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Plotted By: localuser

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services

TOWN OF VIENNA

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

10/8/2018

Index of Sheets

SHEET NO.	DESCRIPTION
1	Title Sheet
1C	Survey Control and Horizontal Construction Alignment Data
1G	Geometric Data
1J	TMP/SOC Phase 1 & 2
1P - 1P(1)	Erosion and Sediment Control Notes & Details
1Q - 1Q(1)	Erosion and Sediment Control Plan Phase 1 & 2
2	General Notes & Details
2A	Typical Sections & Details
2K	Drainage Descriptions, Details, and Profiles
2K(1)	Existing Drainage Divides
2K(2)	Proposed Drainage Divides
2K(3) - 2K(5)	Storm Sewer Computations
2K(6)	Outfall Analysis
3	Plan Sta.100+00.00 to 107+00.00
3A	Profile Sta.100+00.00 to 107+00.00
4	Signage and Pavement Marking Plan
CROSS SECTIONS X1 thru X5	Church Street N.E. (Rte.6693)

TOWN OF
VIENNA
since 1890

TOWN OF VIENNA, VIRGINIA
DEPARTMENT OF PUBLIC WORKS
CHURCH STREET N.E.
SIDEWALK
PEDESTRIAN ACCESS IMPROVEMENTS

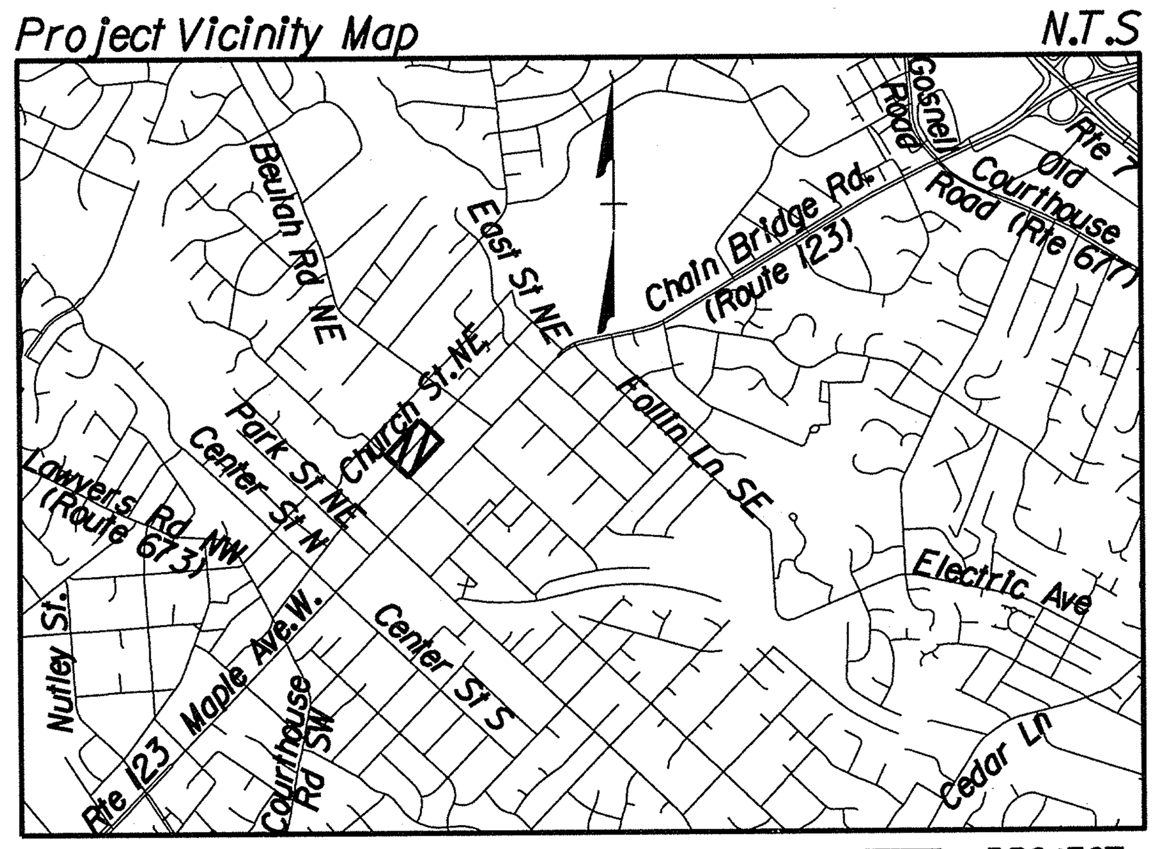
FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA	
Church Street N.E. (Rte.6933)	
URBAN COLLECTOR STREET - GS-7 - ROLLING	
Fr: To:	Lawyers Road Beulah Road
AADT	6,000 (2017)
AWDT	6,500 (2017)
DHV	570 (2017)
D (%)	61.6% (2017)
T (%)	0% (2017)
V (MPH)	25 MPH (Posted)

