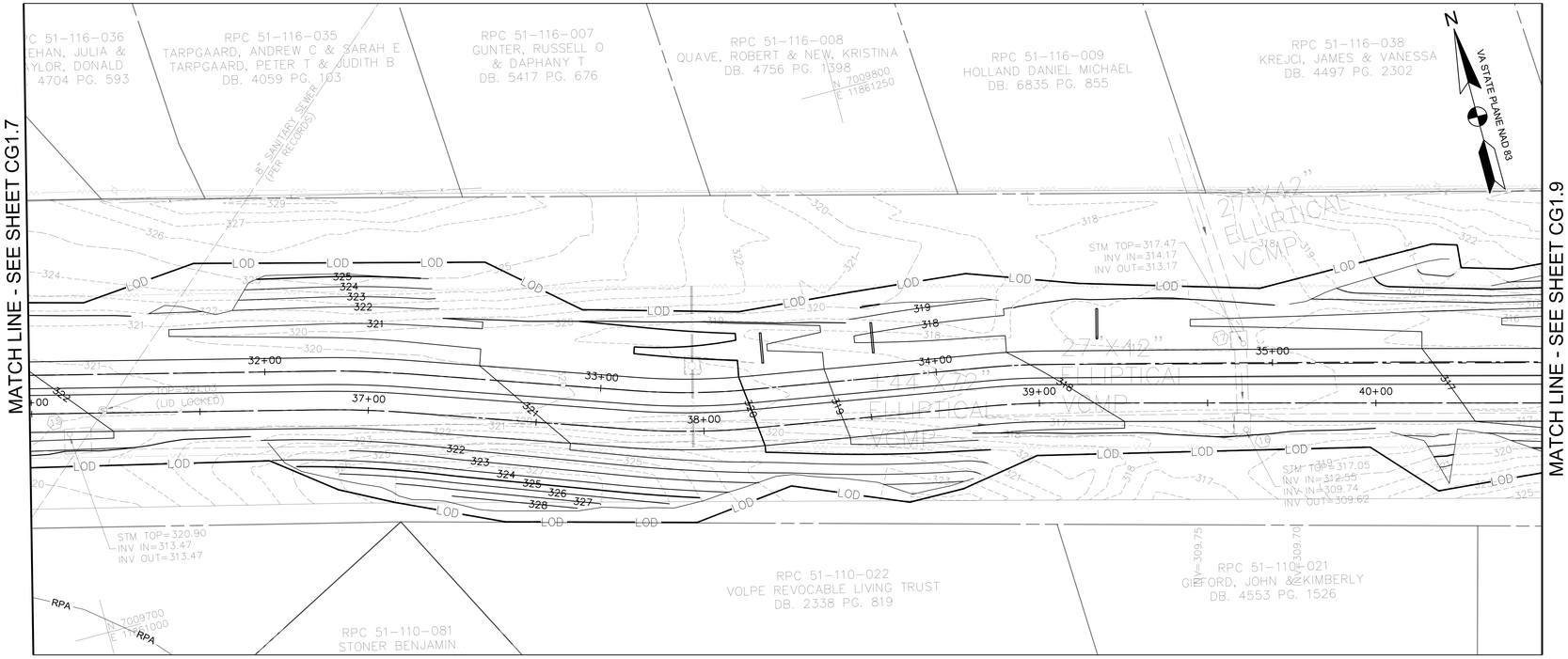
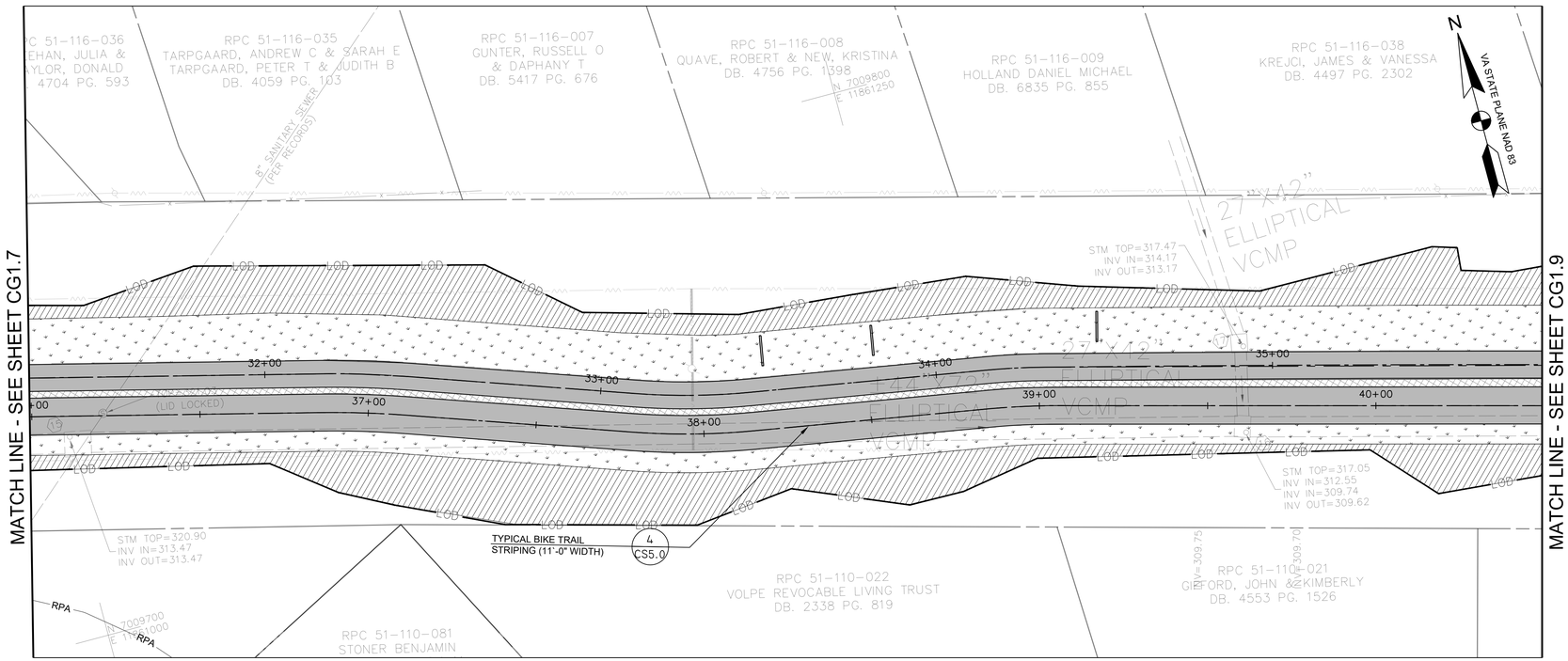
SHEET
CG1.7



GRADING & UTILITY PLAN
SCALE: 1"=20'



MATERIALS PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

LEGEND

- LOD — LIMITS OF DISTURBANCE
- LOD/TP — TREE PROTECTION FENCING AT LIMITS OF DISTURBANCE
- PROPOSED PEDESTRIAN TRAIL
- PROPOSED BICYCLE TRAIL
- 339 — PROPOSED MINOR CONTOUR
- 340 — PROPOSED MAJOR CONTOUR
- 336.0 G — PROPOSED STORMWATER MANAGEMENT - DRY SWALE
- SF — PROPOSED SILT FENCE
- RP — PROPOSED ROOT PRUNING
- C — CUT LINE
- F — FILL LINE
- CHECK DAMS
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

MATERIAL SCHEDULE

- TURFGRASS SEEDING - REFER TO CS5.3 FOR SCHEDULE
- MEADOW PLANTING - REFER TO CS5.3 FOR SCHEDULE
- PERENNIAL PLANTING - REFER TO CS5.3 FOR SCHEDULE
- ASPHALT TRAIL - REFER TO DETAIL 5/CS3.0
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COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0606001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

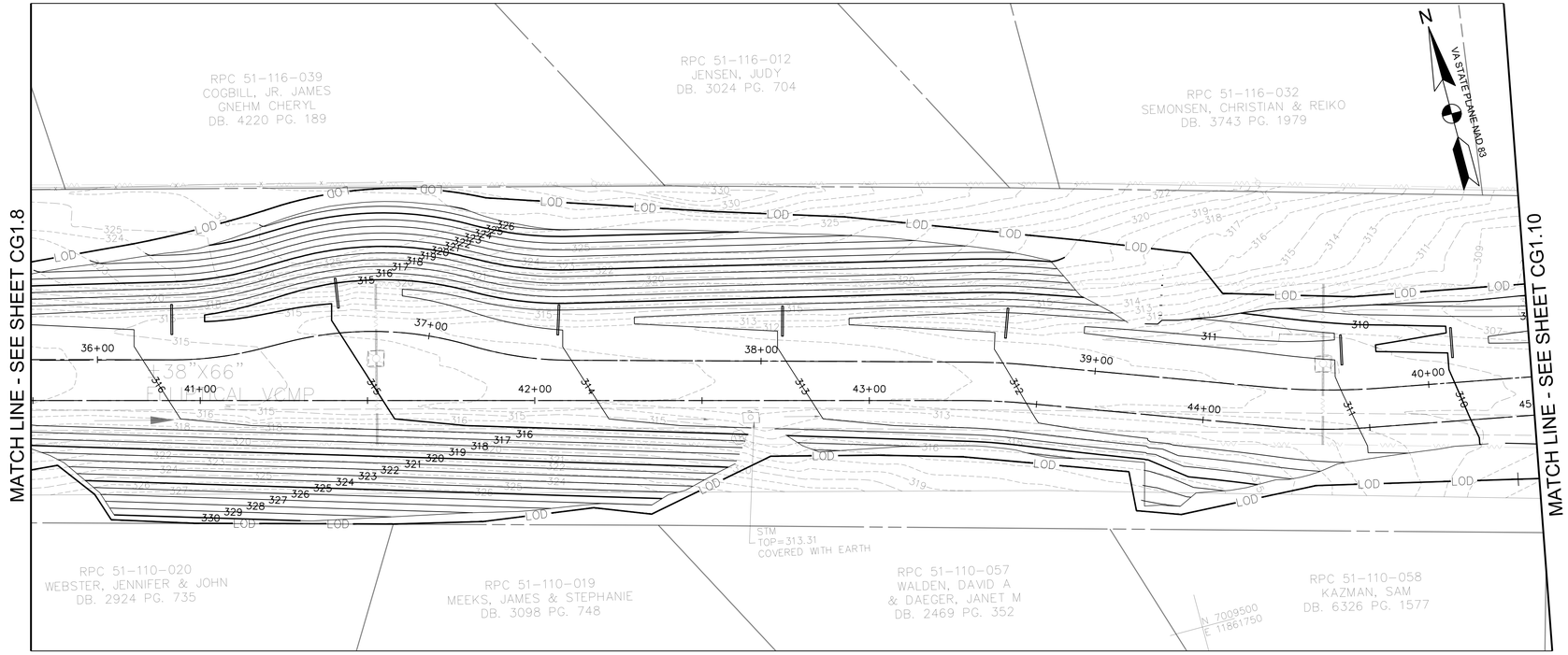
SHEET TITLE

GRADING - UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.8

39 OF 100



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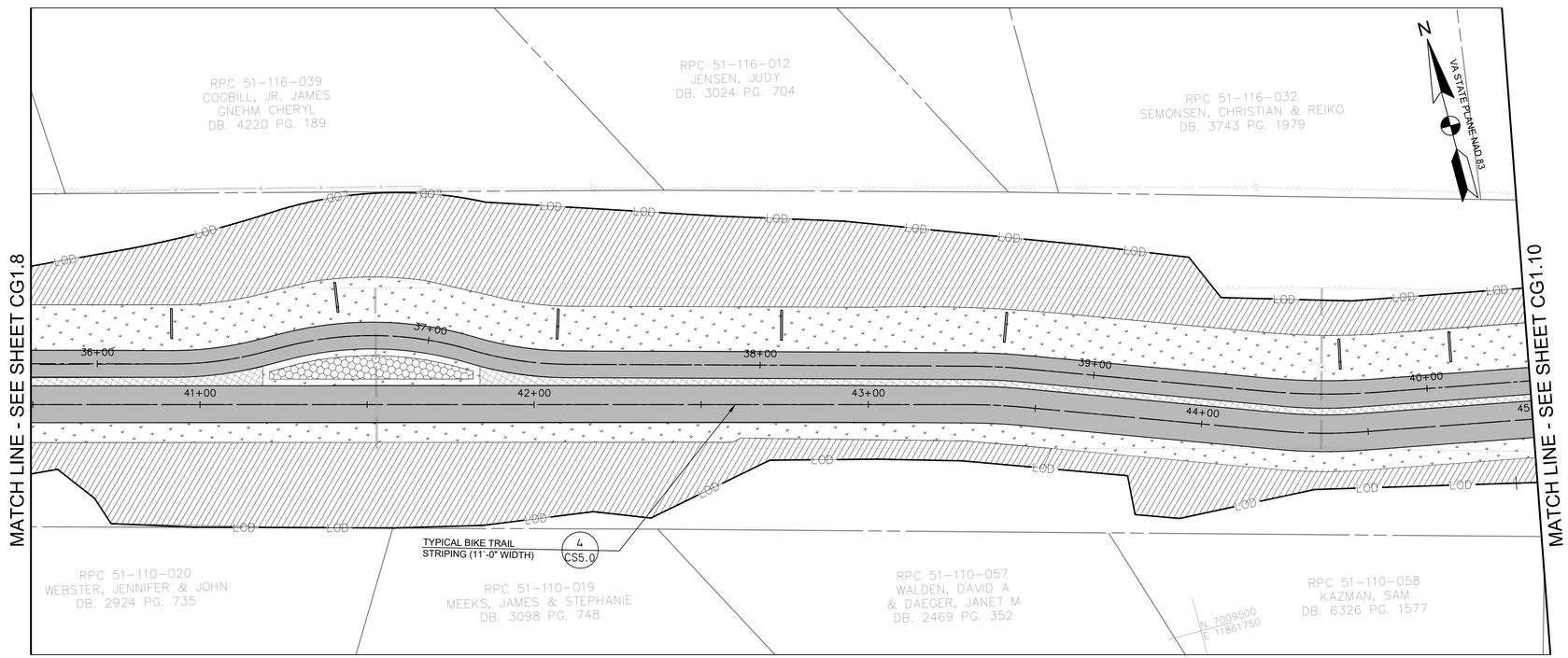

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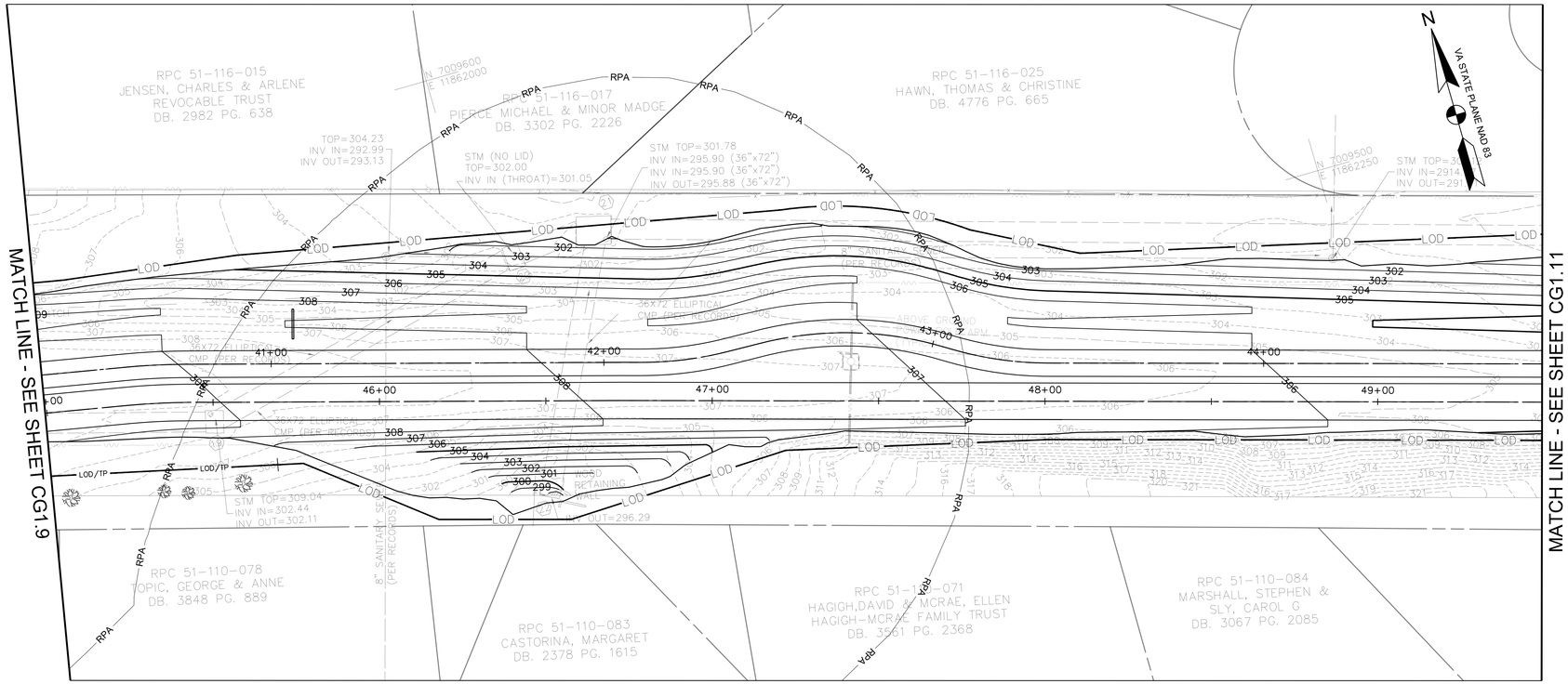
SHEET TITLE

GRADING -UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.9

40 OF 100



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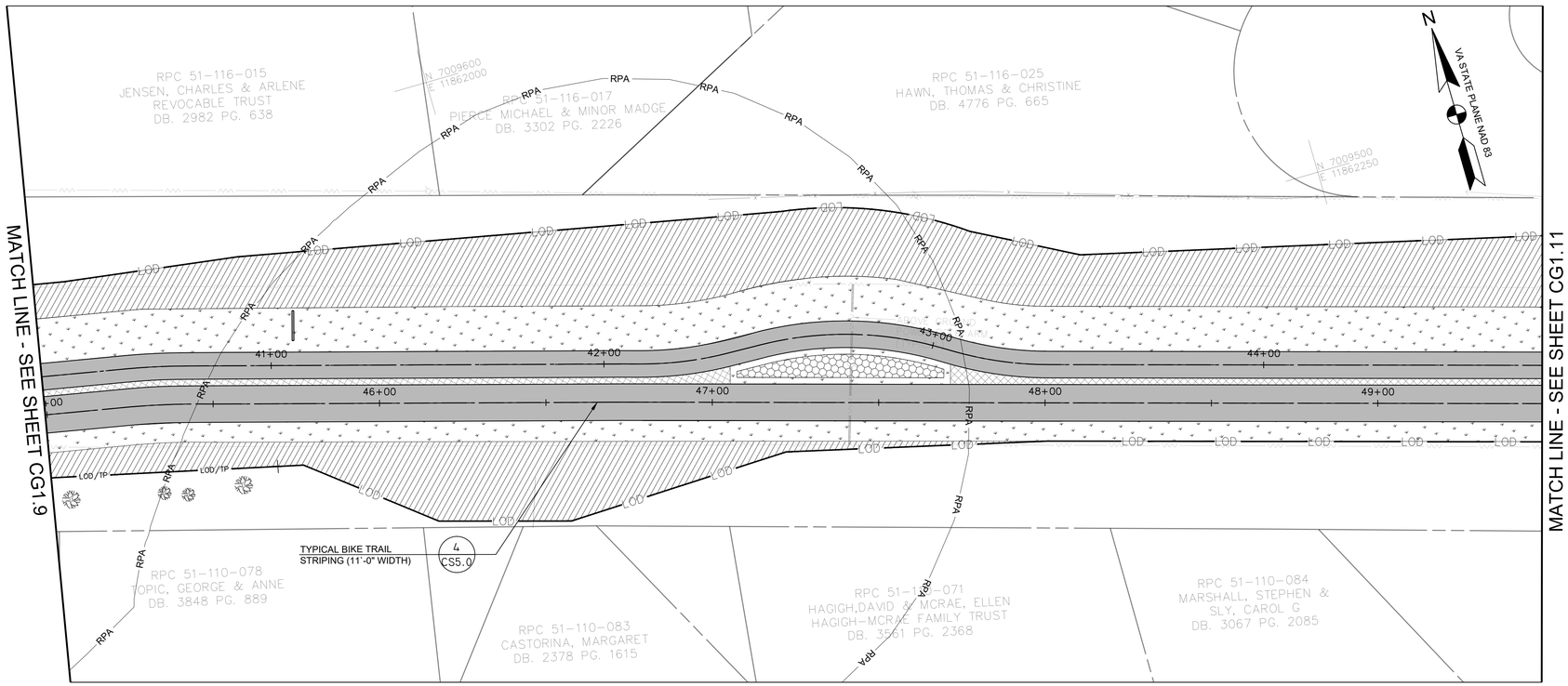

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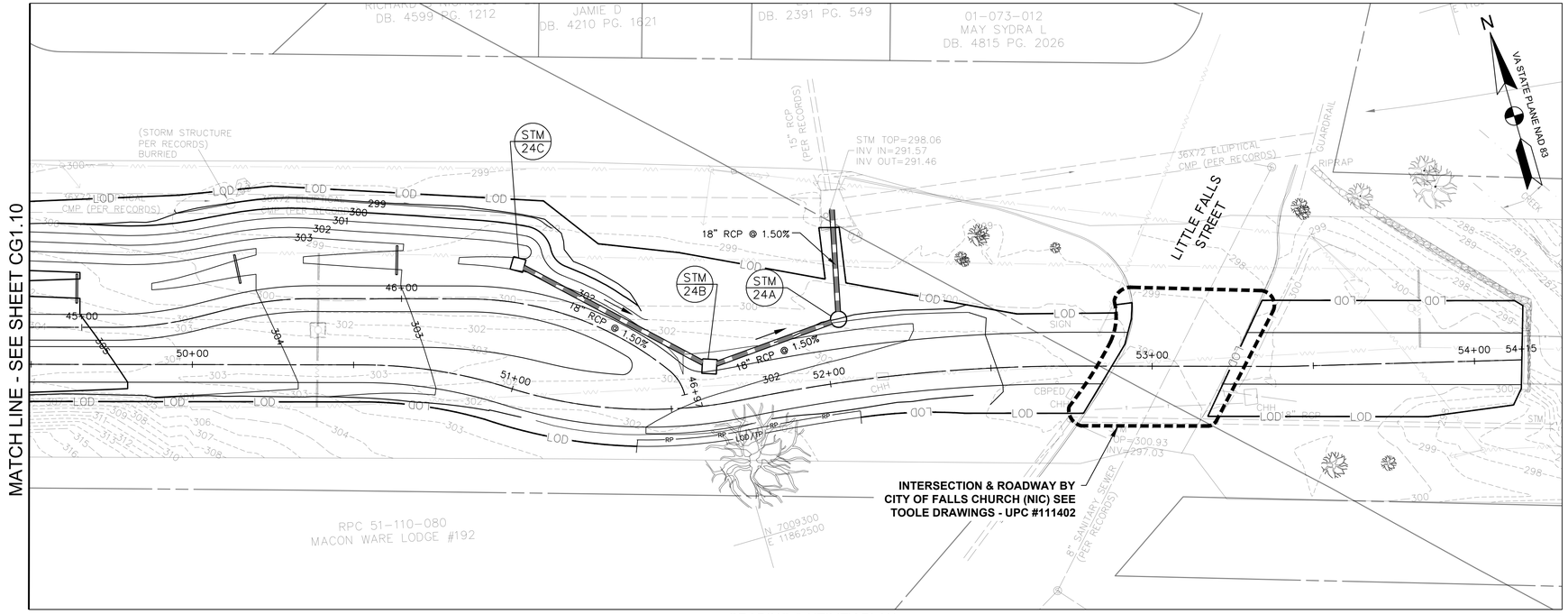
SHEET TITLE

GRADING -UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.10

41 OF 100



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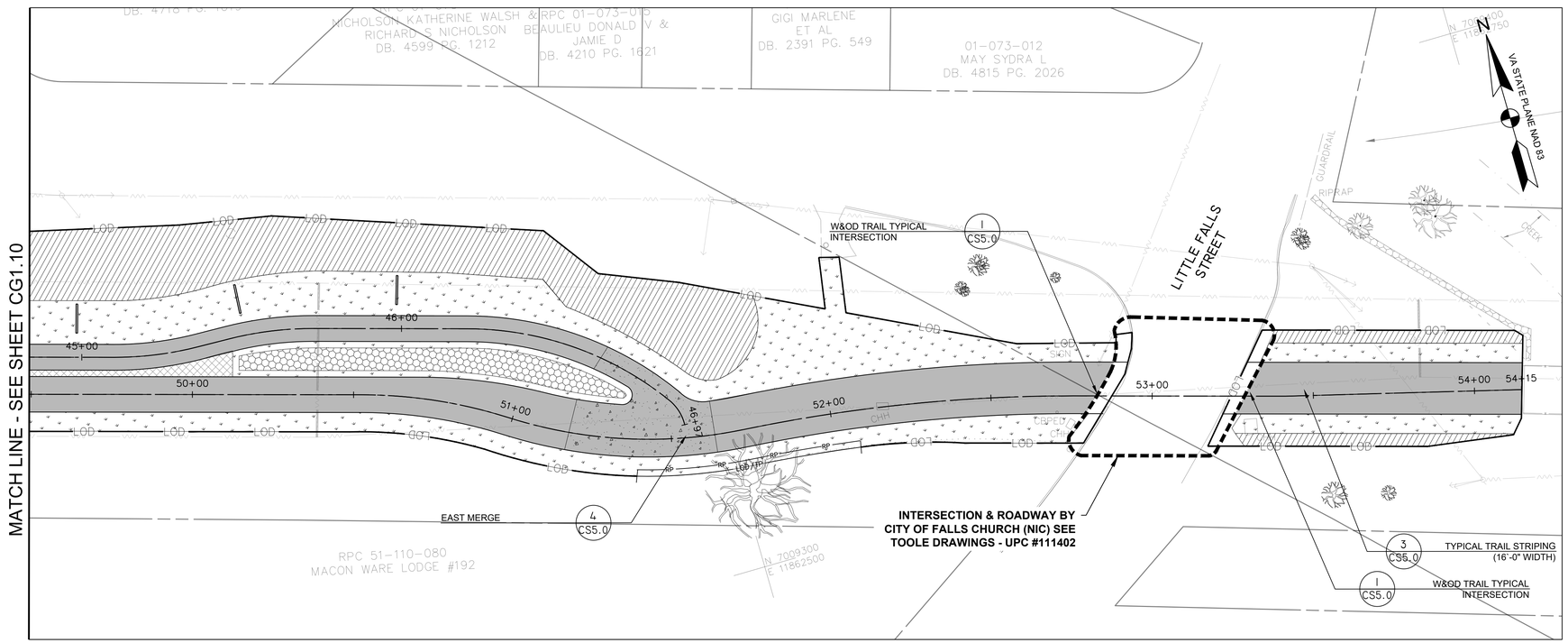

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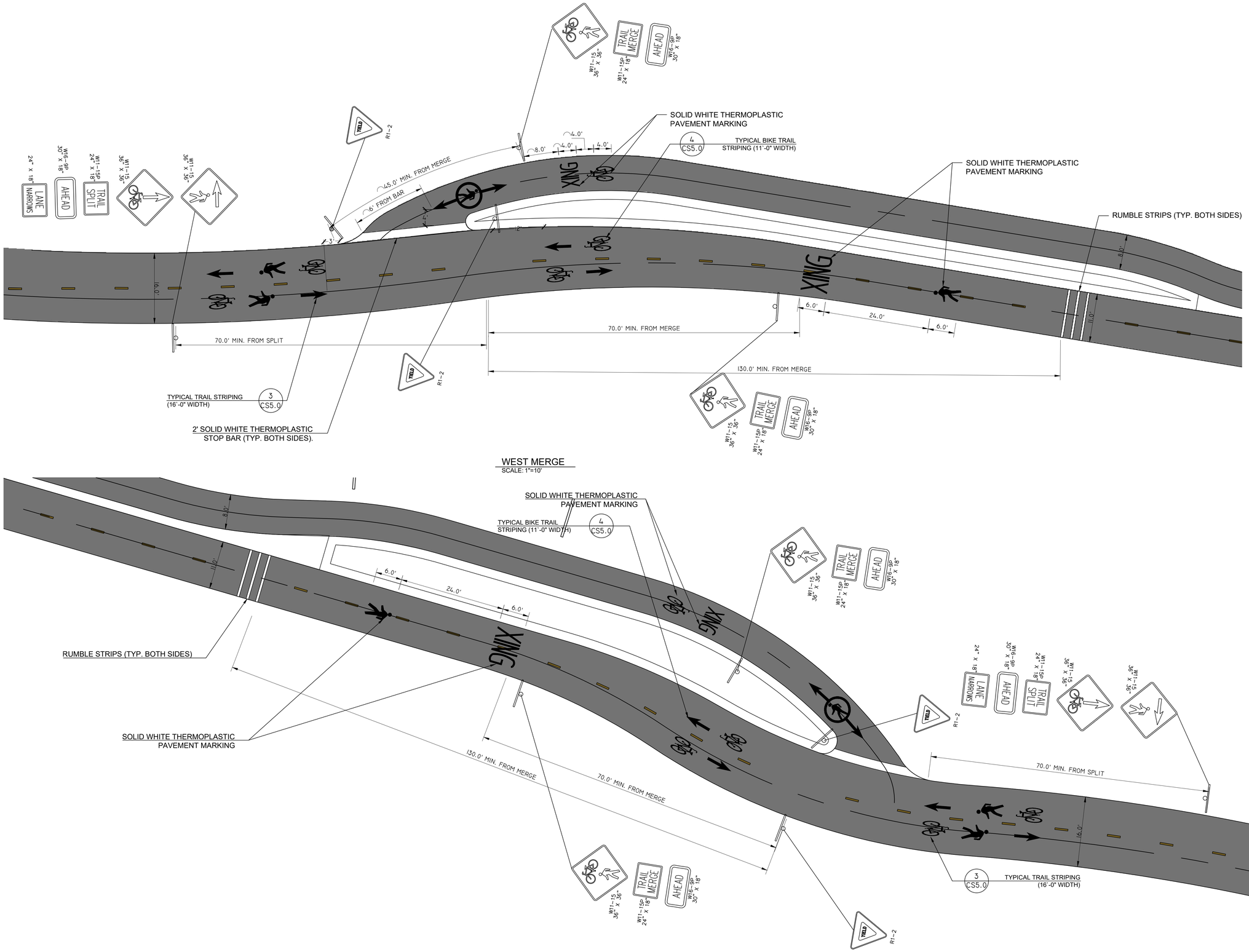
SHEET TITLE

GRADING -UTILITY PLAN & MATERIALS PLAN

SHEET

CG1.11

42 OF 100



WEST MERGE
SCALE: 1"=10'

EAST MERGE
SCALE: 1"=10'

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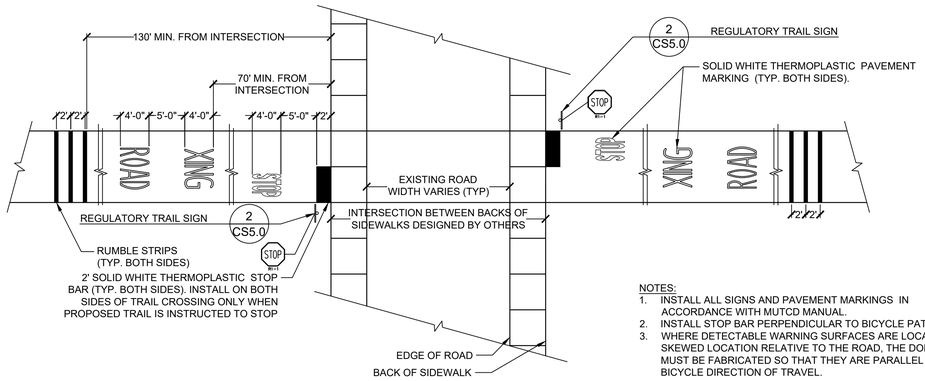
SHEET TITLE

ENLARGEMENT FOR EAST & WEST CONNECTION

SHEET

CS4.0

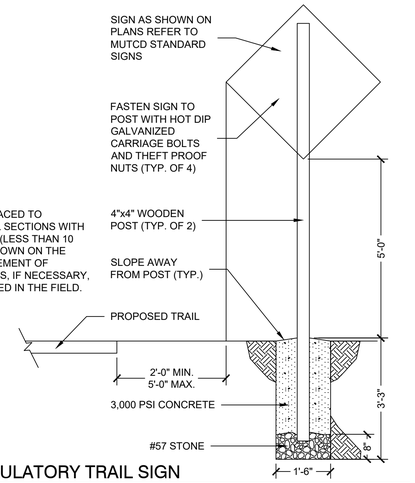


NOTES:
1. INSTALL ALL SIGNS AND PAVEMENT MARKINGS IN ACCORDANCE WITH MUTCD MANUAL.
2. INSTALL STOP BAR PERPENDICULAR TO BICYCLE PATH.
3. WHERE DETECTABLE WARNING SURFACES ARE LOCATED IN A SKEWED LOCATION RELATIVE TO THE ROAD, THE DOMES MUST BE FABRICATED SO THAT THEY ARE PARALLEL TO THE BICYCLE DIRECTION OF TRAVEL.

1 W&OD TRAIL TYPICAL INTERSECTION

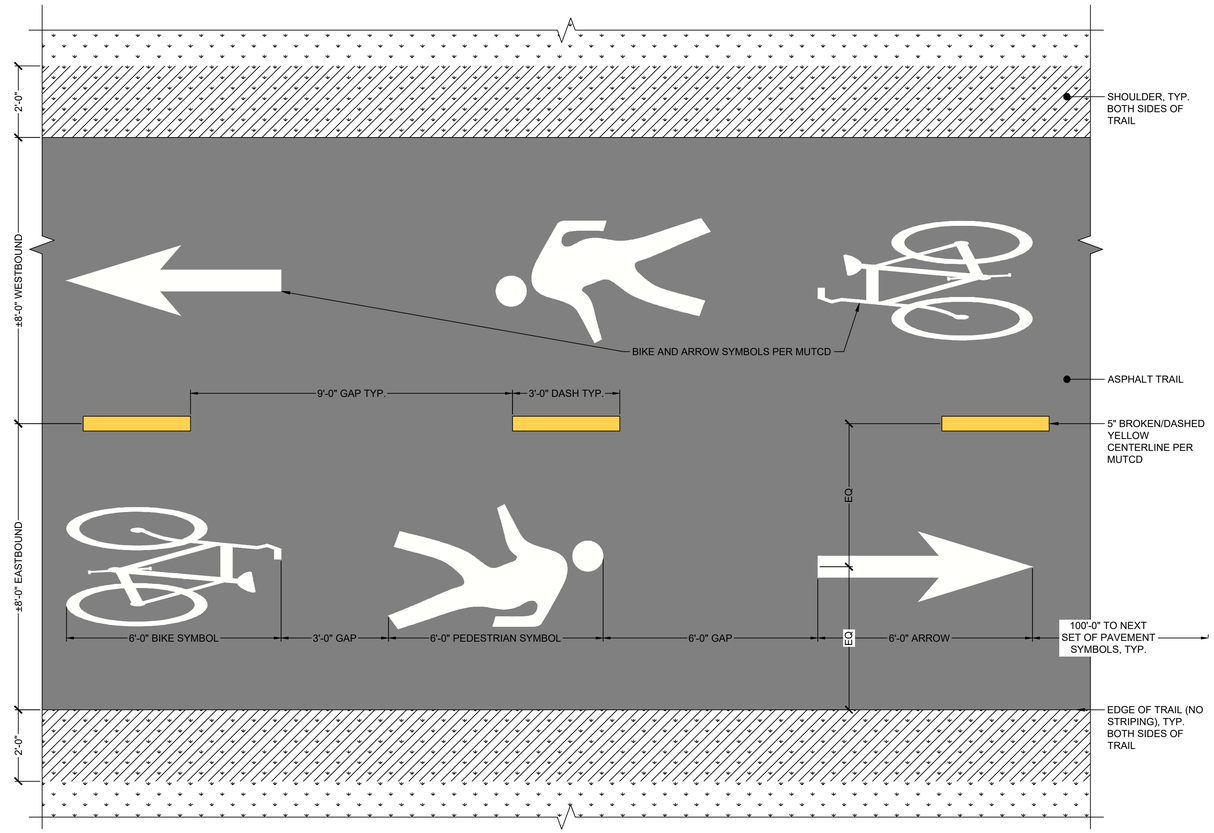
1" = 10' 3402-31

NOTE:
SIGN IS TO BE PLACED TO DESIGNATE TRAIL SECTIONS WITH REDUCED WIDTH (LESS THAN 10 (TEN) FEET AS SHOWN ON THE DRAWINGS PLACEMENT OF ADDITIONAL SIGNS, IF NECESSARY, TO BE DETERMINED IN THE FIELD.



2 REGULATORY TRAIL SIGN

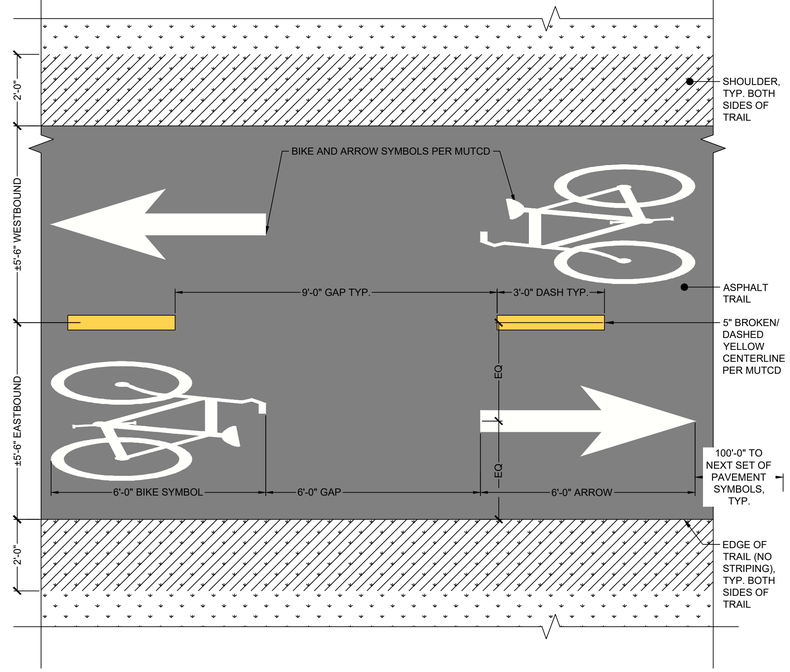
1/2" = 1'-0" 3402-36



NOTES:
BIKE, PEDESTRIAN, AND ARROW SYMBOLS SHALL ALSO BE INSTALLED AT BEGINNING AND END OF TRAIL AS WELL AS AT PERIODIC INTERMEDIATE INTERVALS ALONG THE CONNECTOR.

3 TYPICAL TRAIL STRIPING (16'-0" WIDTH)

1/2" = 1'-0" 34-09



NOTES:
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4 TYPICAL BIKE TRAIL STRIPING (11'-0" WIDTH)

1/2" = 1'-0" 34-10

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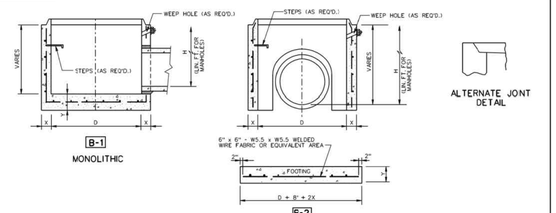
SHEET TITLE
TRAIL MARKINGS & DETAILS

SHEET
CS5.0
44 OF 100

2016 ROAD & BRIDGE STANDARDS

B-1, B-2



ALTERNATE JOINT DETAIL

NOTES:

1. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION ON WEEP HOLES, STEP REQUIREMENTS, "H" (LIN. FT.) FOR MANHOLES DIMENSIONS, ETC.
2. ALL BASE UNITS ARE TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO M199.
3. CONCRETE SHALL BE 4000 PSI.
4. WHERE OPENINGS ARE REQUIRED FOR PIPE, THEY SHALL BE FORMED, DRILLED, OR NEATLY CUT AS APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL FURNISH THE FABRICATOR WITH THE ANGLES BETWEEN CENTER LINES, THE INVERT ELEVATIONS, AND THE SIZE OF ALL PIPES TO ENTER THE MANHOLE. HOLES ARE TO BE A MINIMUM OF 4" TO A MAXIMUM OF 8" LARGER THAN THE OUTSIDE DIAMETER OF THE PROPOSED PIPE.
5. DIMENSIONS SHOWN ARE MINIMUM. ACTUAL DIMENSIONS MAY VARY WITH MANUFACTURER.
6. "D" IS NOMINAL DIAMETER.
7. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE.
8. TONGUE AND GROVE JOINT ARE TO BE OF FABRICATOR'S DESIGN MEETING VDOT APPROVAL. JOINTS ARE TO BE SEALED WITH MORTAR, O-RING GASKETS, OR BUTYL RUBBER.

DIMENSIONS

D	X MINIMUM	Y MINIMUM	SUGGESTED MAX. PIPE SIZE	ABSOLUTE MAXIMUM ☆
* 36"	4"	6"	18"	21"
48"	5"	6"	24"	27"
60"	5"	8"	36"	42"
72"	6"	8"	48"	54"
84"	7"	8"	60"	66"
96"	8"	8"	66"	72"
108"	9"	8"	78"	84"
120"	10"	8"	90"	96"
126"	10½"	8"	96"	103"
144"	12"	8"	108"	120"

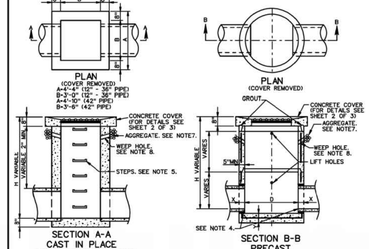
* DEPTH "H" OF 36" DIAMETER BASE UNIT RESTRICTED TO 4'-0" MAXIMUM.

☆ ONE THROUGH PIPE ONLY, (ONE PIPE ENTERING AND ONE PIPE EXITING STRUCTURE)

VDOT ROAD AND BRIDGE STANDARDS	A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE. STANDARD PRECAST BASE UNITS VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 135 302
SHEET 1 OF 1 103.11	REVISION DATE 08/17	

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS



RECOMMENDED MINIMUM HEIGHT CHART		
PIPE SIZE	H DIMENSION CONC.	CORR. METAL
12"	2'-6½"	2'-5"
15"	2'-9¼"	2'-8"
18"	3'-0½"	2'-11"
21"	3'-3¾"	3'-2"
24"	3'-7"	3'-5"
27"	3'-10¼"	3'-8"
30"	4'-1½"	3'-11"
33"	4'-4¾"	4'-2"
36"	4'-8"	4'-5"
42"	5'-2½"	4'-11"

NOTES

1. DEPTH OF INLET D© TO BE SHOWN ON PLANS.
2. THE "H" DIMENSION SHOWN ON THE STANDARDS AND SPECIFIED ON THE PLANS WILL BE MEASURED FROM THE INVERT OF THE OUTFALL PIPE TO THE TOP OF THE STRUCTURE. THIS DIMENSION IS APPROXIMATE ONLY FOR ESTIMATING PURPOSES AND THE ACTUAL DIMENSIONS SHALL BE DETERMINED BY THE CONTRACTOR FROM FIELD CONDITIONS. MAXIMUM DEPTH D© TO BE 12'-0.
3. WHEN SPECIFIED ON THE PLANS THE INVERT IS TO BE SHAPED IN ACCORDANCE WITH STANDARD SHEET 2 OF 3. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
4. IN THE EVENT THE INVERT OF THE OUTFALL PIPE IS HIGHER THAN THE BOTTOM OF THE STRUCTURE, THE INVERT OF THE STRUCTURE SHALL BE SHAPED WITH CEMENT MORTAR TO PREVENT STANDING OR PONDING OF WATER IN THE STRUCTURE. THE COST OF FURNISHING AND PLACING ALL MATERIALS INCIDENTAL TO THE SHAPING IS TO BE INCLUDED IN THE BID PRICE FOR THE STRUCTURE.
5. STEPS ARE TO BE PROVIDED WHEN H IS 4'-0" OR GREATER. FOR DETAILS SEE STANDARD ST-1.
6. REINFORCED CONCRETE FOOTING MAY BE PRECAST OR CAST-IN-PLACE. TWO LIFTING HOOKS OF FABRICATORS DESIGN TO BE PROVIDED IN PRECAST FOOTING.
7. 4" DEPTH AGGREGATE #68, #78, OR #8 X 6" WIDTH.
8. 3" DIAMETER WEEP HOLE WITH 15"X15" PLASTIC HARDWARE CLOTH 1/4" MESH OR GALVANIZED STEEL WIRE MINIMUM WIRE DIAMETER 0.047" MINIMUM MESH OPENING 1/4" INCLUDED FINALLY TO THE OUTSIDE OF THE STRUCTURE.
9. THE TYPE OF INLET, (PRECAST OR CAST IN PLACE), DETAILED HEREON, TO BE CONSTRUCTED, WILL BE AT THE OPTION OF THE CONTRACTOR.
10. FOR DETAILS OF CONCRETE COVER, COLLAR AND GRATE AND THE METHOD OF PLACING APPROACH GUTTER SEE SHEET 2 OF 3.
11. CAST-IN-PLACE CONCRETE IS TO BE CLASS A3 (3000 PSI). PRECAST CONCRETE IS TO BE 4000 PSI.
12. CONCRETE QUANTITIES SHOWN ARE FOR INDICATED DEPTH ON WITHOUT PIPES. THE AMOUNT DISPLACED BY PIPES MUST BE DEDUCTED TO OBTAIN TRUE QUANTITIES. FOR INLETS OF DIFFERENT DEPTHS ADD OR SUBTRACT THE INCREMENTAL YARDS OF CONCRETE FOR EACH FOOT OF DEPTH.
13. PAVED DITCHES ARE TO BE TRANSITIONED TO MEET INLET GUTTER AS SHOWN IN STANDARD PG-2A.
14. PROVIDE SAFETY SLABS WHEN SPECIFIED ON THE PLANS.

NOTES (CONT.)

15. D-7---------NO GUTTER
    D-7A--------SINGLE GUTTER WHEN DROP INLET IS ON A GRADE.
    D-7B--------DOUBLE GUTTER WHEN DROP INLET IS IN A SAG BETWEEN TWO GRADES.
16. FOR DETAILS OF PRECAST D-7 NOT SHOWN HEREON SEE PRECAST UNIT ASSEMBLY DIAGRAM PAGE 103.01. FOR PRECAST GENERAL NOTES, PAGE 103.02 AND FOR PRECAST DETAILS OF INLET, RISER AND TOP DETAILS, PAGES 103.07 THRU 103.12.
17. GRATE BARS TO BE PARALLEL TO DITCH FLOW.

PIPE SIZE	12"	15"	18"	24"	30"	36"	42"
MINIMUM DEPTH E	2'-0"	2'-3½"	2'-6½"	3'-1"	3'-7½"	4'-2"	4'-8½"
CONCRETE CUBIC YARDS	.947	1.045	1.143	1.339	1.535	1.731	1.927

INCREMENT PER FOOT OF ADDITIONAL DEPTH D© = 0.362 CU. YDS. (12" - 36" PIPE) = 0.410 CU. YDS. (42" PIPE)

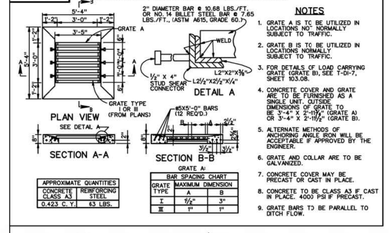
SPECIFICATION REFERENCE 241 503	STANDARD MEDIAN DROP INLET 12" TO 42" PIPE VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS REVISION DATE SHEET 1 OF 3 104.22

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

DI-7, 7A, 7B

DETAILS OF CONCRETE COVER AND GRATE



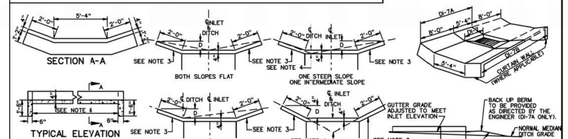
NOTES

1. GRATE A IS TO BE UTILIZED IN LOCATIONS NOT NORMALLY SUBJECT TO TRAFFIC.
2. GRATE B IS TO BE UTILIZED IN LOCATIONS NORMALLY SUBJECT TO TRAFFIC.
3. FOR DETAILS OF LOAD CARRYING GRATE B SEE STANDARD B1, SEE T-DI-7, SHEET 103.08.
4. CONCRETE COVER AND GRATE ARE TO BE FURNISHED AS A SINGLE UNIT. OUTSIDE DIMENSIONS OF GRATE ARE TO BE 5'-4" X 2'-11½" (GRATE A) OR 3'-4" X 2'-11½" (GRATE B).
5. ALTERNATE METHODS OF ANCHORING ANGLE IRON WILL BE ACCEPTABLE IF APPROVED BY THE ENGINEER.
6. GRATE AND COLLAR ARE TO BE GALVANIZED.
7. CONCRETE COVER MAY BE PRECAST OR CAST IN PLACE.
8. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
9. GRATE BARS T© BE PARALLEL TO DITCH FLOW.

DETAILS OF GUTTER AND METHOD OF PLACEMENT

NOTES

1. DI-7 NO GUTTERS.
   DI-7A NO GUTTER IN ONE DIRECTION.
   DI-7B GUTTER IN BOTH DIRECTIONS.
2. JOINTS BETWEEN GUTTERS AND CONCRETE COVER ARE TO BE DOWELED WITH #4 X 8" SMOOTH, ROD @ 4 SPACES AT C-C TO PREVENT SETTLE, ME PROVIDED. OR DOWELS A 2" X 4" NOTCH MAY BE PROVIDED.
   SEE STANDARD T-DI-3, 4 ALTERNATE DESIGN.
3. VARIABLE 21'OR FLATTER.
4. DITCH GRADE MUST BE ADJUSTED TO MEET DIFFERENCE IN ELEVATION. SEE LONGITUDINAL SECTION.
5. IF DEPTH (D) BECOMES LESS THEN 4", LENGTH OF WINGS ARE TO BE EXTENDED AS DIRECTED BY THE ENGINEER.
6. CURTAIN WALL TO BE LOCATED AT THE END OF THE PAVED DITCH SECTIONS OF THE DI-3A & DI-7B THAT ARE NOT ABUTTED BY OTHER DRAINAGE.
7. IF NORMAL DITCH GRADE IS TOO FLAT TO ALLOW FOR ADJUSTED GRADE TO MEET GUTTER, A SPECIAL GUTTER DETAIL WILL BE REQUIRED ON PLANS.



APPROXIMATE QUANTITY FOR ONE CURTAIN WALL, MEASURED FROM BOTTOM OF GUTTER	
CONCRETE CLASS A3	0.241 CU. YDS.

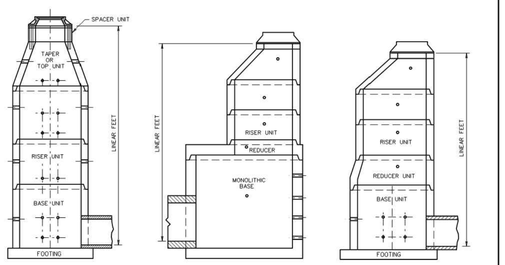
APPROXIMATE QUANTITIES			
CONCRETE CLASS A3	DI-7	DI-7A	DI-7B
(CU. YDS.)	NONE	1.211	2.148

VDOT ROAD AND BRIDGE STANDARDS SHEET 2 OF 3	STANDARD MEDIAN DROP INLET 12" TO 42" PIPE VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 241 503
REVISION DATE 104.23		

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

MH-2

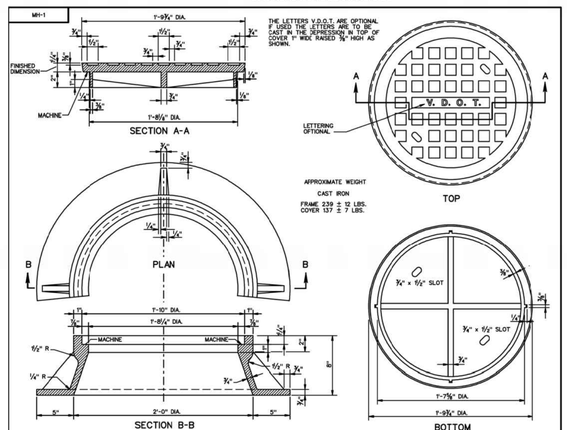


SPECIFICATION REFERENCE 105 302	PRECAST MANHOLE VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS REVISION DATE SHEET 1 OF 1 106.07

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

MH-1

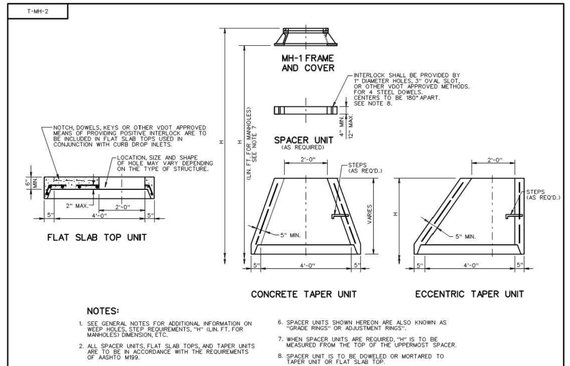


VDOT ROAD AND BRIDGE STANDARDS SHEET 2 OF 5	STANDARD MANHOLE FRAME AND COVER VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFCATION REFERENCE 224 302
REVISION DATE 106.02		

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

T-MH-2



NOTES:

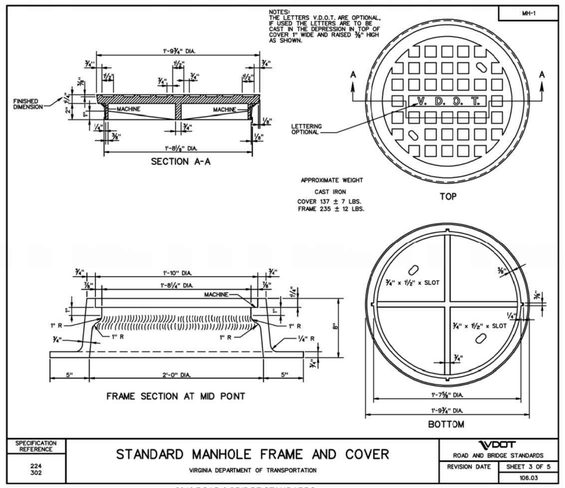
1. SEE GENERAL NOTES FOR ADDITIONAL INFORMATION ON WEEP HOLES, STEP REQUIREMENTS, "H" (LIN FT. FOR MANHOLES) DIMENSION, ETC.
2. ALL SPACER UNITS, FLAT SLAB TOPS, AND TAPER UNITS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF AASHTO M199.
3. CONCRETE SHALL BE 4000 PSI.
4. FOR STEP DETAILS SEE STANDARD ST-1.
5. DIMENSIONS SHOWN ARE MINIMUM. ACTUAL DIMENSIONS MAY VARY WITH MANUFACTURER.
6. SPACER UNITS SHOWN HEREON ARE ALSO KNOWN AS "GRADE RINGS" OR ADJUSTMENT RINGS".
7. WHEN SPACER UNITS ARE REQUIRED, "H" IS TO BE MEASURED FROM THE TOP OF THE UPPERMOST SPACER.
8. SPACER UNIT @ T© TO BE DOWELED OR MORTARED TO TAPER UNIT OR FLAT SLAB TOP.

VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 1	STANDARD PRECAST MANHOLE TOP UNITS VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 105 302
REVISION DATE 103.09		

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

MH-1

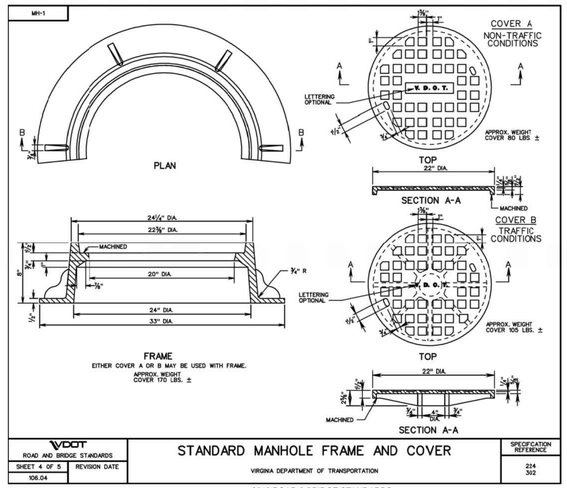


SPECIFICATION REFERENCE 224 302	STANDARD MANHOLE FRAME AND COVER VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS REVISION DATE SHEET 3 OF 5 106.03

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS

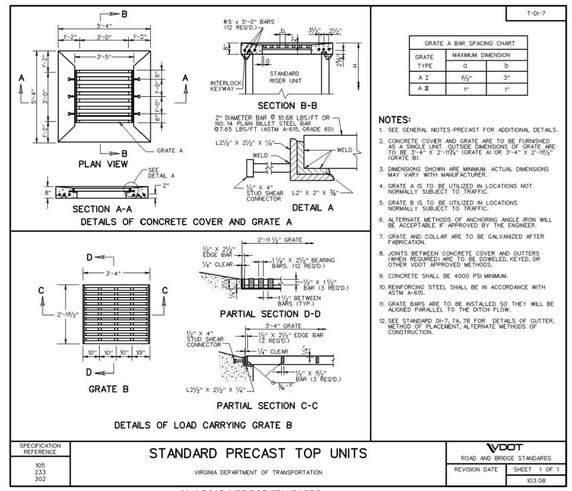
MH-1



VDOT ROAD AND BRIDGE STANDARDS SHEET 4 OF 5	STANDARD MANHOLE FRAME AND COVER VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFCATION REFERENCE 224 302
REVISION DATE 106.04		

2016 ROAD & BRIDGE STANDARDS

2016 ROAD & BRIDGE STANDARDS



T-DI-7

GRATE A BAR SPACING CHART		
GRATE TYPE	MAXIMUM DIMENSION a	b
A I	⅝"	3"
A II	1"	1"

NOTES:

1. SEE GENERAL NOTES-PRECAST FOR ADDITIONAL DETAILS.
2. CONCRETE COVER AND GRATE ARE TO BE FURNISHED AS A SINGLE UNIT. OUTSIDE DIMENSIONS OF GRATE ARE TO BE 5'-4" X 2'-11½" (GRATE A) OR 3'-4" X 2'-11½" (GRATE B).
3. DIMENSIONS SHOWN ARE MINIMUM. ACTUAL DIMENSIONS MAY VARY WITH MANUFACTURER.
4. GRATE A IS TO BE UTILIZED IN LOCATIONS NOT NORMALLY SUBJECT TO TRAFFIC.
5. GRATE B IS TO BE UTILIZED IN LOCATIONS NORMALLY SUBJECT TO TRAFFIC.
6. ALTERNATE METHODS OF ANCHORING ANGLE IRON WILL BE ACCEPTABLE IF APPROVED BY THE ENGINEER.
7. GRATE AND COLLAR ARE TO BE GALVANIZED AFTER FABRICATION.
8. JOINTS BETWEEN CONCRETE COVER AND GUTTERS (WHEN REQUIRED) ARE TO BE DOWELED, KEYED, OR OTHER VDOT APPROVED METHODS.
9. CONCRETE SHALL BE 4000 PSI MINIMUM.
10. REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A-615.
11. GRATE BARS ARE TO BE INSTALLED SO THEY WILL BE ALIGNED PARALLEL TO THE DITCH FLOW.
12. SEE STANDARD DI-7, 7A, 7B FOR DETAILS OF GUTTER, METHOD OF PLACEMENT, ALTERNATE METHODS OF CONSTRUCTION.

VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 1	STANDARD PRECAST TOP UNITS VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 105 133 302
REVISION DATE 103.08		

2016 ROAD & BRIDGE STANDARDS

AMT

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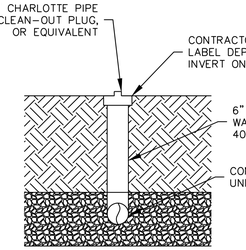
(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

6" CHARLOTTE PIPE PVC CLEAN-OUT PLUG, OR EQUIVALENT



1 CLEANOUT/OBSERVATION WELL DETAIL
SCALE:NTS

COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA, LICENSE NO. 11195 , EXPIRATION DATE 06/30/2021."

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	N/A
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

UTILITY DETAILS

SHEET

CS5.2

PLANT SCHEDULE

	TURFGRASS SEEDING	101,658 sf
	MEADOW PLANTING	128,176 sf
	PERENNIAL PLANTING	2,009 sf

PERENNIAL PLANTING

30%	Eragrostis spectabilis	Purple Love Grass
35%	Schizachyrium scoporium 'Carousel'	'Carousel' Little Bluestem
35%	Sporobolus heterolepis	Prairie Dropseed

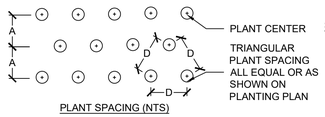
100% TOTAL
* 1 GALLON CONTAINERS PLANTED AT 18" ON CENTER.
* PLANT EACH SPECIES IN DRIFTS OF 11 TO 23 PLANTS.

1,000 Camassia scilloides / Blue Wild Hyacinth
* UNDERPLANTED

MEADOW PLANTING - SEED MIX

29.6%	Andropogon gerardii, 'Niagara'	Big Bluestem, 'Niagara'
25.0%	Panicum virgatum, 'Shelter'	Switchgrass, 'Shelter'
18.9%	Sorghastrum nutans, NY4 Ecotype	Indiangrass, NY4 Ecotype
17.0%	Elymus virginicus, PA Ecotype	Virginia Wildrye, PA Ecotype
3.0%	Rudbeckia hirta	Blackeyed Susan
2.0%	Chamaecrista fasciculata	Partridge Pea, PA Ecotype
2.0%	Heliopsis helianthoides	Oxeye Sunflower, PA Ecotype
1.7%	Desmodium canadense	Showy Ticktrefoil, PA Ecotype
0.3%	Monarda fistulosa, Fort Indiantown Gap-PA Ecotype	Wild Bergamot, Fort Indiantown Gap-PA Ecotype
0.1%	Desmodium paniculatum	Panicledleaf Ticktrefoil, PA Ecotype
0.1%	Pycnanthemum tenuifolium	Narrowleaf Mountainmint
0.1%	Solidago canadensis, PA Ecotype	Canada Goldenrod, PA Ecotype

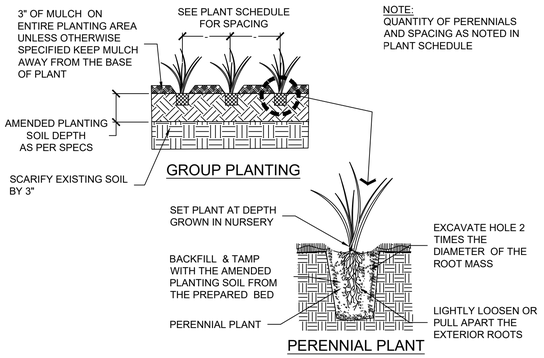
*SEEDING RATE: 20LB PER ACRE



PLANT SPACING (NTS)

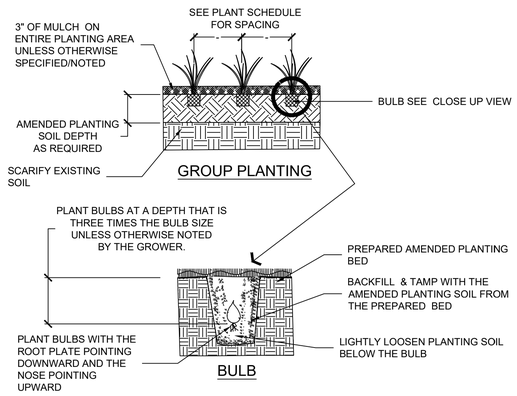
SPACING "D"	ROW "A"	PLANTS PER 10 SQ. FT.
8" O.C.	6.93"	26
12" O.C.	10.4"	11.5
18" O.C.	15.6"	5.12
20" O.C.	17.3"	2.42
24" O.C.	20.8"	2.9
36" O.C.	30.0"	1.28

NOTE:
QUANTITY OF PERENNIALS AND SPACING AS NOTED IN PLANT SCHEDULE



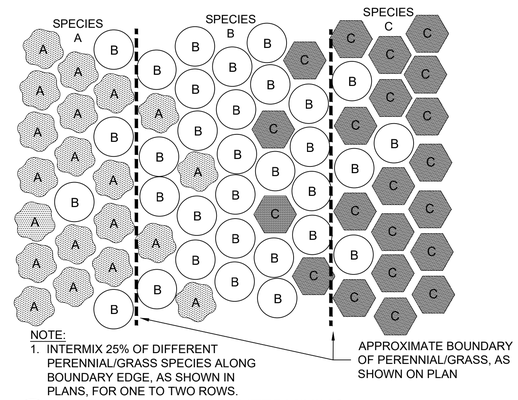
1 HERBACEOUS & GRASS PLANTING DETAIL

NOT TO SCALE — DETAIL-FILE



2 BULB PLANTING DETAIL

NOT TO SCALE — 329301-03

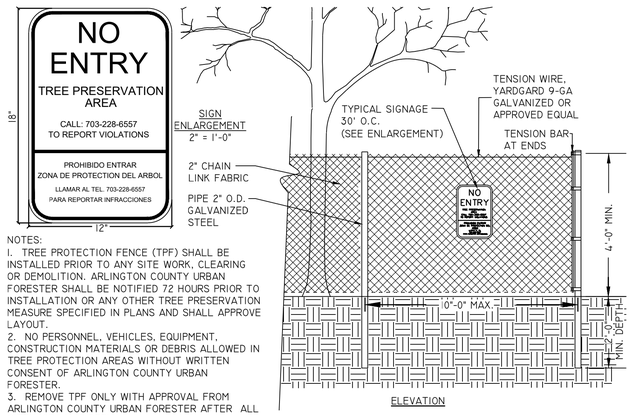


3 PERENNIAL/GRASS INTERMIXING

1" = 1'-0" — 329495-12

GENERAL PLANTING NOTES:

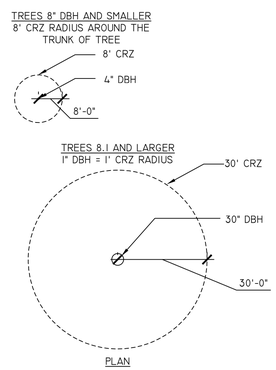
1. THIS PLAN IS FOR PLANTING PURPOSES ONLY, AND ANY OTHER INFORMATION SHOWN IS FOR REFERENCE ONLY. SEE SITE PLAN FOR INFORMATION ABOUT ALL LAYOUT, GRADING AND OTHER SITE IMPROVEMENTS.
2. CALL MISS UTILITY AT 811 OR 1-800-257-7777 TO MARK UTILITIES AT LEAST 48 HOURS BEFORE DIGGING.
3. All materials and planting procedures except as otherwise noted shall conform to the latest edition of "LANDSCAPE SPECIFICATION GUIDELINES" by the Landscape Contractors Association MD-DC-VA.
4. Plants shall conform to the current edition of the American Standard for Nursery Stock. (ANSI z60.1)
5. Plant names shall be those given in the latest edition of Standard Plant Names, American Committee on Horticultural Nomenclature.
6. Topsoil shall meet specifications as per the 2011 MD Standards and Specifications for Soil Erosion and Sediment Control.
7. The Contractor shall submit representative soil samples from both in-situ soils and soils brought in from off-site to a state licensed testing laboratory. The Contractor shall incorporate or apply soil amendments and fertilization based upon results of the soil tests and recommendations by the test lab.
8. The Contractor shall apply grass according to the 2011 MD Standard and Specifications for Soil Erosion and Sediment Control. Do not use Kentucky 31 tall fescue.
9. The Contractor shall stake out all planting beds and tree locations for approval by the Landscape Architect or Owner and representative before digging. It is the Contractor's responsibility to locate and coordinate plantings with all existing utilities. If discrepancies occur because of utility locations or other existing conditions the Contractor shall notify the Landscape Architect and Owner's representative immediately to coordinate any necessary adjustments.
10. All plant material shall be labeled by the nursery and delivered with labels in place for inspection. Substitutions in plant species or size will not be permitted except with the approval of the Landscape Architect and Owner. Do not prune until plant material has been planted but as soon thereafter as is advisable under standard horticultural practices. For tree pruning and care methods please refer to ANSI A-300, latest edition.
11. It is of utmost importance that all plant material be set slightly higher in relation to grade than it was grown in the nursery and with good earth to root contact. Any materials or work may be rejected by the Landscape Architect if it does not meet this or any other requirement of the specifications. Rejected materials shall be removed from the site by the Contractor at Contractor's expense.
12. The Contractor shall mulch and water all plants well on the day they are planted. Individual planting shall be mulched. Acceptable mulch shall be hardwood only. Mulch must be well aged, uniform in color, and free of foreign material including plant material. Well aged mulch is defined as mulch that has been stockpiled or stored for at least twelve (12) months. The Contractor shall apply the mulch uniformly to a 2 to 3 inch depth. Bark shall be kept 3 to 4 inches away from all trunks and woody stems.
13. In case of discrepancies between quantities on the plant list and the plan, the plan shall govern.
14. Sod bare areas as directed by Owner for all disturbed areas to be stabilized that are not landscaped or covered.



NOTES:
1. TREE PROTECTION FENCE (TPF) SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION. ARLINGTON COUNTY URBAN FORESTER SHALL BE NOTIFIED 72 HOURS PRIOR TO INSTALLATION OR ANY OTHER TREE PRESERVATION MEASURE SPECIFIED IN PLANS AND SHALL APPROVE LAYOUT.
2. NO PERSONNEL, VEHICLES, EQUIPMENT, CONSTRUCTION MATERIALS OR DEBRIS ALLOWED IN TREE PROTECTION AREAS WITHOUT WRITTEN CONSENT OF ARLINGTON COUNTY URBAN FORESTER.
3. REMOVE TPF ONLY WITH APPROVAL FROM ARLINGTON COUNTY URBAN FORESTER AFTER ALL SITE WORK HAS BEEN COMPLETED.
4. SIGN MATERIAL TO BE WEATHER RESISTANT.

4 4` CHAIN LINK TREE PROTECTION FENCE

1/2" = 1'-0" — A-TP-05



NOTES:

1. GRAPHICALLY, THE CRITICAL ROOT ZONE (CRZ) IS REPRESENTED AS A CIRCULAR REGION MEASURED OUTWARD FROM A TREE TRUNK REPRESENTING THE AREA OF ROOTS THAT MUST BE MAINTAINED OR PROTECTED FOR THE TREE'S SURVIVAL.

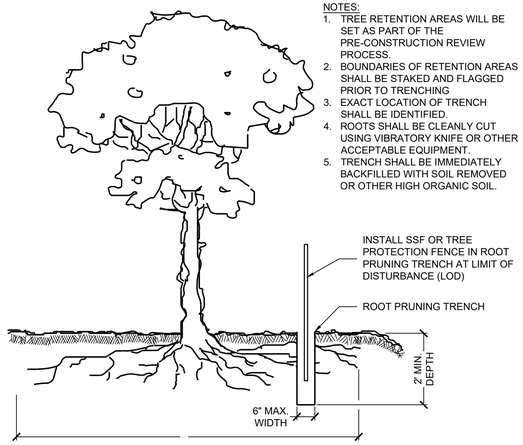
2. THE CRZ OF A TREE IS THE ZONE IN WHICH THE MAJORITY OF THE ROOTS LAY. 95% OF THE ROOTS OF MOST TREES WILL BE FOUND IN THE UPPER 12-18" OF THE SOIL. MOST OF THE ROOTS THAT SUPPLY THE NUTRIENTS AND WATER TO THE TREE ARE FOUND JUST BELOW THE SOIL SURFACE. THE TOTAL AMOUNT OF A TREE'S ROOTS ARE GENERALLY PROPORTIONAL TO THE VOLUME OF THE TREE'S CANOPY. THEREFORE, IF THE ROOTS ONLY PENETRATE A THIN LAYER OF SOIL, THEN THE ROOTS MUST SPREAD FAR FROM THE TREE, BEYOND THE EXTENSION OF THE CANOPY.

3. PLOT ACCURATE TRUNK LOCATIONS OF ALL TREES GREATER THAN 3" DIAMETER AT BREAST HEIGHT (DBH) AND/OR TREE STANDS WITHIN DEVELOPMENT AREAS ON ALL PLANS FOR THE PROJECT AND DELINEATE THEIR ESTIMATED CRITICAL ROOT ZONE.

4. PLOT ACCURATE TRUNK LOCATIONS OF OFFSITE TREES WHICH WILL HAVE THEIR CRZ AFFECTED BY DEVELOPMENT AND DELINEATE THEIR ESTIMATED CRITICAL ROOT ZONE.

5 TREE PROTECTION DETAIL FOR DETERMINING CRITICAL ROOT ZONE

N.T.S.



NOTES:
1. TREE RETENTION AREAS WILL BE SET AS PART OF THE PRE-CONSTRUCTION REVIEW PROCESS.
2. BOUNDARIES OF RETENTION AREAS SHALL BE STAKED AND FLAGGED PRIOR TO TRENCHING
3. EXACT LOCATION OF TRENCH SHALL BE IDENTIFIED.
4. ROOTS SHALL BE CLEANLY CUT USING VIBRATORY KNIFE OR OTHER ACCEPTABLE EQUIPMENT.
5. TRENCH SHALL BE IMMEDIATELY BACKFILLED WITH SOIL REMOVED OR OTHER HIGH ORGANIC SOIL.

6 ROOT PRUNING

NOT TO SCALE — A-TP-02

A. MORTON THOMAS AND ASSOCIATES, INC.
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EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
Cert. No. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA, LICENSE NO. 1542 , EXPIRATION DATE 06/30/2021"

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

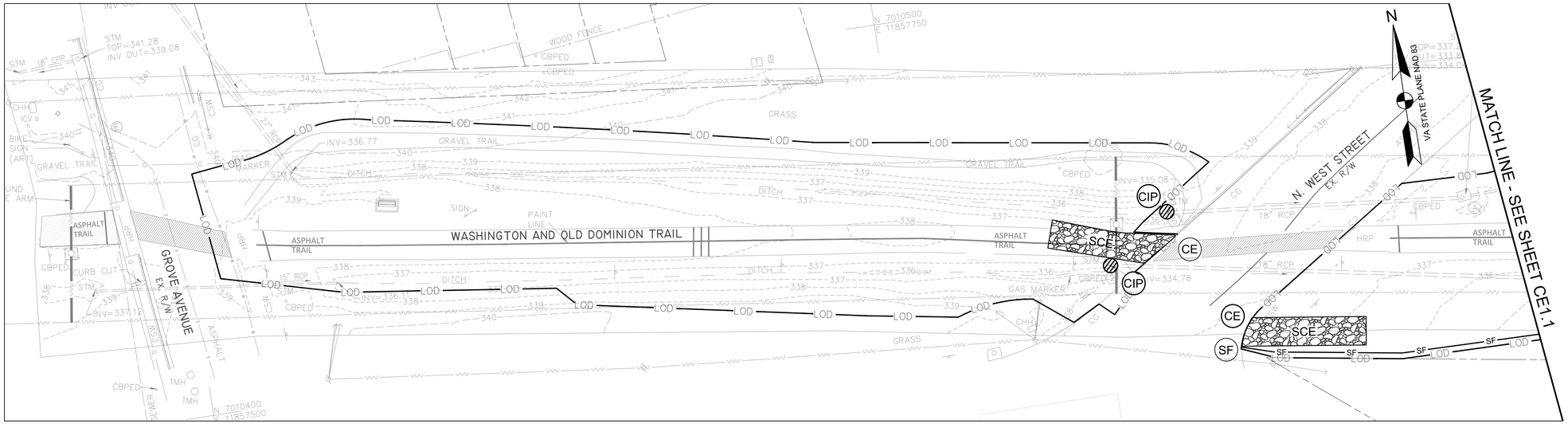
60% DESIGN

SHEET TITLE

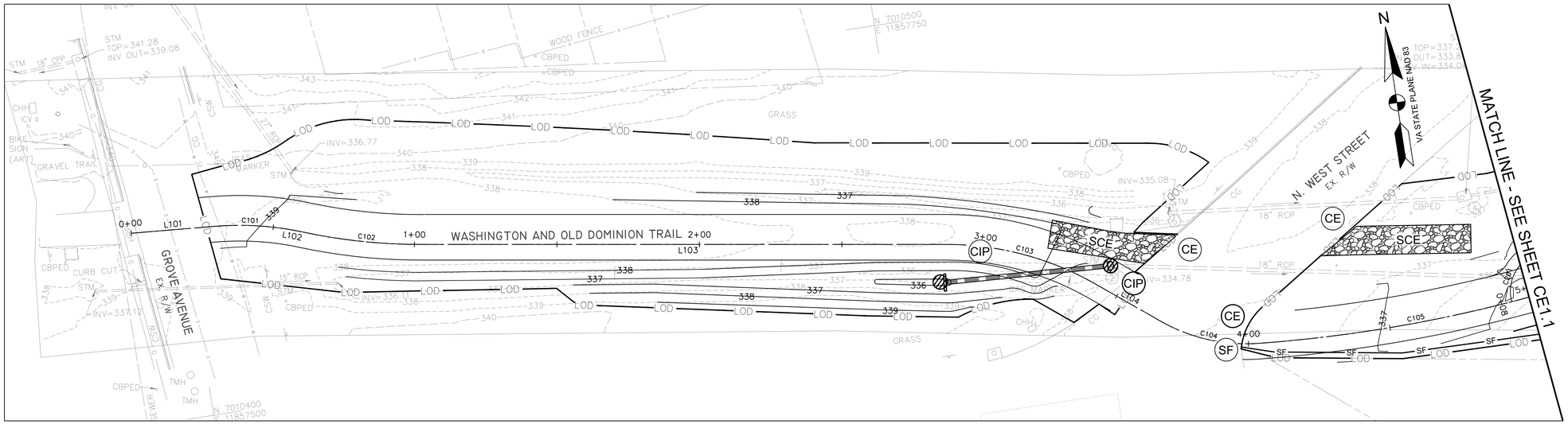
PLANTING DETAILS

SHEET

CS5.3



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

NOTES

1. WHERE SILT FENCE IS SHOWN ADJACENT TO TREE PROTECTION FENCE, ADHERE SILT FABRIC DIRECTLY TO TREE PROTECTION FENCE.
2. REFER TO SHEET CE5.0 FOR DETAILED SEQUENCE OF CONSTRUCTION.
3. CONTRACTOR SHALL USE MINIMUM CLEARING AS NEEDED FOR THE INSTALLATION OF PERIMETER CONTROLS.
4. INDIVIDUAL INLET PROTECTION SHOWN FOR PROPOSED INLETS SHALL BE INSTALLED IN PHASES AS EACH INLET STRUCTRURE IS INSTALLED.
5. CONTRACTOR SHALL MAINTAIN A PAVED OPEN TRAIL PATH A MINIMUM OF 8 FEET WIDE AT ALL TIMES UNLESS AN APPROVED TRAIL DETOUR ROUTE HAS BEEN PROVIDED.

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRPITION
			PROPERTY LINE
		LOD	LIMIT OF DISTURBANCE
3.05	SF	SF	SILT FENCE
3.38	TP	LOD/TP	TREE PROTECTION FENCE
			DRAINAGE DIVIDE
3.07	IP		INLET PROTECTION
3.08	CIP		CULVERT INLET PROTECTION
3.02	CE	SCE	MODIFIED 40' X 10' STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK
3.36	B/M		STREAM BANK STABILIZATION

0 10' 20' 40'
SCALE: 1"=20'

A. MORTON THOMAS AND ASSOCIATES, INC.
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EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

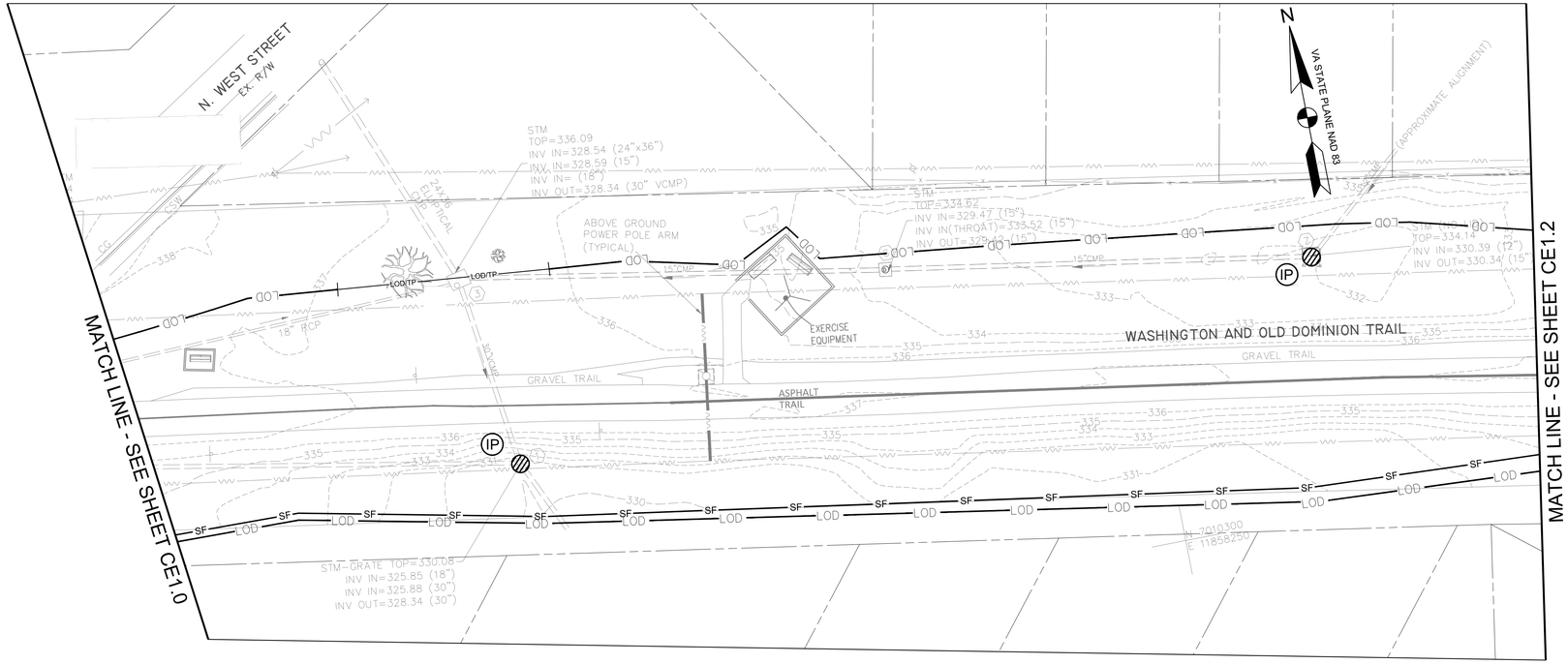
60% DESIGN

SHEET TITLE

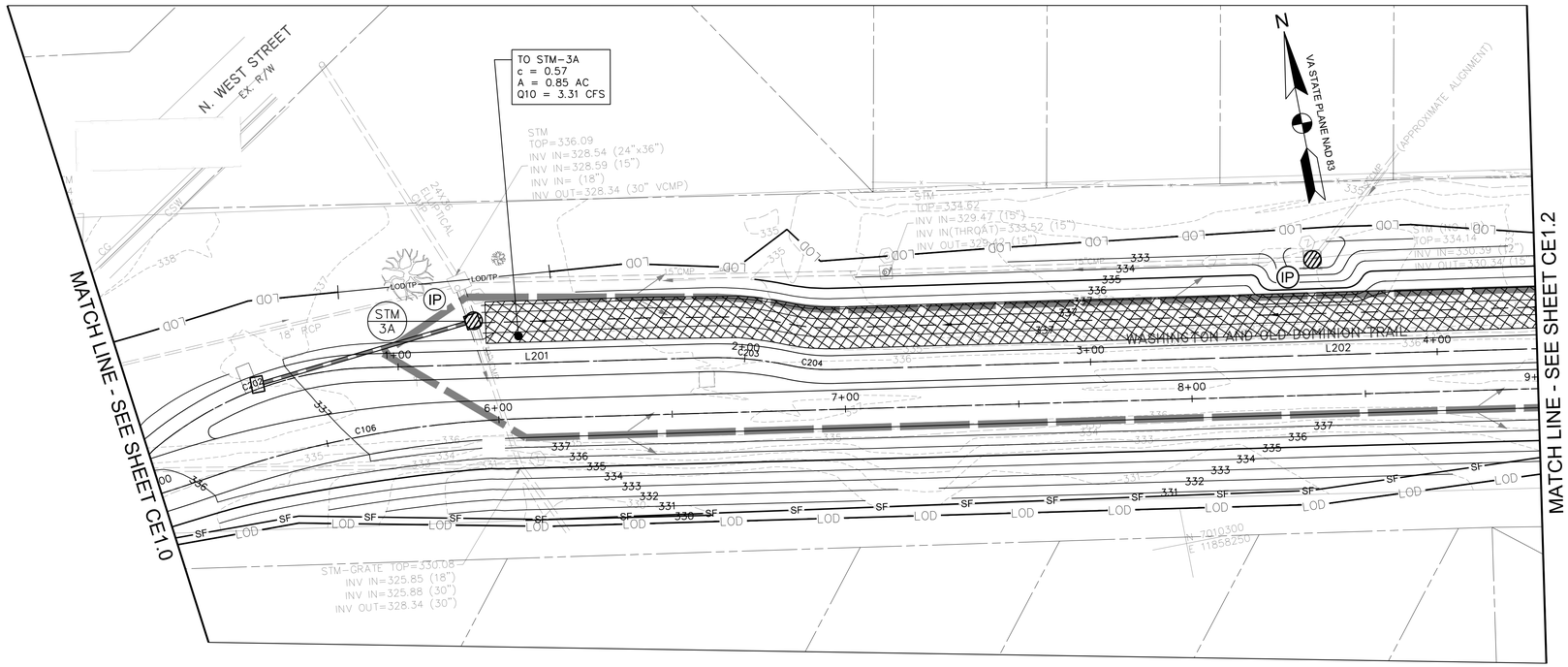
EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

SHEET

CE1.0



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRIPTION
			PROPERTY LINE
		LOD	LIMIT OF DISTURBANCE
3.05	SF	SF	SILT FENCE
3.38	TP	LOD/TP	TREE PROTECTION FENCE
			DRAINAGE DIVIDE
3.07	IP		INLET PROTECTION
3.08	CIP		CULVERT INLET PROTECTION
3.02	CE	SCE	MODIFIED 40' X 10' STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK
3.36	B/M		STREAM BANK STABILIZATION

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UPC 113612

REVISIONS

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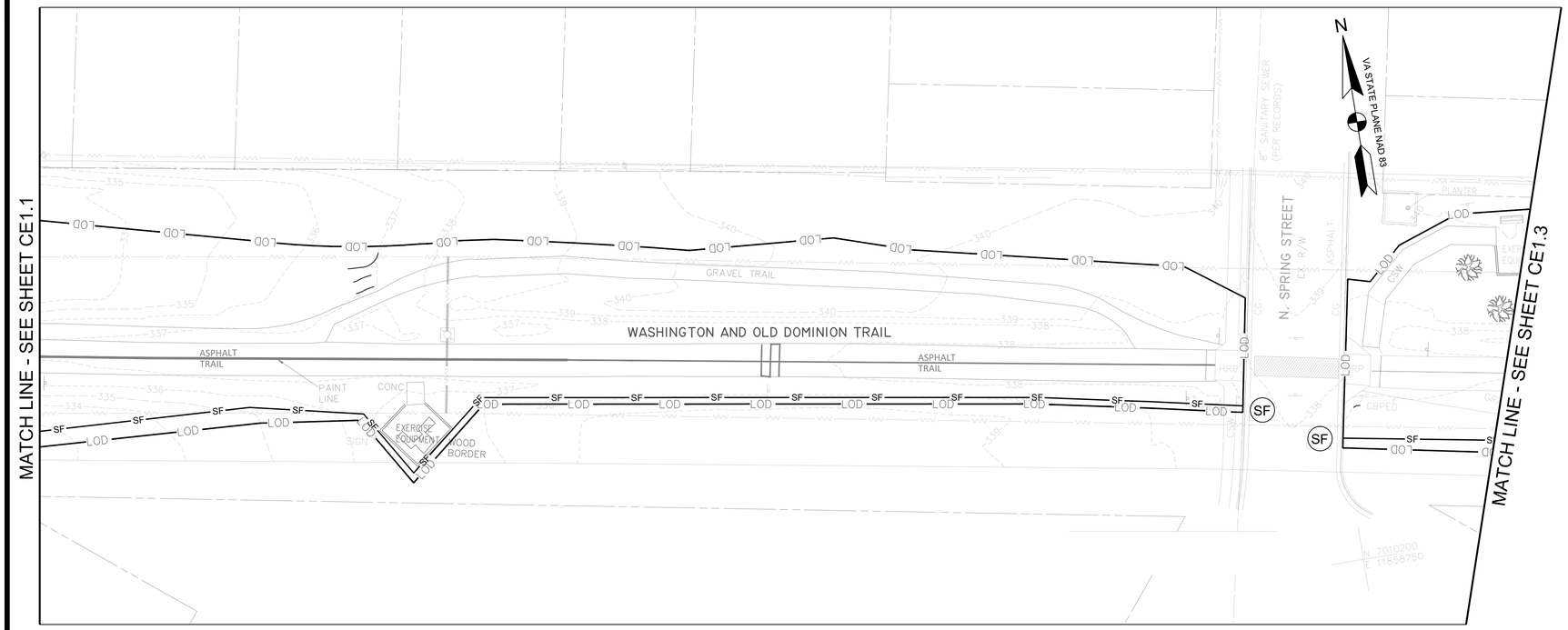
SHEET TITLE

EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

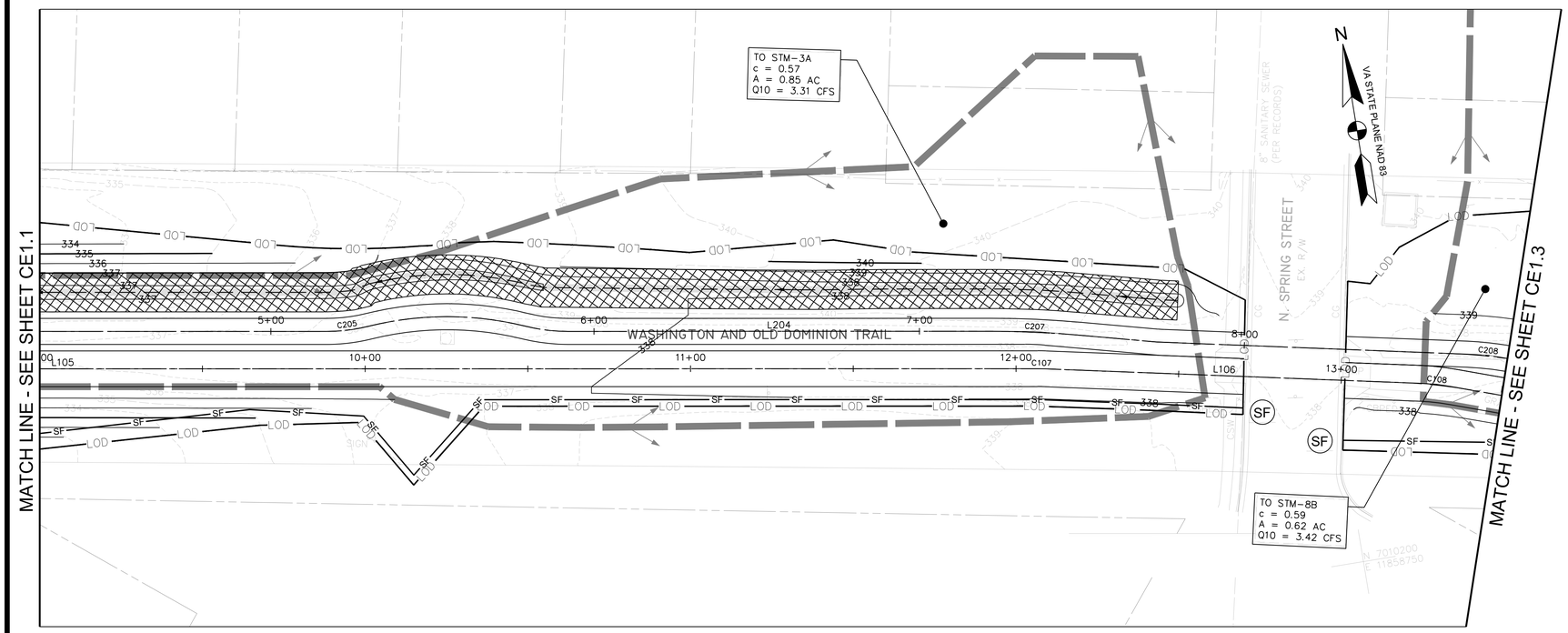
SHEET

CE1.1

48 OF 100



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRIPTION
			PROPERTY LINE
		LOD	LIMIT OF DISTURBANCE
3.05	SF	SF	SILT FENCE
3.38	TP	LOD/TP	TREE PROTECTION FENCE
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PROJECT TITLE

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FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

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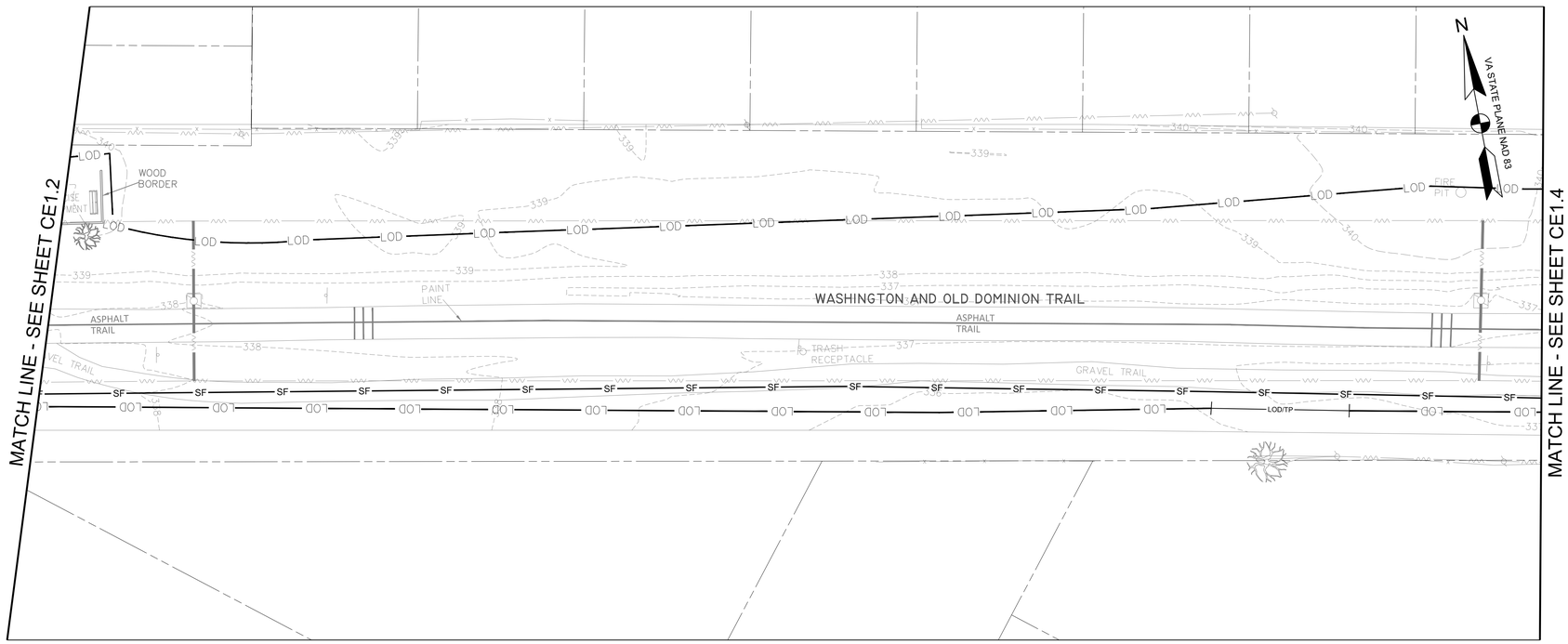
SHEET TITLE

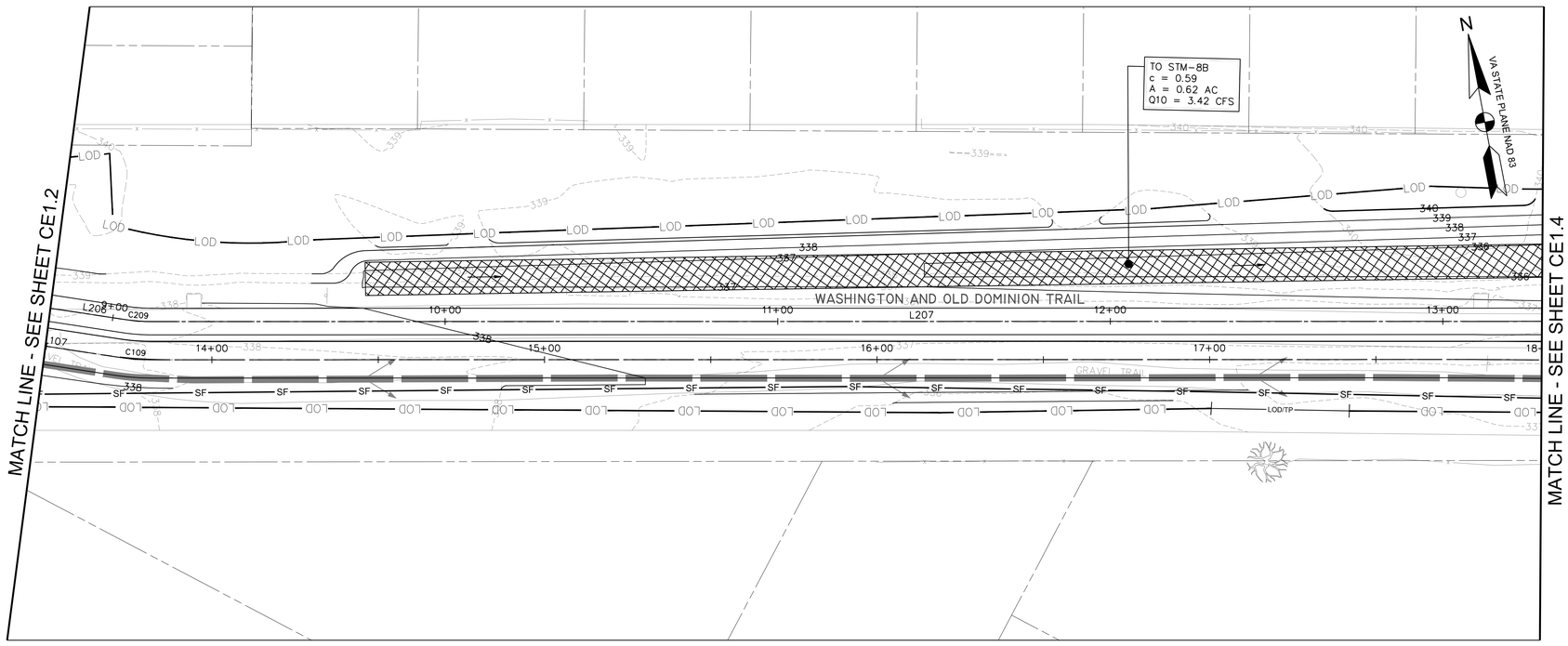
EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

SHEET

CE1.2



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRIPTION
			PROPERTY LINE
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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

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DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

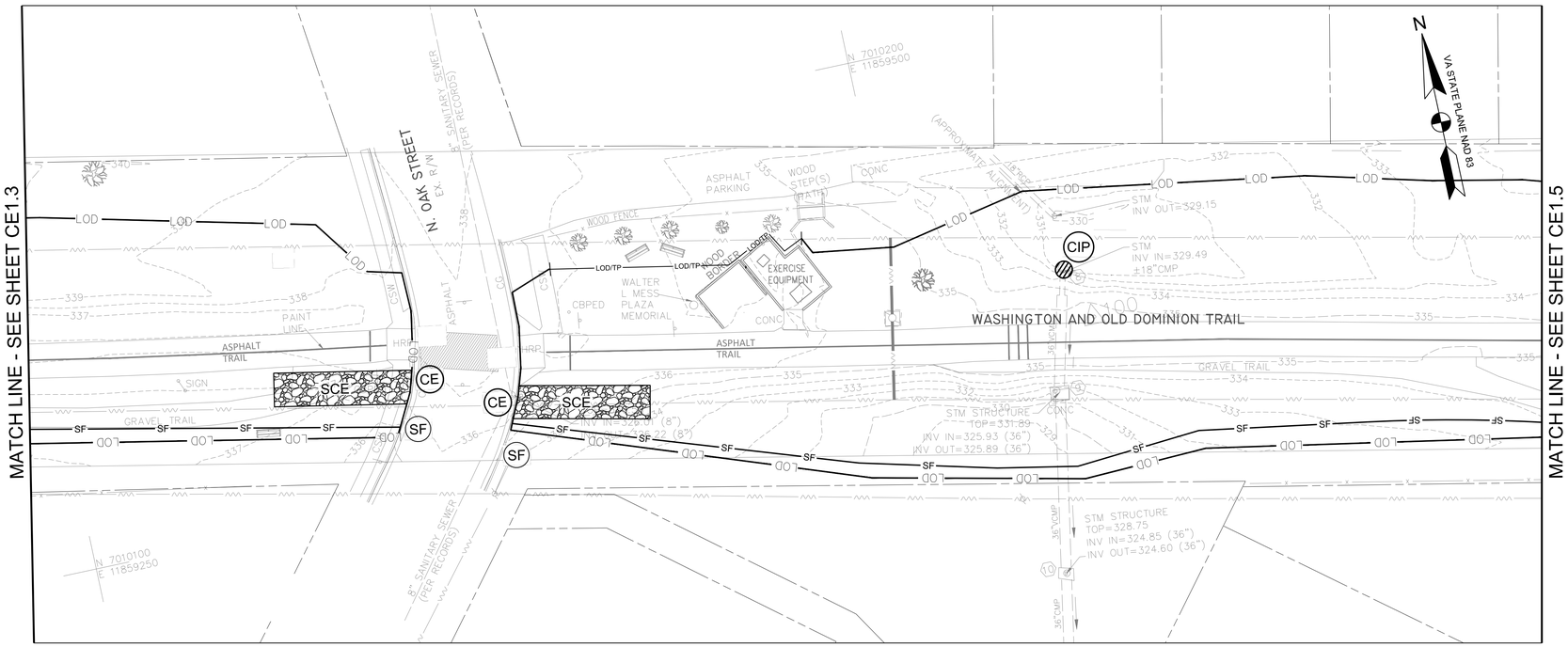
SHEET TITLE

EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

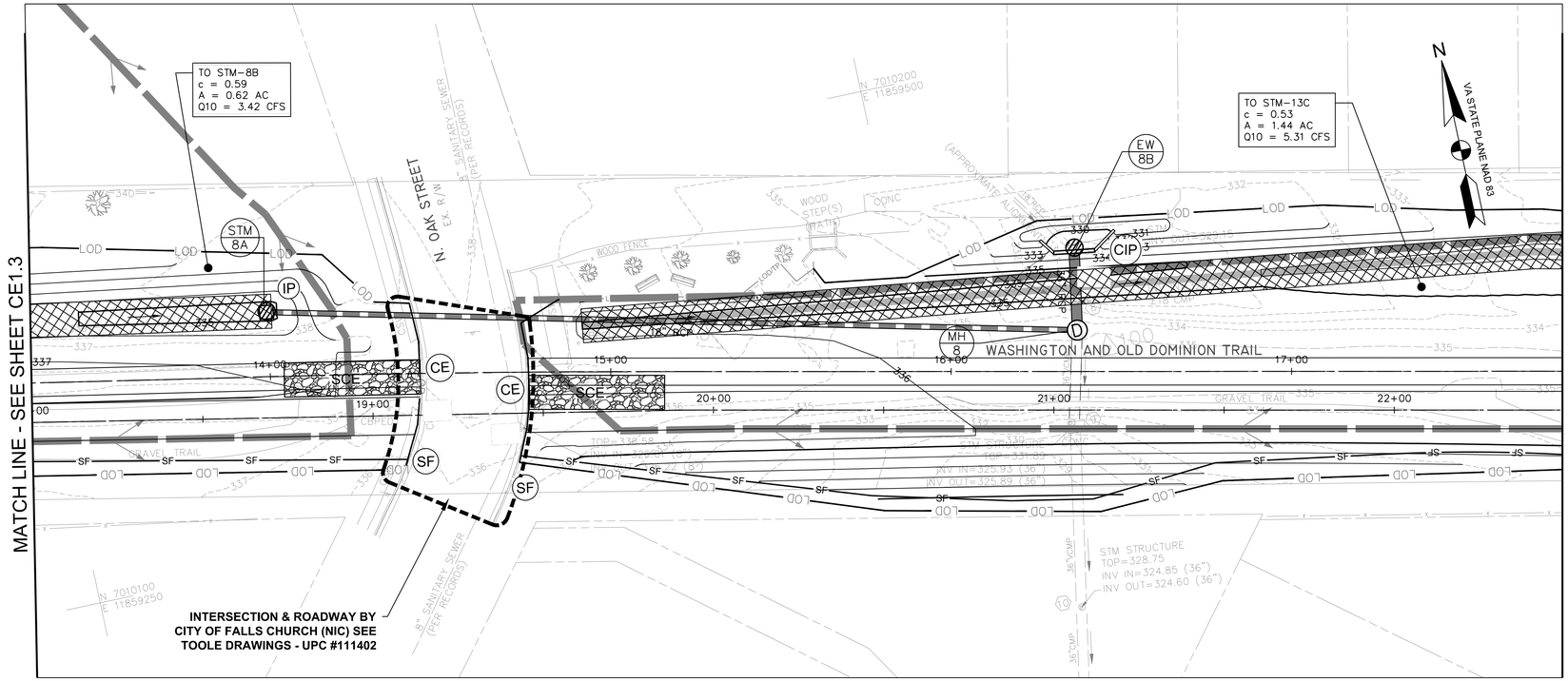
SHEET

CE1.3

50 OF 100



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



INTERSECTION & ROADWAY BY CITY OF FALLS CHURCH (NIC) SEE TOOLE DRAWINGS - UPC #111402

EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRIPTION
			PROPERTY LINE
		LOD	LIMIT OF DISTURBANCE
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PROJECT TITLE