FINAL PLAN
OCTOBER 8, 2018

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-18
PROFESSIONAL ENGINEER

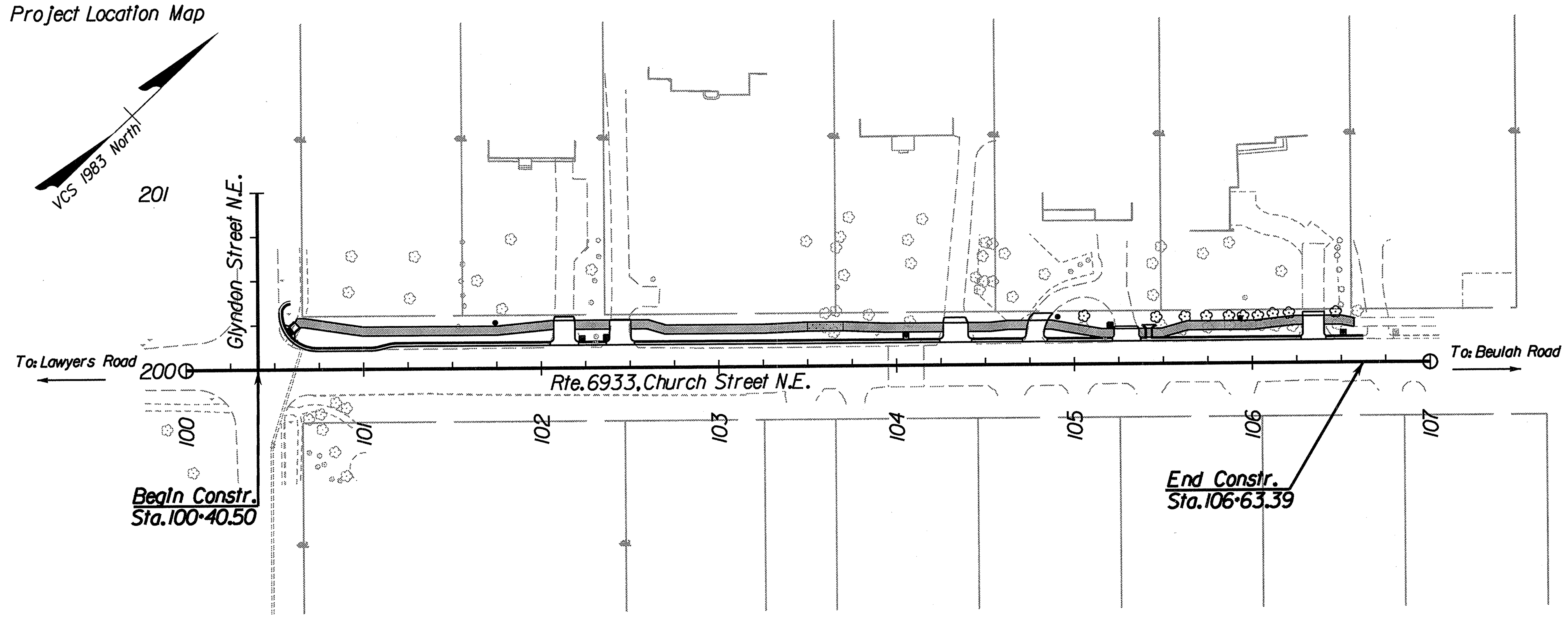
Rinker Design Associates, P.C.
Manassas, Virginia
PROFESSIONAL ENGINEER

Project Vicinity Map N.T.S



- PROJECT LOCATION

Project Location Map



SCALE
0 50' 100'

CONVENTIONAL SIGNS

- STATE LINE
- COUNTY LINE
- CITY,TOWN OR VILLAGE
- RIGHT OF WAY LINE
- FENCE LINE
- UNFENCED PROPERTY LINE
- FENCED PROPERTY LINE
- WATER LINE
- SANITARY SEWER LINE
- GAS LINE
- ELECTRIC UNDERGROUND CABLE
- TRAVELED WAY
- GUARD RAIL
- RETAINING WALL
- RAILROADS
- BASE OR SURVEY LINE
- LEVEE OR EMBANKMENT
- BRIDGES
- CULVERTS
- DROP INLET
- POWER POLES
- TELEPHONE OR TELEGRAPH POLES
- TELEPHONE OR TELEGRAPH LINES
- HEDGE
- TREES
- HEAVY WOODS
- GROUND ELEVATION
- GRADE ELEVATION

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

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S:
2016 ROAD AND BRIDGE SPECIFICATIONS,
2016 ROAD AND BRIDGE STANDARDS,
2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD),
2011 VIRGINIA SUPPLEMENT TO THE MUTCD,
2011 VIRGINIA WORK AREA PROTECTION MANUAL including Revision 1 (2015),
AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC .PDF VERSION OF THE PLAN ASSEMBLY.