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FALLS CHURCH, VA
UPC 113612

REVISIONS

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CHECKED BY:	AMT

60% DESIGN

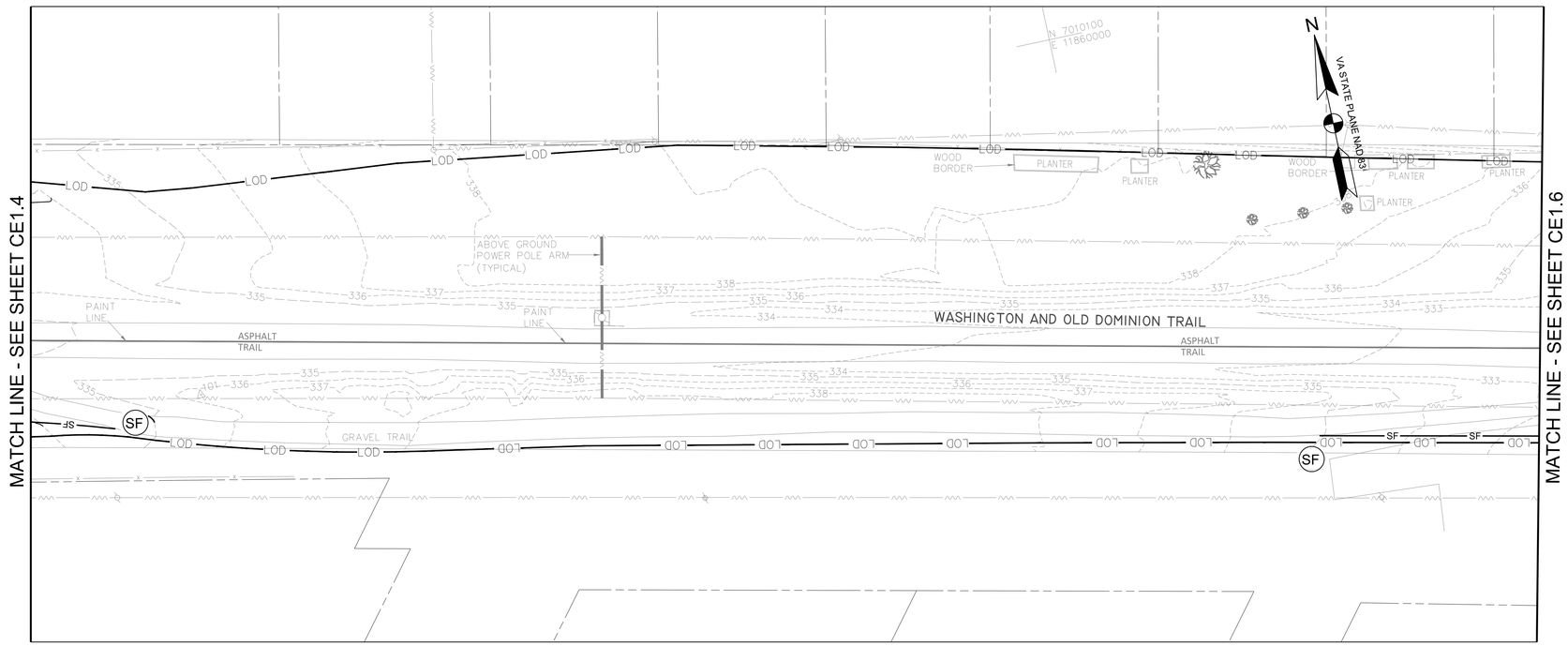
SHEET TITLE

EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

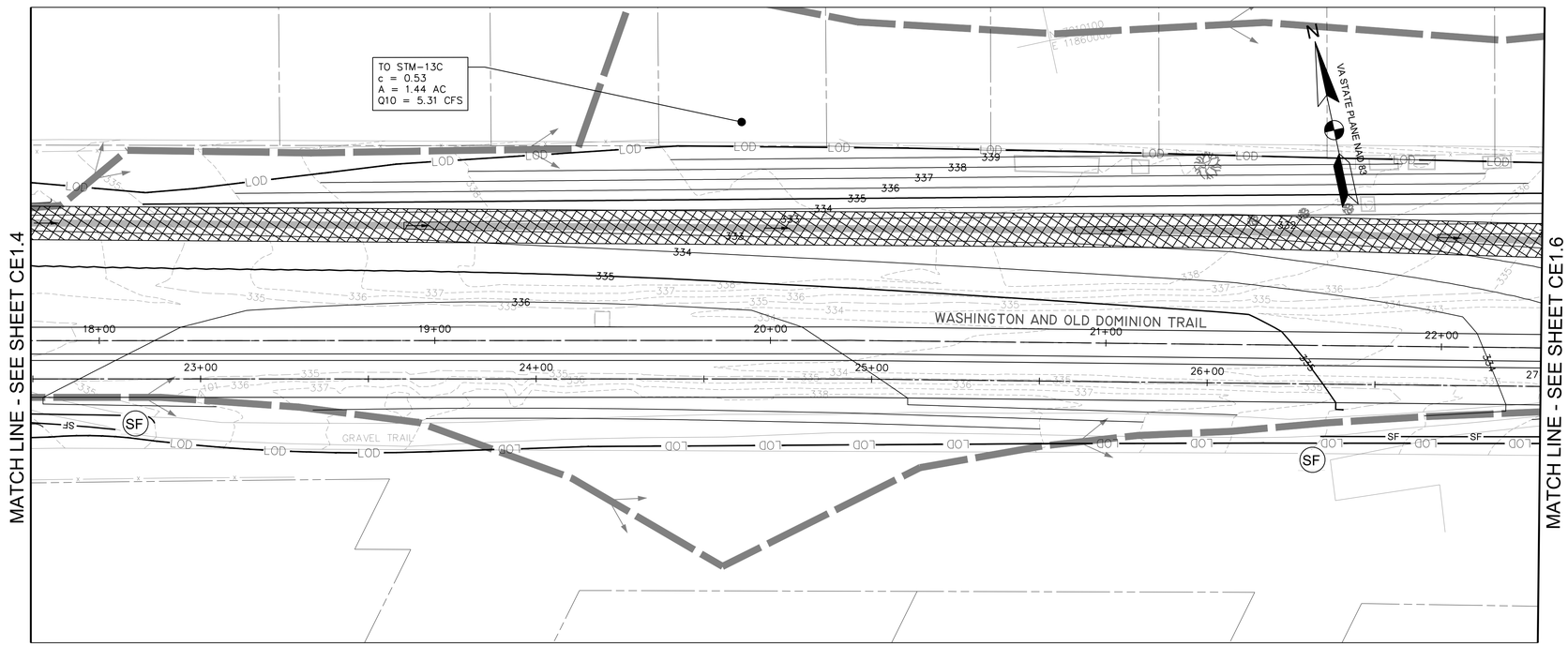
SHEET

CE1.4

51 OF 100



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

EROSION AND SEDIMENT CONTROL LEGEND

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			PROPERTY LINE
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REVISIONS

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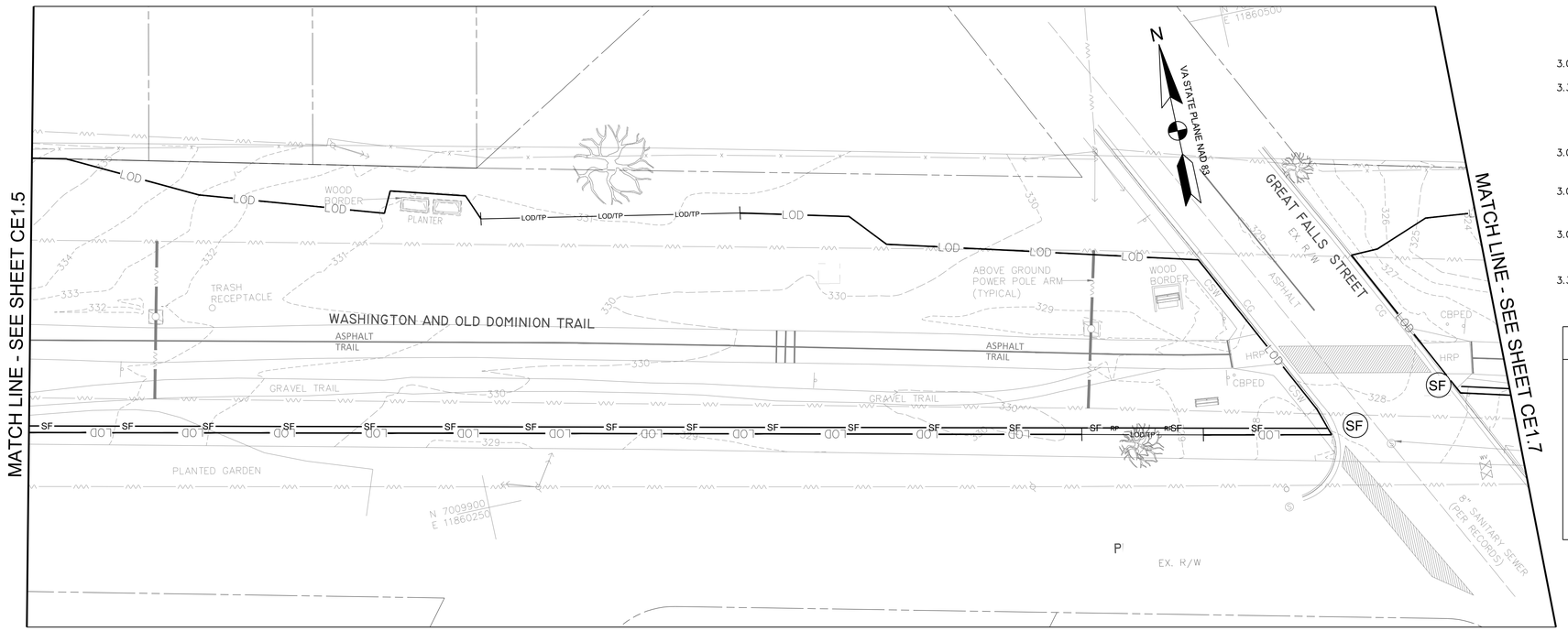
SHEET TITLE

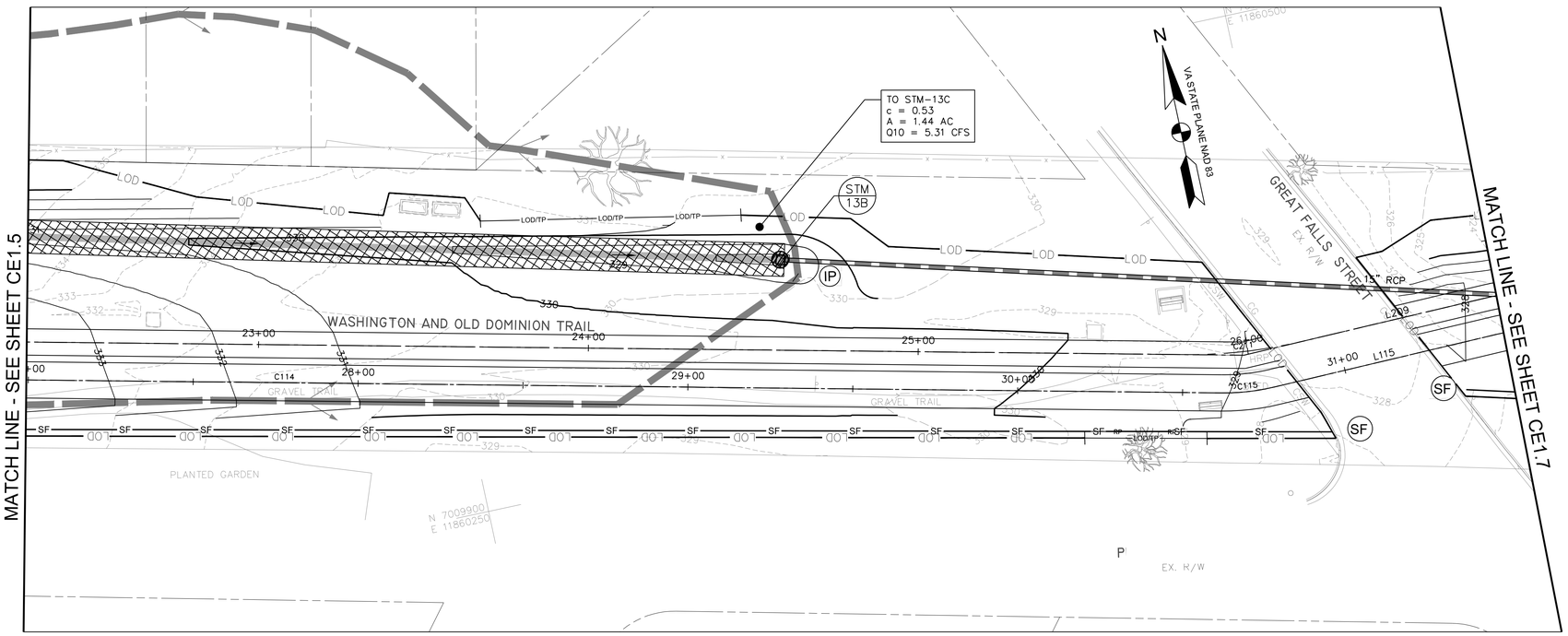
EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

SHEET

CE1.5



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRIPTION
			PROPERTY LINE
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UPC 113612

REVISIONS

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DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

SHEET

CE1.6

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRIPTION
		PROPERTY LINE	PROPERTY LINE
		LOD	LIMIT OF DISTURBANCE
3.05	SF	SF	SILT FENCE
3.38	TP	LOD/TP	TREE PROTECTION FENCE
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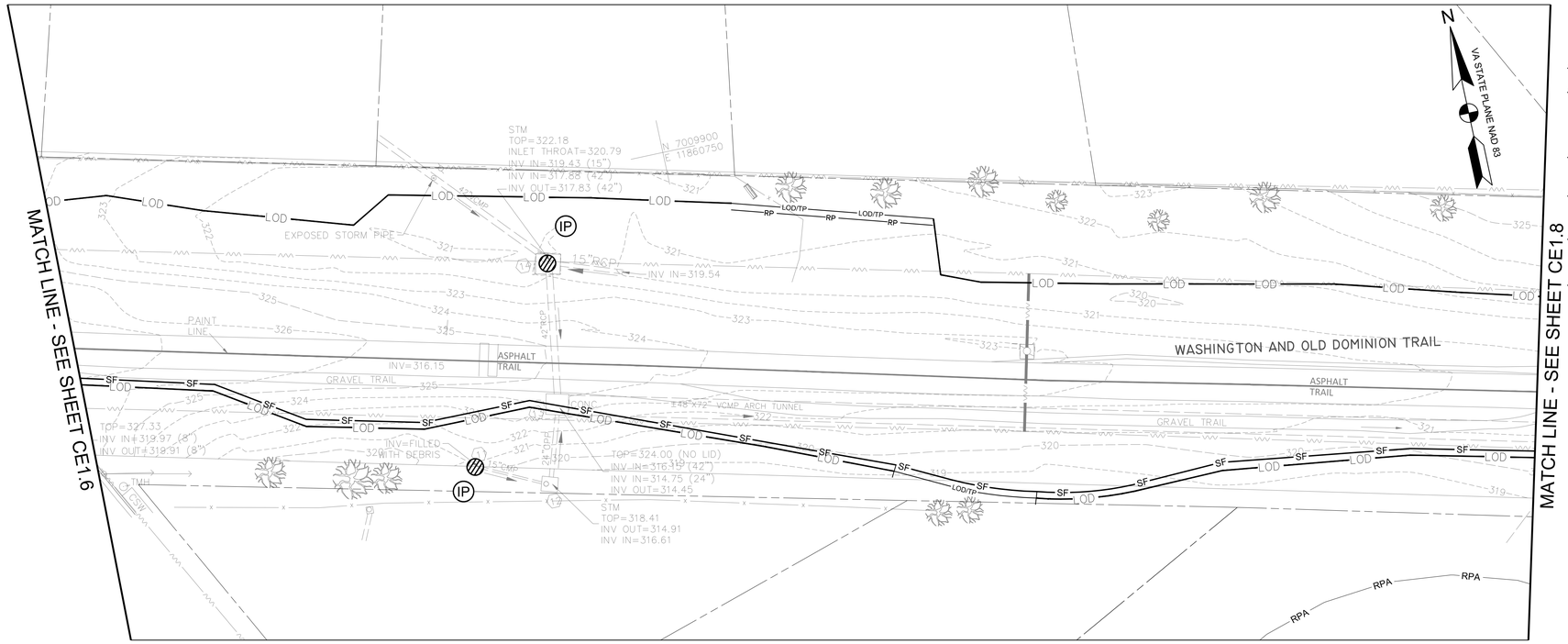
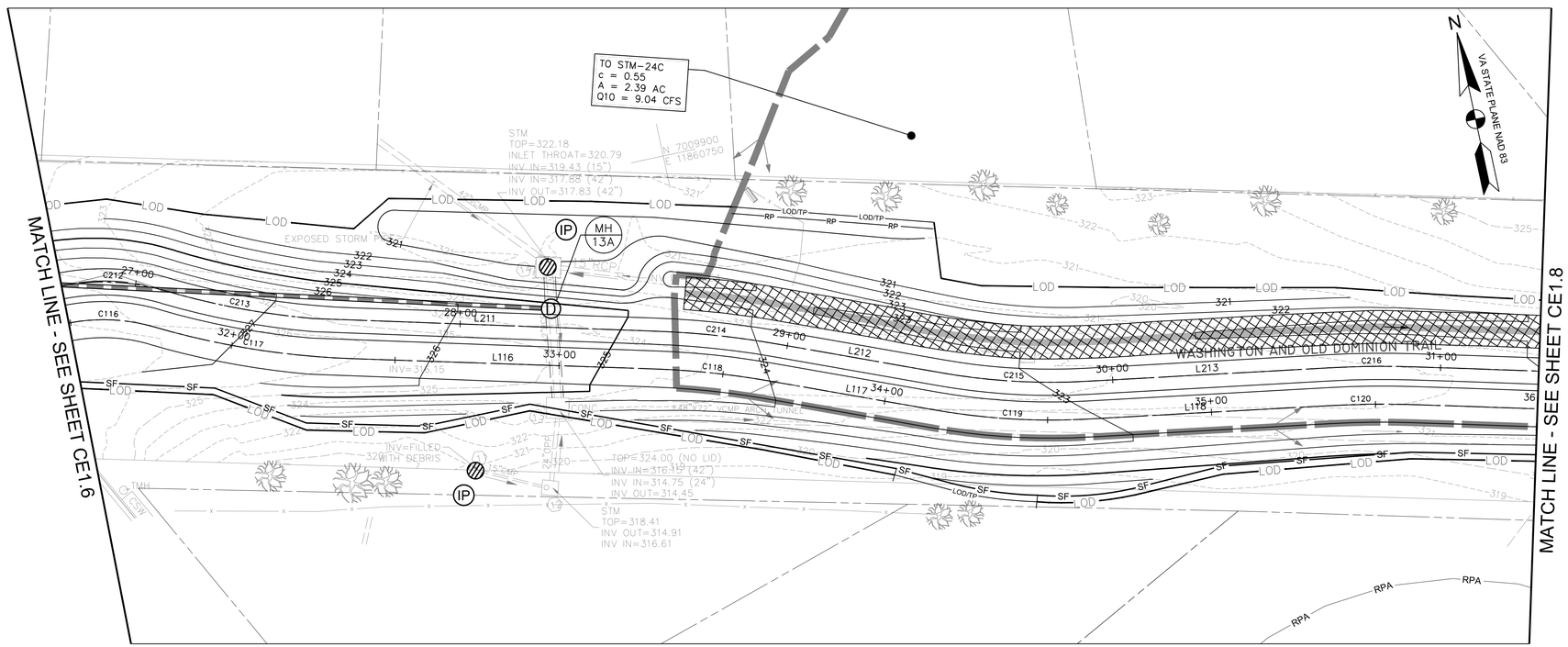


EROSION AND SEDIMENT CONTROL PLAN- PHASE I
SCALE: 1"=20'



EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

0 10' 20' 40'
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CONSULTING ENGINEERS
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COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
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60% DESIGN

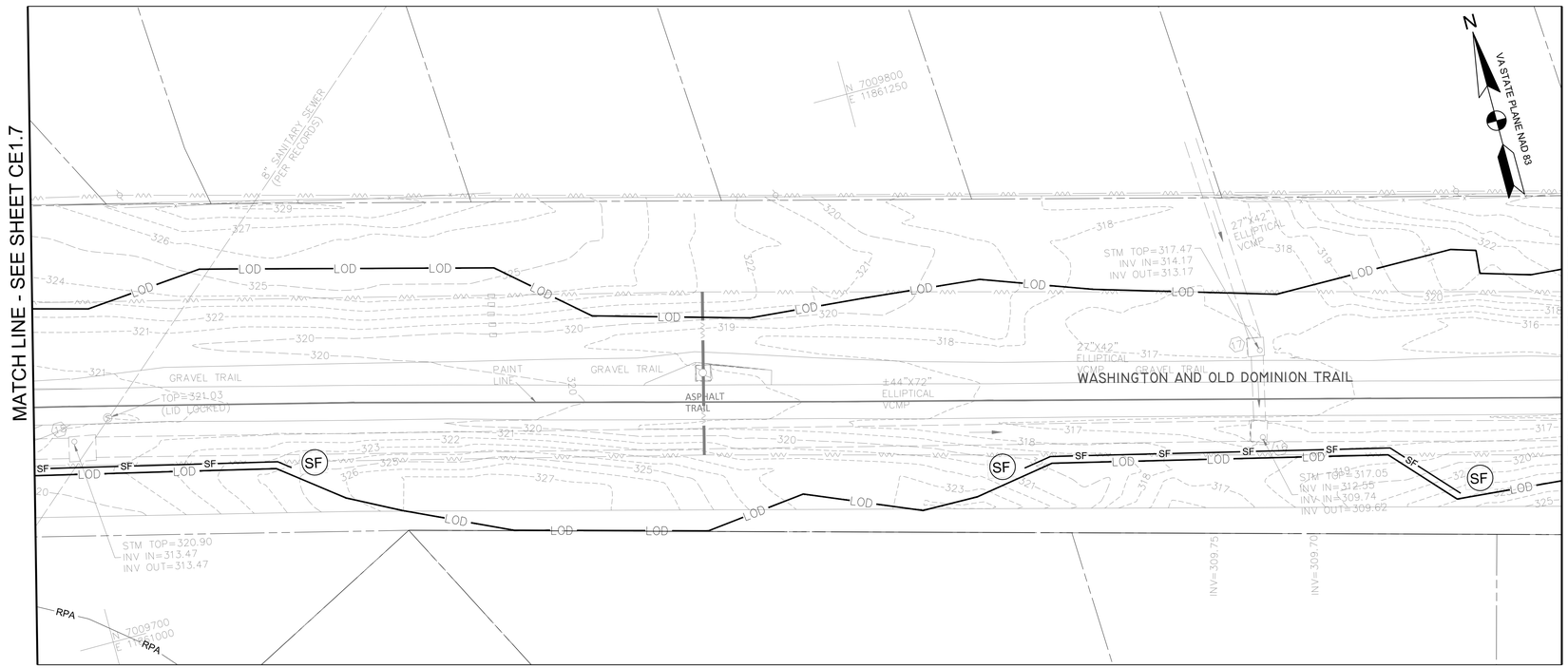
SHEET TITLE

EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

SHEET

CE1.7

54 OF 100



EROSION AND SEDIMENT CONTROL PLAN- PHASE I
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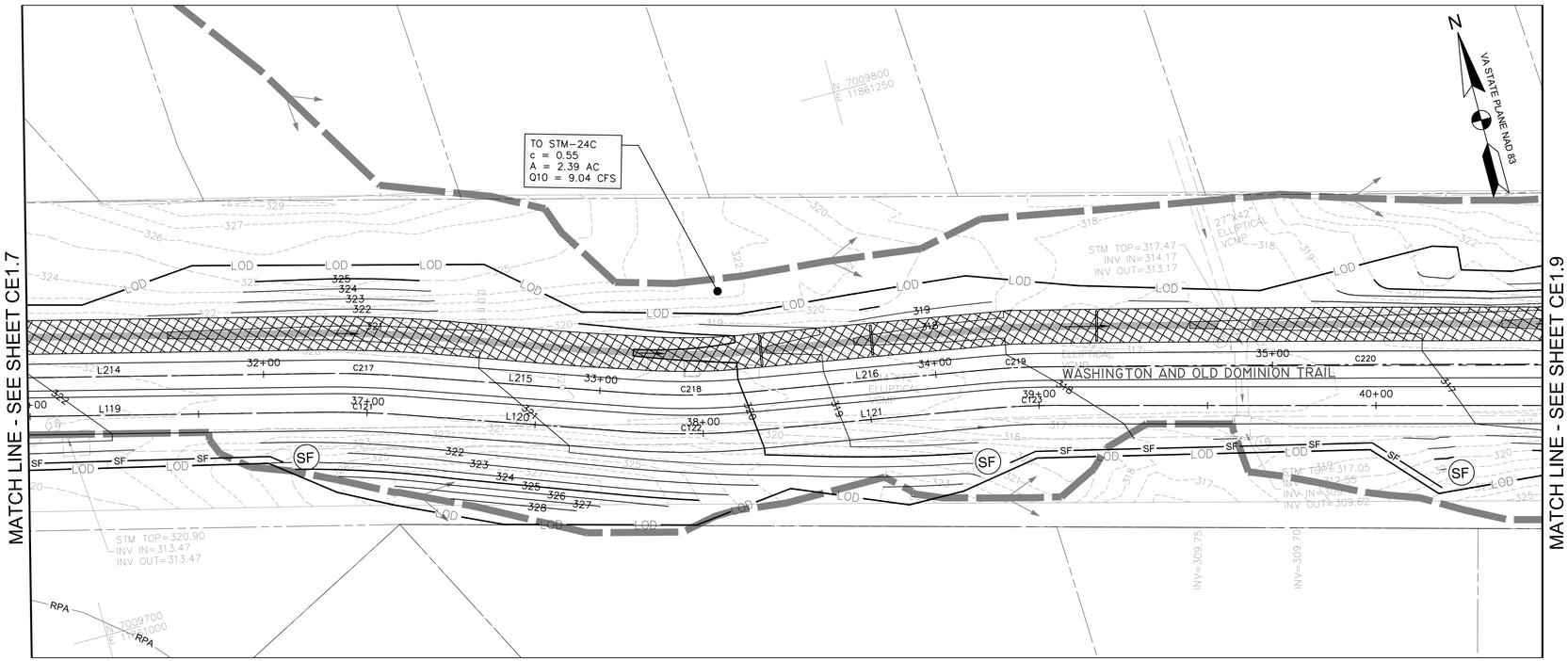

EROSION AND SEDIMENT CONTROL PLAN- PHASE II
SCALE: 1"=20'

EROSION AND SEDIMENT CONTROL LEGEND

NO.	KEY	LINETYPE	DESCRPIDTION
			PROPERTY LINE
		LOD	LIMIT OF DISTURBANCE
3.05	SF	SF	SILT FENCE
3.38	TP	LOD/TP	TREE PROTECTION FENCE
			DRAINAGE DIVIDE
3.07	IP		INLET PROTECTION
3.08	CIP		CULVERT INLET PROTECTION
3.02	CE	SCE	MODIFIED 40' X 10' STABILIZED CONSTRUCTION ENTRANCE WITH WASH RACK
3.36	B/M		STREAM BANK STABILIZATION

NOTES

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2. REFER TO SHEET CE5.0 FOR DETAILED SEQUENCE OF CONSTRUCTION.
3. CONTRACTOR SHALL USE MINIMUM CLEARING AS NEEDED FOR THE INSTALLATION OF PERIMETER CONTROLS.
4. INDIVIDUAL INLET PROTECTION SHOWN FOR PROPOSED INLETS SHALL BE INSTALLED IN PHASES AS EACH INLET STRUCTRURE IS INSTALLED.
5. CONTRACTOR SHALL MAINTAIN A PAVED OPEN TRAIL PATH A MINIMUM OF 8 FEET WIDE AT ALL TIMES UNLESS AN APPROVED TRAIL DETOUR ROUTE HAS BEEN PROVIDED.

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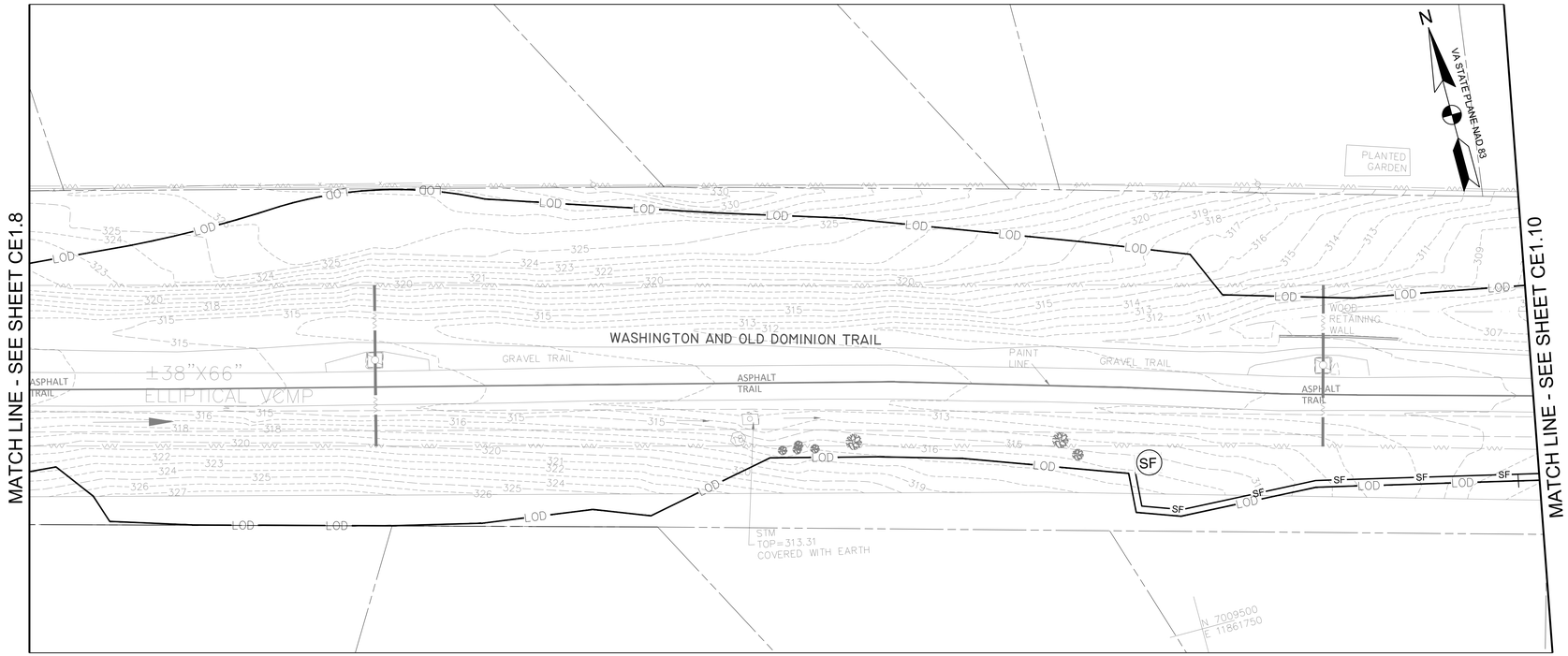

EROSION AND SEDIMENT CONTROL PLAN- PHASE I

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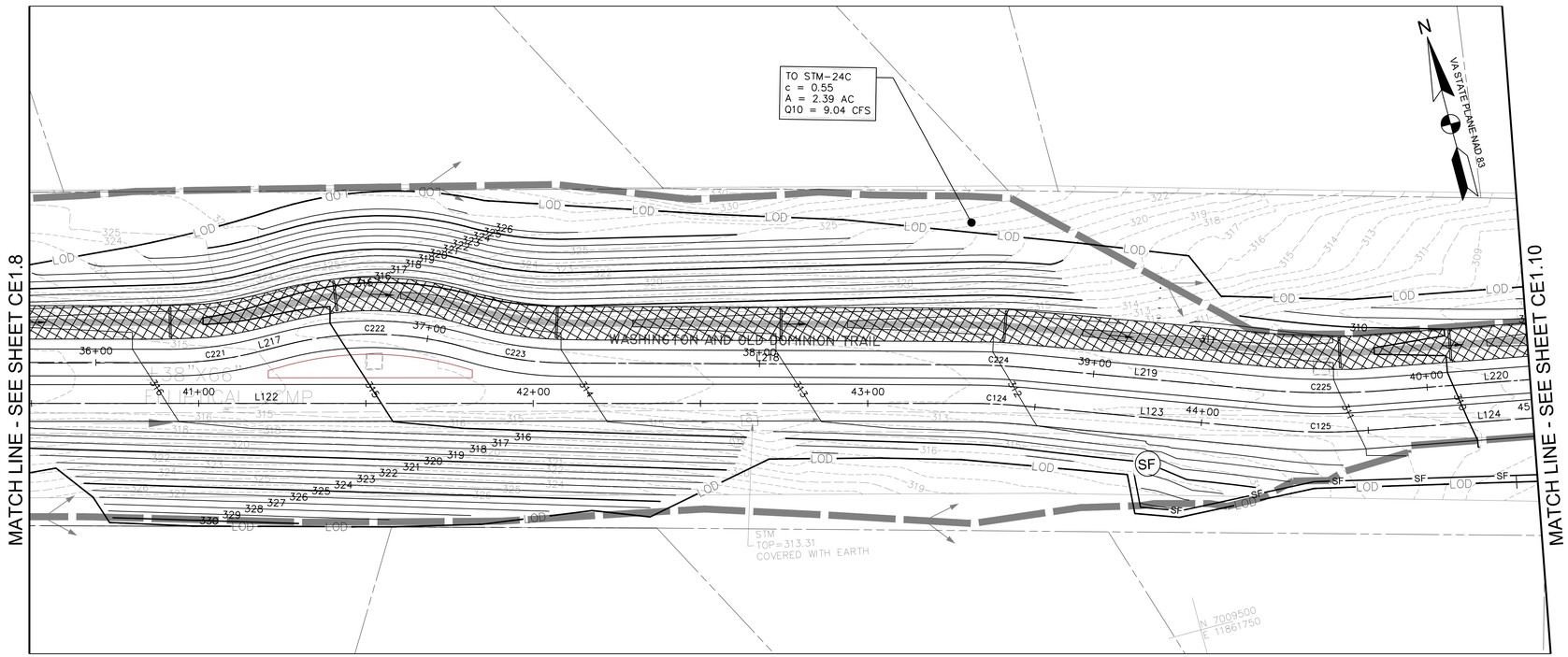

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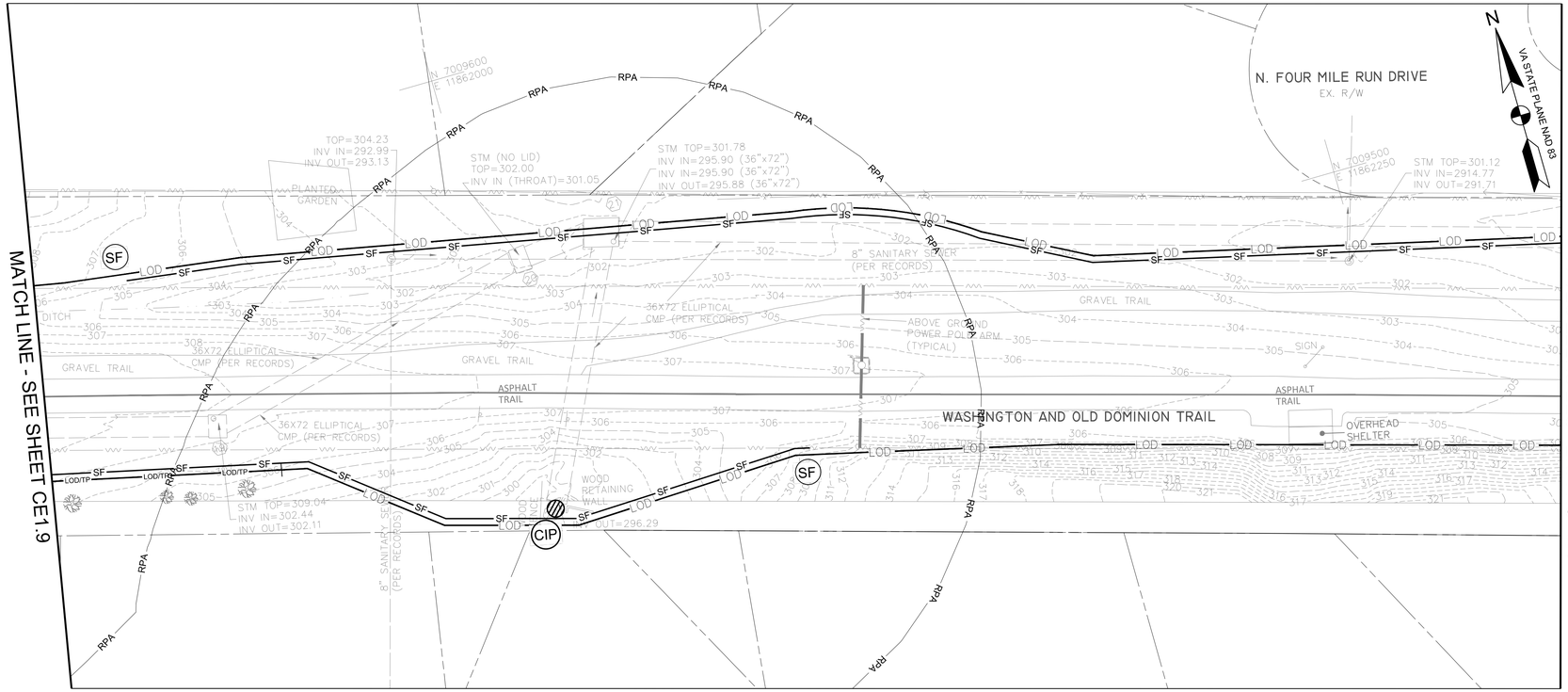

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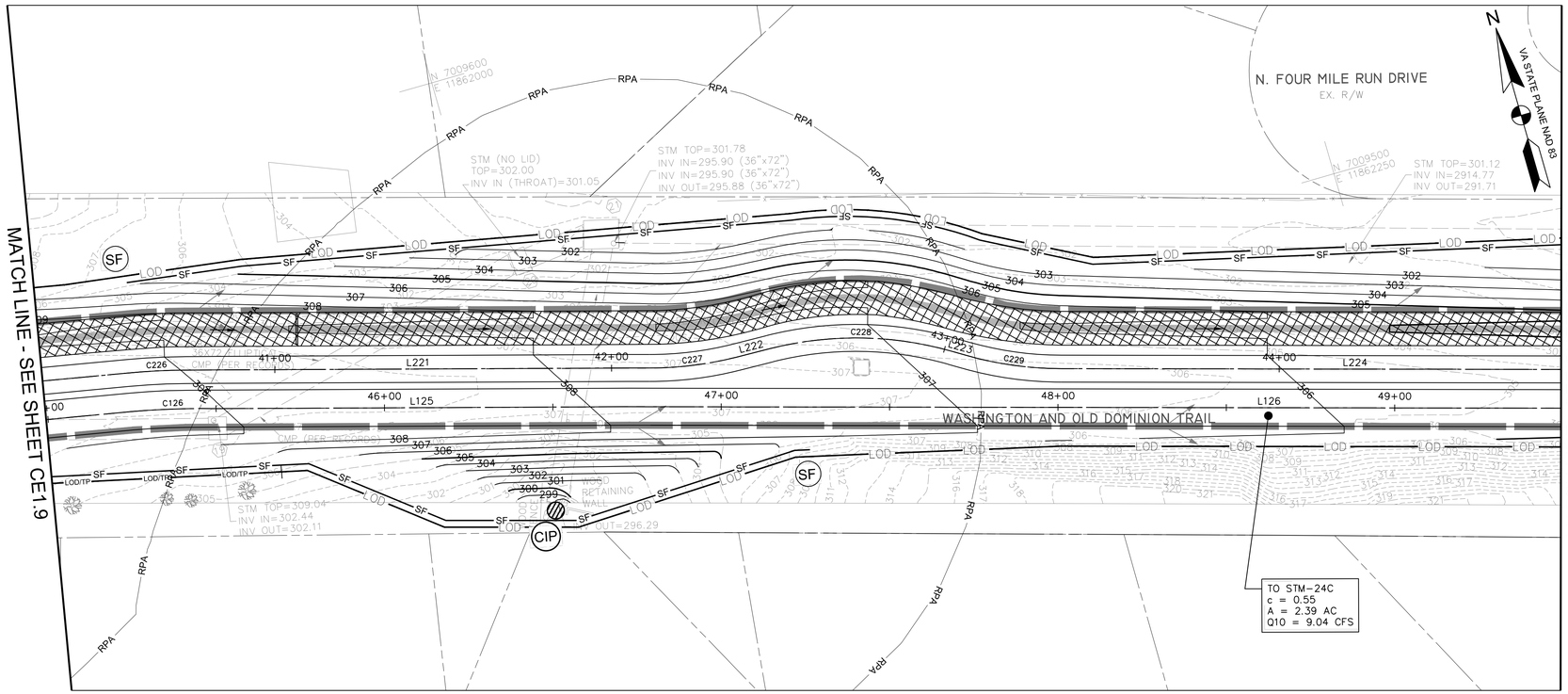

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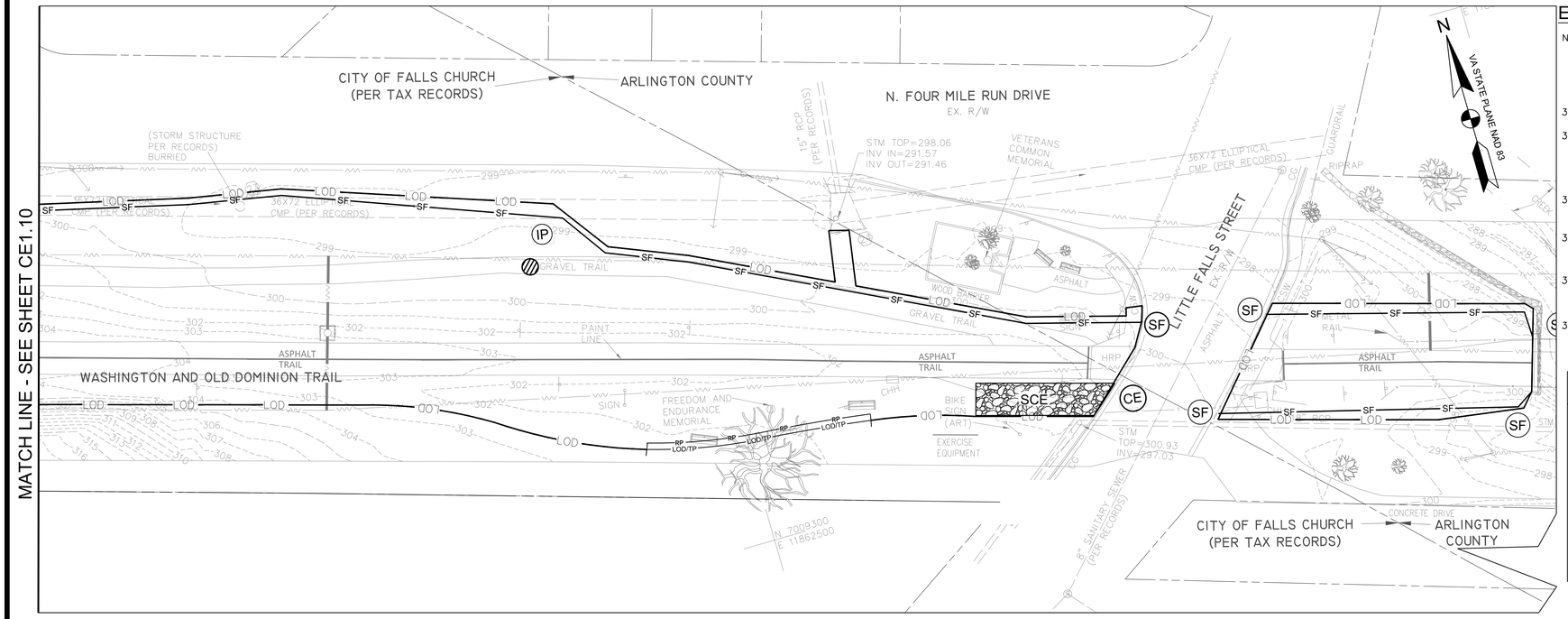

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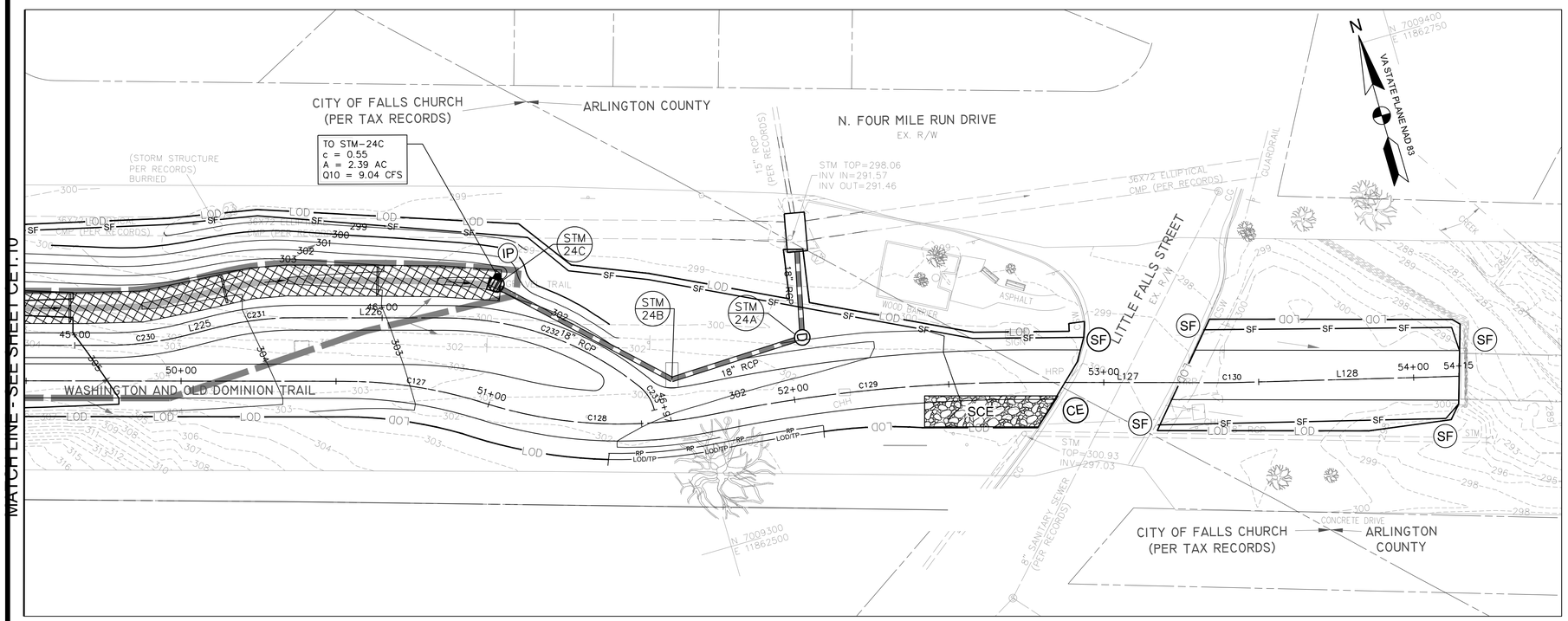

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SHEET TITLE

EROSION AND SEDIMENT CONTROL- PHASE I AND PHASE II

SHEET

CE1.11

58 OF 100

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION
CONSTRUCTION OF TRAIL WITH ASSOCIATED UTILITIES AND SITE IMPROVEMENTS.

TOTAL AREA OF DISTURBANCE: 7.75 ACRES (337,799 SF)

EXISTING SITE CONDITIONS
EXISTING SLOPES: 2-20%

THE SITE CONSISTS OF ONE PARCEL IS SURROUNDED BY PRIVATE RESIDENTIAL PROPERTIES TO THE NORTH AND SOUTH, GROVE AVENUE TO THE WEST, AND FOUR MILE RUN TO THE EAST. THE PROPERTY IS INTERSECTED BY N. WEST STREET, NORTH SPRING STREET, GREAT FALLS STREET, NORTH OAK STREET, AND LITTLE FALLS ROAD ALONG WITH THE BORDER OF ARLINGTON COUNTY AND FALLS CHURCH. ABOUT TWO-THIRDS OF THE SITE IS COVERED IN TURF GRASS AND THE OTHER THIRD IS OF THE SITE IS COVERED WITH EXISTING ASPHALT PAVEMENT AND GRAVEL PATHS. THE SITE SITES WITHIN TWO AND GENERALLY DRAINS FROM WEST TO EAST.

ADJACENT PROPERTIES
NORTH: PRIVATE RESIDENTIAL PROPERTIES
EAST: FOUR MILE RUN
SOUTH: PRIVATE RESIDENTIAL PROPERTIES
WEST: GROVE AVENUE

OFF-SITE AREAS
THERE IS NO PROPOSED CONSTRUCTION ON THE ADJACENT PROPERTIES. THERE ARE PROPOSED ROADWAY IMPROVEMENTS WITHIN THE RIGHT-OF-WAY OF GROVE AVENUE, N. WEST STREET, NORTH SPRING STREET GREAT FALLS STREET, NORTH OAK STREET, AND LITTLE FALLS ROAD.

SOILS
URBAN LAND, 2% TO 7% SLOPES, HYDROLOGIC GROUP D
THE ENTIRE MAPPING UNIT CONSISTS OF URBAN LAND (95), AT VARYING SLOPES. URBAN LAND IS A HYDROLOGIC GROUP D SOIL.

CRITICAL EROSION AREAS
THERE ARE CRITICAL EROSION AREAS WITHIN THE LIMITS OF DISTURBANCE. THE CRITICAL EROSION AREA CONSISTS OF FOUR MILE RUN ON THE EASTERN EDGE OF THE SITE.

EROSION AND SEDIMENT CONTROL MEASURES
PERMANENT OR TEMPORARY SOIL STABILIZATION MUST BE APPLIED TO DENUDED AREAS WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. SOIL STABILIZATION MUST BE APPLIED WITHIN 7 DAYS TO DENUDED AREAS WHICH MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT (UNDISTURBED) FOR LONGER THAN 14 DAYS. ANY STOCKPILES MUST BE MULCHED AND SEEDED IMMEDIATELY AS DIRECTED BY THE COUNTY INSPECTOR. THERE ARE NO CRITICAL AREAS WITHIN THE LIMITS OF DISTURBANCE.

SEDIMENT CONTROL WILL BE EXECUTED THROUGH THE INSTALLATION OF SUPER SILT FENCE, INLET PROTECTION AND CONSTRUCTION ENTRANCES WITHIN THE DRAINAGE AREA OF THE LIMITS OF DISTURBANCE.

ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER TEMPORARY MEASURES ARE NO LONGER NEEDED.

STRUCTURAL PRACTICES

SAFETY FENCE – 3.01
INSTALL A 6' HIGH CHAIN LINK FENCE TO PROHIBIT ACCESS TO THE SITE BY THE PUBLIC.

CONSTRUCTION ENTRANCE – 3.02
INSTALL A TEMPORARY CONSTRUCTION ENTRANCE WITH A WASH RACK IN THE SITE ENTRANCE AS SHOWN. WASH ALL CONSTRUCTION VEHICLES EGRESSING FROM THE SITE AS NECESSARY TO ENSURE THAT SEDIMENT WILL NOT LEAVE THE SITE. DIRECT WASH WATER TO NEAREST SEDIMENT CONTROL DEVICE. A PORTABLE SEDIMENT FILTER CAN BE USED FOR THIS PURPOSE.

SILT FENCE, SUPER SILT FENCE – 3.05
INSTALL SILT FENCE BARRIER DOWNSLOPE OF AREAS WITH MINIMAL GRADES TO FILTER SEDIMENT-LADEN RUNOFF FROM SHEET FLOW. WHERE SUPER SILT FENCE IS SHOWN ON PLAN NEXT TO TREE PROTECTION FENCE, ADHERE SILT FABRIC DIRECTLY TO FENCE.

INLET PROTECTION – 3.07
INSTALL A BLOCK AND GRAVEL CURB INLET SEDIMENT FILTER AROUND A STORM DRAIN CURB INLET AND INSTALL A SILT FENCE DROP INLET SEDIMENT FILTER AROUND A DROP INLET.

CULVERT INLET PROTECTION – 3.08
INSTALL SILT FENCE CULVERT INLET PROTECTION AROUND A STORM DRAIN CULVERT INLET.

TREE PROTECTION & PRESERVATION – 3.38
INSTALL TREE PROTECTION FENCING TO PROTECT TREES FROM MECHANICAL AND OTHER INJURY DURING LAND DISTURBING AND CONSTRUCTION ACTIVITY.

VEGETATIVE MEASURES
1. TOPSOILING (STOCKPILE)
TOPSOIL WILL BE STRIPPED FROM AREAS TO BE GRADED AND STOCKPILED FOR LATER USE. STOCKPILE LOCATIONS ARE TO BE STABILIZED WITH TEMPORARY VEGETATION WITHIN 14 DAYS.
2. TEMPORARY SEEDING
DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE WITHIN A PERIOD OF 14 DAYS WILL HAVE TEMPORARY VEGETATION ESTABLISHED. TEMPORARY VEGETATION WILL REDUCE DAMAGE FROM SEDIMENT AND RUNOFF TO DOWNSTREAM AND OFF-SITE AREAS. TEMPORARY SEEDING PLANT MATERIAL SHALL BE RAPIDLY GROWING PLANTS SELECTED FROM VESCH STANDARD AND SPEC. 3.31 AND TABLE 3.31-A&B. AREAS WHICH FAIL TO ESTABLISH VEGETATIVE COVER ADEQUATE TO PREVENT RILL EROSION ARE TO BE RESEEDED AS SOON AS POSSIBLE. FERTILIZER SHALL BE APPLIED AT A RATE OF 600 LBS. PER ACRE. FERTILIZER SHALL BE INCORPORATED INTO TOP 2-4 INCHES OF SOIL. SEED SHALL BE BE EVENLY APPLIED AND SMALL GRAINS SHALL BE PLANTED NO MORE THAN 1.5 INCHES DEEP. SEEDING MADE IN FALL FOR WINTER COVER AND DURING HOT AND DRY SUMMER MONTHS SHALL BE MULCHED ACCORDING TO STANDARD AND SPEC. 3.35.
3. PERMANENT SEEDING
ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE STABILIZED WITH PERMANENT SEEDING IMMEDIATELY FOLLOWING FINISHED GRADING. SEEDING SHALL BE DONE WITH KENTUCKY 31 TALL FESCUE ACCORDING TO MINIMUM STANDARD #3, VESCH SPEC. 3.32-A&B. EROSION CONTROL BLANKETS ARE TO BE INSTALLED OVER FILL SLOPES, WHICH HAVE BEEN BROUGHT TO FINAL GRADE AND HAVE BEEN SEEDED. THIS WILL PROTECT THE SLOPES FROM RILL AND GULLY EROSION AND ALLOW THE SEED TO GERMINATE PROPERLY. MULCH (STRAW OR FIBER) WILL BE USED ON RELATIVELY FLAT AREAS. SOIL TESTS SHOULD BE DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER. IN ALL SEEDING OPERATIONS, SEED, FERTILIZER AND LIME WILL BE APPLIED PRIOR TO MULCHING. THE PLANTING SOIL MUST HAVE ENOUGH FINE GRAINED SOIL, SUFFICIENT PORE SPACE, SUFFICIENT DEPTH AND BE FROM FROM TOXIC OR EXCESSIVE QUANTITIES OF ROOTS AND SHALL BE APPLIED IN ACCORDANCE WITH STD. AND SPEC. 3.30.
4. SODDING
AREAS THAT ARE TO BE SODDED SHALL BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE PLANS. SOIL TESTS SHOULD BE DETERMINE THE EXACT REQUIREMENTS FOR LIME AND FERTILIZER. PRIOR TO LAYING SOD, SOIL SURFACE SHALL BE CLEAR OF TRASH, DEBRIS, AND LARGE OBJECTS. QUALITY OF SOD SHALL BE STATE CERTIFIED AND ENSURE GENETIC PURITY AND HIGH QUALITY. SOD SHALL NOT BE LAID IN EXCESSIVELY WET OR DRY WEATHER AND BE DELIVERED AND INSTALLED WITHIN 36 HOURS. SOD SHOULD NOT BE LAID ON FROZEN SOIL SURFACE AND SHALL BE INSTALLED PER PLATE 3.33-1 OF THE VESCH. ANY 2:1 SLOPES ARE REQUIRED TO BE SODDED AND STAKED.
5. DUST CONTROL
DUST SHALL ME MINIMIZED AS MUCH AS PRACTICABLE.

SEDIMENT CONTROL – SEQUENCE OF CONSTRUCTION NARRATIVE
SEQUENCE OF CONSTRUCTION – PHASE 1, SEE SHEET C-108
A. INSTALL SILT FENCE (SF), INLET PROTECTION (IP), CULVERT INLET PROTECTION (CIP), CONSTRUCTION ENTRANCE (CE) AND TREE PROTECTION FENCE (TP). NOTE: WHERE SF AND TP ARE SHOWN ADJACENT ON PLAN, THE FILTER FABRIC FOR THE SF SHALL BE ADHERED TO THE TP FENCE. THESE ARE SHOWN AS TWO SEPARATE LINES ON THE PLAN VIEW FOR GRAPHICAL PURPOSES ONLY. AN 8' WIDE PATH MUST REMAIN OPEN AT ALL TIMES DURING CONSTRUCTION AND MAY BE CONSTRUCTTED IN PHASES TO KEEP PATH OPEN.
B. CONTRACTOR TO HAVE CONSTRUCTION WORKER PARKING, HAUL ROUTE, AND EXCAVATION PROTECTION PLAN APPROVED BY CITY OF FALLS CHURCH.
C. CONTRACTOR TO SUBMIT SEDIMENT DISPOSAL PLAN TO CITY OF FALLS CHURCH INSPECTOR FOR APPROVAL.
D. CLEAR AND GRUB SITE. REMOVE AND DISPOSE OF GRAVEL AND ASPHALT PATH MATERIALS PROPERLY.
E. ROUGH GRADE THE SITE.
F. RESTORE AND STABILIZE ALL UNPAVED AREAS. THIS WORK MUST BE PERFORMED AND INSPECTED AS EARLY AS SITE CONDITIONS ALLOW. AN 8' WIDE WALKING PATH SHALL REMAIN OPEN AT ALL TIMES. LAY GRAVEL FOR TEMPORARY ACCESS TO ASPHALT PATH AS NEEDED.
G. STRUCTURAL CONTROLS SHALL BE REMAIN IN PLACE FOR PHASE 2 OPERATIONS UNLESS OTHERWISE NOTED OR INSTRUCTED BY INSPECTOR. THE GROUND SHALL BE PERMANENTLY STABILIZED WITH VEGETATION UPON APPROVAL OF THE CITY OF FALLS CHURCH INSPECTOR.

SEQUENCE OF CONSTRUCTION – PHASE 2, SEE SHEET C-110
A. ALL SEDIMENT AND EROSION CONTROL DEVICES INSTALLED AS PART OF PHASE 1 SHALL REMAIN IN PLACE AND FUNCTIONING, UNLESS OTHERWISE DIRECTED BY THE INSPECTOR. AN 8' WIDE PATH MUST REMAIN OPEN AT ALL TIMES DURING CONSTRUCTION AND MAY BE CONSTRUCTTED IN PHASES TO KEEP WALKING PATH OPEN.
B. INSTALL ALL WET AND DRY UTILITIES. NEW STORM DRAIN INLETS AND CULVERTS SHALL HAVE INLET PROTECTION INSTALLED IMMEDIATELY. INSTALL SWM 7 AND SWM 8 MODULAR WETLAND FACILITIES.
C. EXCAVATE ALL AREAS TO BE PAVED TO A SUITABLE SUBGRADE. INSTALL STONE SUBBASE AND PROPOSED PAVING, PROPOSED PERMEABLE PAVEMENT AND RAMPS.
D. ONCE ALL HEAVY VEHICULAR TRAFFIC AREAS ARE COMPLETE ONSITE, INSTALL STORMWATER MANAGEMENT FACILITIES (SWALES A-D) INCLUDING PERFORATED UNDERDRAIN PIPING AND CLEANOUTS. INSTALL SOIL STABILIZATION BLANKET ON SIDES AND SLOPES OF SWALES AS SHOWN TO PREVENT EROSION. STABILIZE AREAS DRAINING TO STORMWATER MANAGEMENT FACILITIES 1-8 OR INSTALL SILT FENCE AROUND FACILITIES.
E. UPON FINAL STABILIZATION OF THE SITE WITH ESTABLISHED VEGETATION AND WITH THE PERMISSION OF THE SEDIMENT CONTROL INSPECTOR, REMOVE THE REMAINING SEDIMENT CONTROL MEASURES AND STABILIZE THOSE AREAS DISTURBED BY THIS PROCESS.

MAINTENANCE
A. ALL CONTROLS ARE TO BE INSPECTED ON A DAILY BASIS BY THE SITE SUPERINTENDENT OR THEIR REPRESENTATIVE, ANY DAMAGED CONTROLS ARE TO BE REPAIRED BY THE END OF THE WORKING DAY.
B. ALL CONSTRUCTION VEHICLES EGRESSING FROM THE SITE SHALL BE WASHED AS NECESSARY TO INSURE THAT SEDIMENT WILL NOT BE REMOVED FROM THE SITE. WASH WATER TO BE TRUCKED INTO THE SITE OR OBTAINED FROM A METERED WATER CONNECTION. WASH WATER TO BE DIRECTED TO A SEDIMENT TRAPPING DEVICE.
C. TO PREVENT CLOGGING, AREA DRAINS & TRENCH DRAINS ARE TO BE PROTECTED FROM DEBRIS AND CONSTRUCTION MATERIAL. CONTRACTOR TO COORDINATE WITH SITE INSPECTOR TO DETERMINE METHODOLOGY OF PROTECTION.
D. VPDES/VSMP PERMIT SHALL BE OBTAINED BY CONTRACTOR. CONDITIONS OF VPDES/VSMP PERMIT SHALL BE STRICTLY OBSERVED.

PERIMETER CONTROLS
□ SILT FENCE SHALL BE CHECKED FOR UNDERMINING, HOLES, OR DETERIORATION OF THE FABRIC. FENCING SHALL BE REPLACED IMMEDIATELY IF THE FABRIC IS DAMAGED OR WORN. SILT FENCE MUST BE TRENCHED INTO THE GROUND PER STATE SPECIFICATIONS (STD & SPEC 3.09).
□ WOODEN STAKES OR STEEL POSTS SHALL BE PROPERLY SECURED UPRIGHT INTO THE GROUND. DAMAGED POSTS OR STAKES MUST BE REPLACED.
□ SEDIMENT THAT HAS ACCUMULATED AGAINST THE SILT FENCE SHOULD BE REMOVED. ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE LEVEL REACHES ONE-HALF THE HEIGHT OF THE FENCING.
□ HAY BALES OR A STONE BERM SHOULD BE PLACED ACROSS THE CONSTRUCTION ENTRANCE TO PREVENT SEDIMENT FROM LEAVING THE CONSTRUCTION SITE.

EXPOSED SLOPES AND SOIL
□ EXPOSED SLOPES NOT AT THE FINAL STABILIZATION PHASE SHALL BE COVERED WITH TARPS, PLASTIC SHEETING, OR EROSION CONTROL MATTING. COVERING MATERIAL SHALL BE PROPERLY SECURED/ANCHORED.
□ CONTROLS SHALL BE INSTALLED TO PREVENT CONCENTRATED FLOW DOWN AN EXPOSED SLOPE. BERMS OR DIVERSION DIKES SHALL BE INSTALLED AT THE TOP OF CUT/EXPOSED SLOPES TO DIRECT STORM FLOW AROUND THE DISTURBED AREA.
□ EXPOSED SLOPES AT THE FINAL STABILIZATION PHASE SHALL BE STABILIZED USING SLOPE STABILIZATION PRACTICES SUCH AS SOIL STABILIZATION BLANKETS OR MATTING AS SPECIFIED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) STD & SPEC 3.36. BLANKETS OR MATS MUST BE PROPERLY SECURED AND ANCHORED TO THE SLOPE USING STAPLES, PINS, OR STAKES
□ SEEDED AREAS SHALL BE CHECKED AND RESEEDED AS NECESSARY TO COVER EXPOSED SOIL. RECENTLY SEEDED AREAS SHALL BE PROTECTED BY STRAW OR SOIL STABILIZATION BLANKETS TO PREVENT SEEDING FROM BEING WASHED AWAY.

STOCKPILES
□ STOCKPILED SOIL AND OTHER LOOSE MATERIALS THAT CAN BE WASHED AWAY SHALL BE COVERED WITH A TARP, PLASTIC SHEETING, OR OTHER STABILIZATION MATTING. THE COVER MUST BE PROPERLY SECURED/ANCHORED DOWN TO PREVENT IT FROM BEING BLOWN OFF AND EXPOSING MATERIALS TO RAIN. CONTROLS SUCH AS HAY BALES OR BOOMS SHOULD BE PLACED ALONG THE PERIMETER OF THE STOCK PILE (DOWNHILL SIDE).

INLET PROTECTION
□ INLET PROTECTION CONTROLS SHALL BE INSPECTED TO ENSURE THEY ARE FUNCTIONING PROPERLY AND FLOODING WILL NOT OCCUR. CLOGGED OR DAMAGED CONTROLS MUST BE REPLACED IMMEDIATELY. ENSURE CONTROLS ALLOW FOR OVERFLOW / BYPASS OF STORMWATER RUNOFF DURING SIGNIFICANT STORM EVENTS.
IN ADDITION TO THESE PRE-STORM ACTIONS, ALL EROSION AND SEDIMENT CONTROL (ESC) MEASURES MUST BE CHECKED DAILY AND AFTER EACH SIGNIFICANT RAINFALL.

GENERAL LAND CONSERVATION NOTES:

1. NO DISTURBED AREA WILL REMAIN DENUDED FOR MORE THAN 7 CALENDAR DAYS UNLESS OTHERWISE AUTHORIZED BY THE DIRECTOR OR HIS AGENT.

2. ALL EROSION 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.

3. ALL STORM AND SANITARY SEWER LINES NOT IN STREET ARE TO BE MULCHED AND SEEDED WITHIN 5 DAYS AFTER BACKFILL. NO MORE THAN 500 FEET ARE TO BE OPEN AT ANY ONE TIME

4. ELECTRIC POWER, TELEPHONE AND GAS SUPPLY TRENCHED ARE TO BE COMPACTED, SEEDED AND MULCH WITHIN 5 DAYS OF BACKFILL.

5. ALL TEMPORARY BERMS, DIVERSION AND SEDIMENT CONTROL DAMS 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 STOCKPILE

6. DURING CONSTRUCTION, ALL STORM INLETS WILL BE PROTECTED BY INLET PROTECTION DEVICES, MAINTAINED AND MODIFIED AS REQUIRED BY CONSTRUCTION PROGRESS.

7. ANY DISTURBED AREA NOT COVERED IN NOTE # 1 ABOVE AND NOT PAVED, SODDED OR BUILT UPON BY NOVEMBER 1ST, OR DISTURBED AFTER THAT DATE, SHALL BE MULCHED WITH HAY OR STRAW AT THE RATE OF 2 TONS PER ACRE AND OVER-SEEDED NO LATER THAN MAY 15TH.

8. AT THE COMPLETION OF THE CONSTRUCTION PROJECT AND PRIOR TO BOND RELEASE, ALL TEMPORARY SEDIMENT CONTROLS SHALL BE REMOVED AND ALL DENUDED AREAS SHALL BE STABILIZED. FAIRFAX COUNTY INSPECTOR TO APPROVE REMOVAL OF ALL TEMPORARY SILTATION MEASURES.

EROSION AND SEDIMENT CONTROL NOTES:

ES-1: UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA'S REGULATIONS 9VAC25-840-30 EROSION AND SEDIMENT CONTROL REGULATIONS.

ES-2: THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.

ES-3: ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE FIRST STEP IN CLEARING.

ES-4: A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.

ES-5: PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND APPROVAL BY THE PLAN APPROVING AUTHORITY.

ES-6: THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY THE PLAN APPROVING AUTHORITY.

ES-7: ALL DISTURBED AREA ARE TO BE DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.

ES-8: DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING DEVICE.

ES-9: THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.

LAND DISTURBANCE NOTES:

WE ACKNOWLEDGE THAT THE TREE PROTECTION/LANDSCAPE PLANS SHALL BE REVIEWED AND APPROVED PRIOR TO THE ISSUANCE OF THE ASSOCIATED LAND DISTURBANCE PERMIT. THE APPROVED TREE PROTECTION AND/OR LANDSCAPE PLAN MUST BE SUBMITTED AS PART OF THE LDA PERMIT PACKAGE ALONG WITH ANY ADDITIONAL REQUIRED ITEMS.

DEWATERING NOTE:

ANY WATER THAT ACCUMULATES IN ANY OPEN EXCAVATION (FOOTING EXCAVATIONS, UTILITY TRENCHES, STRUCTURE EXCAVATIONS, ETC.) AND NEEDS TO BE REMOVED TO ALLOW CONSTRUCTION TO CONTINUE, SHALL BE PUMPED INTO A PORTABLE SEDIMENT TANK OR RUN THROUGH ANY OTHER FILTERING MEASURE APPROVED BY THE SITE INSPECTOR TO ENSURE THAT SEDIMENT IS REMOVED FROM THE WATER PRIOR TO DISCHARGE FROM THE CONSTRUCTION AREA.

TABLE 3.31-B
(Revised June 2003)
TEMPORARY SEEDING SPECIFICATIONS
QUICK REFERENCE FOR ALL REGIONS

SEED

APPLICATION DATES	SPECIES	APPLICATION RATES
Sept. 1 - Feb. 15	50/50 Mix of Annual Ryegrass (lolium multi-florum) & Cereal (Winter) Rye (Secale cereale)	50 -100 (lbs/acre)
Feb. 16 - Apr. 30	Annual Ryegrass (lolium multi-florum)	60 - 100 (lbs/acre)
May 1 - Aug. 31	German Millet	50 (lbs/acre)

FERTILIZER & LIME

- Apply 10-10-10 **fertilizer** at a rate of 450 lbs. / acre (or 10 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
1 - A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
2 - Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
3 - When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

TABLE 3.32-D
(Revised June 2003)
PERMANENT SEEDING SPECIFICATIONS FOR PIEDMONT AREA

SEED[1]

LAND USE	SPECIES	APPLICATION PER ACRE
Minimum Care Lawn (Commercial or Residential)	Tall Fescue[1] Perennial Ryegrass Kentucky Bluegrass[1]	95-100% 0-5% 0-5% TOTAL: 175-200 lbs.
High-Maintenance Lawn	Tall Fescue[1]	TOTAL: 200-250 lbs.
General Slope (3:1 or less)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[2]	128 lbs. 2 lbs. 20 lbs. TOTAL: 150 lbs.
Low-Maintenance Slope (Steeper than 3:1)	Tall Fescue[1] Red Top Grass or Creeping Red Fescue Seasonal Nurse Crop[2] Crownvetch[3]	108 lbs. 2 lbs. 20 lbs. 20 lbs. TOTAL: 150 lbs.

1 - When selecting varieties of turfgrass, use the Virginia Crop Improvement Association (VCIA) recommended turfgrass variety list. Quality seed will bear a label indicating that they are approved by VCIA. A current turfgrass variety list is available at the local County Extension office or through VCIA at 804-746-4884 or at http://sudan.cses.vt.edu/html/Turf/turf/publications/publications2.html
2 - Use seasonal nurse crop in accordance with seeding dates as stated below:

February 16th - April	Annual Rye
May 1st - August 15th	Foxtail Millet
August 16th - October	Annual Rye
November - February 15th	Winter Rye

3 - Substitute Sericea lespedeza for Crownvetch east of Farmville, VA (May through September use hulled seed, all other periods, use unhulled Sericea). If Flatpea is used, increase rate to 30 lbs./acre. If Weeping Lovegrass is used, include in any slope or low maintenance mixture during warmer seeding periods, increase to 30 -40

FERTILIZER & LIME

- Apply 10-20-10 **fertilizer** at a rate of **500** lbs. / acre (or 12 lbs. / 1,000 sq. ft.)
- Apply **Pulverized Agricultural Limestone** at a rate of 2 tons/acre (or 90 lbs. / 1,000 sq. ft.)

NOTE:
- A soil test is necessary to determine the actual amount of lime required to adjust the soil pH of site.
- Incorporate the lime and fertilizer into the top 4 – 6 inches of the soil by disking or by other means.
- When applying Slowly Available Nitrogen, use rates available in Erosion & Sediment Control Technical Bulletin # 4, 2003 Nutrient Management for Development Sites at http://www.dcr.state.va.us/sw/e&s.htm#pubs

TABLE 3.35-A

ORGANIC MULCH MATERIALS AND APPLICATION RATES

MULCHES:	RATES: Per Acre	RATES: Per 1000 sq. ft.	NOTES:
Straw or Hay	1½ - 2 tons (Minimum 2 tons for winter cover)	70 - 90 lbs.	Free from weeds and coarse matter. Must be anchored. Spread with mulch blower or by hand.
Fiber Mulch	Minimum 1500 lbs.	35 lbs.	Do not use as mulch for winter cover or during hot, dry periods.* Apply as slurry.
Corn Stalks	4 - 6 tons	185 - 275 lbs.	Cut or shredded in 4-6" lengths. Air-dried. Do not use in fine turf areas. Apply with mulch blower or by hand.
Wood Chips	4 - 6 tons	185 - 275 lbs.	Free of coarse matter. Air-dried. Treat with 12 lbs nitrogen per ton. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.
Bark Chips or Shredded Bark	50 - 70 cu. yds.	1-2 cu. yds.	Free of coarse matter. Air-dried. Do not use in fine turf areas. Apply with mulch blower, chip handler, or by hand.

* When fiber mulch is the only available mulch during periods when straw should be used, apply at a minimum rate of 2000 lbs./ac. or 45 lbs./1000 sq. ft.

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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

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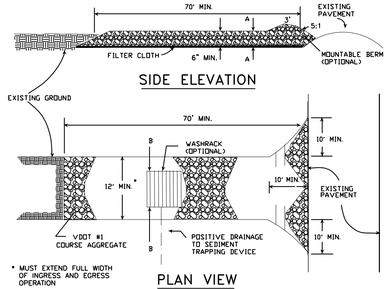
SHEET TITLE
EROSION & SEDIMENT CONTROL NOTES AND DETAILS

SHEET
CE5.0

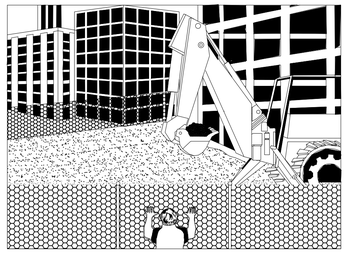
STONE CONSTRUCTION ENTRANCE



SOURCE: ADAPTED from 1983 Maryland Standards for Soil erosion and Sediment Control, and Va. DSWC

Plate 3.02-1

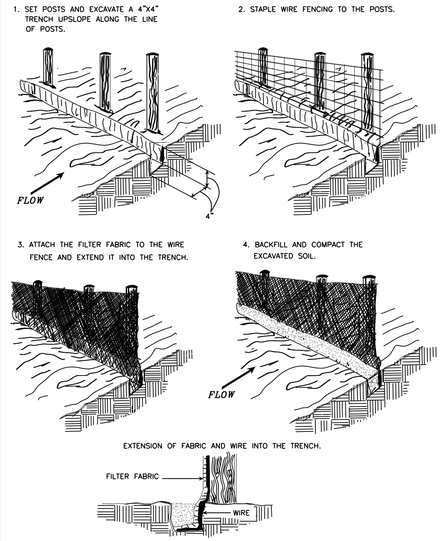
SAFETY FENCE



SOURCE: CONWED PLASTICS
VDOT ROAD AND BRIDGE STANDARDS
VA. DSWC

PLATE. 3.1-1

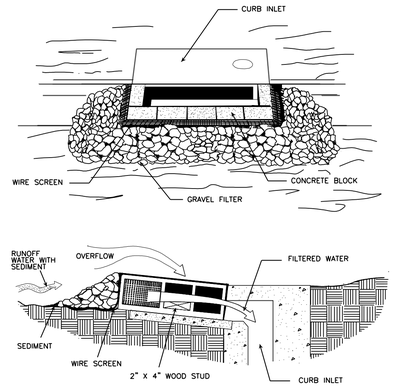
CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)



SOURCE: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood & Wyant

PLATE. 3.05-1

BLOCK & GRAVEL CURB INLET SEDIMENT FILTER



SPECIAL APPLICATION

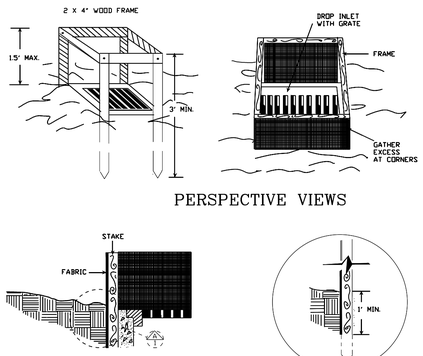
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE AN OVERFLOW CAPABILITY IS NECESSARY TO PREVENT EXCESSIVE PONDING IN FRONT OF THE STRUCTURE.

* GRAVEL SHALL BE VDOT #3, #357 OR #5 COARSE AGGREGATE

SOURCE: VA. DSWC

PLATE 3.07-8

SILT FENCE DROP INLET PROTECTION



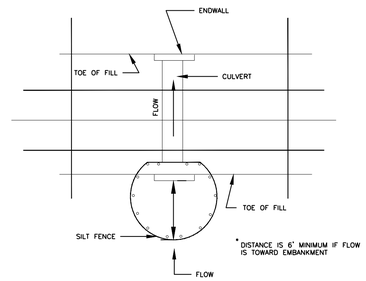
SPECIFIC APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE THE INLET DRAINS A RELATIVELY FLAT AREA (SLOPE NO GREATER THAN 5%) WHERE THE INLET SHEET OR OVERLAND FLOWS (NOT EXCEEDING 1 C.F.S.) ARE TYPICAL. THE METHOD SHALL NOT APPLY TO INLETS RECEIVING CONCENTRATED FLOWS, SUCH AS IN STREET OR HIGHWAY MEDIANS.

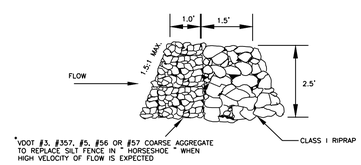
SOURCE: N.C. Erosion and Sediment Control Planning and Design Manual, 1988

PLATE 3.07-1

SILT FENCE CULVERT INLET PROTECTION



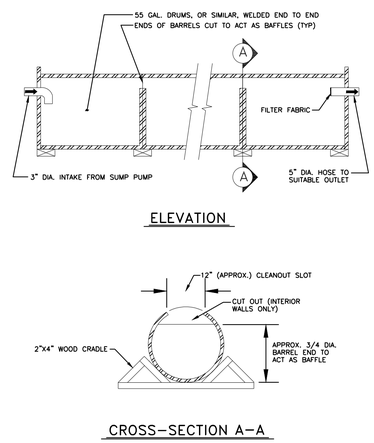
*OPTIONAL STONE COMBINATION



SOURCE: ADAPTED from VDOT Standard Sheets and Va. DSWC

PLATE. 3.08-1

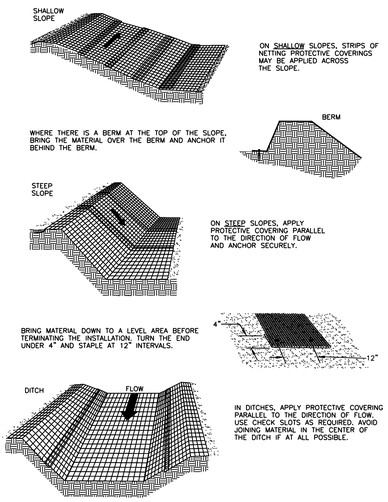
PORTABLE SEDIMENT TANK



SOURCE: USDA - SCS

PLATE: 3.26-1

TYPICAL ORIENTATION OF TREATMENT - 1 (SOIL STABILIZATION BLANKET)



SOURCE: ADAPTED FROM LUDLOW PRODUCTS BROCHURE

PLATE: 3.36-1

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UPC 113612

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EROSION & SEDIMENT CONTROL DETAILS

SHEET

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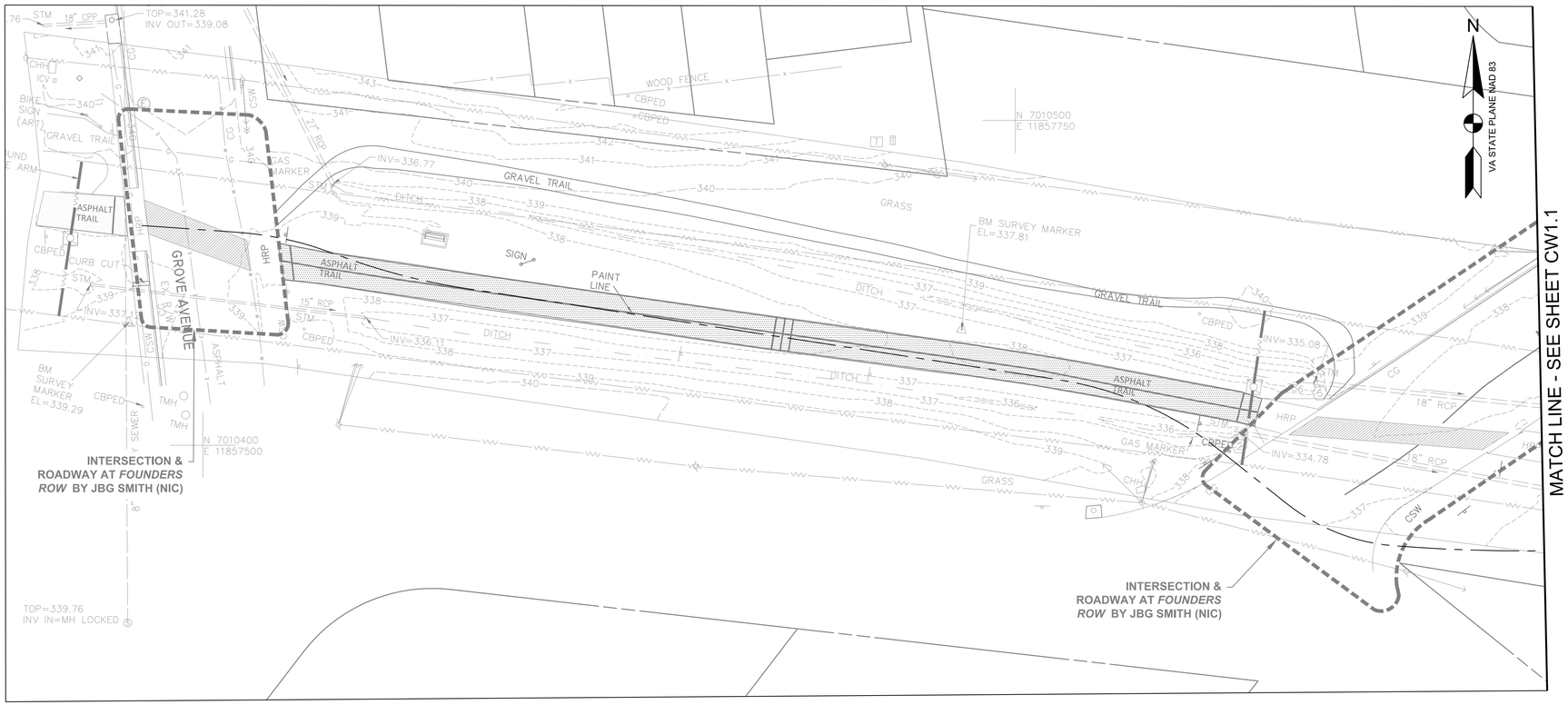
60 OF 100



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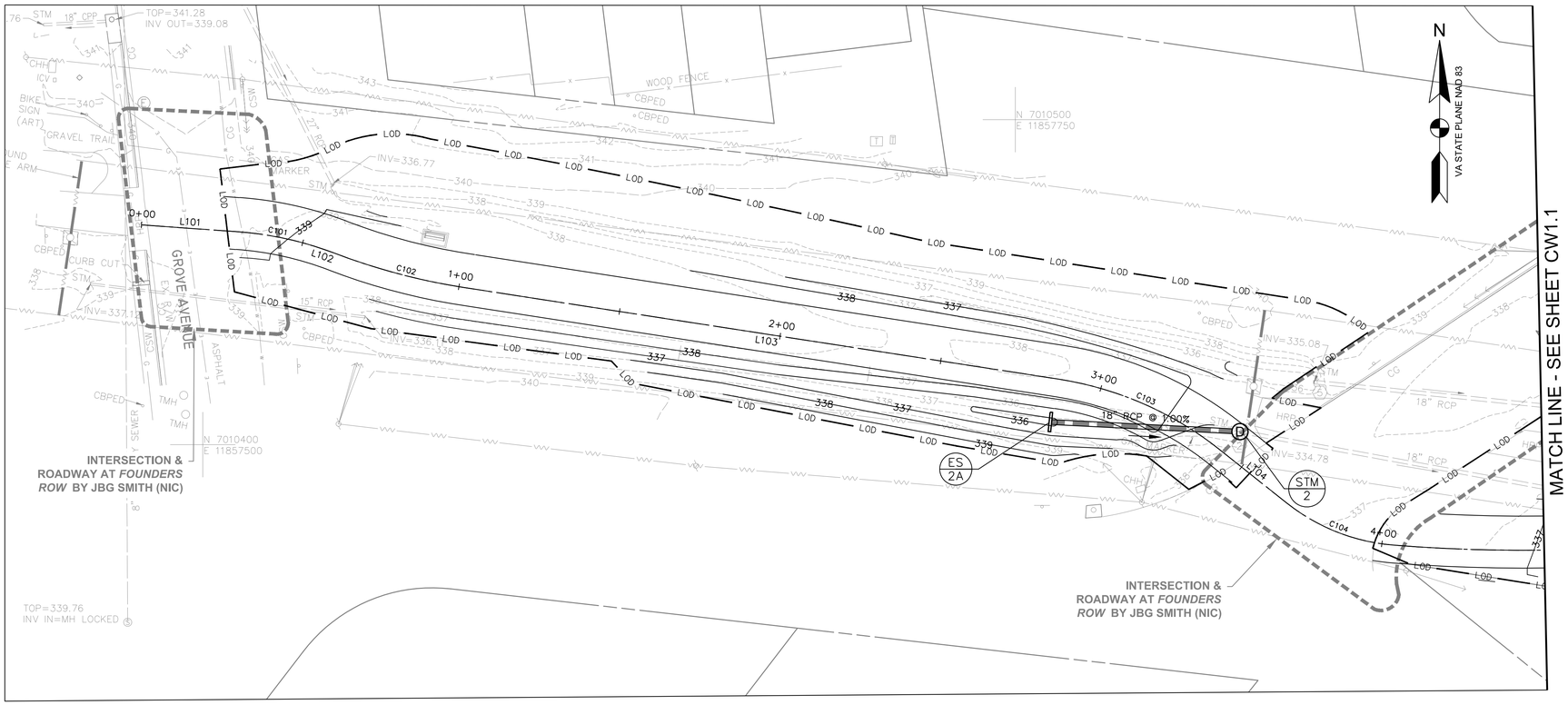

POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

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STORMWATER MANAGEMENT PLAN

SHEET

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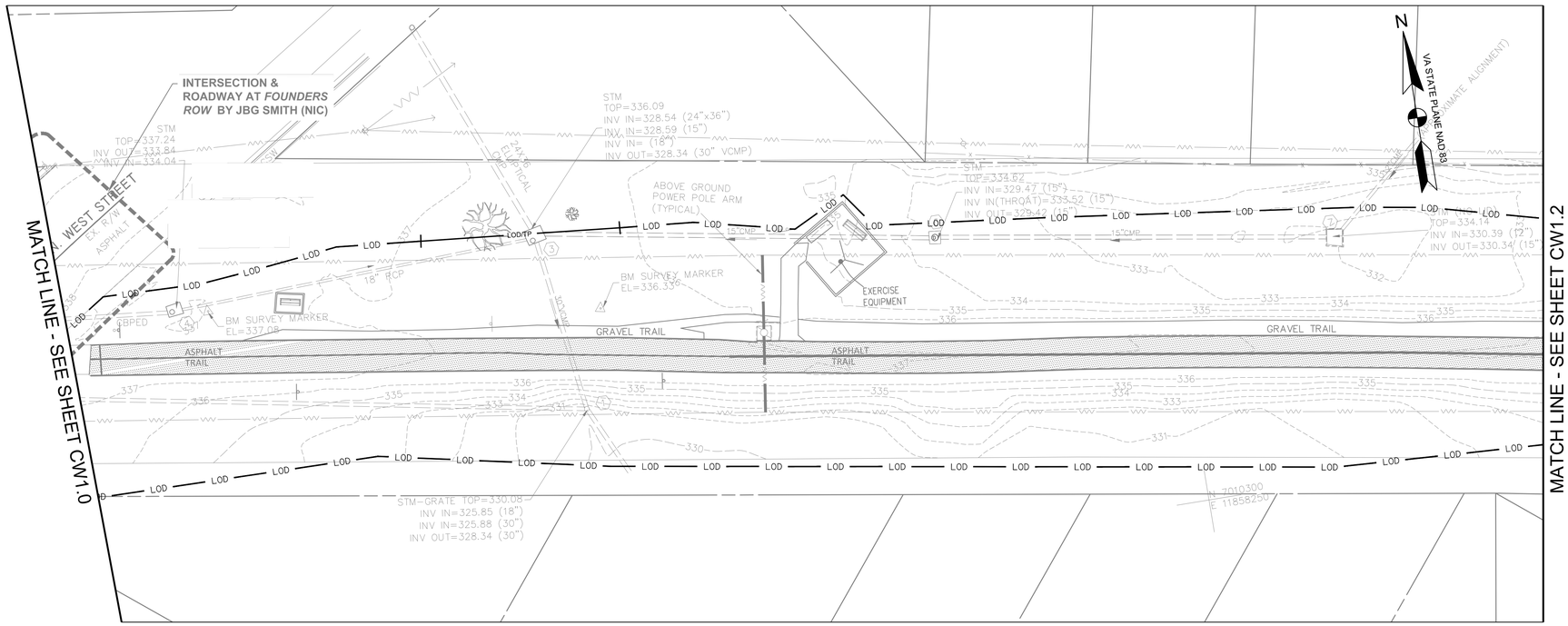

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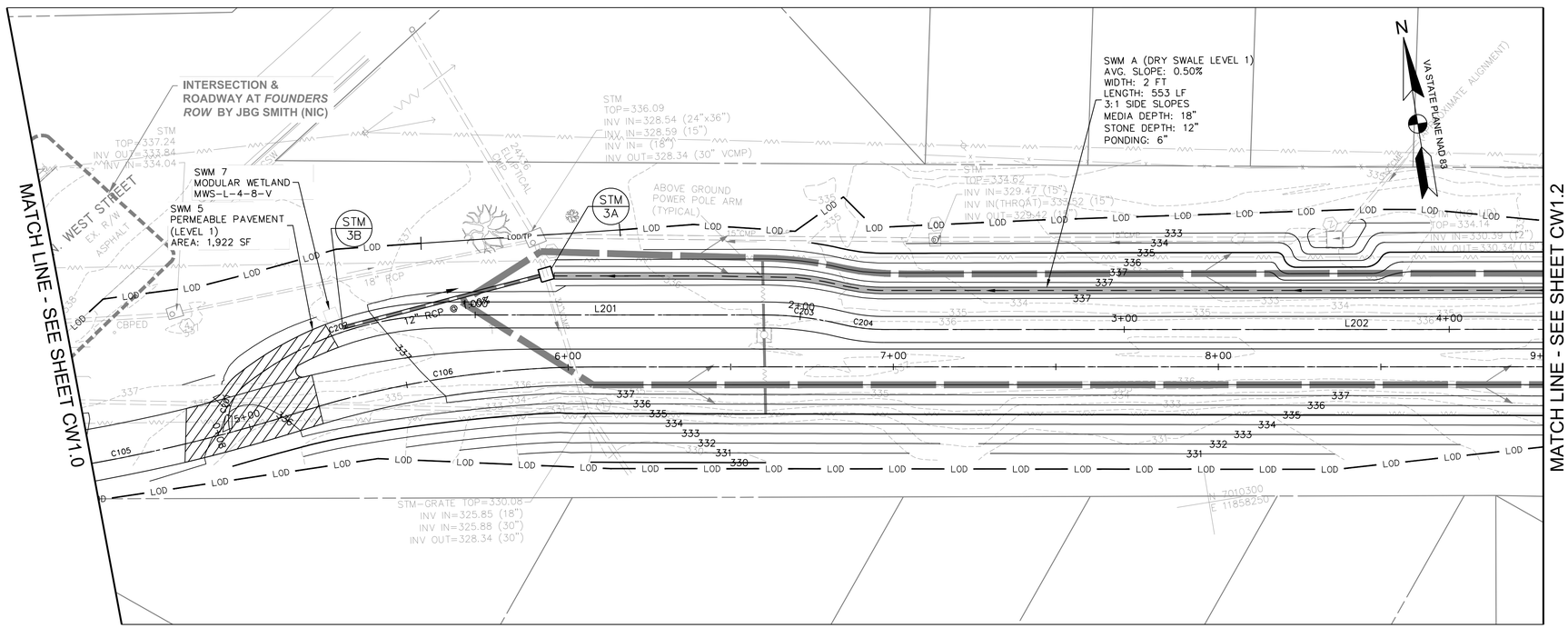

POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

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- LOD — LIMIT OF DISTURBANCE
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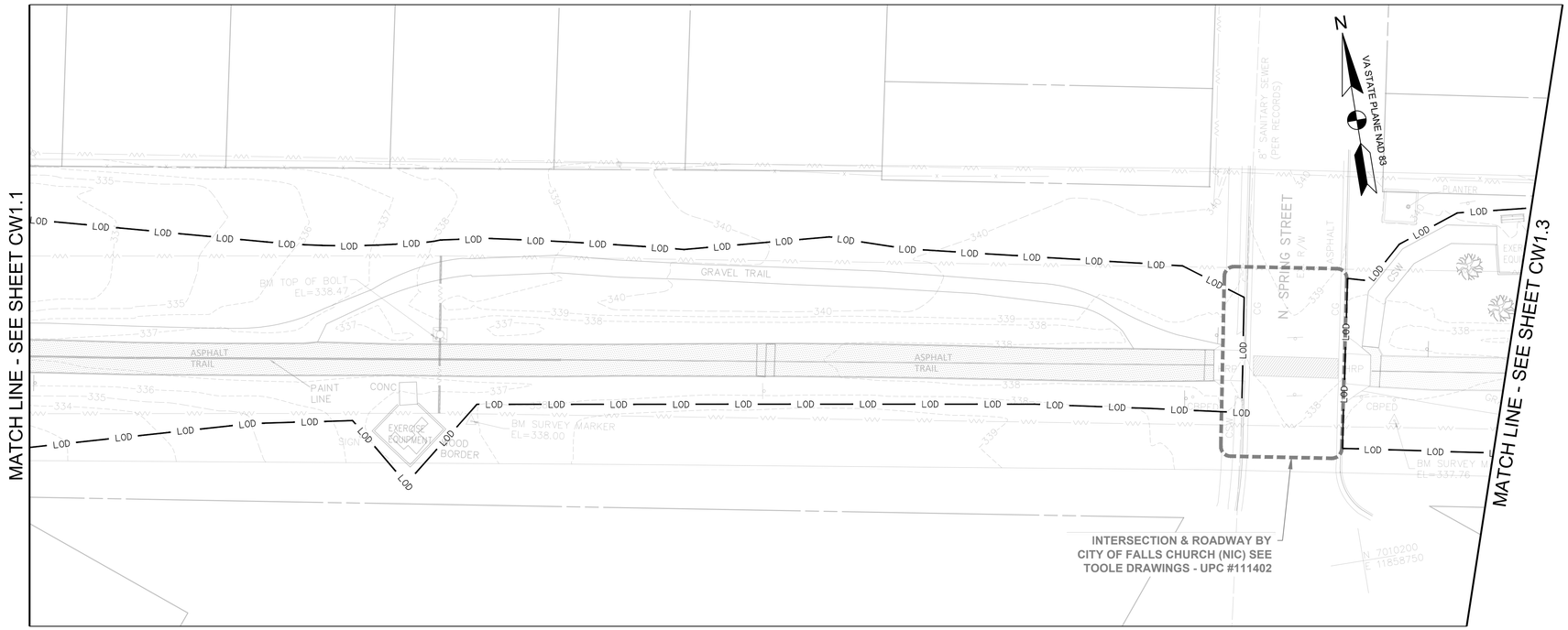
STORMWATER MANAGEMENT PLAN

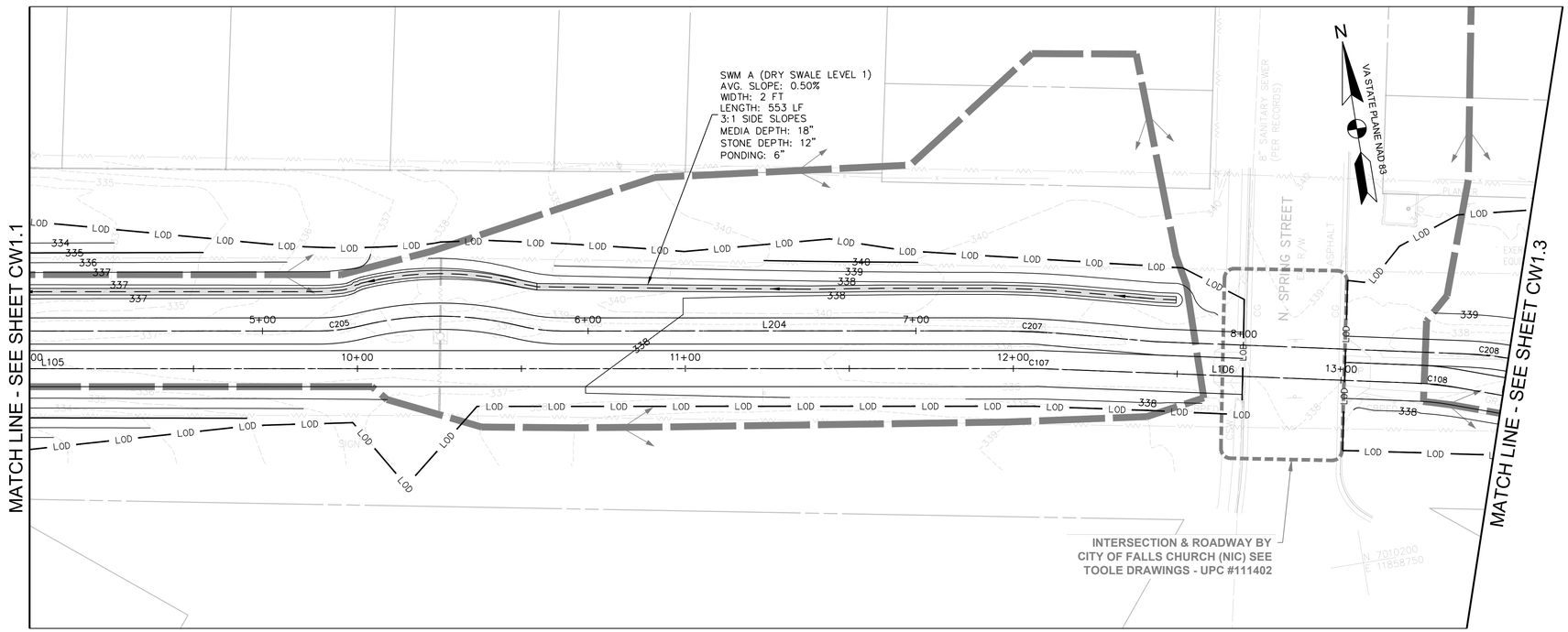
SHEET

CW1.1

62 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
800 KING FARM BLVD, FOURTH FLOOR ROCKVILLE, MD 20850
(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA, " LICENSE NO. 1542 , EXPIRATION DATE 06/30/2021."

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

STORMWATER MANAGEMENT PLAN

SHEET

CW1.2

PRE-DEVELOPMENT
SCALE: 1"=20'

POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

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FALLS CHURCH, VA
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CHECKED BY:	AMT

60% DESIGN

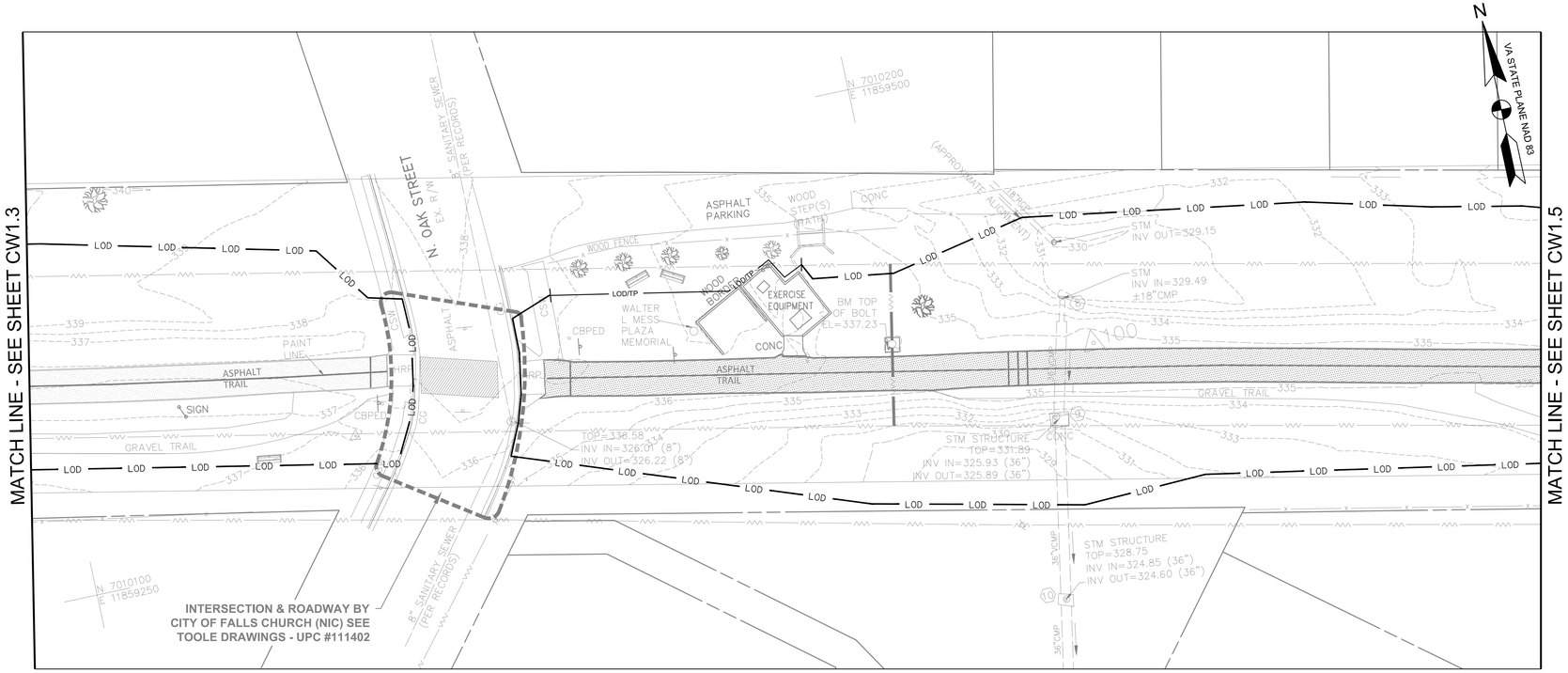
SHEET TITLE

STORMWATER MANAGEMENT PLAN

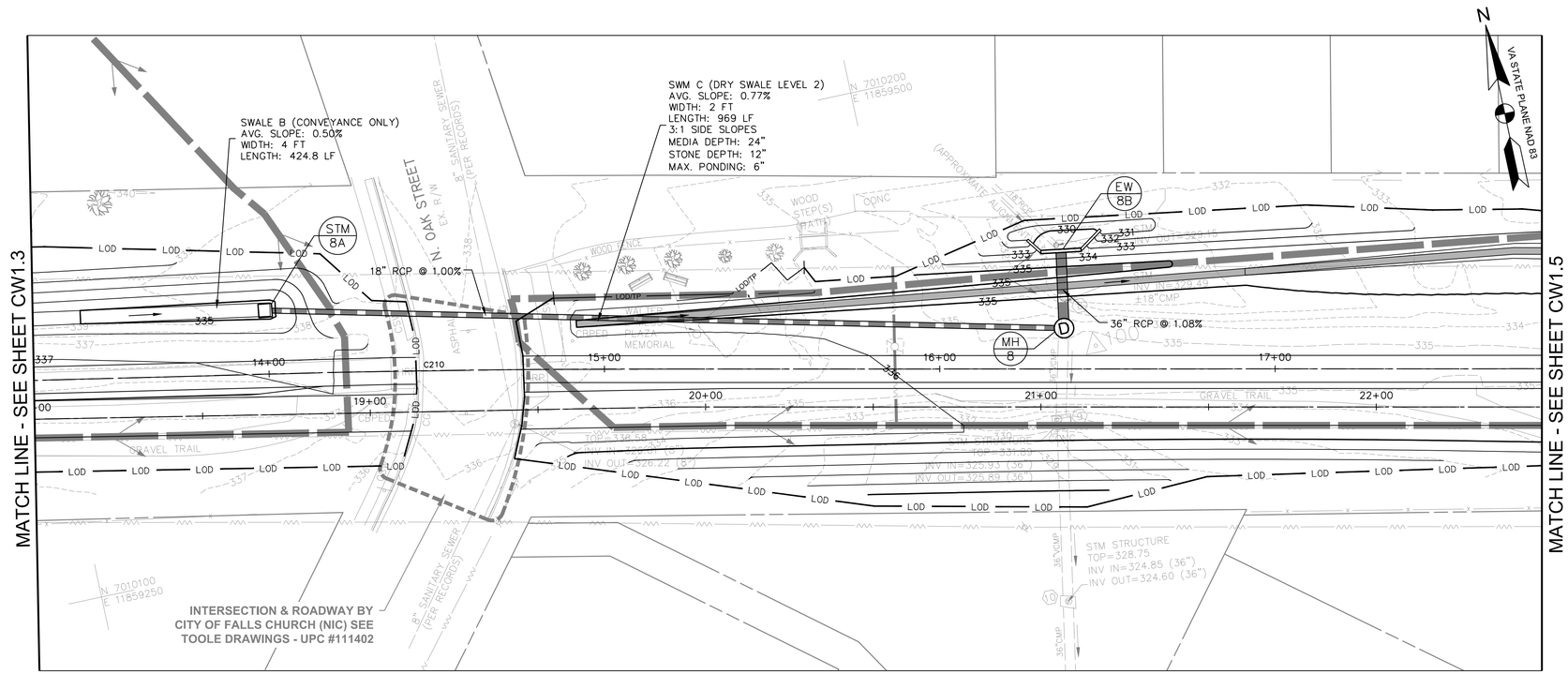
SHEET

CW1.3

64 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

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DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

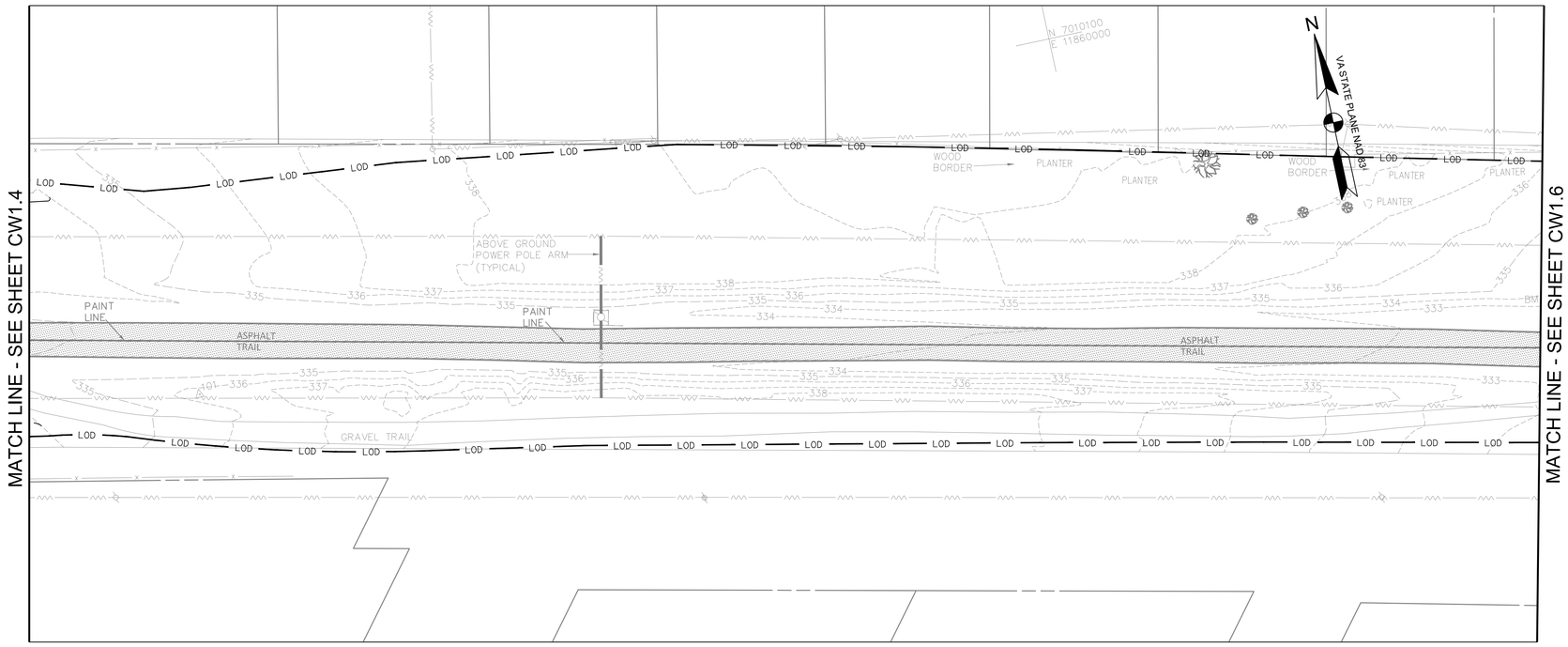
SHEET TITLE

STORMWATER MANAGEMENT PLAN

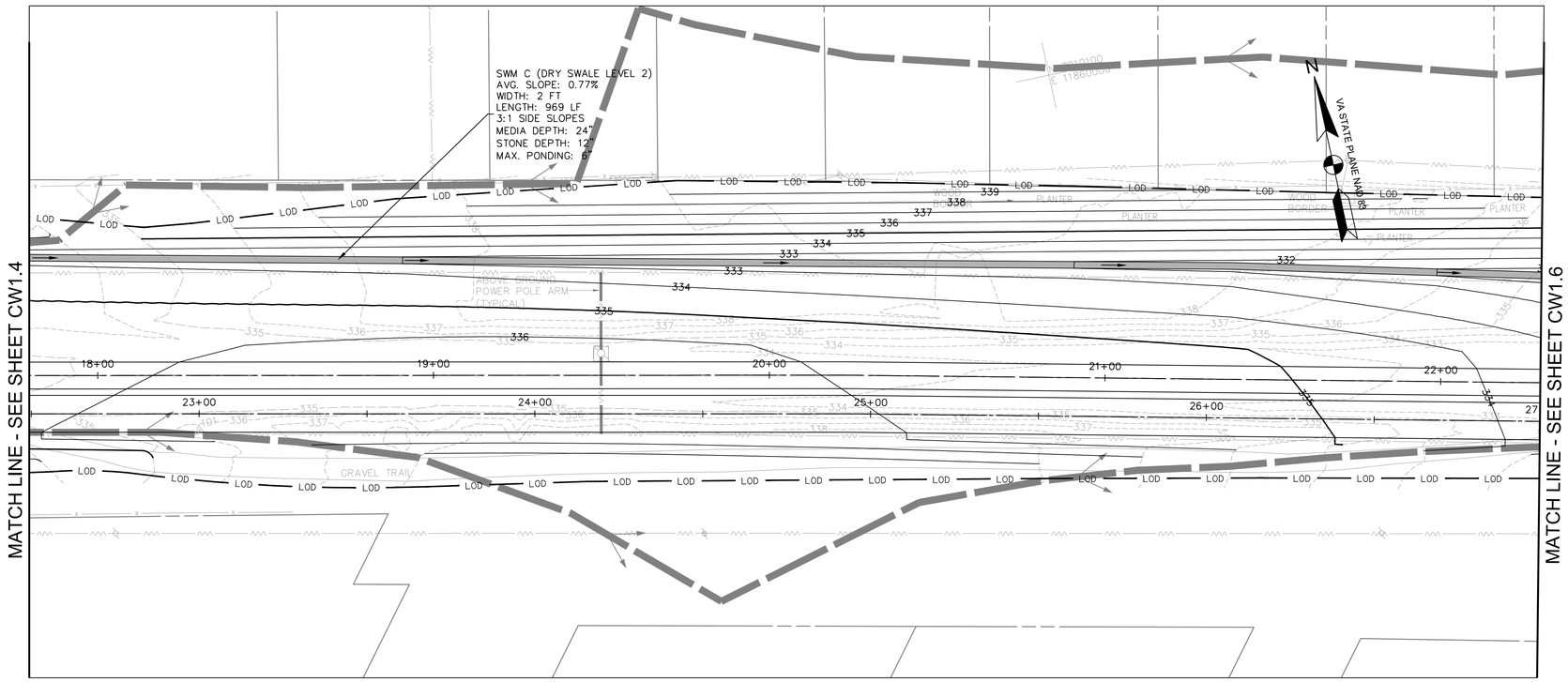
SHEET

CW1.4

65 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

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UPC 113612

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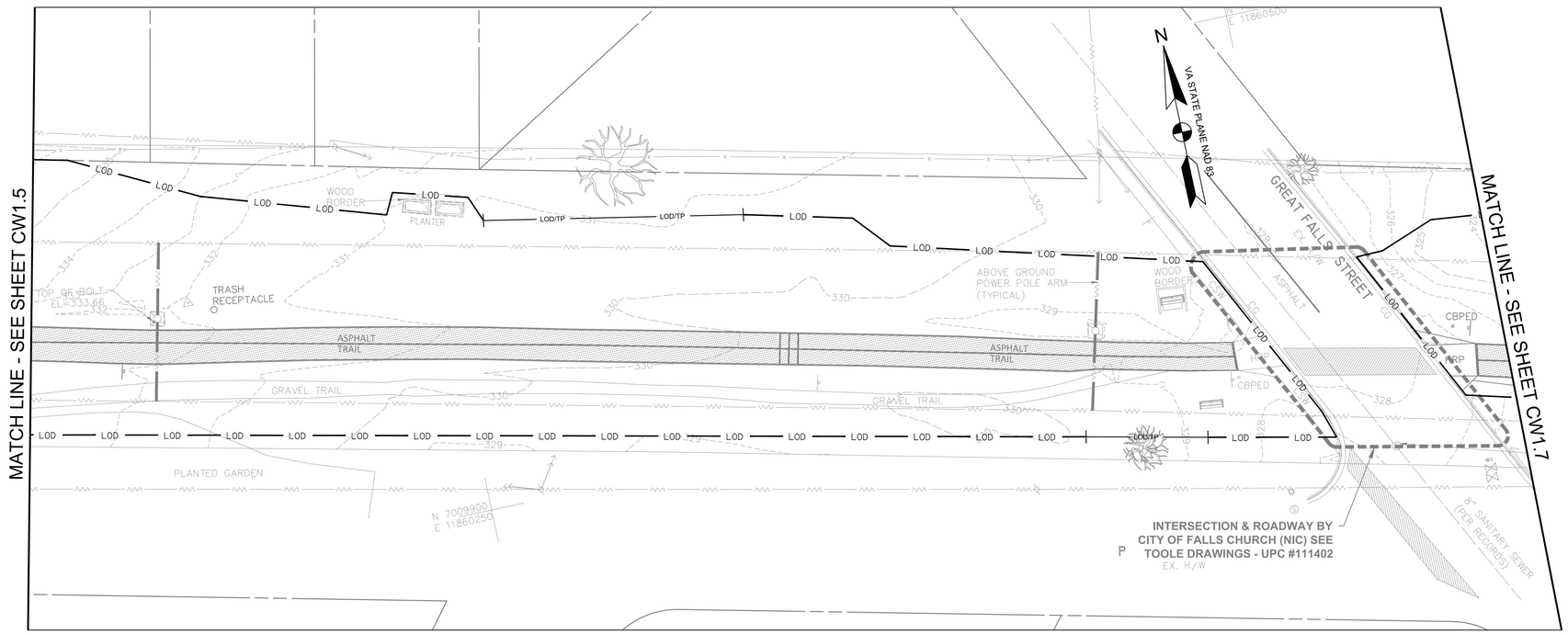
CHECKED BY:	AMT

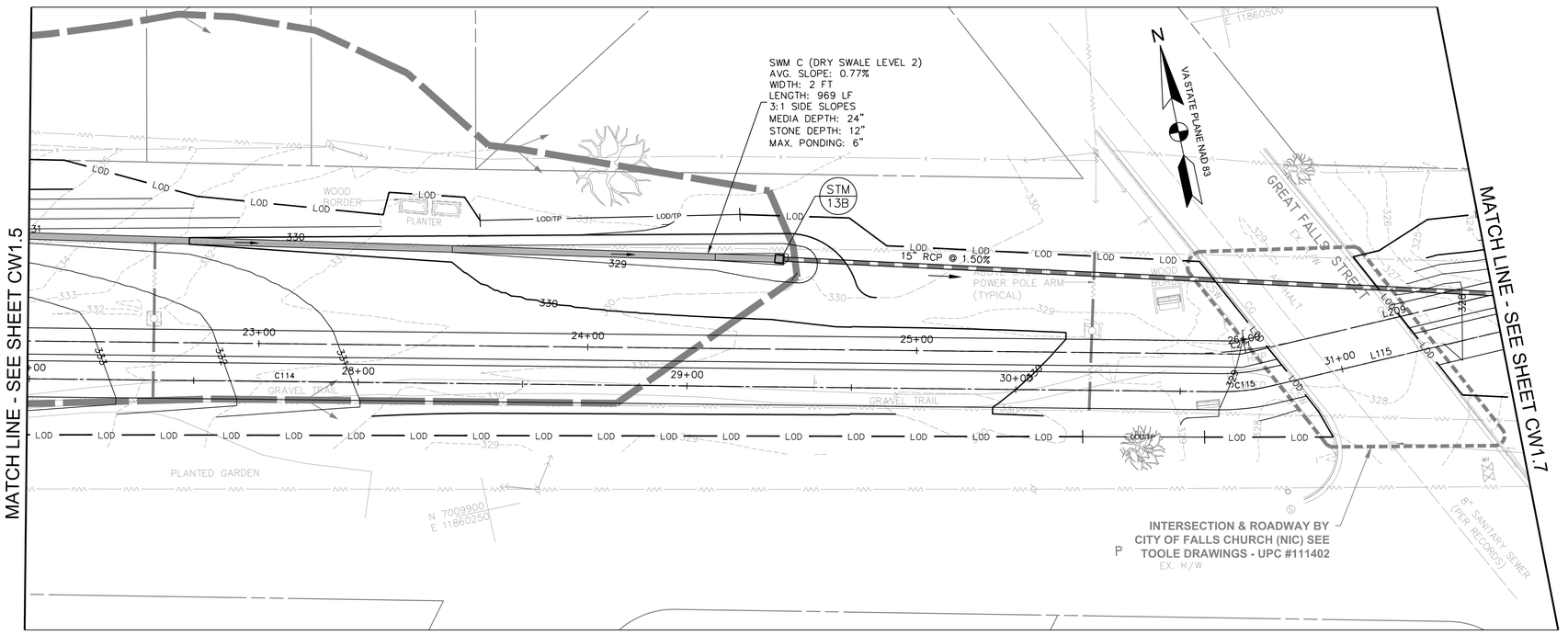
60% DESIGN

SHEET TITLE
STORMWATER MANAGEMENT PLAN

SHEET
CW1.5
66 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

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UPC 113612

REVISIONS

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CHECKED BY:	AMT

60% DESIGN

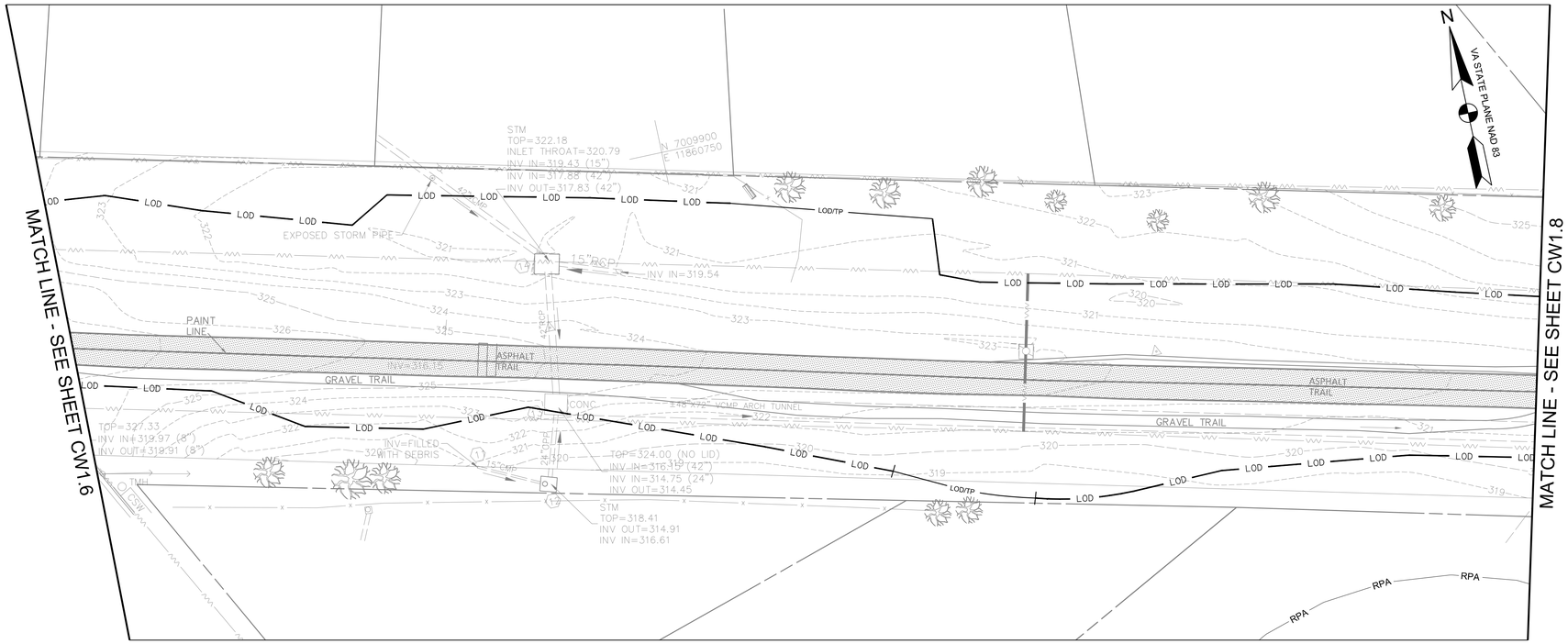
SHEET TITLE

STORMWATER MANAGEMENT PLAN

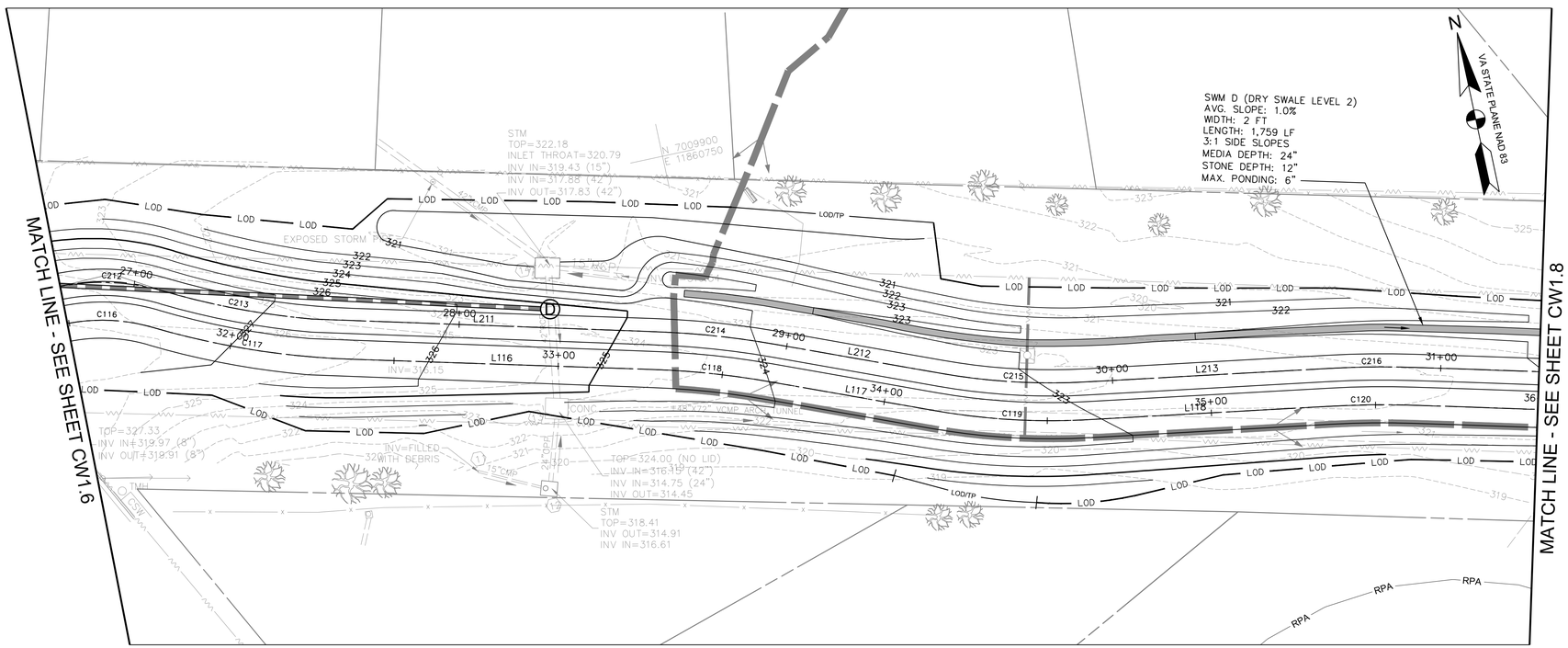
SHEET

CW1.6

67 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
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- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
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- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

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60% DESIGN

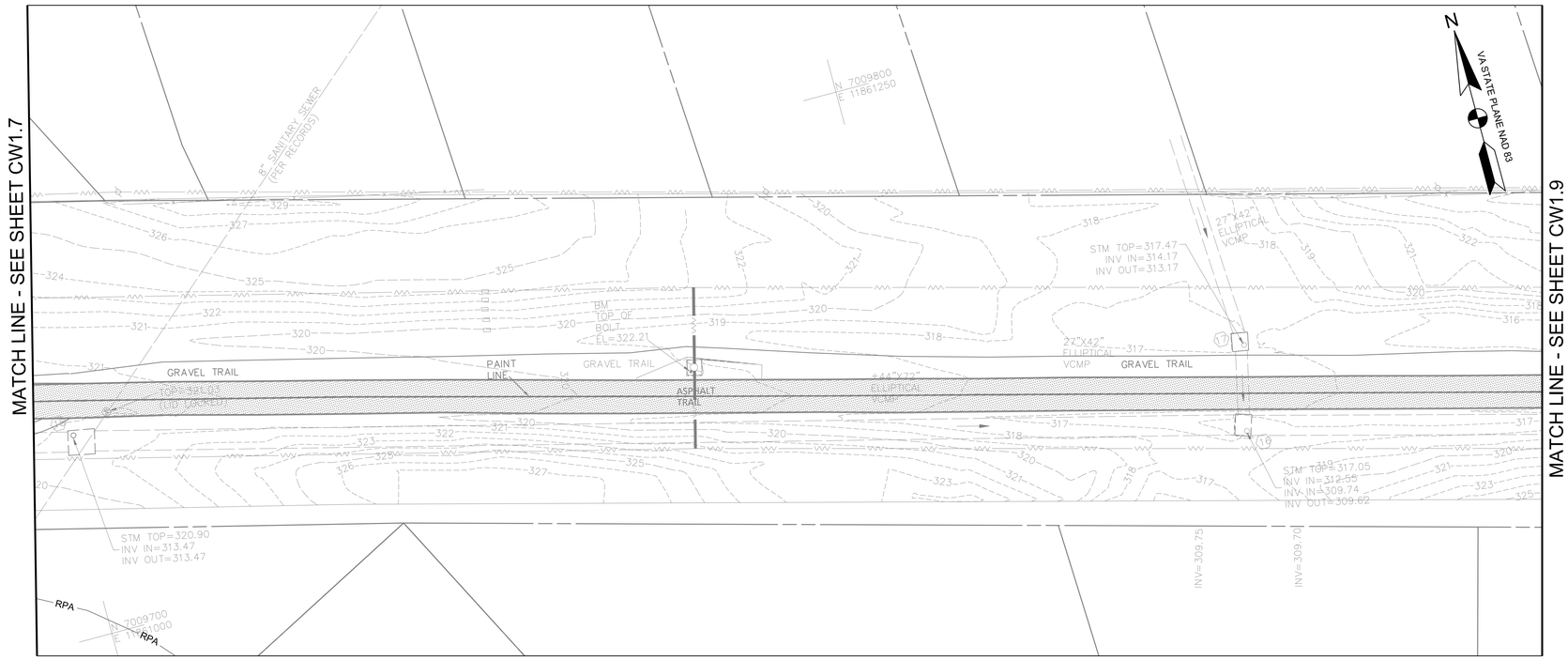
SHEET TITLE

STORMWATER MANAGEMENT PLAN

SHEET

CW1.7

68 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'

POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

AMT
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CHECKED BY:	AMT

60% DESIGN

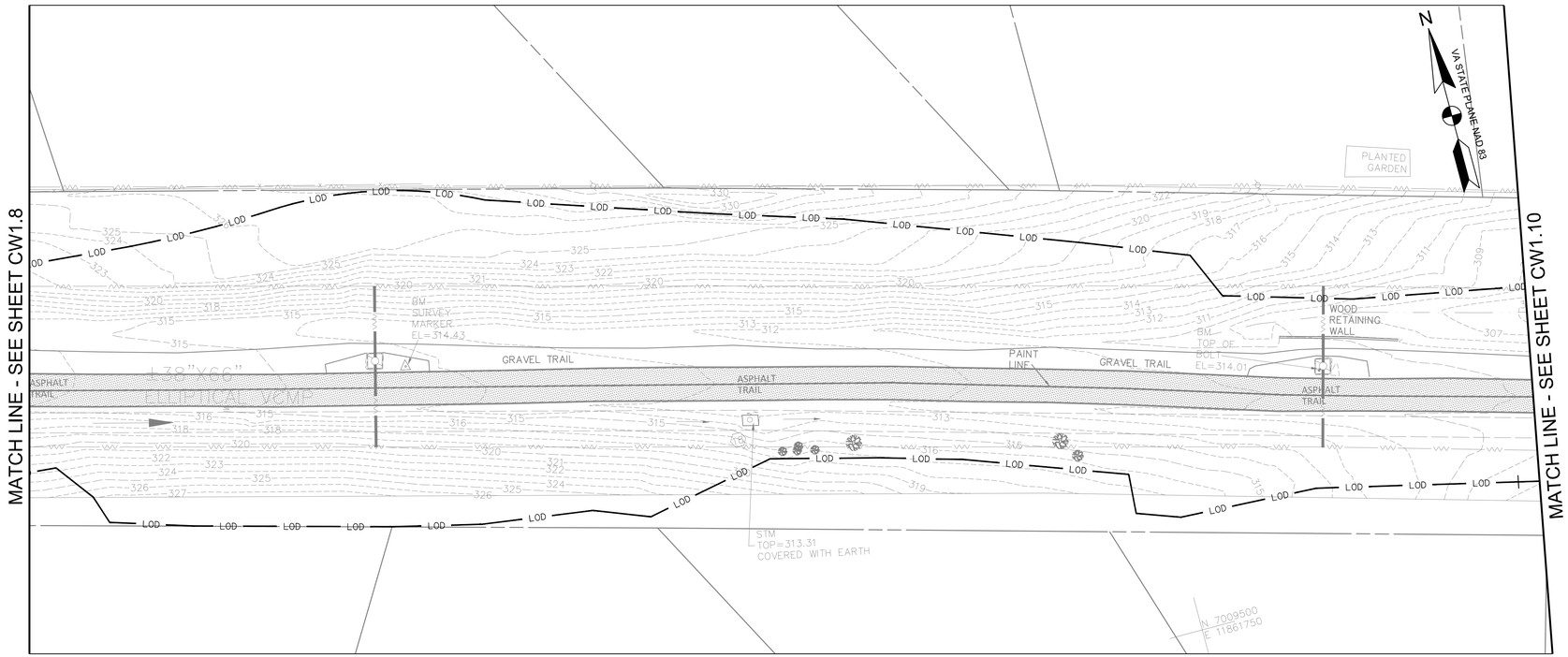
SHEET TITLE

STORMWATER MANAGEMENT PLAN

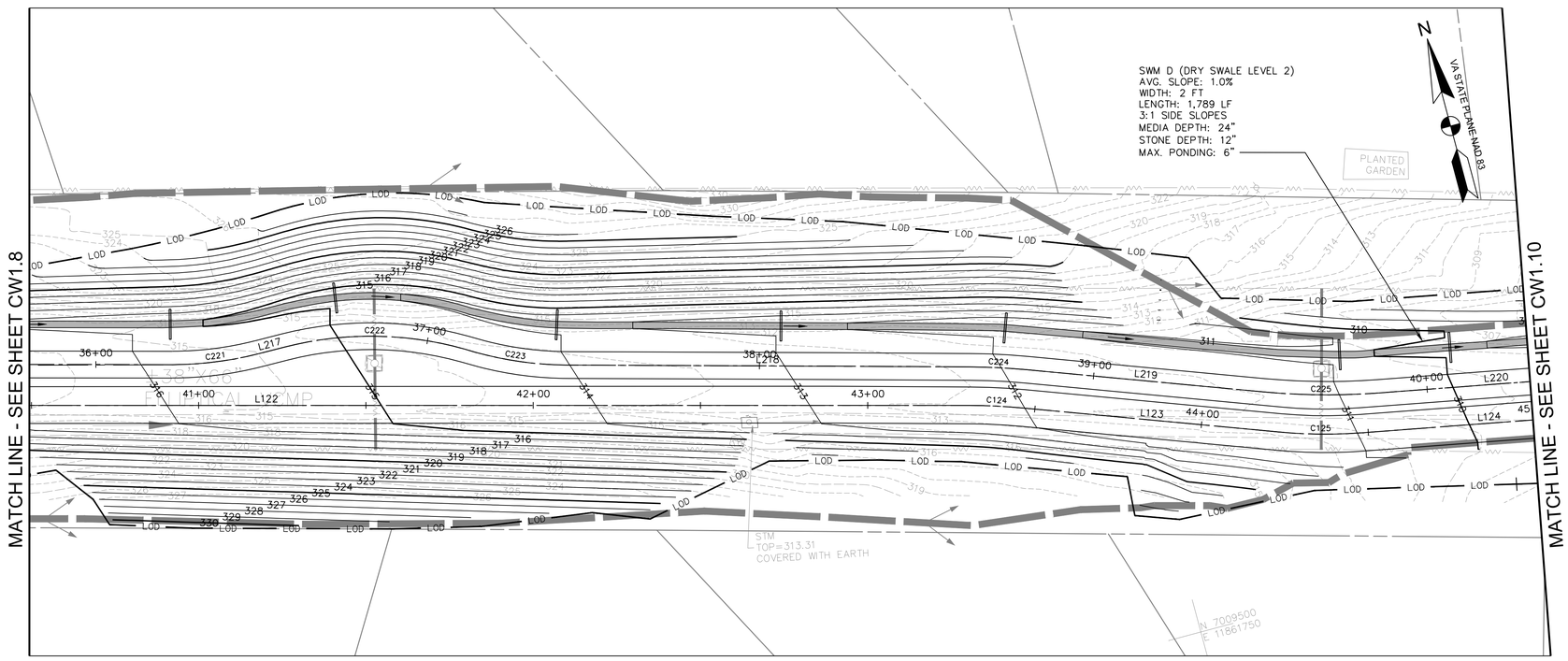
SHEET

CW1.8

69 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

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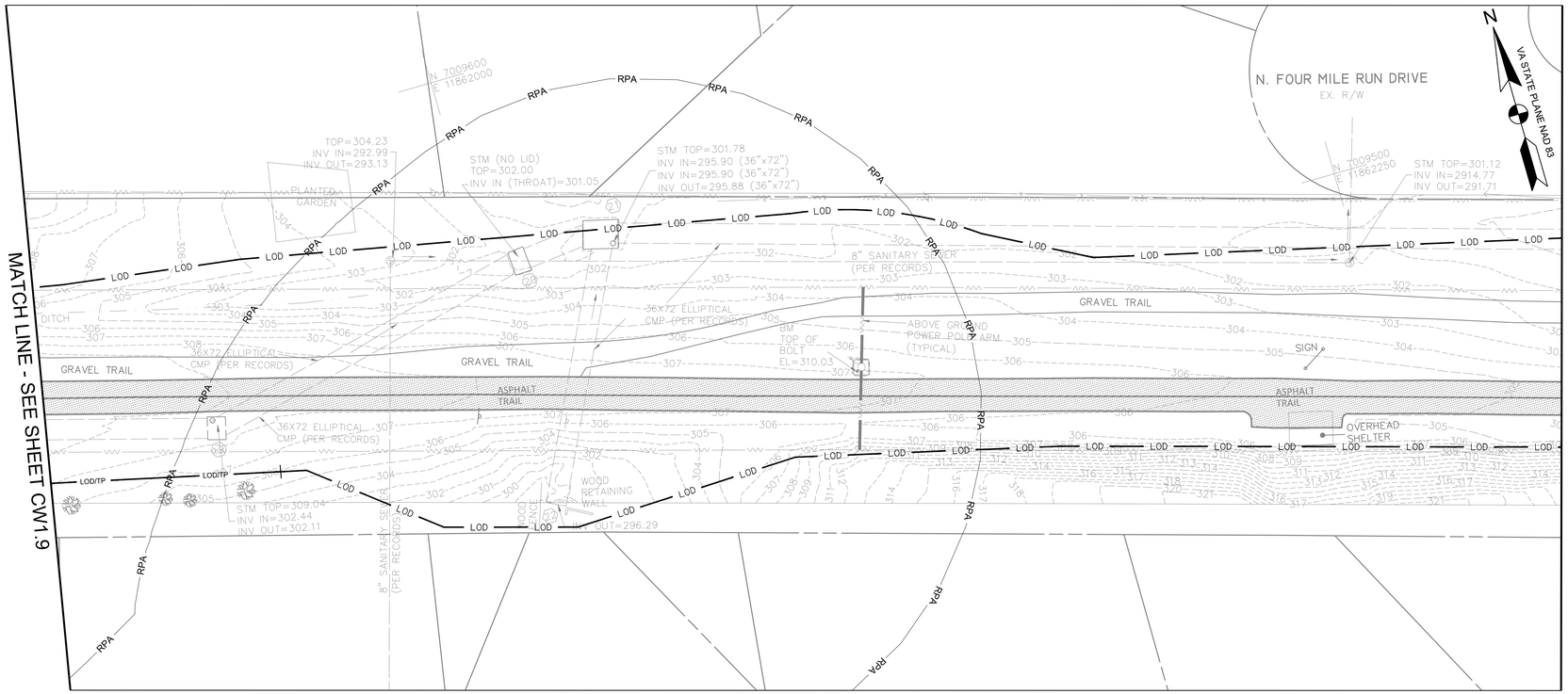
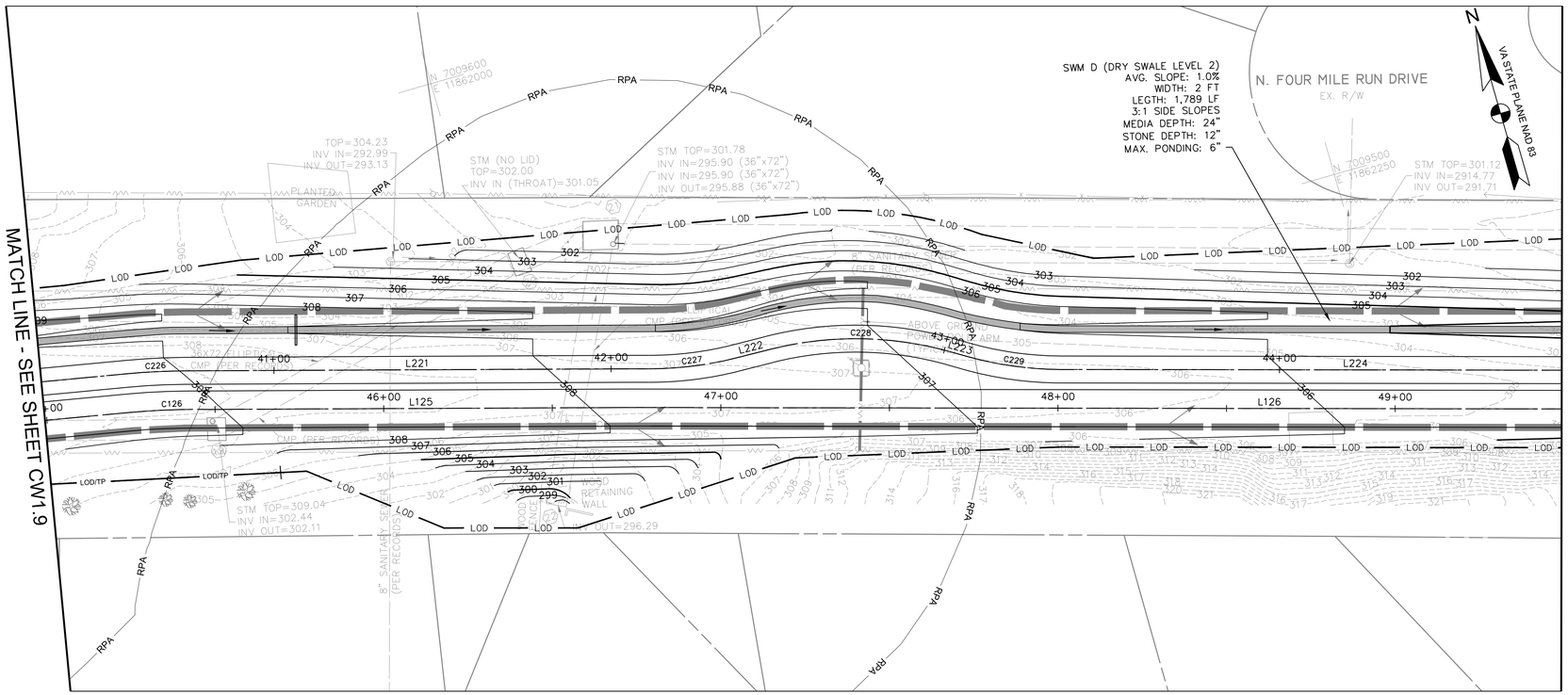
SHEET TITLE
STORMWATER MANAGEMENT PLAN

SHEET
CW1.9
70 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- RPA — RESOURCE PROTECTION AREA
- PERMEABLE PAVEMENT
- DRY SWALE
- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

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CHECKED BY:	AMT

60% DESIGN

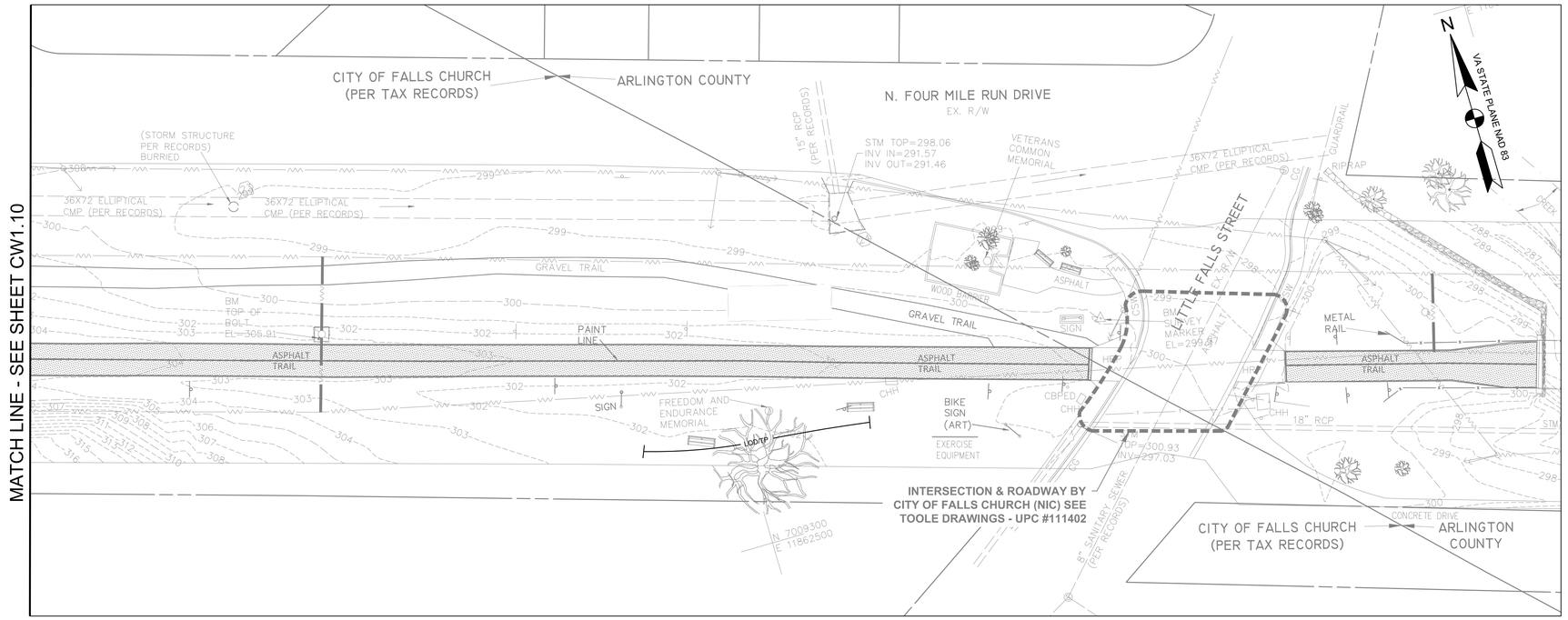
SHEET TITLE

STORMWATER MANAGEMENT PLAN

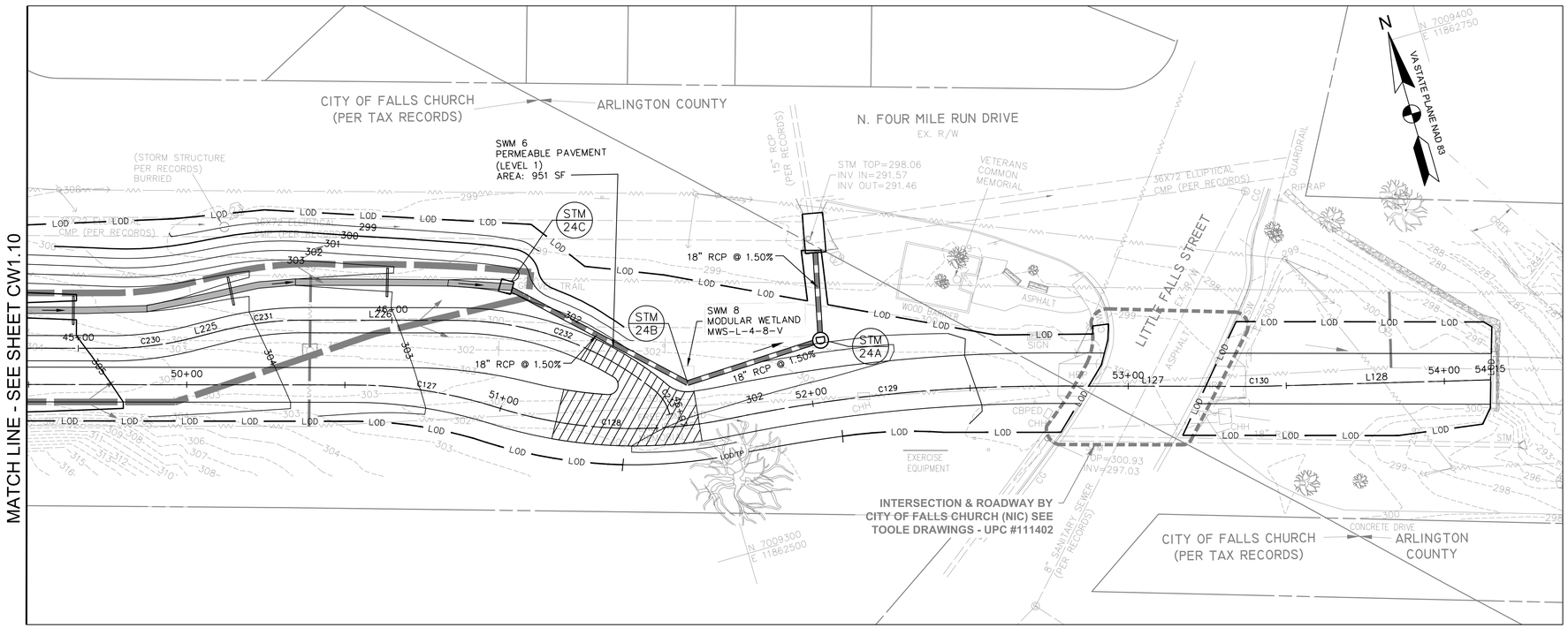
SHEET

CW1.10

71 OF 100



PRE-DEVELOPMENT
SCALE: 1"=20'



POST-DEVELOPMENT / SWM PLANS
SCALE: 1"=20'

STORMWATER MANAGEMENT LEGEND

- PROPERTY BOUNDARY
- LOD — LIMIT OF DISTURBANCE
- DRAINAGE DIVIDE
- 340 — PROPOSED MAJOR CONTOUR
- 339 — PROPOSED MINOR CONTOUR
- PERMEABLE PAVEMENT
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- CHECK DAM
- PROP. STORM DRAIN PIPE
- 4" PERF. PVC SCHD 40 PIPE

0 10' 20' 40'
SCALE: 1"=20'

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EXPANSION OF THE W&OD TRAIL
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REVISIONS

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DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

STORMWATER MANAGEMENT PLAN

SHEET

CW1.11

WATER QUALITY NARRATIVE

THE SITE IS DEFINED BY THE TOTAL APPLICABLE AREA WITHIN THE LIMITS OF DISTURBANCE OF 7.75 ACRES. THE IMPERVIOUS AREA FOR THE EXISTING CONDITION IS 1.82 ACRES (23.5%) AND 2.43 ACRES (31.4%) FOR THE PROPOSED CONDITION. DUE TO THE INCREASE IN IMPERVIOUS AREA THERE IS A 2.47 LB/YR PHOSPHORUS LOAD REDUCTION REQUIREMENT. TO MEET CITY OF FALLS CHURCH AND STATE REQUIREMENTS FOR WATER QUALITY, THE PLANS PROPOSE TWO LEVEL 2 DRY SWALE FACILITIES, ONE LEVEL I DRY SWALE FACILITY, TWO LEVEL I PERMEABLE PAVEMENT FACILITIES, AND TWO MANUFACTURED FILTERING TREATMENT DEVICES (BIOCLEAN MODULAR WETLAND SYSTEM). THE LEVEL 2 DRY SWALE FACILITIES PROVIDE 3.26 LB/YR PHOSPHORUS REDUCTION, THE LEVEL I DRY SWALE FACILITY PROVIDES 0.50 LB/YR PHOSPHORUS REDUCTION, THE TWO LEVEL I PERMEABLE PAVEMENT FACILITES PROVIDE 0.06 LB/YR PHOSPHORUS REDUCTION, AND THE TWO MANUFACUTURED FILTERING TREATMENT DEVICES PROVIDE 0.34 LB/YR PHOSPHORUS REDUCTION. THE TOTAL PHOSPHORUS REDUCTION PROVIDED IS 4.17 LB/YR WHICH EXCEEDS THE MINIMUM REQUIREMENT BY 1.70 LB/YR. THE FACILITIES ARE DESIGNED IN ACCORDANCE WITH THE JANUARY 2013 DRAFT VERSION 2.0 SPECS 7, 10, AND 17 OF THE VIRGINIA DEQ DESIGN SPECIFICATIONS.

Virginia Runoff Reduction Method ReDevelopment Worksheet - v2.8 - June 2014
To be used w/ DRAFT 2013 BMP Standards and Specifications
Site Data

Project Name: W & OD Trail Expansion	
Date: 10/24/2019	

data input cells
calculation cells
constant values

Post-ReDevelopment Project & Land Cover Information — **Total Disturbed Acreage** 7.75

Constants

Annual Rainfall (inches)	43		
Target Rainfall Event (inches)	1.00		
Phosphorus EMC (mg/L)	0.26	Nitrogen EMC (mg/L)	1.86
Target Phosphorus Target Load (lb/acre/yr)	0.41		
Pj	0.90		

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	5.85	5.85
Impervious Cover (acres)	0.00	0.00	0.00	1.82	1.82
			Total		7.67

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	5.32	5.32
Impervious Cover (acres)	0.00	0.00	0.00	2.43	2.43
			Total		7.75
Area Check	Okay	Okay	Okay	Check Areas	

Rv Coefficients

	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	**Listed**	**Adjusted[1]**	**Land Cover Summary Post-ReDevelopment**	
Forest/Open Space Cover (acres)	0.00	0.00	Forest/Open Space Cover	0.00
Composite Rv(forest)	0.00	0.00	Composite Rv(forest)	0.00
% Forest	0%	0%	% Forest	0%
Managed Turf Cover (acres)	5.85	5.32	Managed Turf Cover (acres)	5.32
Composite Rv(turf)	0.25	0.25	Composite Rv(turf)	0.25
% Managed Turf	76%	75%	% Managed Turf	75%
Impervious Cover (acres)	1.82	1.82	ReDev. Impervious Cover (acres)	1.82
Rv(impervious)	0.95	0.95	Rv(impervious)	0.95
% Impervious	24%	25%	% Impervious	25%
Total Site Area (acres)	7.67	7.14	**Total ReDev. Site Area (acres)**	7.14
Site Rv	0.42	0.43	**ReDev. Site Rv**	0.43
Pre-Development Treatment Volume (acre-ft)	0.2660	0.2549	Post-ReDevelopment Treatment Volume (acre-ft)	0.2549
Pre-Development Treatment Volume (cubic feet)	11,585	11,104	Post-ReDevelopment Treatment Volume (cubic feet)	11,104
Pre-Development Load (TP) (lb/yr)	7.28	6.98	Post-ReDevelopment Load (TP) (lb/yr)	6.98

[1] *Adjusted* **Land Cover Summary** reflects the pre redevelopment land cover minus the pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover. The adjusted total acreage is consistent with the Post Redevelopment acreage (minus the acreage of new impervious cover). The load reduction requirement for the new impervious cover to meet the new development load limit is computed in **Column I**.

Maximum % Reduction Required Below Pre-ReDevelopment Load	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	1.40
Total Load Reduction Required (lb/yr)	**2.47**
Pre-Development Load (TN) (lb/yr)	52.07
Post-Development Load (TN) (lb/yr)	59.37

Drainage Area A

Drainage Area A Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	1.95	1.95	0.25
Impervious Cover (acres)	0.00	0.00	0.00	0.52	0.52	0.95
			Total		1.67	

Post Development Treatment Volume (cf) 2837

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area A

Credit	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
3. Permeable Pavement													
3.a. Permeable Pavement #1 (Spec #7)	acres of permeable pavement + acres of "external" (upgradient) impervious pavement	45% runoff volume reduction	0.45	0.02	0	34	42	25	0.00	0.05	0.01	0.03	14. Manufactured Device
5. Dry Swale													
5.a. Dry Swale #1 (Spec #10)	impervious acres draining to dry swale	40% runoff volume reduction	0.40	0.31	0	428	641	20	0.00	0.67	0.38	0.30	
	turf acres draining to dry swale	40% runoff volume reduction	0.40	0.51	0	185	278	20	0.00	0.29	0.15	0.14	
14. Manufactured BMP													
14. BioClean - Modular Wetland System (Filtering)	impervious acres draining to device	0% runoff volume reduction	0.00	0.00	41.78	0	42	50	0.02	0.00	0.01	0.01	
	turf acres draining to device	0% runoff volume reduction	0.00	0.00	0.00	0	0	50	0.00	0.00	0.00	0.00	

Site Results

	D.A. A	D.A. B	D.A. C	D.A. D	D.A. E	AREA CHECK
IMPERVIOUS COVER	0.52	0.29	0.55	1.07	0.00	OK.
IMPERVIOUS COVER TREATED	0.33	0.00	0.48	0.68	0.00	OK.
TURF AREA	1.15	0.55	1.39	2.23	0.00	OK.
TURF AREA TREATED	0.51	0.00	0.93	1.53	0.00	OK.
AREA CHECK	OK.	OK.	OK.	OK.	OK.	

Phosphorous

TOTAL PHOSPHORUS LOAD REDUCTION REQUIRED (LB/YEAR)	2.47
RUNOFF REDUCTION (cf)	4790
PHOSPHORUS LOAD REDUCTION ACHIEVED (LB/YR)	4.17
ADJUSTED POST-DEVELOPMENT PHOSPHOROUS LOAD (TP) (lb/yr)	4.13
REMAINING PHOSPHOROUS LOAD REDUCTION (LB/YR) NEEDED	CONGRATULATIONS!! YOU EXCEEDED THE TARGET REDUCTION BY 1.7 LB/YEAR!!

Nitrogen (for information purposes)

RUNOFF REDUCTION (cf)	4790
NITROGEN LOAD REDUCTION ACHIEVED (LB/YR)	26.93
ADJUSTED POST-DEVELOPMENT NITROGEN LOAD (TP) (lb/yr)	32.43

Drainage Area B

Drainage Area B Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	0.55	0.55	0.25
Impervious Cover (acres)	0.00	0.00	0.00	0.29	0.29	0.95
			Total		0.84	

Post Development Treatment Volume (cf) 1499

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area B

Credit	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
5. Dry Swale													
5.b. Dry Swale #2 (Spec #10)	impervious acres draining to dry swale	65% runoff volume reduction	0.65	0.00	0	0	0	40	0.00	0.00	0.00	0.00	
	turf acres draining to dry swale	65% runoff volume reduction	0.65	0.00	0	0	0	40	0.00	0.00	0.00	0.00	

Drainage Area C

Drainage Area C Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	1.39	1.39	0.25
Impervious Cover (acres)	0.00	0.00	0.00	0.55	0.55	0.95
			Total		1.94	

Post Development Treatment Volume (cf) 3158

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area C

Credit	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
5. Dry Swale													
5.b. Dry Swale #2 (Spec #10)	impervious acres draining to dry swale	65% runoff volume reduction	0.65	0.48	0	993	662	40	0.00	1.04	0.78	0.26	
	turf acres draining to dry swale	65% runoff volume reduction	0.65	0.85	0	506	338	40	0.00	0.83	0.40	0.13	

Drainage Area D

Drainage Area D Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land	0.00	0.00	0.00	0.00	0.00	0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed	0.00	0.00	0.00	2.23	2.23	0.25
Impervious Cover (acres)	0.00	0.00	0.00	1.07	1.07	0.95
			Total		3.30	

Post Development Treatment Volume (cf) 5714

Apply Runoff Reduction Practices to Reduce Treatment Volume & Post-Development Load in Drainage Area D

Credit	Unit	Description of Credit	Credit	Credit Area (acres)	Volume from Upstream RR Practice (cf)	Runoff Reduction (cf)	Remaining Runoff Volume (cf)	Phosphorus Efficiency (%)	Phosphorus Load from Upstream RR Practices (lbs)	Untreated Phosphorus Load to Practice (lbs)	Phosphorus Removed By Practice (lbs)	Remaining Phosphorus Load (lbs)	Downstream Treatment to be Employed
3. Permeable Pavement													
3.a. Permeable Pavement #1 (Spec #7)	acres of permeable pavement + acres of "external" (upgradient) impervious pavement	45% runoff volume reduction	0.45	0.02	0	31	38	25	0.00	0.04	0.01	0.02	14. Manufactured Device
5. Dry Swale													
5.b. Dry Swale #2 (Spec #10)	impervious acres draining to dry swale	65% runoff volume reduction	0.65	0.66	0	1779	1156	40	0.00	1.86	1.41	0.46	14. Manufactured Device
	turf acres draining to dry swale	65% runoff volume reduction	0.65	1.53	0	833	555	40	0.00	0.87	0.66	0.21	14. Manufactured Device
14. Manufactured BMP													
14. BioClean - Modular Wetland System (Filtering)	impervious acres draining to device	0% runoff volume reduction	0.00	0.00	1224.22	0	1224	50	0.46	0.00	0.23	0.23	
	turf acres draining to device	0% runoff volume reduction	0.00	0.00	555.39	0	0	50	0.21	0.00	0.10	0.10	

WATER QUANTITY NARRATIVE

WATER QUANTITY COMPLIANCE FOR THE SITE IMPROVEMENTS IS BEING ACCOMPLISHED BY THE RUNOFF REDUCTION PROVIDED BY THE LEVEL I DRY SWALE FACILITY, TWO LEVEL 2 DRY SWALE FACILITIES, AND TWO PERMEABLE PAVEMENT FACILITIES. THE DEVELOPED SITE SHALL PROVIDE STORMWATER DETENTION CAPACITY SUFFICIANT TO PASS THE ALLOWABLE I-YEAR, AND 10-YEAR 24-HOUR PEAK FLOW RATES FOLLOWING THE LAND-DISTURBING ACTIVITIES UTILIZING THE ENERGY BALANCE METHOD.

UTILIZING THE ENERGY BALANCE SPREADSHEET, THE PRE- AND POST-DEVELOPED RUNOFF COMPUTATIONS FOR THE SITE WERE DEVELOPED TO ESTABLISH ALLOWABLE RELEASE RATES FOR BOTH TRIPPS RUN AND FOUR MILE RUN. THE ALLOWABLE RELEASE RATES FOR TRIPPS RUN FOR THE 2-YEAR AND 10-YEAR, 24-HOUR STORMS ARE 8.83 CFS, AND 19.27 CFS, RESPECTIVELY. THE ALLOWABLE RELEASE RATES FOR FOUR MILE RUN FOR THE 2-YEAR AND 10-YEAR, 24-HOUR STORMS ARE 5.43 CFS, AND 16.18 CFS, RESPECTIVELY. THIS SPREADSHEET UTILIZES THE VIRGINIA RUNOFF REDUCTION ADJUSTED CURVE NUMBERS FROM THE CHANNEL AND FLOOD PROTECTION TAB, SHOWN ON THIS SHEET. THE POST-DEVELOPED PEAK FLOWS FOR THE 10-YEAR STORM EVENT FOR BOTH WATERSHEDS IS LESS THAN THE ALLOWABLE RELEASE RATES, THEREFORE NO STORAGE VOLUME IS REQUIRED.

THE TREATMENT VOLUME FOR THE STORMWATER MANAGEMENT FACILITIES ARE:
- DRY SWALE (LEVEL I) SWM A: 613 CF
- DRY SWALE (LEVEL 2) SWM C: 1,499 CF
- DRY SWALE (LEVEL 2) SWM D: 2,612 CF
- PERMEABLE PAVEMENT FACILITY SWM E: 34 CF
- PERMEABLE PAVEMENT FACILITY SWM F: 31 CF

TOTAL TREATMENT VOLUME: 613 + 1,499 + 2,612 + 34 + 31 = 4,789 CF

TOTAL DETENTION VOLUME REQUIRED IS 0 CF

DETENTION VOLUME PROVIDED WITHIN THE FACILITIES ARE:
- DRY SWALE (LEVEL I) SWM A: 1,027 CF
- DRY SWALE (LEVEL 2) SWM C: 1,769 CF
- DRY SWALE (LEVEL 2) SWM D: 3,212 CF
- PERMEABLE PAVEMENT FACILITY SWM E: 121 CF
- PERMEABLE PAVEMENT FACILITY SWM F: 118 CF

TOTAL PROVIDED: 6,247 CF

CHECK: 6,247 CF > 0 CF

IT IS THE ENGINEER'S OPINION THAT THE IMPROVEMENTS PROPOSED WITH THIS APPLICATION WILL HAVE NO ADVERSE IMPACT TO THE ADJACENT PROPERTIES.

PER FEMA FLOODPLAIN MAP 51059C0360E, DATED SEPTEMBER 17, 2010, THIS PROJECT IS OUTSIDE THE FLOODPLAIN.

THERE ARE RESOURCE PROTECTION AREAS LOCATED ON THE SUBJECT PROPERTY PER CITY OF FALLS CHURCH GIS DATA. REFER TO WQIA ON SHEET CW5.2.

Target Rainfall Event (in)	1-year storm 2.64	2-year storm 3.19	10-year storm 4.90

Drainage Area A	
Drainage Area (acres)	1.67
Runoff Reduction Volume (cf)	647
Drainage Area B	
Drainage Area (acres)	0.84
Runoff Reduction Volume (cf)	0
Drainage Area C	
Drainage Area (acres)	1.94
Runoff Reduction Volume (cf)	1,500
Drainage Area D	
Drainage Area (acres)	3.30
Runoff Reduction Volume (cf)	2,644
Drainage Area E	
Drainage Area (acres)	0.00
Runoff Reduction Volume (cf)	0

Based on the use of Runoff Reduction practices in the selected drainage areas, the spreadsheet calculates an adjusted $RV_{Developed}$ and adjusted Curve Number.

Drainage Area A		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	1.15
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.52
	CN	98	98	98	98
					Weighted CN
					86
					S
					1.63

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ (in) with no Runoff Reduction	1.36	1.83	3.37
$RV_{Developed}$ (in) with Runoff Reduction	1.25	1.72	3.27
Adjusted CN	84	85	85

Drainage Area B		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	0.55
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.29
	CN	98	98	98	98
					Weighted CN
					86
					S
					1.63

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ (in) with no Runoff Reduction	1.36	1.83	3.37
$RV_{Developed}$ (in) with Runoff Reduction	1.36	1.83	3.37
Adjusted CN	86	86	86

Drainage Area C		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	1.39
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.00	0.00	0.55
	CN	98	98	98	98
					Weighted CN
					85
					S
					1.76

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ (in) with no Runoff Reduction	1.29	1.75	3.28
$RV_{Developed}$ (in) with Runoff Reduction	1.08	1.54	3.06
Adjusted CN	81	82	83

Drainage Area D		A soils	B Soils	C Soils	D Soils
Forest/Open Space -- undisturbed, protected forest/open space or reforested land	Area (acres)	0.00	0.00	0.00	0.00
	CN	30	55	70	77
Managed Turf -- disturbed, graded for yards or other turf to be mowed/managed	Area (acres)	0.00	0.00	0.00	2.23
	CN	39	61	74	80
Impervious Cover	Area (acres)	0.00	0.00	0.00	1.07
	CN	98	98	98	98
					Weighted CN
					86
					S
					1.63

	1-year storm	2-year storm	10-year storm
$RV_{Developed}$ (in) with no Runoff Reduction	1.30	1.83	3.37
$RV_{Developed}$ (in) with Runoff Reduction	1.14	1.61	3.15
Adjusted CN	82	83	84

SWM Water Quantity Energy Balance Worksheet - Tripps Run (DA: A, B, C)

SITE AREA (acre)	4.45			
	2-year		10-year	
	PRE	POST (adjusted)	PRE	POST (adjusted)
P	3.19	3.19	4.90	4.90
CN	86	83	86	84
S=1000/CN-10	1.63	2.05	1.63	1.90
0.2S	0.33	0.41	0.33	0.38
$RV=(P-0.2S)^2/(P-0.2S)+S$ (in.)	1.83	1.60	3.37	3.18

QPost Development <= I.F.* (Qpre-development* RVpre-development)/RVDeveloped)

I.F	0.8			
CHANNEL PROTECTION (2-YEAR)			**FLOOD CONTROL (10-YEAR)**	
Qpre-development (cfs)	10.09	From TR55	Qpre-development	18.28
QPost Development (cfs)	8.91	From TR55	QPost Development	17.35
RVPost Development (with runoff reduction) (in.)	1.67	From RRM	RVPost Development (with runoff reduction)	3.2
Qallowable (cfs)	8.83		Qallowable	19.27
Qallowable/QPost Development	0.99		Qallowable/QPost Development	1.11
Vs/Vr	0.13	Fig 11.7 of DEQ Manual	Vs/Vr	0.00
Vs	0.22		Vs	0.00
Storage Required (CF)	3505		Storage Required (CF)	0

SWM Water Quantity Energy Balance Worksheet - Four Mile Run (DA: D)

SITE AREA (acre)	3.30			
	1-year		10-year	
	PRE	POST (adjusted)	PRE	POST (adjusted)
P	2.64	2.64	4.90	4.90
CN	84	82	84	83
S=1000/CN-10	1.90	2.20	1.90	2.05
0.2S	0.38	0.44	0.38	0.41
$RV=(P-0.2S)^2/(P-0.2S)+S$ (in.)	1.23	1.10	3.18	3.08

QPost Development <= I.F.* (Qpre-development* RVpre-development)/RVDeveloped)

I.F	0.8			
CHANNEL PROTECTION (1-YEAR)			**FLOOD CONTROL (10-YEAR)**	
Qpre-development (cfs)	6.31	From TR55	Qpre-development	16.03
QPost Development (cfs)	4.36	From TR55	QPost Development	12.33
RVPost Development (with runoff reduction) (in.)	1.14	From RRM	RVPost Development (with runoff reduction)	3.15
Qallowable (cfs)	5.43		Qallowable	16.18
Qallowable/QPost Development	1.24		Qallowable/QPost Development	1.31
Vs/Vr	0.00	Fig 11.7 of DEQ Manual	Vs/Vr	0.00
Vs	0.00		Vs	0.00
Storage Required (CF)	0		Storage Required (CF)	0

A. MORTON THOMAS AND ASSOCIATES, INC.
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(301) 881-2545 FAX:(301) 881-0814
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REGISTRATION STAMP

COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
PROFESSIONAL ENGINEER
10/30/2019

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I, HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA, LICENSE NO. 1542 , EXPIRATION DATE 06/30/2021."

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

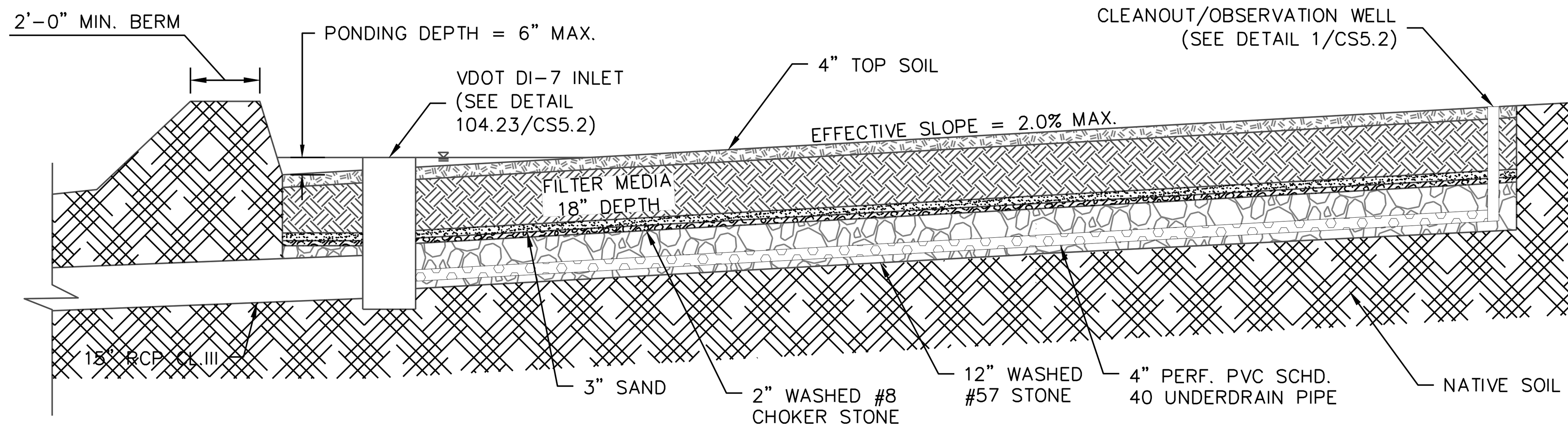
60% DESIGN

SHEET TITLE

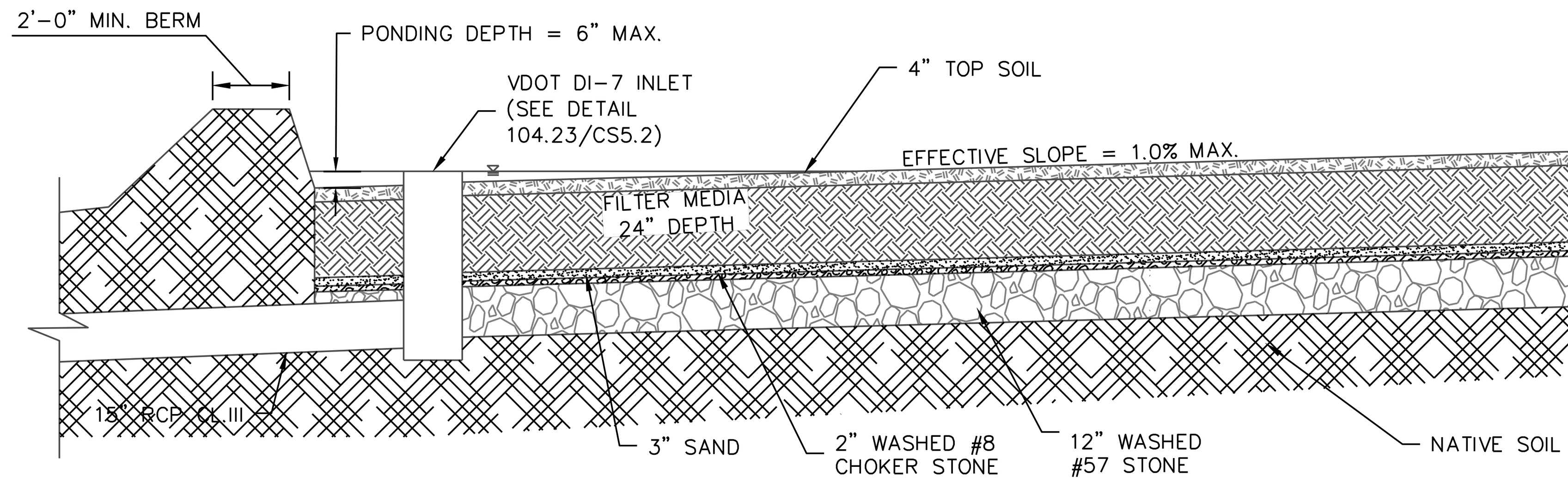
SWM NARRATIVE AND CALCULATIONS

SHEET

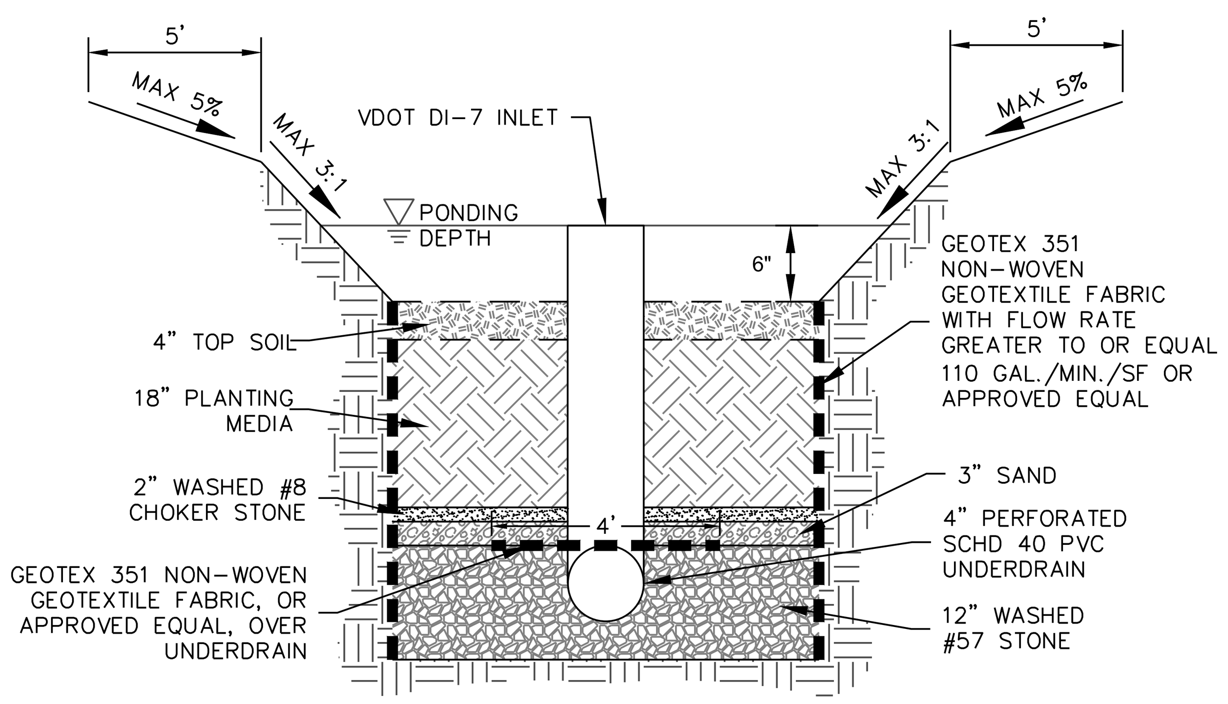
CW5.0



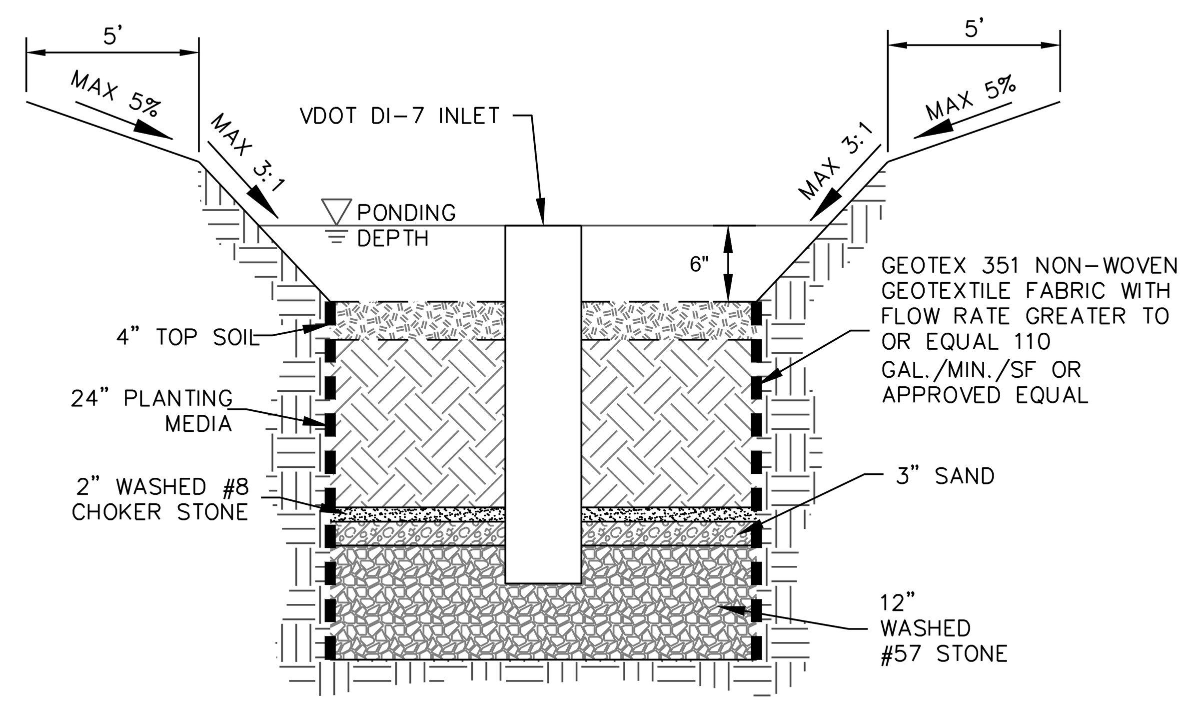
1 DRY SWALE LEVEL 1 SECTION DETAIL
SCALE:N.T.S.



2 DRY SWALE LEVEL 2 SECTION DETAIL
SCALE:N.T.S.



3 DRY SWALE TYPICAL SECTION (LEVEL1)
SCALE:NTS



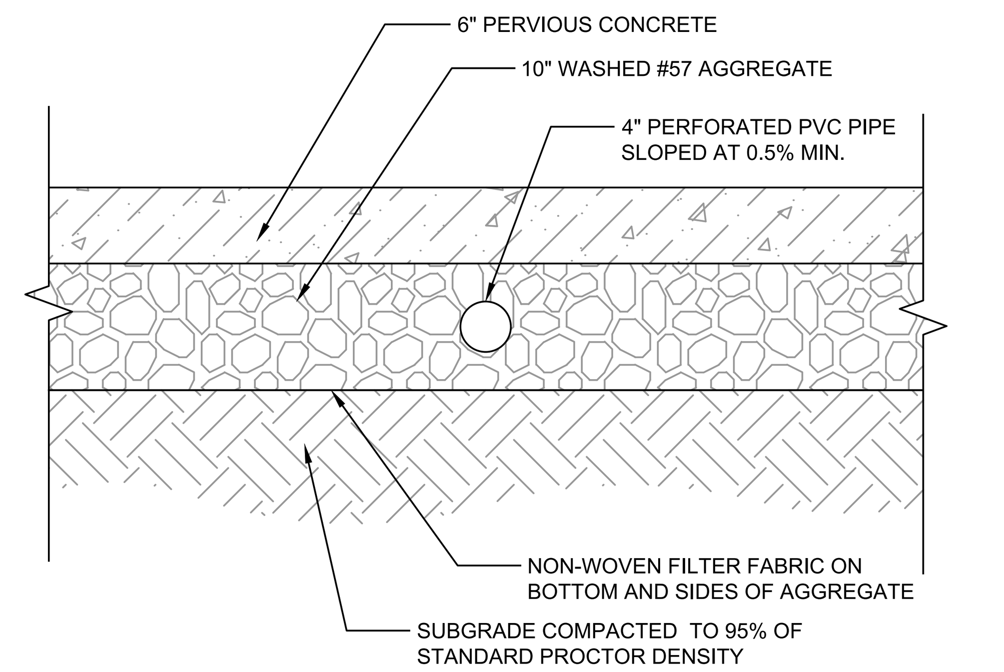
4 DRY SWALE TYPICAL SECTION (LEVEL2)
SCALE:NTS

Table 10.5. Dry Swale Material Specifications

Material	Specification	Notes
Filter Media Composition	Filter Media to contain (specific media component composition is described in **Section 6.6** of **Spec No. 9**: • 85-88% sand • 8-12% soil fines • 3-5% qualified organic matter	The volume of filter media for construction should be is based on 110% of the plan volume to account for settling.
Filter Media Testing	Available P between 7 and 23 mg/kg.; CEC greater than 10 (to the extent possible)	The media should be certified by the supplier as meeting the intent of these specifications (refer to **Stormwater Design Spec No. 9: Bioretention**, for additional soil media information.
Surface Cover	Turf, river stone, select bioretention landscaping.	
Top Soil	4 inch surface depth of loamy sand or sandy loam texture, with less than 5% clay content, a corrected pH of 6 to 7, and at least 2% organic matter.	
Filter Fabric	Use an appropriate material for the application based on AASHTO M288-06. Fabric should have a flow rate of > 125 gpm/sq. ft. (ASTM D4491), and an Apparent Opening Size (AOS) equivalent to a US # 70 or # 80 sieve (ASTM D4751). The geotextile AOS selection is based on the percent passing the No. 200 sieve in "A" Soil subgrade, using FHWA or AASHTO selection criteria. Apply on the sides and immediately above the underdrain only.] For hotspots and certain karst sites only, use an appropriate liner on the bottom.	
Choking Layer	A 2 to 4 inch layer of sand over a 2 inch layer of choker stone (typically #8 or # 89 washed gravel) laid above the underdrain stone.	
Stone and/or Storage Layer	1 inch stone should be double-washed and clean and free of all fines (e.g., VDOT #57 stone).	A 9 to 18 inch layer (depending on the desired depth of the storage layer)
Underdrains, Cleanouts, and Observation Wells	6-inch rigid schedule 40 PVC pipe, with 3/8-inch perforations(or equivalent corrugated HDPE), with 3/8-inch perforations at 6 inches on center;	Install perforated pipe for the full length of the dry swale cell. Use non-perforated pipe, as needed, to connect with the storm drain system.
Vegetation	Plant species as as specified on the landscaping plan	
Check Dams	Use non-erosive material such as wood, gabions, riprap, or concrete. All check dams should be underlain with filter fabric, and include weep holes. Wood used for check dams should consist of pressure-treated logs or timbers, or water-resistant tree species such as cedar, hemlock, swamp oak or locust.	
Erosion Control Fabric	Where flow velocities dictate, use woven biodegradable erosion control fabric or mats (EC3) that are durable enough to last at least 2 growing seasons.	

Table 7.6. Material Specifications for Underneath the Pavement Surface

Material	Specification	Notes
Bedding Layer	PC: None PA: 2 in. of No. 57 stone IP: 2 in. of No. 8 stone over 4 inches of No. 57 stone	ASTM D448 size No. 8 stone (e.g. 3/8 to 3/16 inch in size). Should be washed and clean and free of all fines.
Reservoir Layer	PC: No. 57 stone PA: No. 2 stone IP: No. 2, 3, or 4 stone	ASTM D448 size No. 57 stone (e.g. 1 1/2 to 1/2 inch in size); No. 2 Stone (e.g. 3 inch to 3/4 inch in size). Depth is based on the pavement structural and hydraulic requirements. Should be washed and clean and free of all fines.
Underdrain	Use 4 to 6 inch diameter perforated PVC (AASHTO M 252) pipe, with 3/8-inch perforations at 6 inches on center; each underdrain installed at a minimum 0.5% slope located 20 feet or less from the next pipe (or equivalent corrugated HDPE may be used for smaller load-bearing applications). Perforated pipe installed for the full length of the permeable pavement cell, and non-perforated pipe, as needed, is used to connect with the storm drain system. T's and Y's installed as needed, depending on the underdrain configuration. Extend cleanout pipes to the surface with vented caps at the Ts and Ys.	
Filter Layer	The underlying native soils should be separated from the stone reservoir by a thin, 2 to 4 inch layer of choker stone (e.g. No. 8) covered by a 6 to 8 inch layer of coarse sand (e.g. ASTM C 33, gradation).	The sand should be placed between the stone reservoir and the choker stone, which should be placed on top of the underlying native soils.
Filter Fabric (optional)	Use an appropriate filter fabric for the particular application based on AASHTO M288-06 Filter Fabric should have a Flow Rate greater than 125 gpm/sq. ft. (ASTM D4491), and an Apparent Opening Size (AOS) equivalent to a US # 70 or # 80 sieve (ASTM D4751). The geotextile AOS selection is based on the percent passing the No. 200 sieve in "A" Soil subgrade, using FHWA or AASHTO selection criteria.	
Impermeable Liner	Use a thirty mil (minimum) PVC Geomembrane liner covered by 8 to 12 oz./sq. yd.2 non-woven geotextile. NOTE: THIS IS USED ONLY FOR KARST REGIONS.	
Observation Well	Use a perforated 4 to 6 inch vertical PVC pipe (AASHTO M 252) with a lockable cap, installed flush with the surface.	



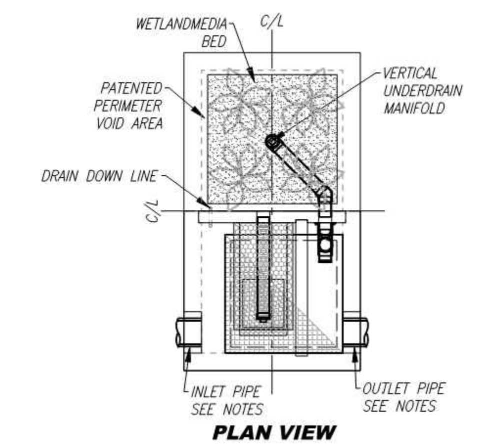
5 PERVIOUS CONCRETE PAVING
1" = 1'-0"

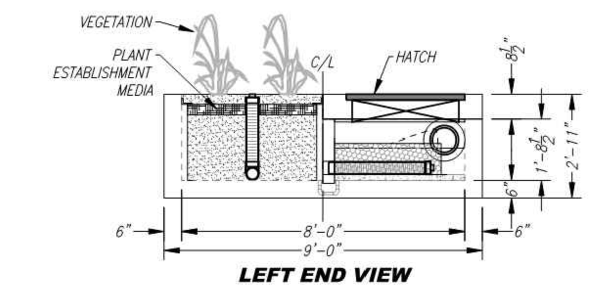
3402-35

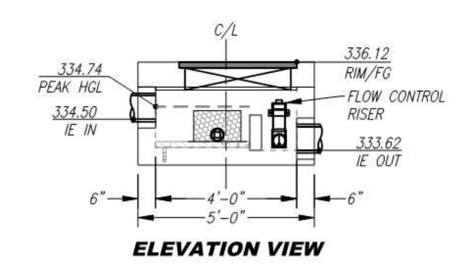
SITE SPECIFIC DATA

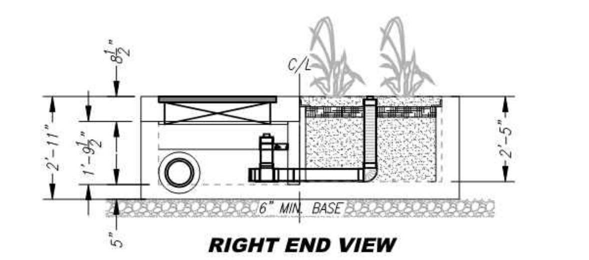
PROJECT NUMBER		----	
ORDER NUMBER		----	
PROJECT NAME		W&OD TRAIL PROJECT	
PROJECT LOCATION		FALLS CHURCH, VA	
STRUCTURE ID		MWS (SWM-7)	
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
76			
TREATMENT HGL AVAILABLE (FT)			N/K
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			0.3
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	335.56	PVC	6"
INLET PIPE 2	N/A	N/A	N/A
OUTLET PIPE	334.23	RCP	12"
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION	336.73	336.73	336.73
SURFACE LOAD	PEDESTRIAN	N/A	PEDESTRIAN
FRAME & COVER	36" X 36"	OPEN PLANTER	N/A
WETLANDMEDIA VOLUME (CY)			1.23
ORIFICE SIZE (DIA. INCHES)			ø1.14"

NOTES: PRELIMINARY NOT FOR CONSTRUCTION.









INSTALLATION NOTES
1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURERS SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURERS CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE TO VERIFY PROJECT ENGINEERS RECOMMENDED BASE SPECIFICATIONS.
4. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE. (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATER TIGHT PER MANUFACTURERS STANDARD CONNECTION DETAIL.
5. CONTRACTOR RESPONSIBLE FOR INSTALLATION OF ALL RISERS, MANHOLES, AND HATCHES. CONTRACTOR TO GROUT ALL MANHOLES AND HATCHES TO MATCH FINISHED SURFACE UNLESS SPECIFIED OTHERWISE.
6. VEGETATION SUPPLIED AND INSTALLED BY OTHERS. ALL UNITS WITH VEGETATION MUST HAVE DRIP OR SPRAY IRRIGATION SUPPLIED AND INSTALLED BY OTHERS.
7. CONTRACTOR RESPONSIBLE FOR CONTACTING BIO CLEAN FOR ACTIVATION OF UNIT. MANUFACTURERS WARRANTY IS VOID WITH OUT PROPER ACTIVATION BY A BIO CLEAN REPRESENTATIVE.

GENERAL NOTES
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2. ALL DIMENSIONS, ELEVATIONS, SPECIFICATIONS AND CAPACITIES ARE SUBJECT TO CHANGE. FOR PROJECT SPECIFIC DRAWINGS DETAILING EXACT DIMENSIONS, WEIGHTS AND ACCESSORIES PLEASE CONTACT BIO CLEAN.

INTERNAL BYPASS DISCLOSURE:
THE DESIGN AND CAPACITY OF THE PEAK CONVEYANCE METHOD TO BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD. HGL(S) AT PEAK FLOW SHALL BE ASSESSED TO ENSURE NO UPSTREAM FLOODING. PEAK HGL AND BYPASS CAPACITY SHOWN ON DRAWING ARE USED FOR GUIDANCE ONLY.

TREATMENT VOLUME (CF)	76
OPERATING HEAD (FT)	1.0
PRETREATMENT LOADING RATE (GPM/SF)	0.6
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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Bio Clean A Forterra Company

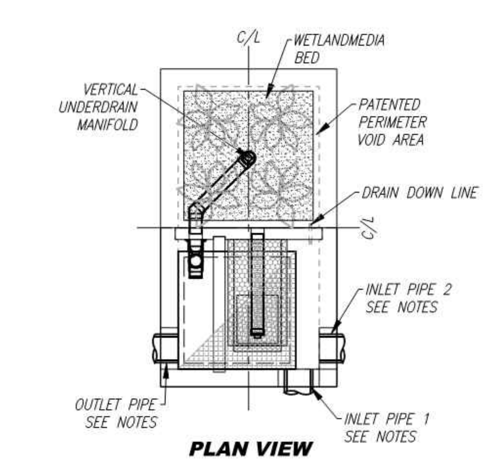
MWS-L-4-8-2'-5"-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

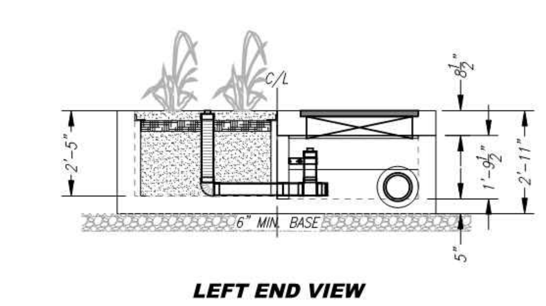
6 STORMWATER BIOFILTRATION SYSTEM (SWM 7)
SCALE:NTS

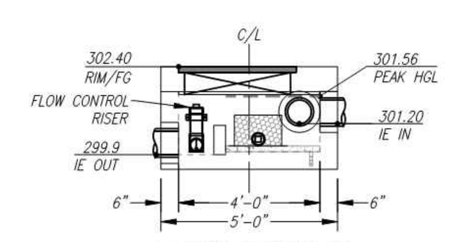
SITE SPECIFIC DATA

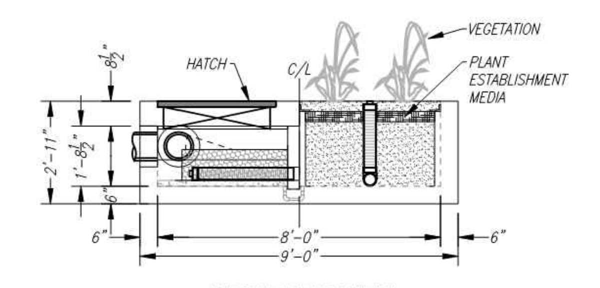
PROJECT NUMBER		----	
ORDER NUMBER		----	
PROJECT NAME		W&OD TRAIL PROJECT	
PROJECT LOCATION		FALLS CHURCH, VA	
STRUCTURE ID		MWS (SWM-8)	
TREATMENT REQUIRED			
VOLUME BASED (CF)		FLOW BASED (CFS)	
1,225			
TREATMENT HGL AVAILABLE (FT)			N/K
PEAK BYPASS REQUIRED (CFS) – IF APPLICABLE			9.08
PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	301.53	RCP	18"
INLET PIPE 2	298.07	PVC	6"
OUTLET PIPE	297.57	RCP	18"
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION	302.70	302.70	302.70
SURFACE LOAD	PEDESTRIAN	N/A	PEDESTRIAN
FRAME & COVER	36" X 36"	OPEN PLANTER	N/A
WETLANDMEDIA VOLUME (CY)			1.23
ORIFICE SIZE (DIA. INCHES)			ø1.08"

NOTES: PRELIMINARY NOT FOR CONSTRUCTION.









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TREATMENT VOLUME (CF)	76
OPERATING HEAD (FT)	0.8
PRETREATMENT LOADING RATE (GPM/SF)	0.5
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0

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Bio Clean A Forterra Company

MWS-L-4-8-2'-5"-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

7 STORMWATER BIOFILTRATION SYSTEM (SWM 8)
SCALE:NTS

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
800 KING FARM BLVD, FOURTH FLOOR ROCKVILLE, MD 20850
(301) 881-2545 FAX:(301) 881-0814
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PROJECT TITLE
EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

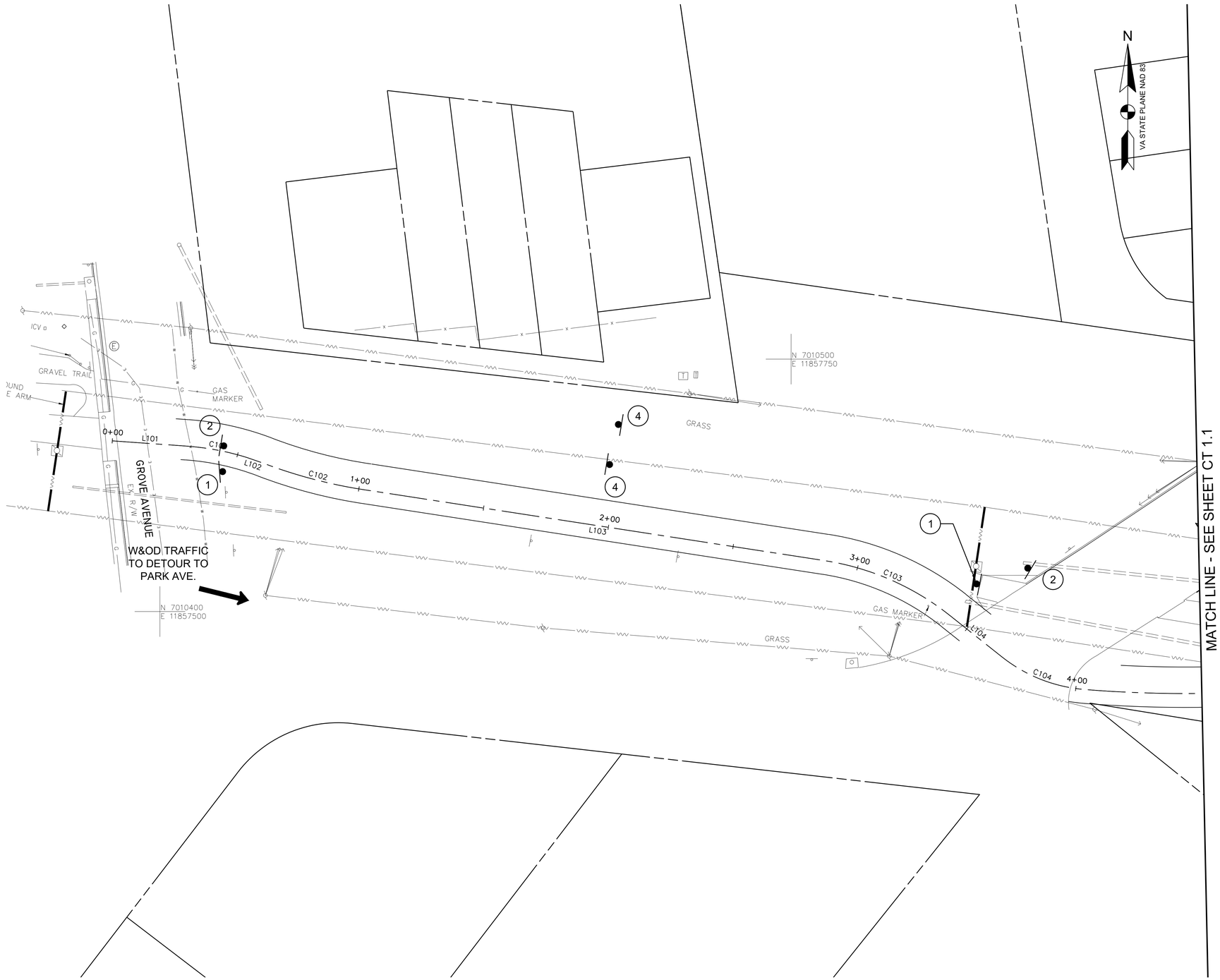
MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE
STORMWWATER MANAGEMENT DETAILS

SHEET
CW5.1



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

MAINTENANCE OF TRAFFIC NOTES

1. CONTRACTOR SHALL RECONSTRUCT EXISTING GRAVEL TRAIL TO HIKER/BIKER TRAIL STANDARD AND SPECIFICATIONS PRIOR TO SHIFTING BICYCLISTS/PEDESTRIANS ONTO IT.
2. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.

SIGN LEGEND

1 — TRAIL CLOSED — R9-9 (MOD.) 30"x18"

TYPE 3 BARRICADE

2 — DETOUR — M4-9aR 30"x24"

3 — DETOUR — M4-9aL 30"x24"

4 — DETOUR — M4-V1(MOD.) 18"x36"

0 10' 20' 40'
SCALE: 1"=20'

A. MORTON THOMAS AND ASSOCIATES, INC.
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800 KING FARM BLVD, FOURTH FLOOR ROCKVILLE, MD 20850
(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
JACK A. GOODE, II
LIC. NO. -02039202
PROFESSIONAL ENGINEER
10/30/19

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PROJECT TITLE

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FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

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DATE:	10/29/2019
SCALE:	1"=20'
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DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 1

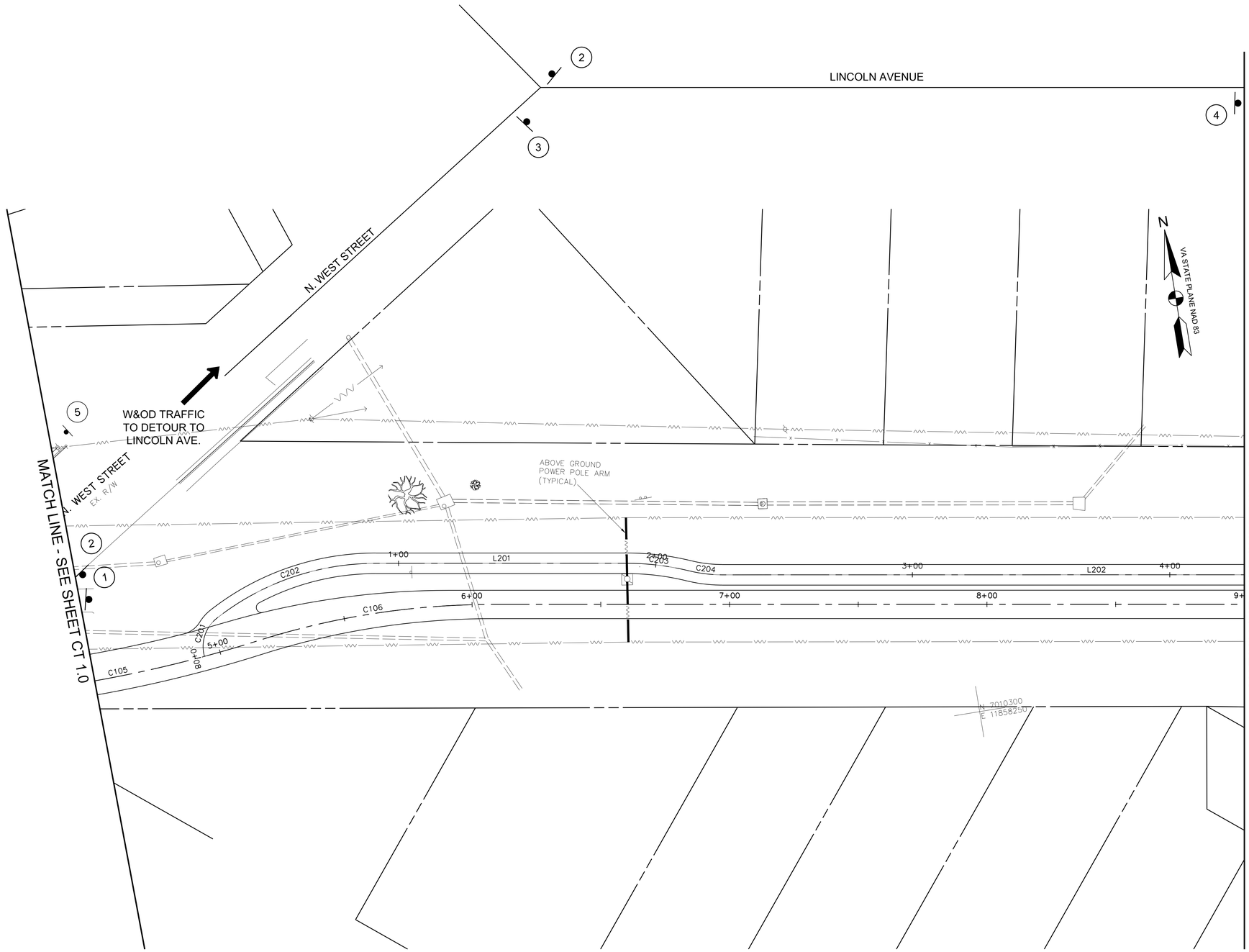
SHEET

CT 1.0

75 OF 100

MAINTENANCE OF TRAFFIC NOTE

1. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

SIGN LEGEND

1. TRAIL CLOSED — R9-9 (MOD.) 30"x18"
   TYPE 3 BARRICADE
2. DETOUR — M4-9aR 30"x24"
3. DETOUR — M4-9aL 30"x24"
4. DETOUR — M4-V1(MOD.) 18"x36"
5. END DETOUR — M4-8a 24"x18"

0 10' 20' 40'
SCALE: 1"=20'

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FALLS CHURCH, VA
UPC 113612

REVISIONS

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DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 2

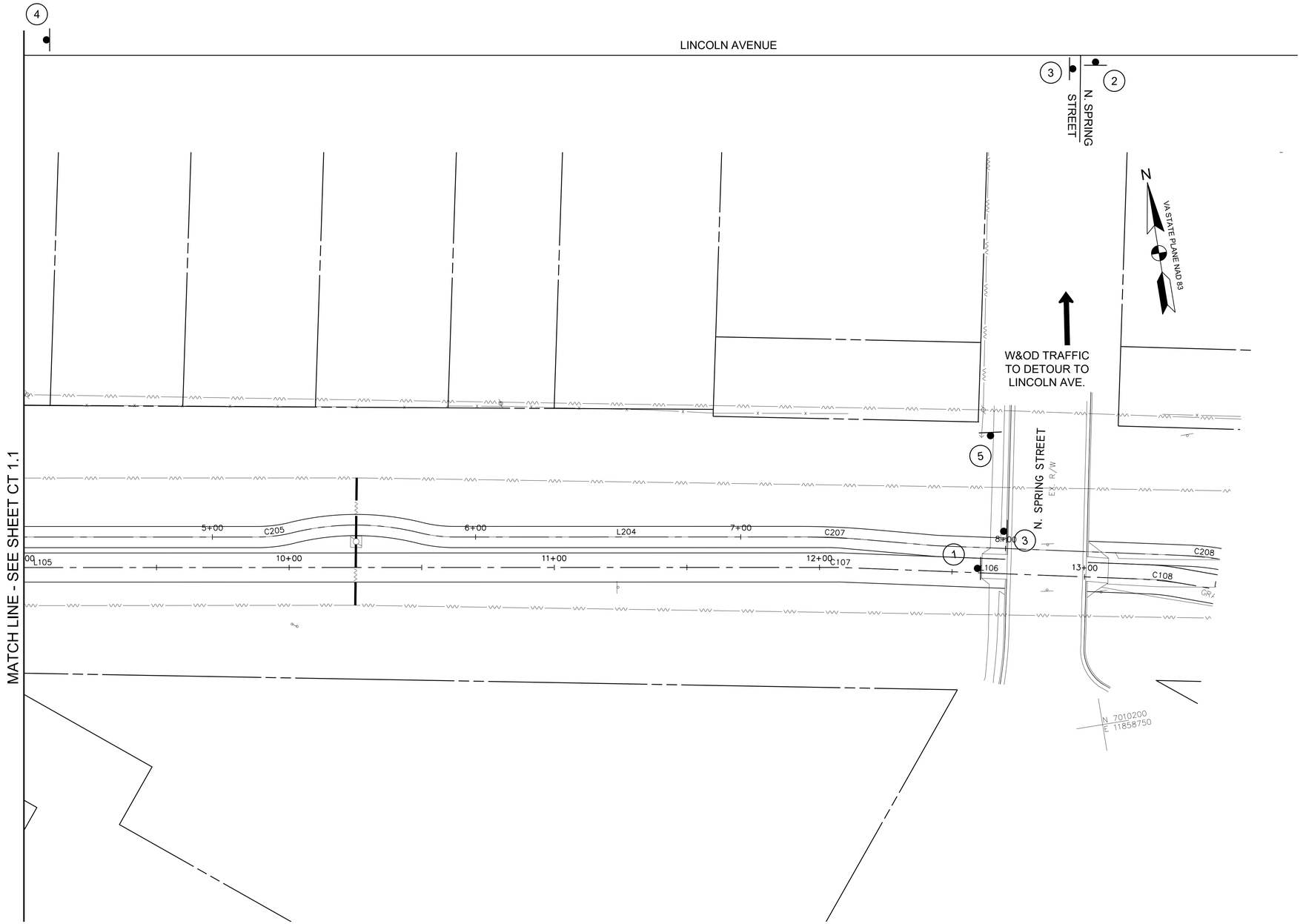
SHEET

CT 1.1

76 OF 100

MAINTENANCE OF TRAFFIC NOTE

1. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

SIGN LEGEND

1. TRAIL CLOSED — R9-9 (MOD.) 30"x18"
   TYPE 3 BARRICADE
2. DETOUR — M4-9aR 30"x24"
3. DETOUR — M4-9aL 30"x24"
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UPC 113612

REVISIONS

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DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE
MAINTENANCE OF TRAFFIC PLAN PHASE 2

SHEET
CT 1.2
77 OF 100

MAINTENANCE OF TRAFFIC NOTES

1. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.
2. CONTRACTOR SHALL INSTALL A WATER-FILLED BARRIER ALONG NORTHBOUND SPRING STREET (5' WIDE SECTION) FOR PEDESTRIAN TRAFFIC DUE TO LACK OF SIDEWALK.

SIGN LEGEND

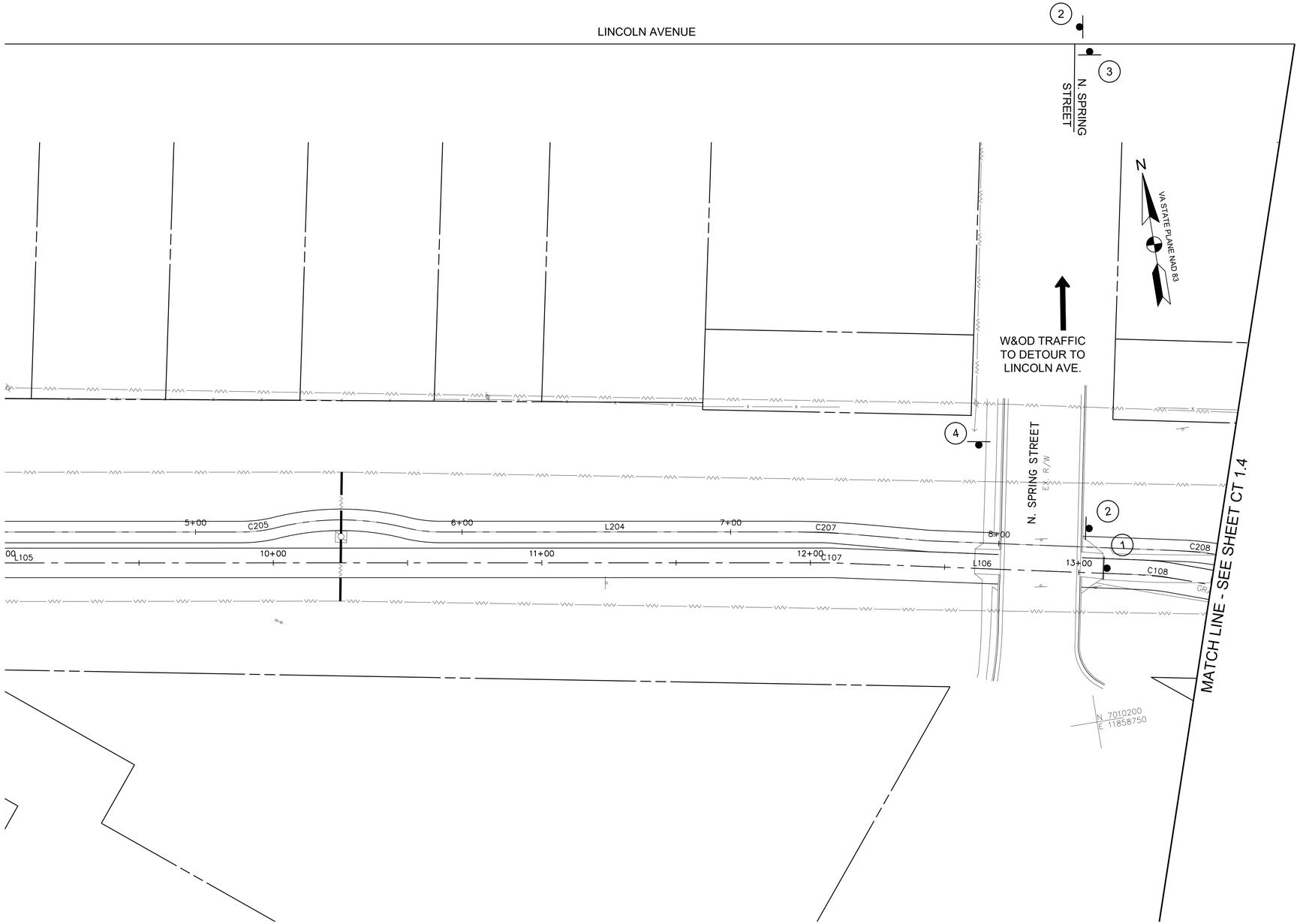
1 — TRAIL CLOSED — R9-9 (MOD.) 30"x18"

TYPE 3 BARRICADE

2 — DETOUR — M4-9aR 30"x24"

3 — DETOUR — M4-9aL 30"x24"

4 — END DETOUR — M4-8a 24"x18"



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
800 KING FARM BLVD, FOURTH FLOOR ROCKVILLE, MD 20850
(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
JACK A. GOODE, II
LIC. NO. 02039202
PROFESSIONAL ENGINEER
10/30/19

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA. LICENSE NO. 1542 , EXPIRATION DATE 04/30/2021"

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 3

SHEET

CT 1.3

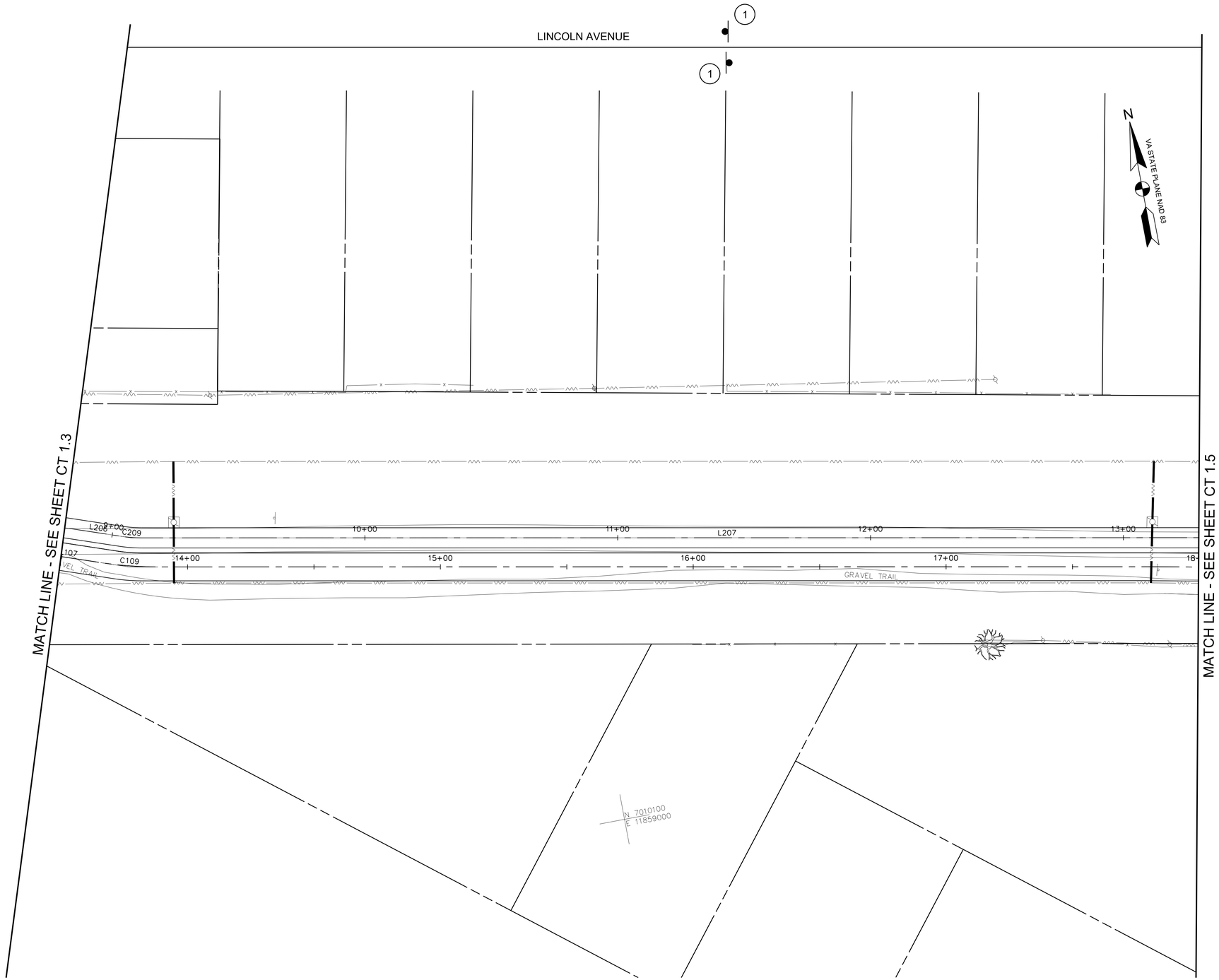
78 OF 100

MAINTENANCE OF TRAFFIC NOTE

1. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.

SIGN LEGEND

1 — DETOUR — M4-V1(MOD.) 18"x36"



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

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PROJECT TITLE

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FALLS CHURCH, VA
UPC 113612

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60% DESIGN

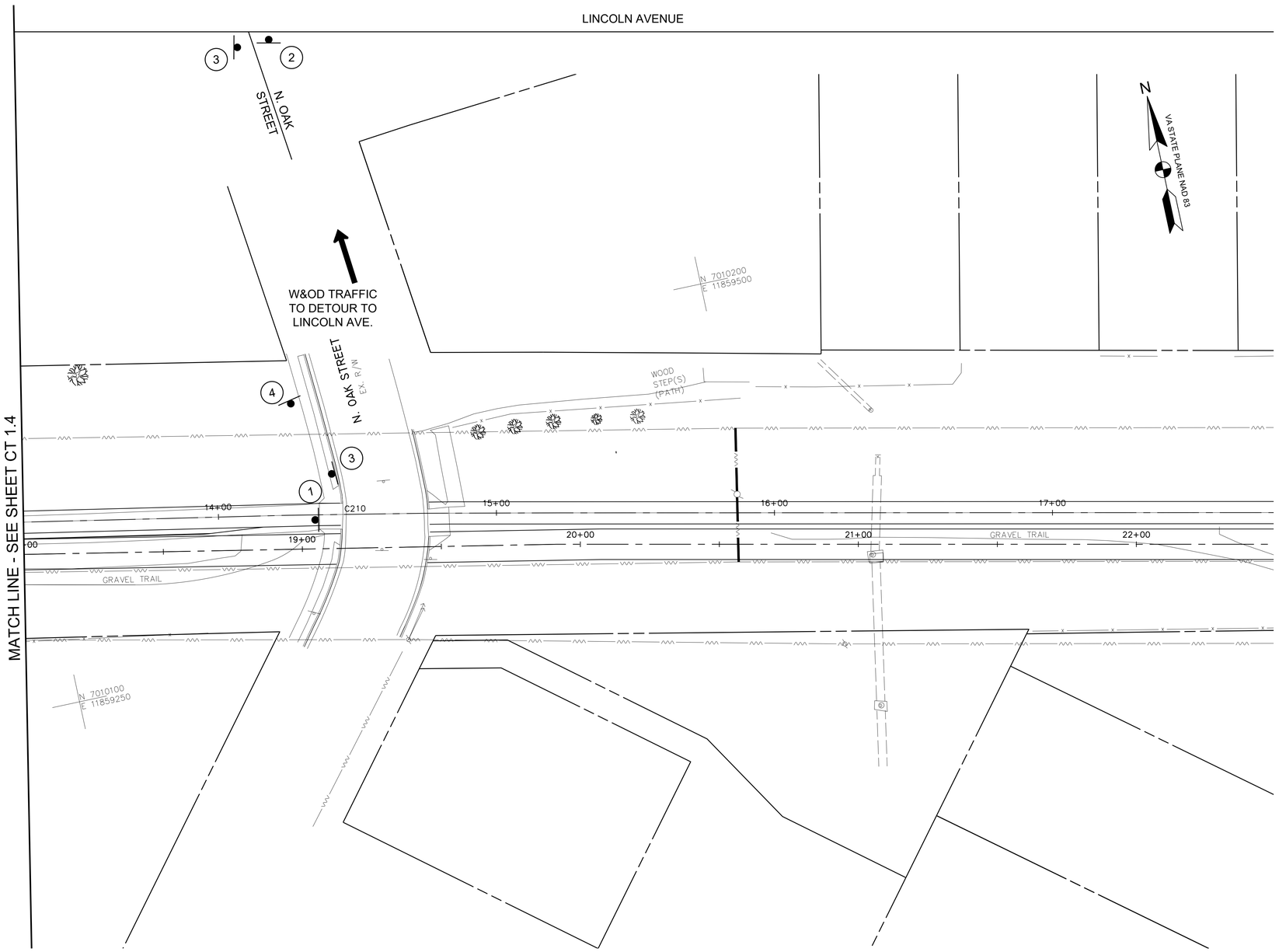
SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 3

SHEET

CT 1.4

79 OF 100



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

MAINTENANCE OF TRAFFIC NOTE

1. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.

SIGN LEGEND

1 — TRAIL CLOSED — R9-9 (MOD.) 30"x18"

TYPE 3 BARRICADE

2 — DETOUR — M4-9aR 30"x24"

3 — DETOUR — M4-9aL 30"x24"

4 — END DETOUR — M4-8a 24"x18"

0 10' 20' 40'
SCALE: 1"=20'

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FALLS CHURCH, VA
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CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 3

SHEET

CT 1.5

80 OF 100

MAINTENANCE OF TRAFFIC NOTE

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SIGN LEGEND

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TYPE 3 BARRICADE

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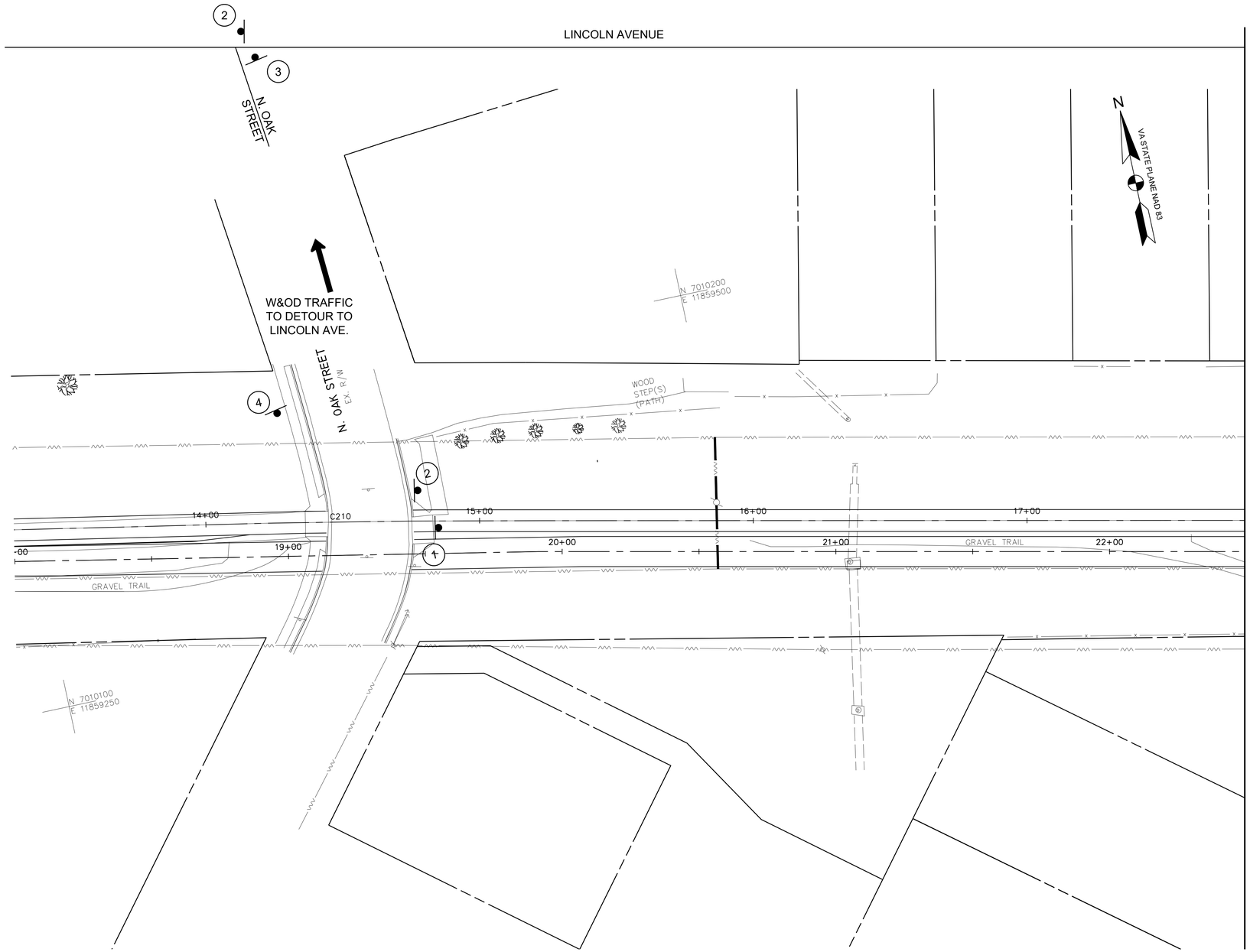

MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

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SCALE: 1"=20'

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FALLS CHURCH, VA
UPC 113612

REVISIONS

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CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 4

SHEET

CT 1.6

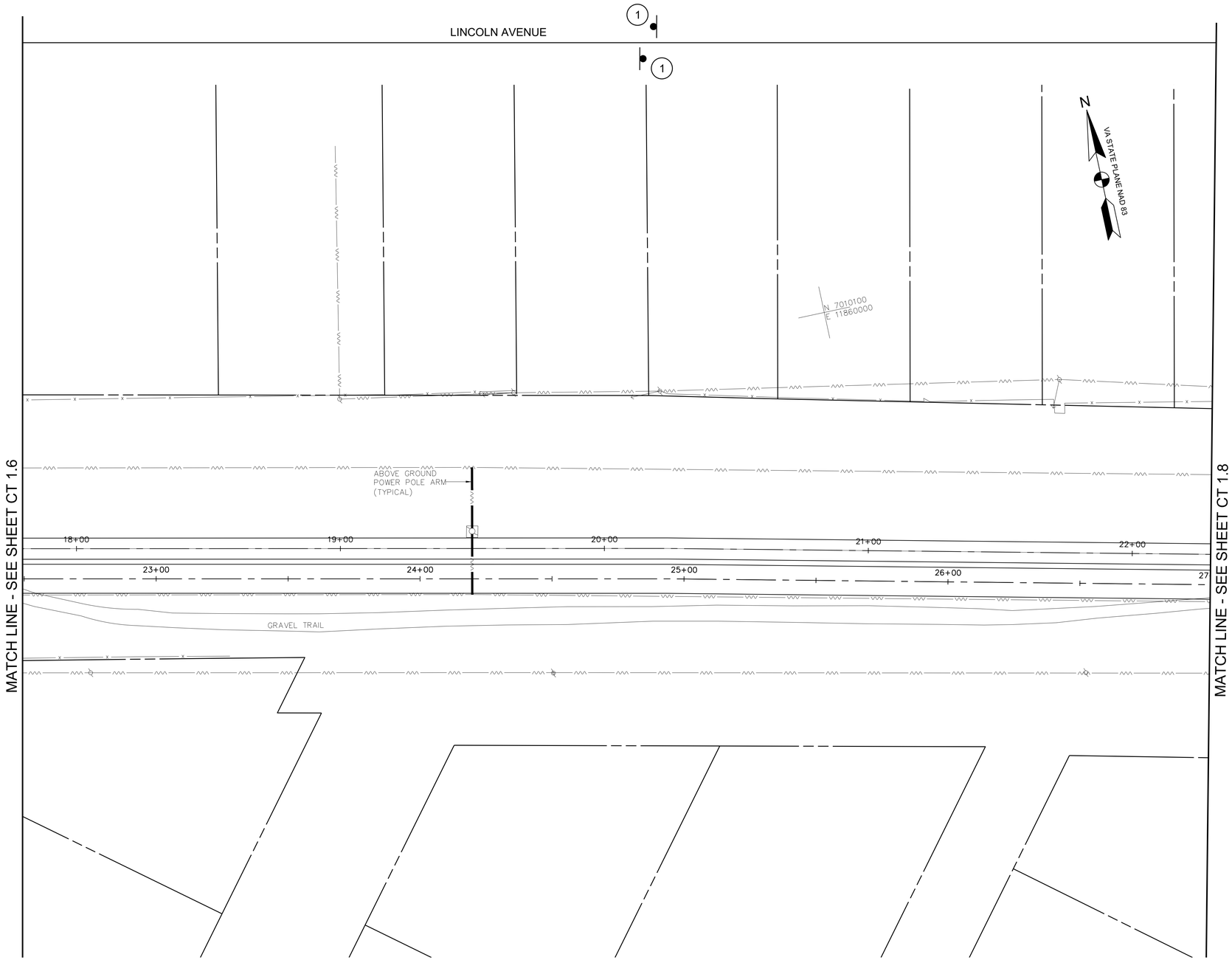
81 OF 100

MAINTENANCE OF TRAFFIC NOTE

1. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.

SIGN LEGEND

1 — DETOUR — M4-V1(MOD.) 18"x36"



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
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10/30/19

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PROJECT TITLE

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REVISIONS

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DRAWN BY:	AMT
CHECKED BY:	AMT

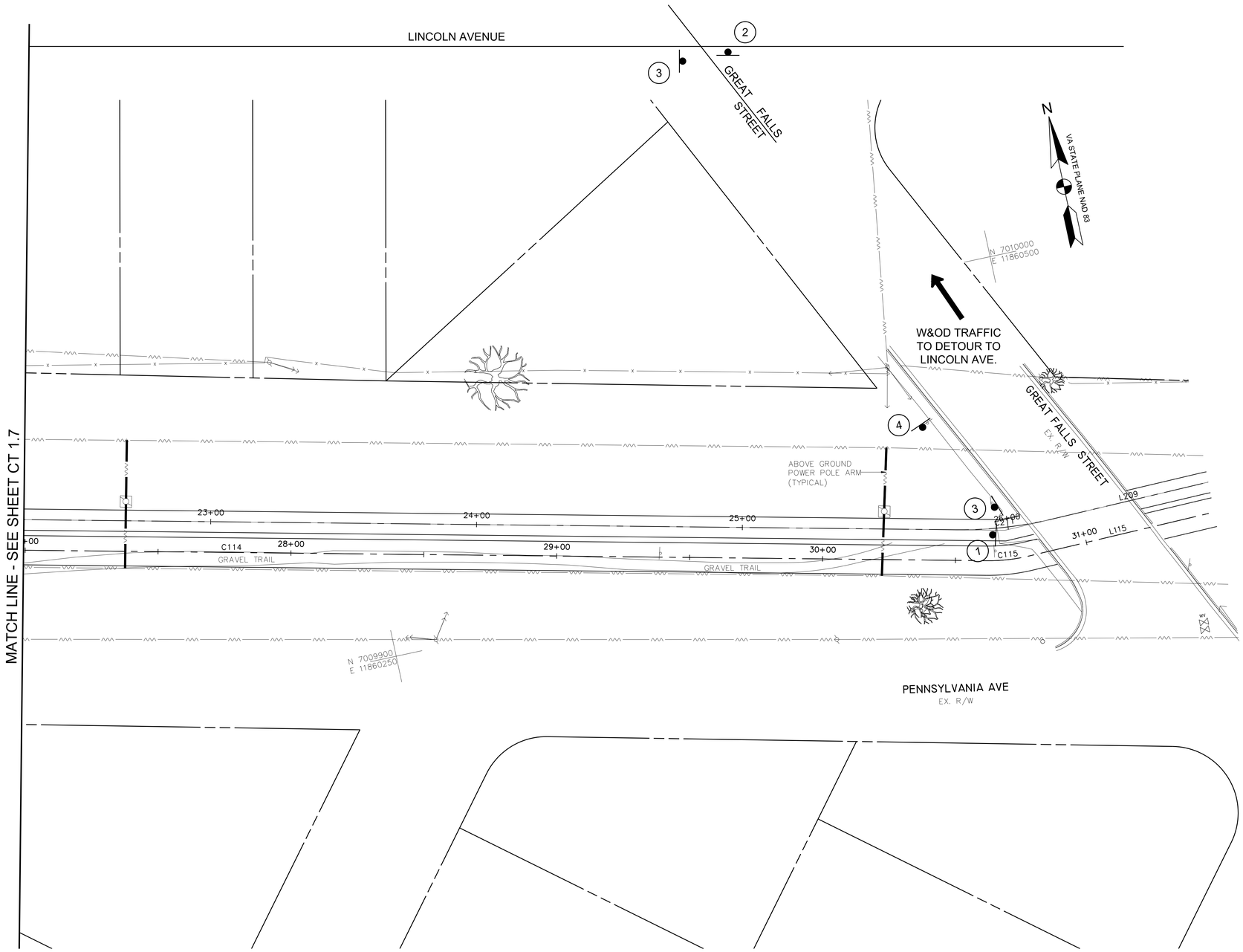
60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 4

SHEET

CT 1.7



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

MAINTENANCE OF TRAFFIC NOTE

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SIGN LEGEND

1	TRAIL CLOSED TYPE 3 BARRICADE	R9-9 (MOD.) 30"x18"
2	DETOUR	M4-9aL 30"x24"
3	DETOUR	M4-9aR 30"x24"
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FALLS CHURCH, VA
UPC 113612

REVISIONS

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DESIGNED BY:	AMT
DRAWN BY:	AMT
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60% DESIGN

SHEET TITLE
MAINTENANCE OF TRAFFIC PLAN PHASE 4

SHEET
CT 1.8
83 OF 100

MAINTENANCE OF TRAFFIC NOTE

1. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.

SIGN LEGEND

1	TRAIL CLOSED / TYPE 3 BARRICADE	R9-9 (MOD.) 30"x18"
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3	DETOUR	M4-9aR 30"x24"
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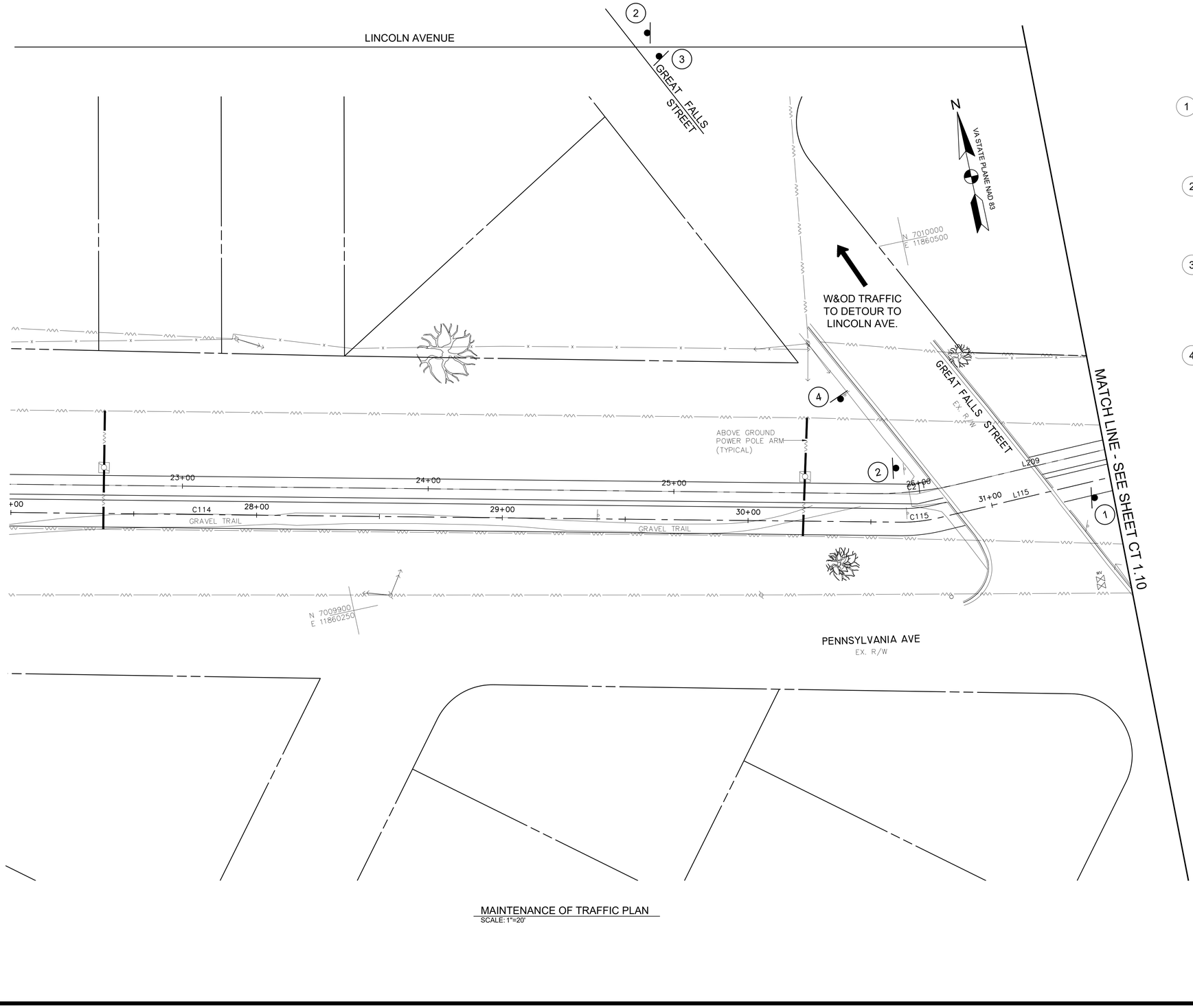

MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

0 10' 20' 40'
SCALE: 1"=20'

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PROJECT TITLE

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UPC 113612

REVISIONS

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SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

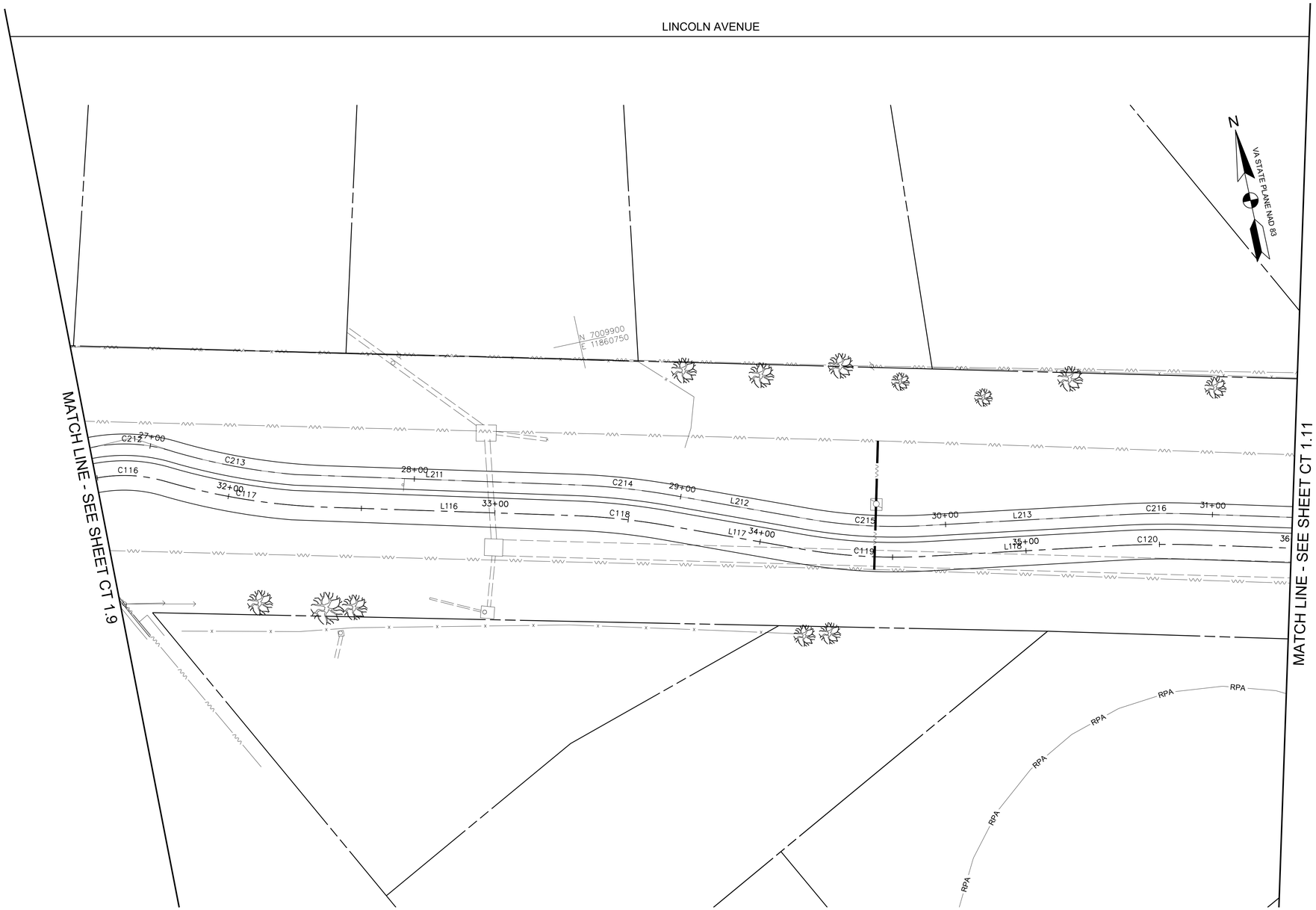
60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 5

SHEET

CT 1.9



MAINTENANCE OF TRAFFIC PLAN
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0 10' 20' 40'
SCALE: 1"=20'

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CHECKED BY:	AMT

60% DESIGN

SHEET TITLE
MAINTENANCE OF TRAFFIC PLAN PHASE 5

SHEET
CT 1.10
85 OF 100

MAINTENANCE OF TRAFFIC NOTE

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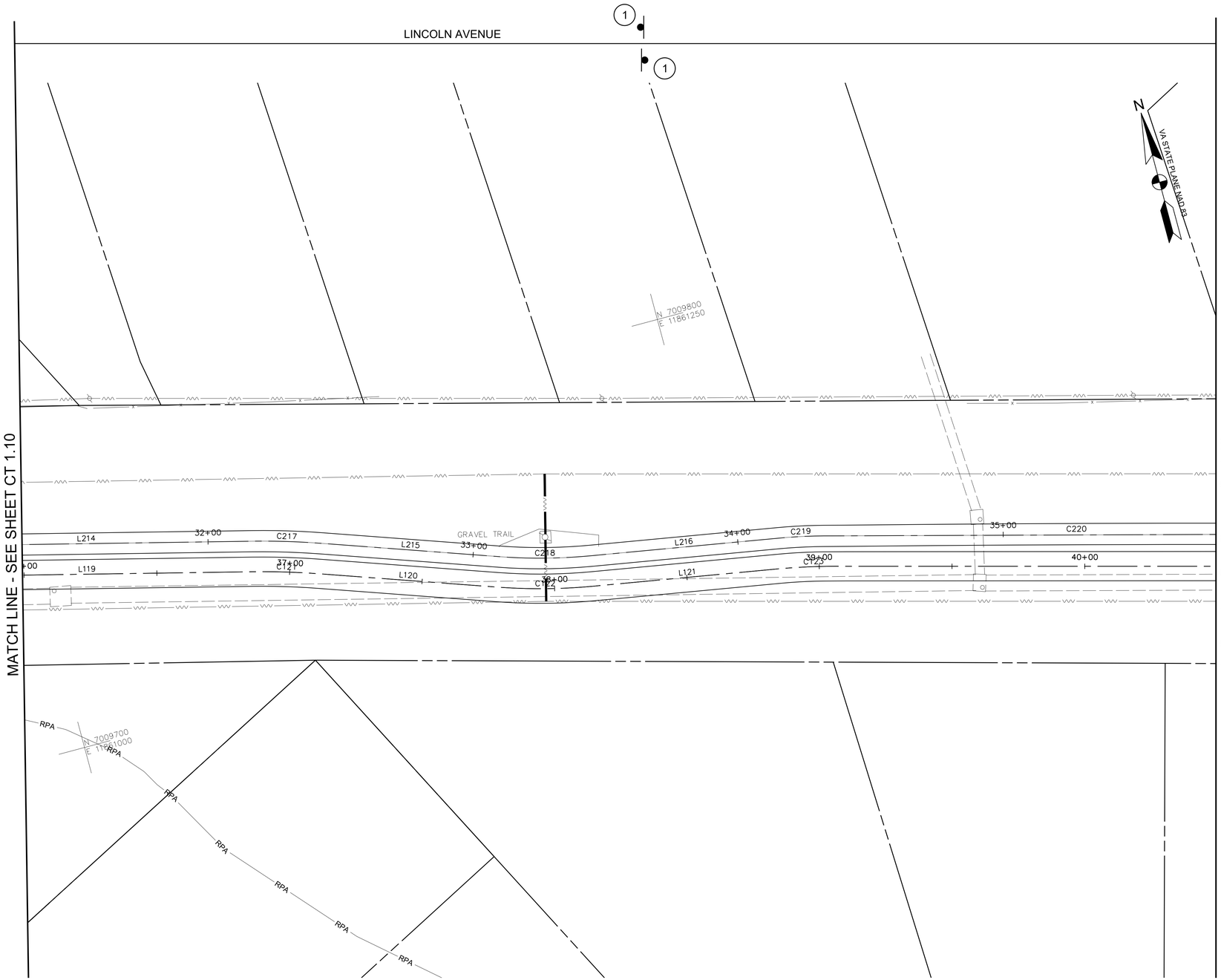
SIGN LEGEND

1 — DETOUR — M4-V1(MOD.) 18"x36"



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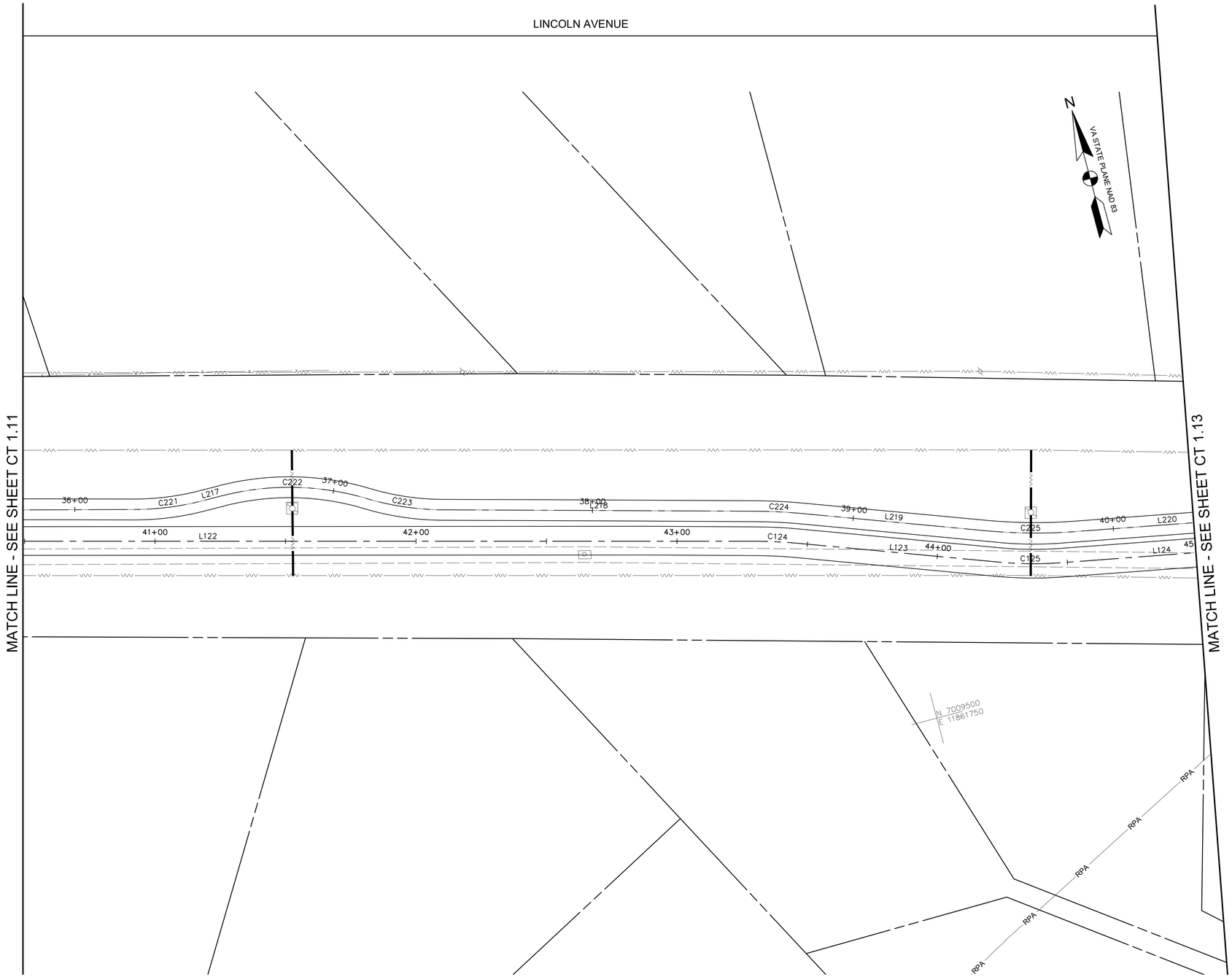
SHEET TITLE
MAINTENANCE OF TRAFFIC PLAN PHASE 5

SHEET
CT 1.11
86 OF 100



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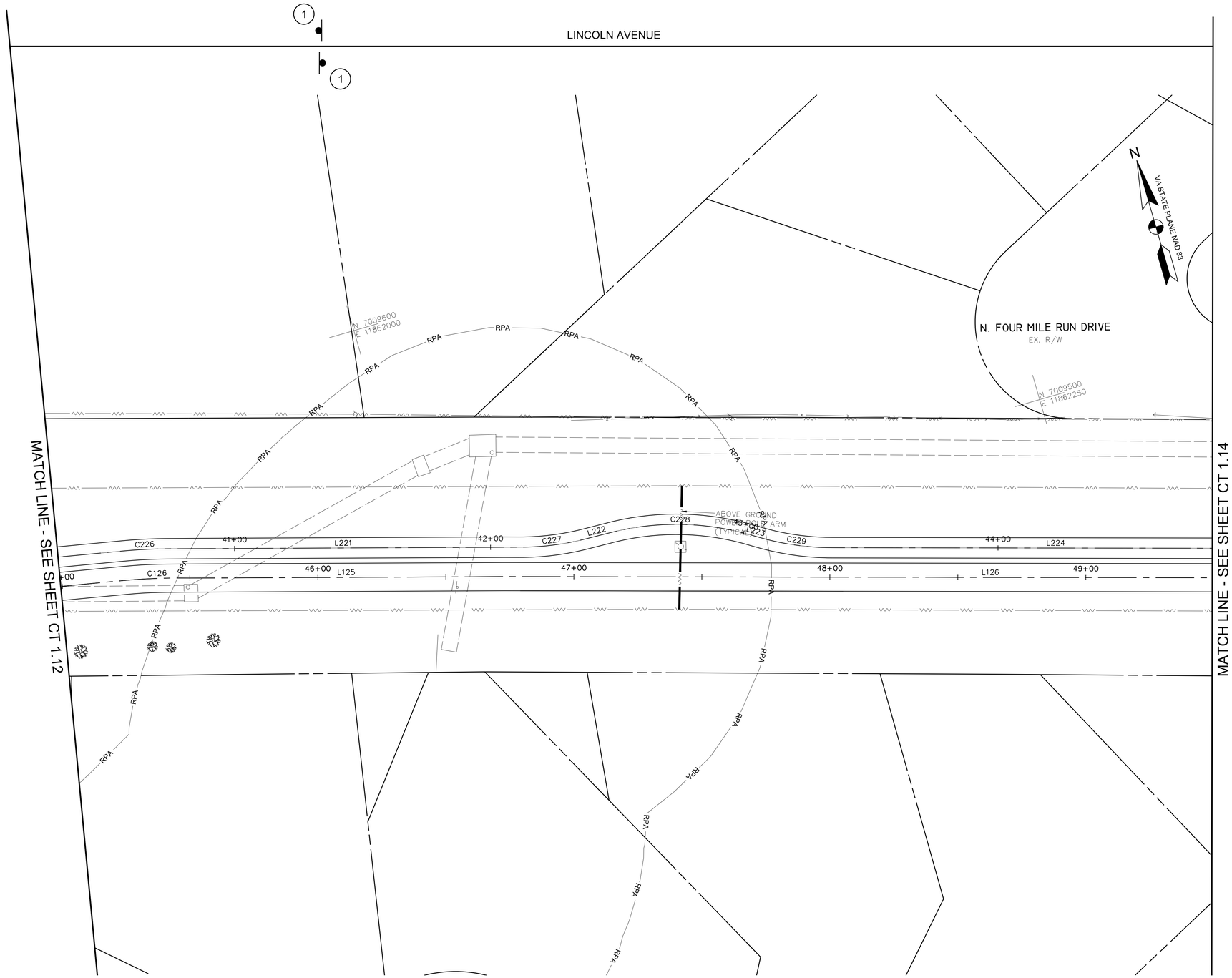
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE
MAINTENANCE OF TRAFFIC PLAN PHASE 5

SHEET
CT 1.12
87 OF 100



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

MAINTENANCE OF TRAFFIC NOTE

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1 — DETOUR — M4-V1(MOD.) 18"x36"

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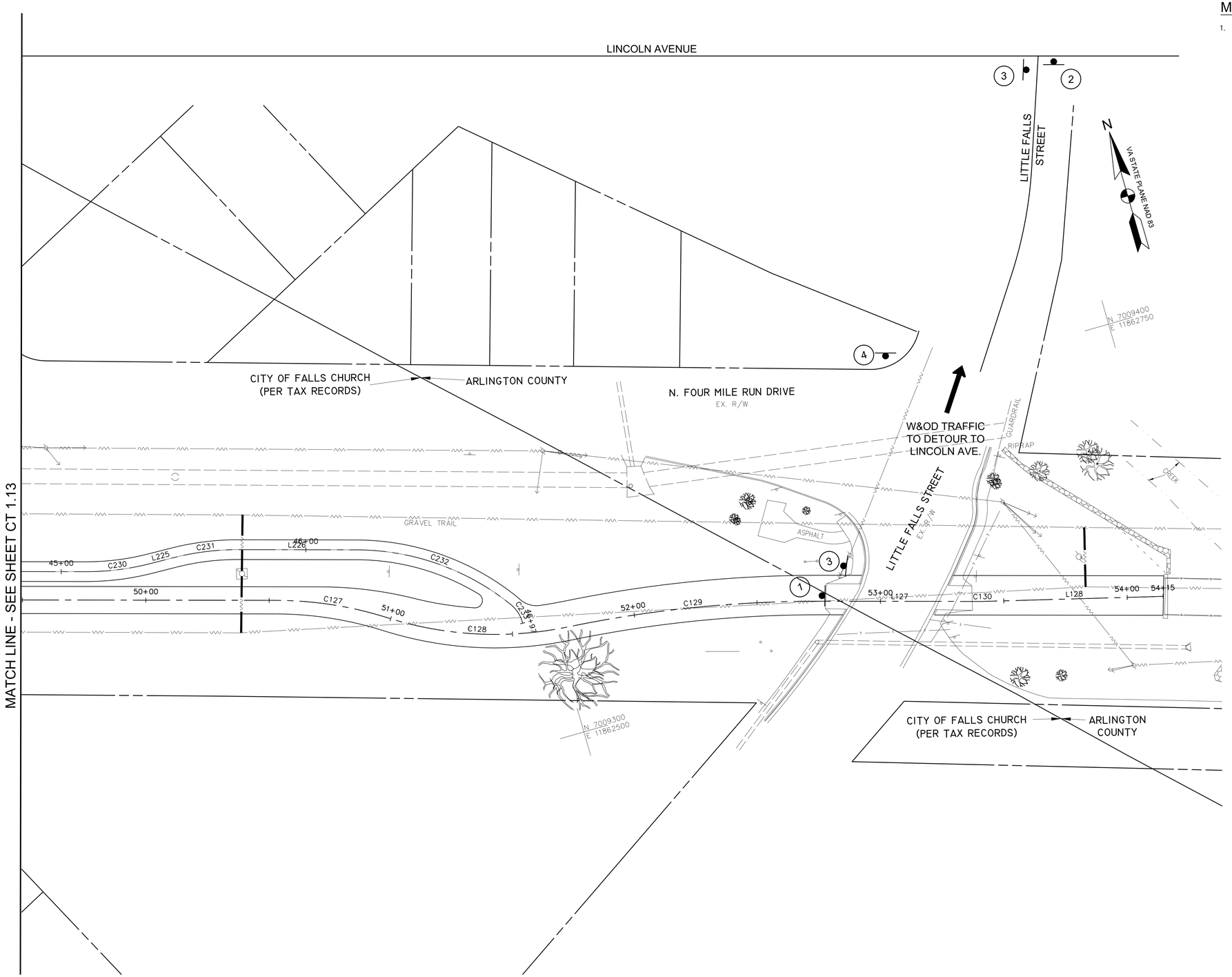
SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 5

SHEET

CT 1.13



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

MAINTENANCE OF TRAFFIC NOTE

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SIGN LEGEND

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60% DESIGN

SHEET TITLE

MAINTENANCE OF TRAFFIC PLAN PHASE 5

SHEET

CT 1.14

89 OF 100

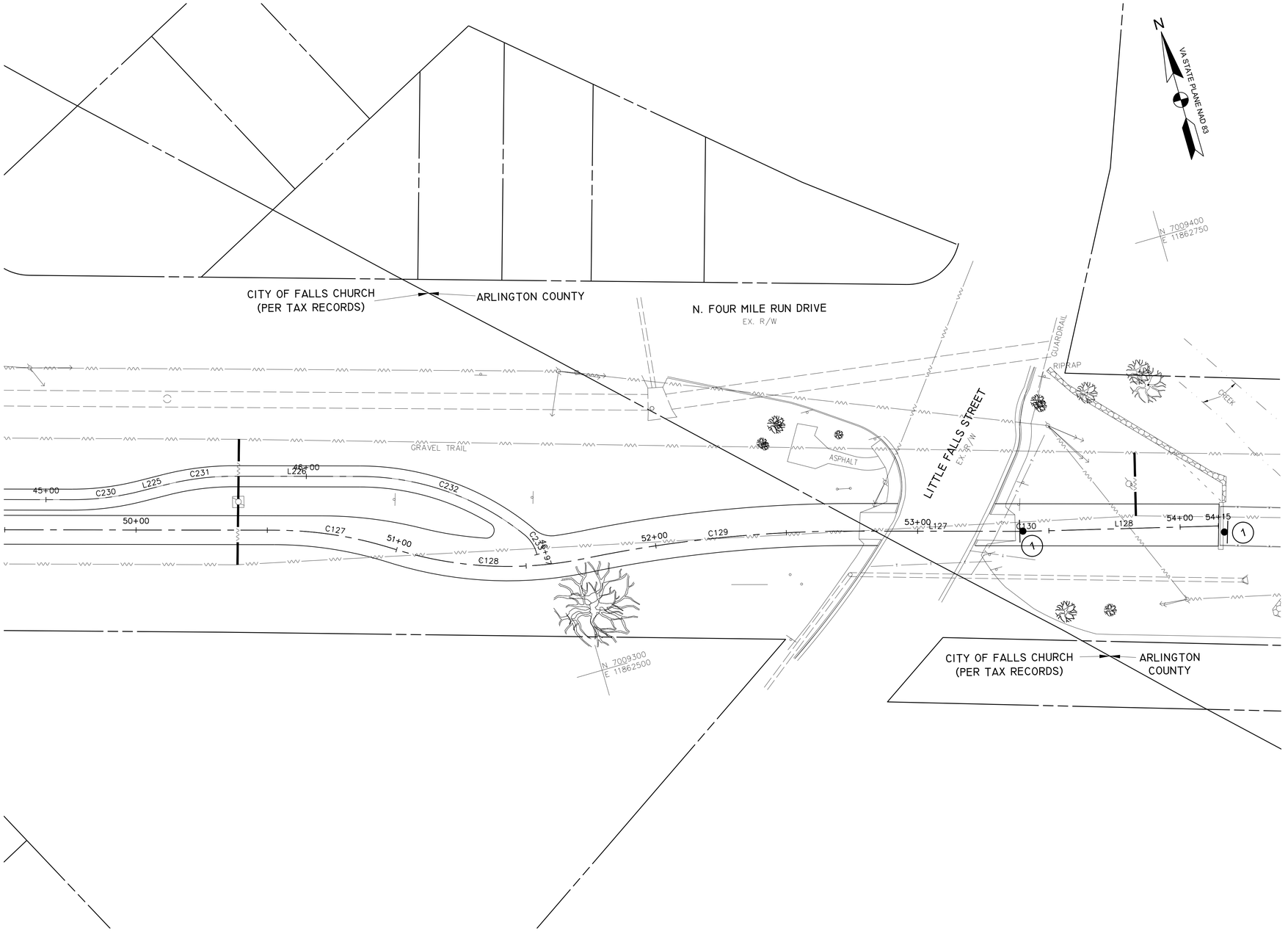
MAINTENANCE OF TRAFFIC NOTES

1. CONTRACTOR SHALL DETOUR PEDESTRIANS/BICYCLISTS ALONG NORTHBOUND LITTLE FALLS STREET TO FAIRFAX DRIVE TO US29.
2. CONTRACTOR SHALL MAKE SURE DETOUR SIGNS ARE INSTALLED PRIOR TO CLOSING THE EXISTING HIKER/BIKER TRAIL.

SIGN LEGEND

1 — TRAIL CLOSED — R9-9 (MOD.) 30"x18"

TYPE 3 BARRICADE



MAINTENANCE OF TRAFFIC PLAN
SCALE: 1"=20'

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SCALE: 1"=20'

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NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

"I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED CERTIFIED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF VIRGINIA. LICENSE NO. 1542, EXPIRATION DATE 04/30/2021."

PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

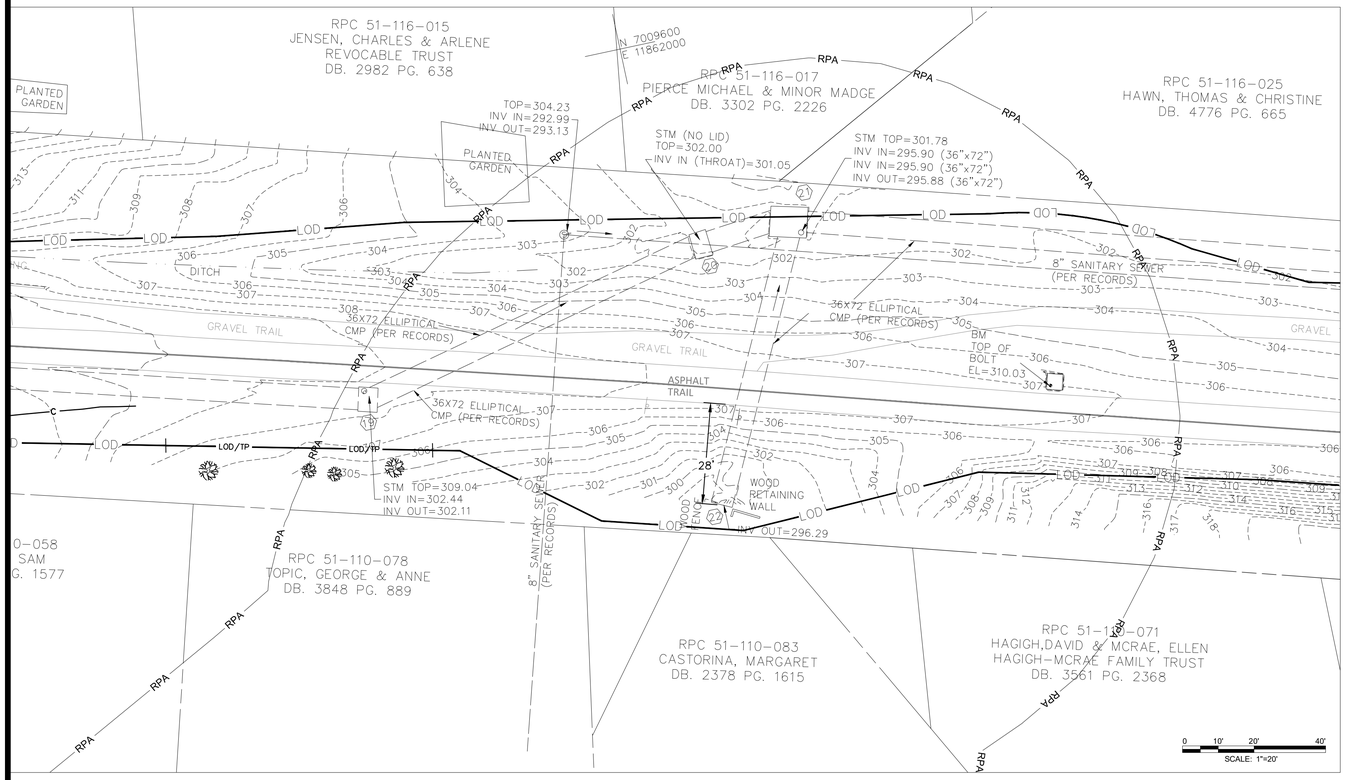
MAINTENANCE OF TRAFFIC PLAN PHASE 6

SHEET

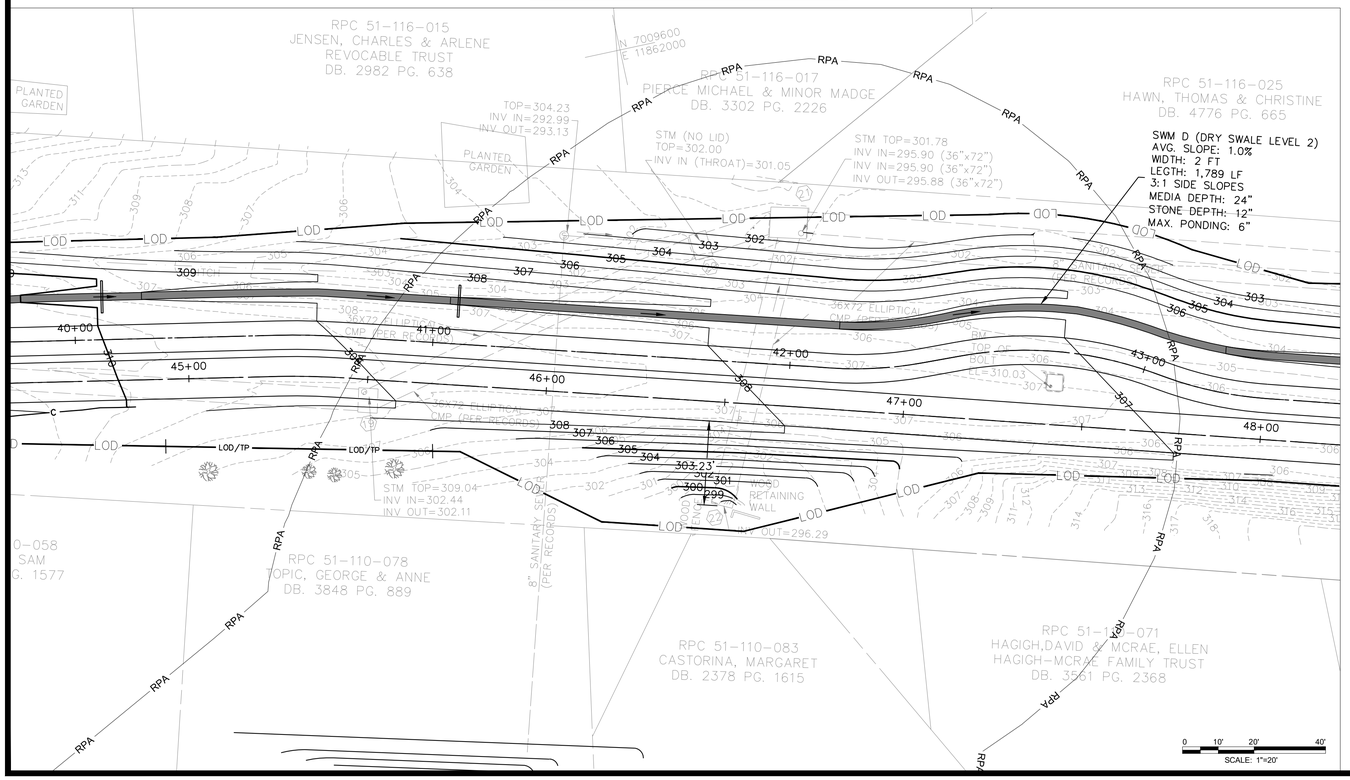
CT 1.15

90 OF 100

PRE-DEVELOPMENT



POST-DEVELOPMENT



Appendix C. Water Quality Impact Assessment Data Sheet

Project Address	Date:
WASHINGTON & OLD DOMINION TRAIL	10/24/2019
Applicant Name/Affiliation:	Applicant Contact Information (phone and email):
BRIAN NOLAN/NOVA PARKS	703-359-4621 ; BNOLAN@NVRPA.ORG
Owner/Client Name:	Owner/Client Contact Information (phone and email):
BRIAN NOLAN/NOVA PARKS	703-359-4621 ; BNOLAN@NVRPA.ORG

Section 1: Type of activity proposed

Activity type (check all that apply):	
☐ New construction (residential, commercial, public, etc.)	☐ Deck, patio, or retaining wall
☐ Alteration of non-residential structure	☑ Landscaping (includes tree removal)
☐ Residential addition	☑ Utility work
☐ Detached residential structure	☐ Fence
	☑ Other (please describe): PUBLIC TRAIL IMPROVEMENTS

Section 2: Key details of the proposed activity

Complete all that apply		Explanation
Total area of disturbance on parcel (sf)	337,799	Includes building footprint plus a 10 foot buffer. Also includes all soil disturbance, ingress/egress areas, stockpiling areas, etc.
Area of disturbance within RPA (sf)	15,786	Includes removal of trees ≥ 3" in diameter
Area of disturbance on slopes greater than or equal to 15 percent located adjacent to landward RPA boundary (sf)	9,074	Does not apply to RPA parcels along Chain Bridge Road (15 percent and greater slopes are included as part of RPA)

Complete all fields		Existing condition	Proposed condition	Explanation
RPA encroachment (ft)	Left third of parcel or site	N/A	N/A	The **distance** (in feet) from the existing or proposed structure to the designated RPA feature (edge of stream or open channel, wetland, etc.). Encroachments of zero (0) indicate the project will impact the stream or other RPA feature.
	Middle third of parcel or site	28	23	
	Right third of parcel or site	N/A	N/A	
Total development footprint in RPA (sf)		3,744	4,736	The existing footprint includes the **area** of any existing structures, patios, decks, walkways, etc. Proposed foorprint is the anticipated post-project area of all structures, additions, decks, walkways, regraded area behind a retaining wall, etc.
Impervious footprint in RPA (sf)		3,744	4,736	Total **area** of impervious surfaces within the RPA (rooftops, pavement, etc.)

(OVER)

STAFF USE ONLY

Building/demolition/LDA/Fence permit number(s):

Major WQIA required? ☐ Yes ☐ No

Date WQIA/Exception request information complete:

Date Chesapeake Bay Preservation Ordinance and E/S ordinance (if applicable) approvals issued in Permits Plus:

Section 3: Plan and Narrative

Provide a plan showing the location of the proposed activity, along with the RPA boundary
Briefly describe the proposed project, including any potential water quality impacts and mitigation measuresproposed. The narrative must address three impact categories 1. Tree/vegetation impacts, 2. Stormwater and runoff 3. Erosion and sediment control. Please refer to the WQIA plan/narrative checklist for additional information.

1. REFER TO SHEETS CD1.0 – CD1.11 FOR LOCATION OF TREE PROTECTION MEASURES AND SHEET CS5.3 FOR DETAILS.
2. REFER TO SHEETS CW1.0 – CW1.11 FOR STORMWATER MANAGEMENT PLANS AND SHEET CW5.0 AND CW5.0 FOR COMPUTATIONS AND DETAILS.
3. REFER TO SHEETS CE1.0 – CE1.11 FOR EROSION AND SEDIMENT CONTROL PLANS AND SHEETS CE5.0 AND CE5.1 FOR NOTES, NARRATIVES AND DETAILS.

PROJECT NARRATIVE:

THE PROJECT CONSISTS OF UPGRADING APPROXIMATELY 1.1 MILES OF THE EXISTING EXISTING VARIABLE WIDTH WASHINGTON & OLD DOMINION TRAIL TO A DUAL TRAIL SYSTEM. PER CITY OF FALLS CHURCH CODE SECTION 35-11(e)(4), PASSIVE RECREATION FACILITIES SUCH AS BOARDWALKS, TRAILS AND PATHWAYS MAY BE EXEMPT FROM THE REQUIREMENTS OF THE CHESAPEAKE BAY PRESERVATION ORDINANCE.

THE RIGHT-OF-WAY IS CURRENTLY MAINTAINED BY NOVA PARKS. THIS RPA IS THE END OF THE TRAMMEL BRANCH TRIBUTARY WHERE IT TRANSITIONS TO PIPED FLOW UNTIL OUTFALLING INTO FOUR MILE RUN TO THE EAST.

THE EXISTING TRAIL, 28 FEET FROM THE RPA, IS CROWNED SUCH THAT A PORTION OF THE IMPERVIOUS TRAIL SHEET FLOWS DIRECTLY INTO THE RPA. THE NEW TRAIL TYPICAL SECTION WILL FEATURE AN 11' WIDE BICYCLE TRAIL AND AN 8' WIDE PEDESTRIAN TRAIL. THE PROPOSED TRAIL ALIGNMENT IS 23 FEET FROM THE EDGE OF THE WATER FEATURE, BUT IS PITCHED TO DRAIN INTO A LEVEL 2 DRY SWALE TO THE NORTH. THEREFORE THIS PROJECT ELIMINATES IMPERVIOUS AREA SHEET FLOW INTO THE RPA. THE LEVEL 2 DRY SWALE DRAINS TO THE EAST WHERE IT WILL BE TREATED IN SERIES BY A MANUFACTURED TREATMENT DEVICE AND PIPED INTO THE MS4 SYSTEM PRIOR TO ENTERING FOUR MILE RUN.

Additional Water Quality Impact Assessment Information

The information supplied on this form satisfies the minimum requirements for a Minor Water Quality Impact Assessment.
For projects that disturb over 2500 square feet, elements of a Major Water Quality Impact Assessment may also be required, depending on the nature and extent of the proposed RPA encroachment, as outlined in Section 35-12 of the ordinance.

AMT
A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
800 KING FARM BLVD, FOURTH FLOOR ROCKVILLE, MD 20850
(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION
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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

WATER QUALITY IMPACT ASSESSMENT

SHEET

CW5.2

Table 4-2: Summary of Infiltration Test Results

Boring ID	Infiltration Hole Depth (ft.)	Infiltration Rate (in./hr.)	USDA Classification
IF-1	6.0	9.50	Silt Loam
IF-2	6.0	0.0	Loam
IF-3	6.0	1.31	Loam
IF-4	6.0	5.44	Sandy Loam
IF-5	6.0	0.25	Sandy Loam
IF-6	6.0	0.30	Sandy Loam
IF-7	6.0	7.75	Sandy Loam

B-1

PROJECT NAME: W&OD Trail - Falls Church
PROJECT NO.: 01.03949.01
LOCATION: Falls Church, VA
CLIENT: AMT, Inc.

PAGE 1 OF 1

DATE(S) DRILLED:7/3/2019
DRILLING METHOD(S): Hand Augers and DCP
DRILLING EQUIPMENT: Hand Auger
DRILLER: D. Pao/M. Becerra LOGGER: A. Damtew
SURFACE ELEVATION: 338.0 ft

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING
DRY ON 7/5/2019

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
										0.0 / 338.0 TOPSOIL **Tops -**2 in				
		8	SPT	0.5				F1		0.2 / 337.8 Brown, sandy elastic silt **FILL**, trace gravel, firm, moist **FL-MH**			35.0	
	335	7	SPT	2.5						2.5 / 335.5 Brown, sandy ELASTIC SILT, firm, moist **MH**			34.5	
5		7	SPT	4.5				R1					47.5	
		6	SPT	6.5						SAME, trace gravel, contains mica			35.0	62.8
	330	8	SPT	8.5				R2		8.5 / 329.5 Brown, sandy SILT, trace gravel, firm, moist **ML**	NP	NP	18.3	67.6
10										10.0 / 328.0 Boring Terminated				

REMARKS: Approximate surface elevation obtained from the boring plan provided by AMT. N-values are corrected from the average of the second and third DCP blow counts at each interval based on ASTM Special Technical Publication #399 Dynamic Cone for Shallow in-situ Penetration Testing. 1½" PVC installed for 24-hr groundwater level reading.

PAGE 1 OF 1
B-1

DMY ENGINEERING CONSULTANTS INC.
45662 Terminal Drive, Suite 110
Dulles, Virginia 20166
tel: (703) 665-0586 fax: (301) 768-4169

B-2

PROJECT NAME: W&OD Trail - Falls Church
PROJECT NO.: 01.03949.01
LOCATION: Falls Church, VA
CLIENT: AMT, Inc.

PAGE 1 OF 1

DATE(S) DRILLED:7/3/2019
DRILLING METHOD(S): Hand Augers and DCP
DRILLING EQUIPMENT: Hand Auger
DRILLER: D. Pao/M. Becerra LOGGER: A. Damtew
SURFACE ELEVATION: 334.2 ft

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING
7.75 ON 7/5/2019

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
										0.0 / 334.2 TOPSOIL **Tops -**2 in				
		3	SPT	0.5				F2		0.2 / 334.0 Brown and gray, sandy silt FILL, trace gravel, soft, moist **FL-ML**			21.8	
	330	6	SPT	2.5						2.5 / 331.7 Brown, sandy LEAN CLAY, trace gravel, firm, moist **CL**			23.4	
5		7	SPT	4.5				R2		SAME, contains mica			25.3	
		7	SPT	6.5						6.0 / 328.2 Brown, sandy ELASTIC SILT, contains mica, firm, moist **MH**			37.2	68.3
	325	7	SPT	8.5				R1					33.6	
10										10.0 / 324.2 Boring Terminated				

REMARKS: Approximate surface elevation obtained from the boring plan provided by AMT. N-values are corrected from the average of the second and third DCP blow counts at each interval based on ASTM Special Technical Publication #399 Dynamic Cone for Shallow in-situ Penetration Testing. 1½" PVC installed for 24-hr groundwater level reading.

PAGE 1 OF 1
B-2

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B-3

PROJECT NAME: W&OD Trail - Falls Church
PROJECT NO.: 01.03949.01
LOCATION: Falls Church, VA
CLIENT: AMT, Inc.

PAGE 1 OF 1

DATE(S) DRILLED:7/3/2019
DRILLING METHOD(S): Hand Augers and DCP
DRILLING EQUIPMENT: Hand Auger
DRILLER: D. Pao/M. Becerra LOGGER: A. Damtew
SURFACE ELEVATION: 337.5 ft

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING
7.67 ON 7/5/2019

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
										0.0 / 337.5 TOPSOIL **Tops -**3 in				
		9	SPT	0.5				F2		0.3 / 337.3 Red and brown, sandy silt FILL, contains mica, soft to stiff, moist **FL-ML**			22.1	
	335	4	SPT	2.5									29.9	
5		6	SPT	4.5				R1		4.5 / 333.0 Red and brown, sandy ELASTIC SILT, contains mica, soft to firm, moist **MH**			45.1	
		4	SPT	6.5									50.0	75.6
	330	4	SPT	8.5						SAME, contains mica	51	7	39.8	67.8
10										10.0 / 327.5 Boring Terminated				

REMARKS: Approximate surface elevation obtained from the boring plan provided by AMT. N-values are corrected from the average of the second and third DCP blow counts at each interval based on ASTM Special Technical Publication #399 Dynamic Cone for Shallow in-situ Penetration Testing. 1½" PVC installed for 24-hr groundwater level reading.

PAGE 1 OF 1
B-3

DMY ENGINEERING CONSULTANTS INC.
45662 Terminal Drive, Suite 110
Dulles, Virginia 20166
tel: (703) 665-0586 fax: (301) 768-4169

B-4

PROJECT NAME: W&OD Trail - Falls Church
PROJECT NO.: 01.03949.01
LOCATION: Falls Church, VA
CLIENT: AMT, Inc.

PAGE 1 OF 1

DATE(S) DRILLED:7/3/2019
DRILLING METHOD(S): Hand Augers and DCP
DRILLING EQUIPMENT: Hand Auger
DRILLER: D. Pao/M. Becerra LOGGER: A. Damtew
SURFACE ELEVATION: 335.7 ft

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING
7.42 ON 7/5/2019

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
										0.0 / 335.7 TOPSOIL **Tops -**3 in				
		10	SPT	0.5				F1		0.3 / 335.5 Red and brown, sandy elastic silt FILL, stiff, moist **FL-MH**			39.6	
	335	7	SPT	2.5						2.5 / 333.2 Red and brown, sandy ELASTIC SILT, trace gravel, firm to stiff, moist **MH**			43.4	
5		10	SPT	4.5				R1					45.2	
		10	SPT	6.5									48.1	51.1
	330	6	SPT	8.5						SAME, contains mica			40.4	
10										10.0 / 325.7 Boring Terminated				

REMARKS: Approximate surface elevation obtained from the boring plan provided by AMT. N-values are corrected from the average of the second and third DCP blow counts at each interval based on ASTM Special Technical Publication #399 Dynamic Cone for Shallow in-situ Penetration Testing. 1½" PVC installed for 24-hr groundwater level reading.

PAGE 1 OF 1
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DMY ENGINEERING CONSULTANTS INC.
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Dulles, Virginia 20166
tel: (703) 665-0586 fax: (301) 768-4169

B-5

PROJECT NAME: W&OD Trail - Falls Church
PROJECT NO.: 01.03949.01
LOCATION: Falls Church, VA
CLIENT: AMT, Inc.

PAGE 1 OF 1

DATE(S) DRILLED:7/3/2019
DRILLING METHOD(S): Hand Augers and DCP
DRILLING EQUIPMENT: Hand Auger
DRILLER: D. Pao/M. Becerra LOGGER: A. Damtew
SURFACE ELEVATION: 320.1 ft

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING
7.42 ON 7/5/2019

DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
										0.0 / 320.1 TOPSOIL **Tops -**2 in				
		4	SPT	0.5				F2		0.2 / 319.9 Brown and tan, sandy lean clay FILL, trace gravel, contains mica, soft to firm, moist **FL-CL**			25.8	
	320	7	SPT	2.5									26.0	
5		7	SPT	4.5				R3		4.5 / 315.6 Brown and gray, fine to medium SILTY SAND, contains mica, loose to medium dense, moist **SM**			20.8	
		16	SPT	6.5									20.9	45.8
	315	13	SPT	8.5									19.2	
10										10.0 / 310.1 Boring Terminated				

REMARKS: Approximate surface elevation obtained from the boring plan provided by AMT. N-values are corrected from the average of the second and third DCP blow counts at each interval based on ASTM Special Technical Publication #399 Dynamic Cone for Shallow in-situ Penetration Testing. 1½" PVC installed for 24-hr groundwater level reading.

PAGE 1 OF 1
B-5

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A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
800 KING FARM BLVD, FOURTH FLOOR ROCKVILLE, MD 20850
(301) 881-2545 FAX:(301) 881-0814
EMAIL: AMT@AMTENGINEERING.COM

REGISTRATION STAMP

COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

SOIL BORING LOGS

SHEET

CW5.3

DMY

PROJECT NAME: W&OD Trail - Falls Church
PROJECT NO.: 01.03949.01
LOCATION: Falls Church, VA
CLIENT: AMT, Inc.

B-6

PAGE 1 OF 1

DATE(S) DRILLED:7/3/2019
DRILLING METHOD(S): Hand Augers and DCP
DRILLING EQUIPMENT: Hand Auger
DRILLER: D. Pao/M. Becerra LOGGER: A. Damtew
SURFACE ELEVATION: 312.2 ft

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING

6.50 ON 7/5/2019

FIELD DATA											LAB DATA			
DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
0	310	4	SPT	0.5				F2		0.0 / 312.2 TOPSOIL **Tops** ~3 in 0.3 / 312.0 Brown and red, sandy silt FILL, trace gravel, contains mica, soft, moist **FL-ML**			18.9	
		2	SPT	2.5									26.0	
5		4	SPT	4.5				R3		4.5 / 307.7 Brown and red, fine to medium SILTY SAND, contains mica, loose, moist **SM**			30.1	
		4	SPT	6.5						7.0 / 305.2 Hand Auger Refusal			27.0	27.9

REMARKS: Approximate surface elevation obtained from the boring plan provided by AMT. N-values are corrected from the average of the second and third DCP blow counts at each interval based on ASTM Special Technical Publication #399 Dynamic Cone for Shallow in-situ Penetration Testing. 1½" PVC installed for 24-hr groundwater level reading.

PAGE 1 OF 1

B-6

DMY ENGINEERING CONSULTANTS INC.
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Dulles, Virginia 20166
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG (SEC-ENGINEERING@PROPOSAL%3APROJECTS\DMY VA\01.03949.01 W&OD TRAIL FALLS CHURCH (AMT)\BACKFILL\BOREFIELD LOGS\01.03949.01%3AD (2).GDT 10/29/19 14:19

DMY

PROJECT NAME: W&OD Trail - Falls Church
PROJECT NO.: 01.03949.01
LOCATION: Falls Church, VA
CLIENT: AMT, Inc.

B-7

PAGE 1 OF 1

DATE(S) DRILLED:7/2/2019
DRILLING METHOD(S): Hand Augers and DCP
DRILLING EQUIPMENT: Hand Auger
DRILLER: D. Pao/M. Becerra LOGGER: A. Damtew
SURFACE ELEVATION: 302.6 ft

GROUND WATER WAS NOT ENCOUNTERED DURING DRILLING

DRY ON 7/5/2019

FIELD DATA											LAB DATA			
DEPTH (FT)	ELEVATION (FT)	SPT BLOW COUNTS	SAMPLE LEGEND	SAMPLE INTERVAL	% RECOVERY	ROCK QUALITY DESIGNATION %	RMR	GEOLOGIC STRATA	GRAPHIC LOG	MATERIAL DESCRIPTION OF STRATA	LIQUID LIMIT LL	PLASTICITY INDEX PI	MOISTURE CONTENT (%)	% Finer than #200
0	300	6	SPT	0.5				F2		0.0 / 302.6 TOPSOIL **Tops** ~3 in 0.3 / 302.4 Brown, sandy silt FILL, trace gravel, contains mica, firm to very stiff, moist **FL-ML**			10.5	
		16	SPT	2.5									14.2	
5	295	14	SPT	4.5				R3		4.5 / 298.1 Brown, fine to medium SILTY SAND, contains mica, medium dense, moist, no gravel **SM**	NP	NP	16.3	29.6
		14	SPT	6.5						SAME, trace gravel			16.5	29.3
10		16	SPT	8.5						10.0 / 292.6 Boring Terminated			19.9	

REMARKS: Approximate surface elevation obtained from the boring plan provided by AMT. N-values are corrected from the average of the second and third DCP blow counts at each interval based on ASTM Special Technical Publication #399 Dynamic Cone for Shallow in-situ Penetration Testing. 1½" PVC installed for 24-hr groundwater level reading.

PAGE 1 OF 1

B-7

DMY ENGINEERING CONSULTANTS INC.
45662 Terminal Drive, Suite 110
Dulles, Virginia 20166
tel: (703) 665-0586 fax: (301) 768-4169

SPT_LOG (SEC-ENGINEERING@PROPOSAL%3APROJECTS\DMY VA\01.03949.01 W&OD TRAIL FALLS CHURCH (AMT)\BACKFILL\BOREFIELD LOGS\01.03949.01%3AD (2).GDT 10/29/19 14:19

A. MORTON THOMAS AND ASSOCIATES, INC.
CONSULTING ENGINEERS
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COMMONWEALTH OF VIRGINIA
J. KEITH SINCLAIR, JR.
Lic. No. 11195
10/30/2019
PROFESSIONAL ENGINEER

REGISTRATION STAMP

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	1"=20'
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

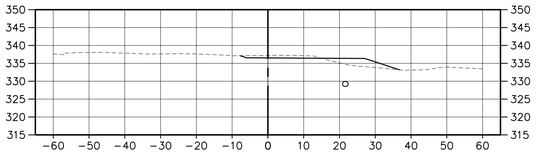
SHEET TITLE

SOIL BORING LOGS

SHEET

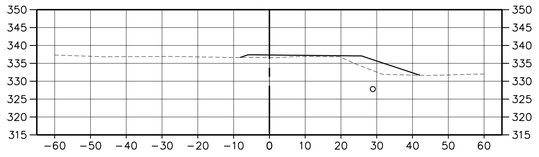
CW5.4

0+50.00



VERTICAL SCALE: 1"=1'

1+00.00



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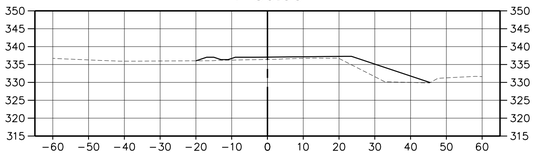

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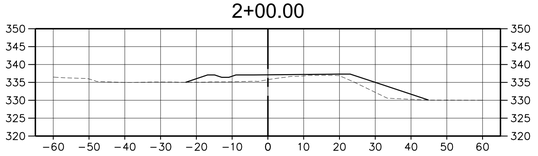

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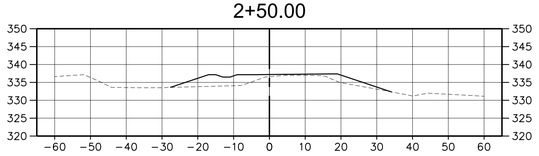

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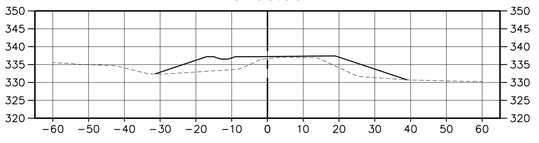

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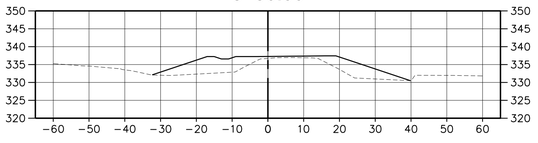

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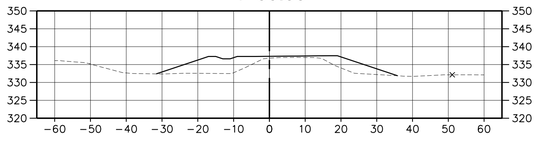

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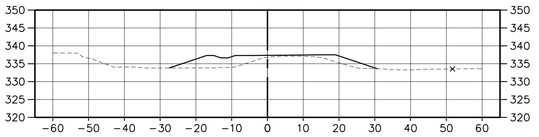

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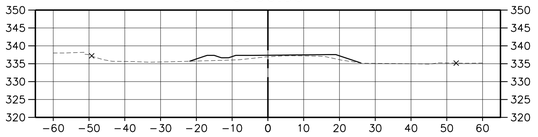

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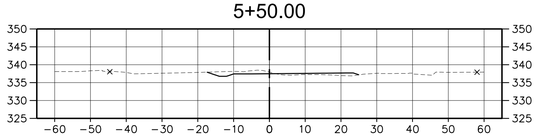

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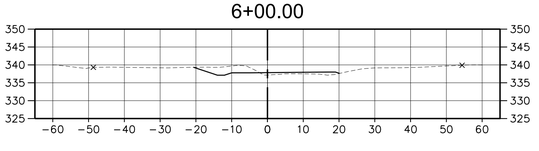

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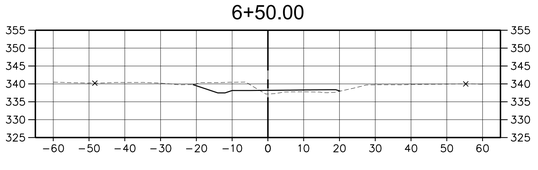

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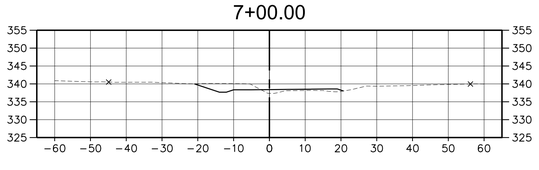

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COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
CERT. NO. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

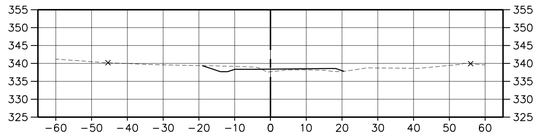
SHEET TITLE

CROSS SECTIONS

SHEET

S1.0

7+50.00



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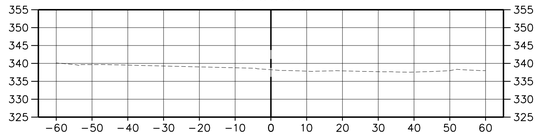

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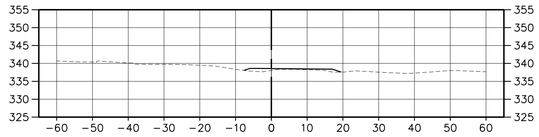

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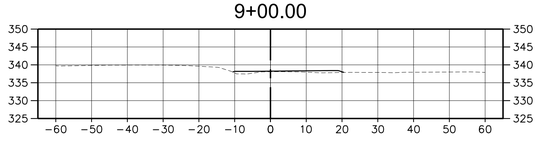

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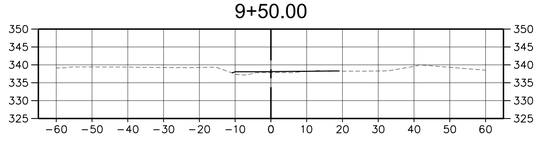

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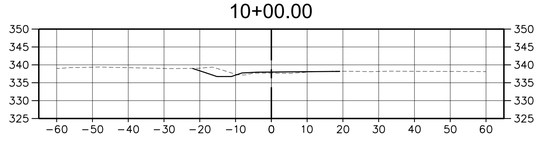

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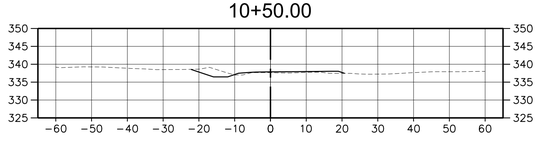

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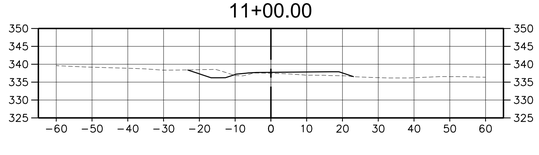

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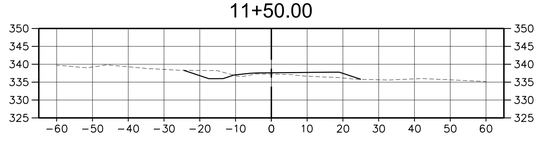

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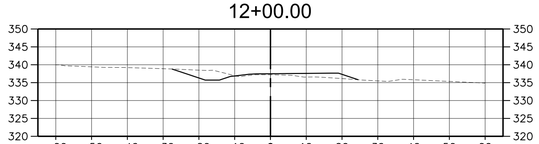

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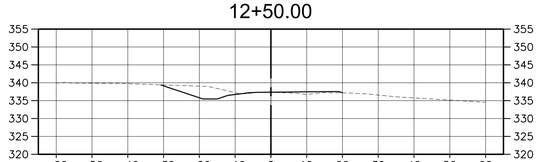

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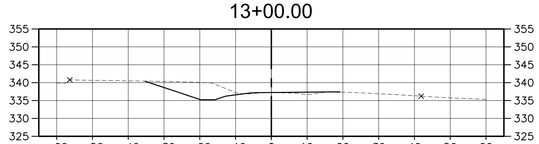

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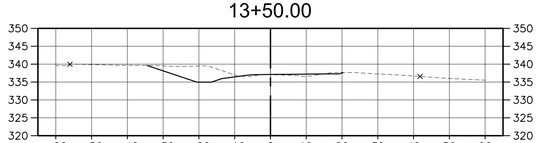

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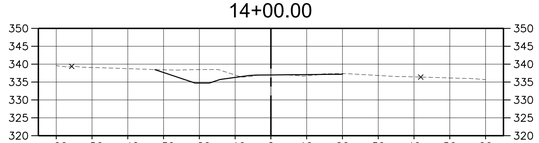

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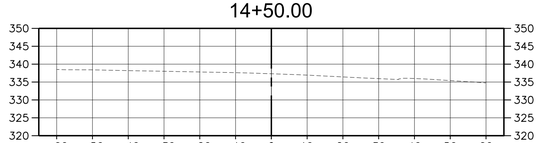

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

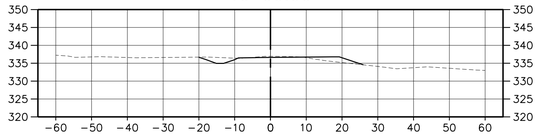
CROSS SECTIONS

SHEET

S1.1

95 OF 100

15+00.00



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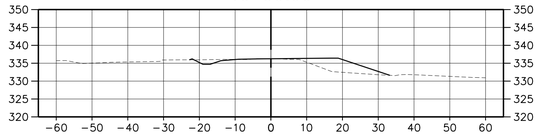

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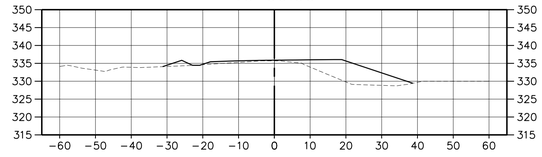

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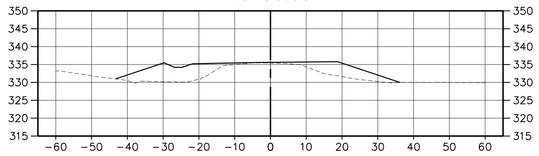

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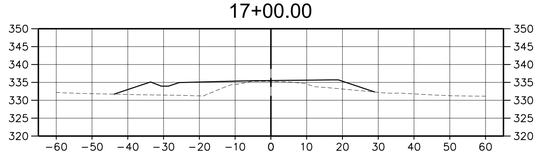

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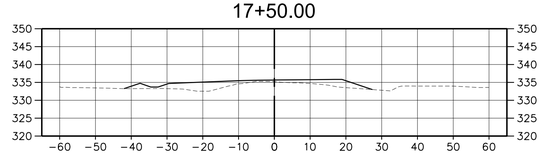

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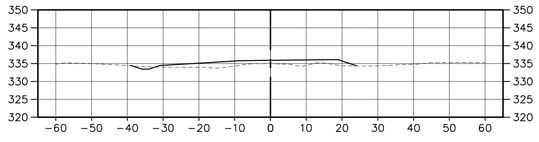

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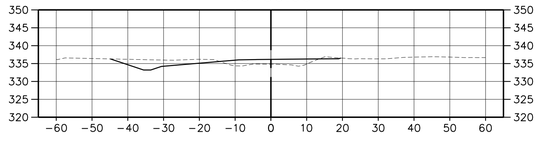

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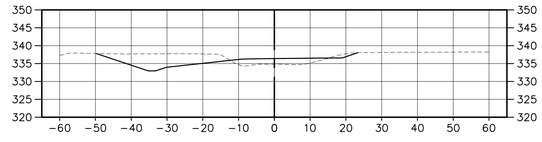

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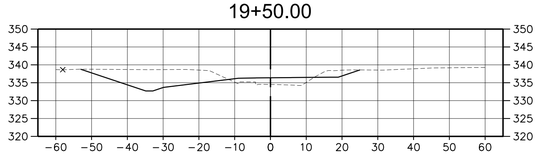

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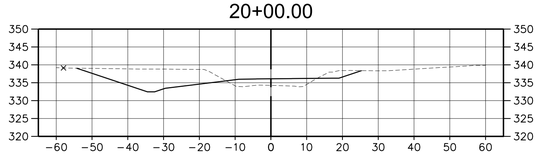

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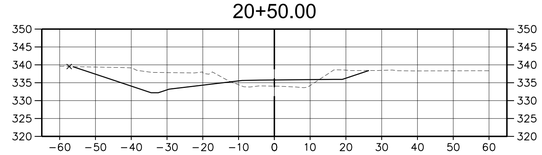

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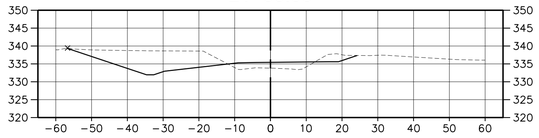

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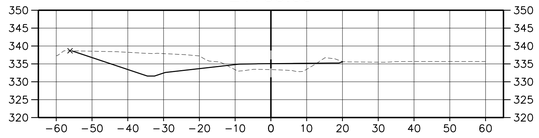

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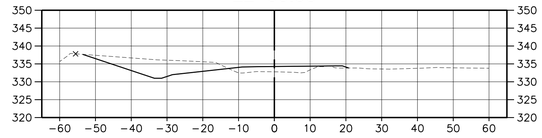

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

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AMT FILE NO.	18-0367
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SCALE:	AS SHOWN
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60% DESIGN

SHEET TITLE

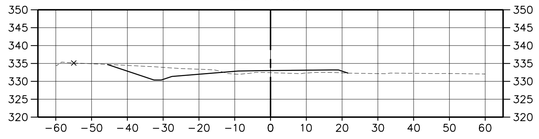
CROSS SECTIONS

SHEET

S1.2

96 OF 100

22+50.00



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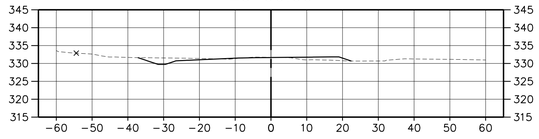

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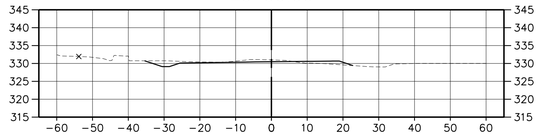

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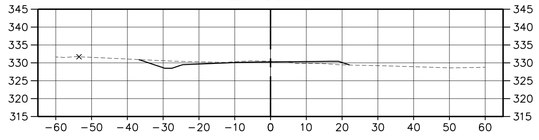

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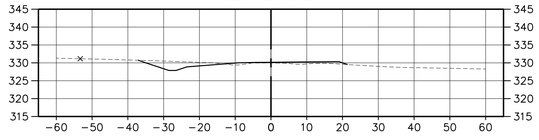

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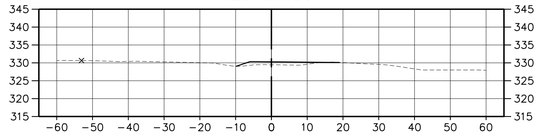

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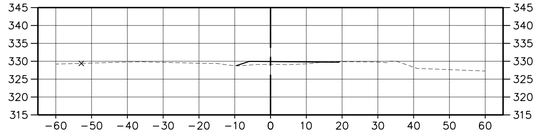

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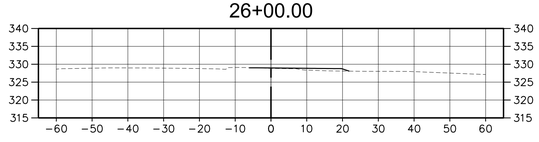

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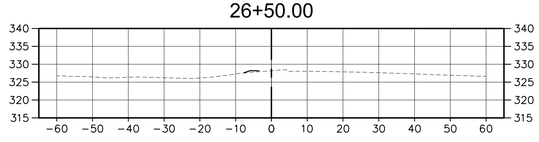

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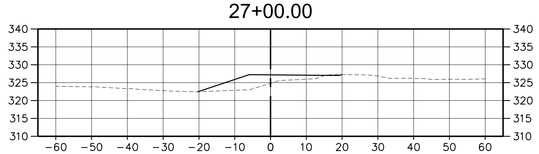

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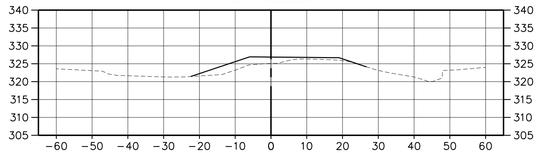

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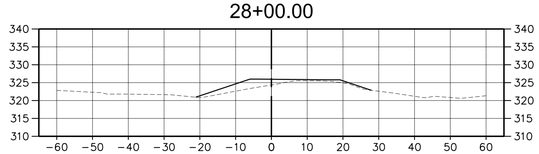

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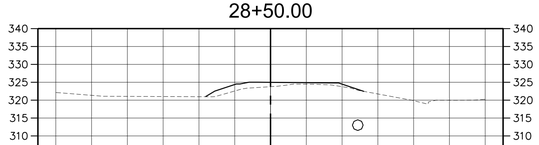

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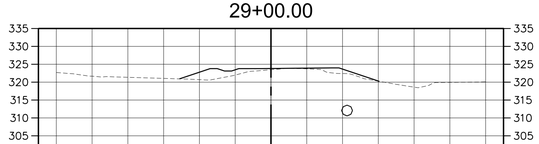

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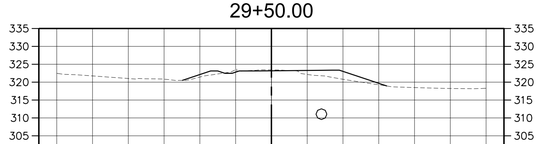

VERTICAL SCALE: 1"=1'

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EMAIL: AMT@AMTENGINEERING.COM

COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
CERT. NO. 0606001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

NOT FOR CONSTRUCTION

PROFESSIONAL CERTIFICATION

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

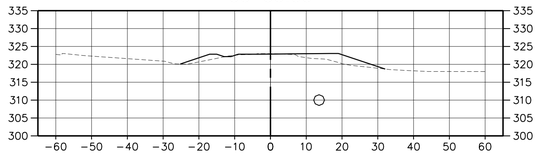
60% DESIGN

SHEET TITLE

CROSS SECTIONS

SHEET

S1.3



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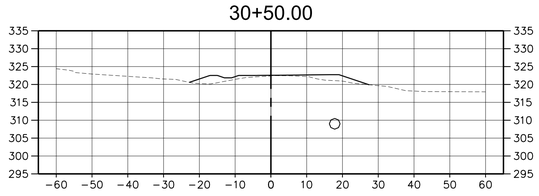

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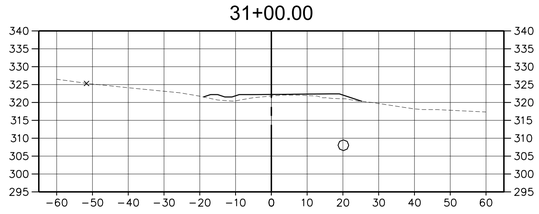

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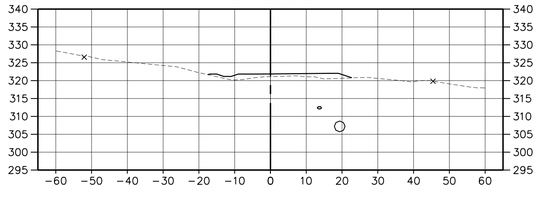

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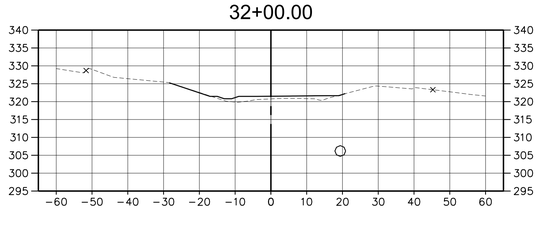

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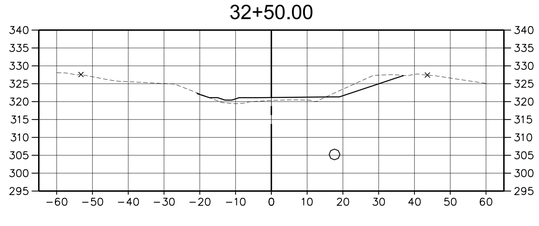

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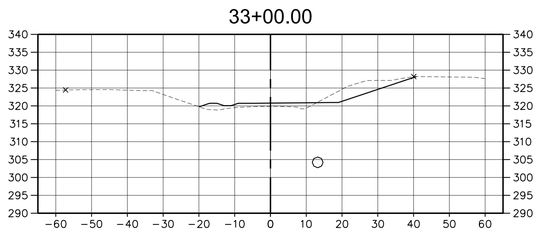

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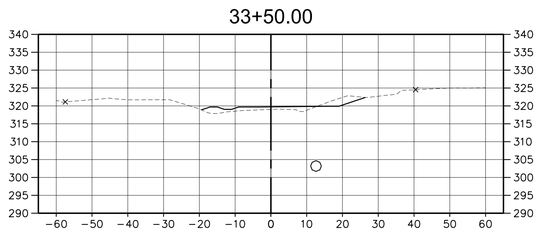

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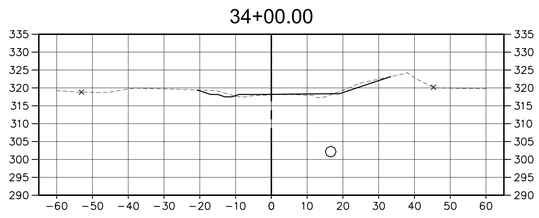

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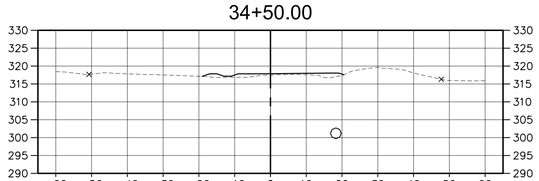

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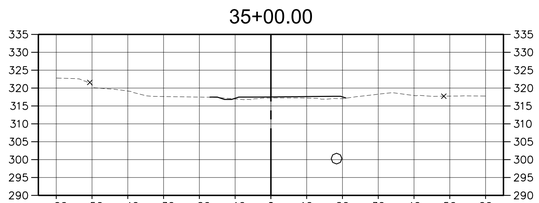

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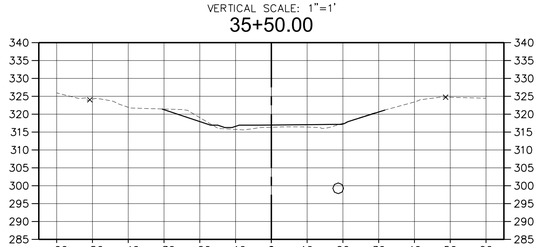

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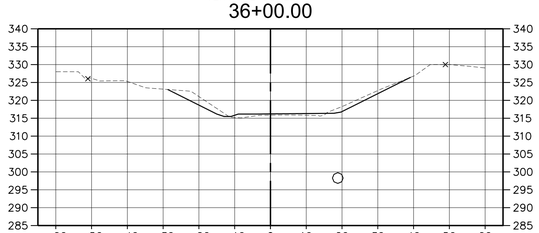

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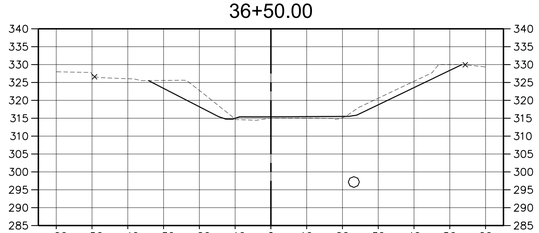

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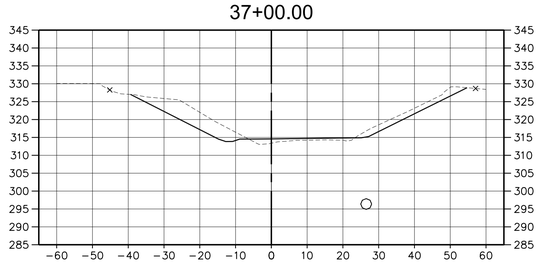

VERTICAL SCALE: 1"=1'

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COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
CERT. NO. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL
FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

SHEET TITLE

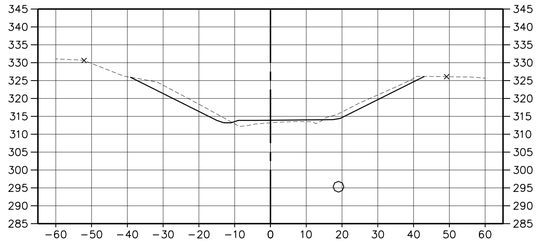
CROSS SECTIONS

SHEET

S1.4

98 OF 100

37+50.00



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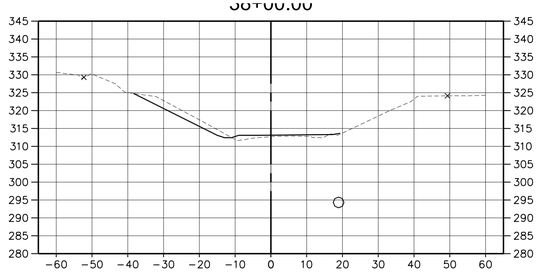
38+00.00



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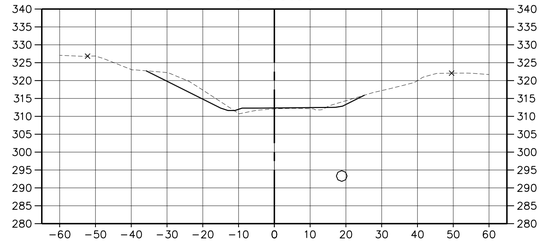

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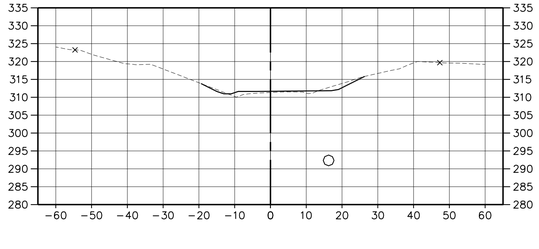
39+00.00



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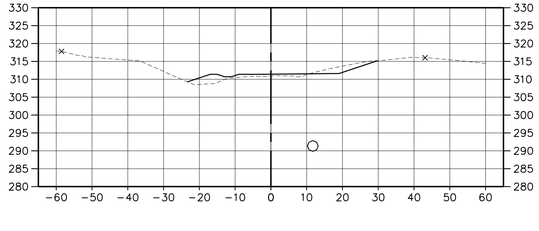

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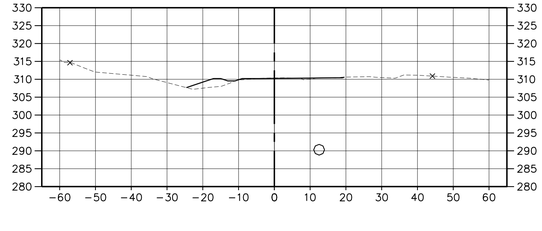

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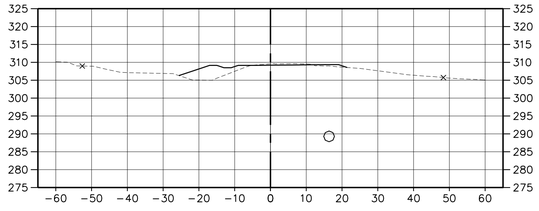

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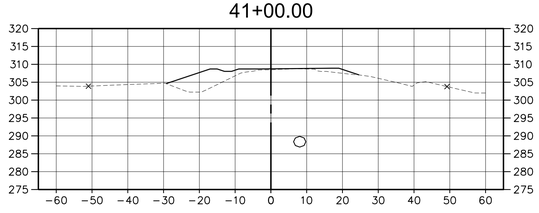

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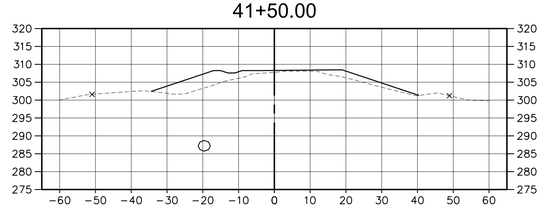

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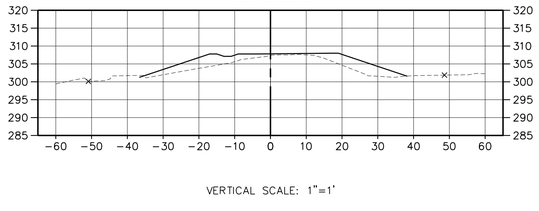

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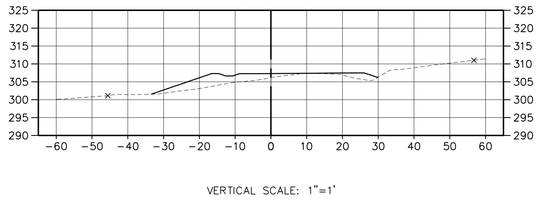
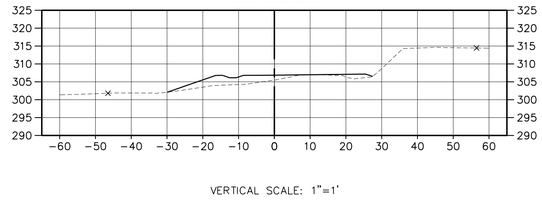
42+50.00



VERTICAL SCALE: 1"=1'

43+00.00



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COMMONWEALTH OF VIRGINIA
STEVEN TORGERSON
CERT. NO. 0406001542
LANDSCAPE ARCHITECT
10/30/2019

REGISTRATION STAMP

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PROJECT TITLE

EXPANSION OF THE W&OD TRAIL

FALLS CHURCH, VA
UPC 113612

REVISIONS

MARK	DATE	DESCRIPTION

AMT FILE NO.	18-0367
DATE:	10/29/2019
SCALE:	AS SHOWN
DESIGNED BY:	AMT
DRAWN BY:	AMT
CHECKED BY:	AMT

60% DESIGN

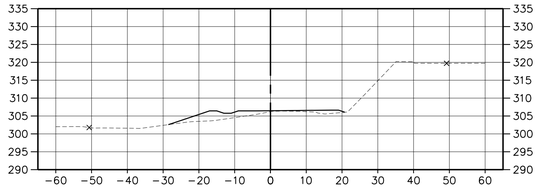
SHEET TITLE

CROSS SECTIONS

SHEET

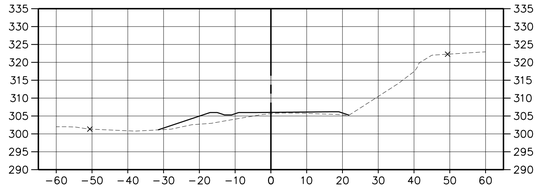
S1.5

43+50.00



VERTICAL SCALE: 1"=1'

44+00.00



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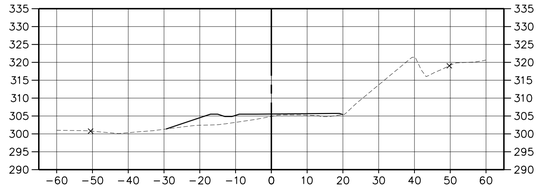

VERTICAL SCALE: 1"=1'

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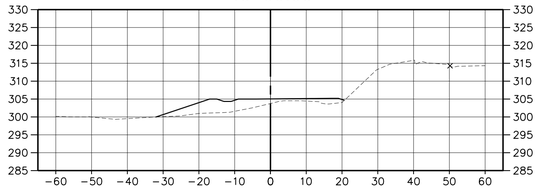

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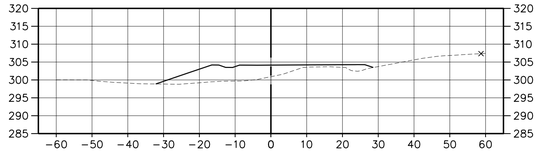

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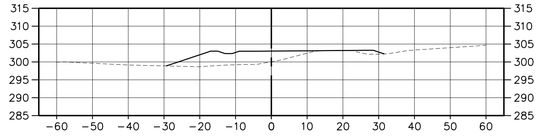

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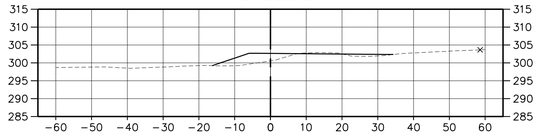

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PROJECT TITLE

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FALLS CHURCH, VA
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REVISIONS

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60% DESIGN

SHEET TITLE

CROSS SECTIONS

SHEET

S1.6

100 OF 100