ALL CURVES ARE TO BE SUPERELEVATED, TRANSITIONED AND WIDENED IN ACCORDANCE WITH STANDARD TC-5.11ULS, EXCEPT WHERE OTHERWISE NOTED.

REVISED

APPROVED FOR CONSTRUCTION

DATE	DIRECTOR OF PUBLIC WORKS

PROJECT	SHEET NO.
	1

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, P.E. (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

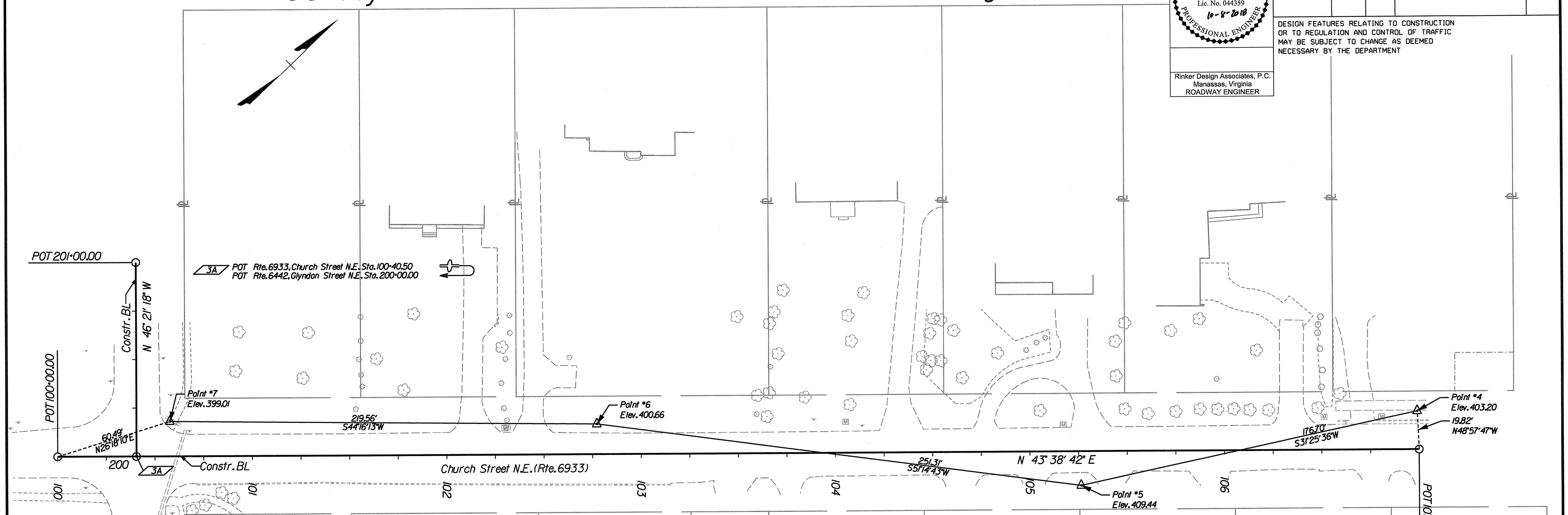
Survey Control and Horizontal Construction Alignment Data

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		1C

Commonwealth of Virginia — Adam D. Welschenbach, Lic. No. 044359, Professional Engineer — 10-8-2018

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

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



NAME	NORTHING	EASTING	ELEVATION (FT.)
Traverse #4	7015866.1950	11835548.4970	403.20
Traverse #5	7015715.4123	11835456.3624	409.44
Traverse #6	7015558.0957	11835260.3829	400.56
Traverse #7	7015400.8753	11835107.1170	399.01

NAME	DISTANCE	BEARING
Traverse #4 to #5	176.70	S31°25'36"W
Traverse #5 to #6	251.31	S51°14'43"W
Traverse #6 to #7	219.56	S44°16'13"W

Note:
It shall be the Contractor's responsibility to protect from harm, or replace under licensed land surveyor, all property monumentation disturbed by construction.

Horizontal Construction Alignment Data

CHURCH STREET - ROUTE 6933

Posted Speed 25 MPH
From Sta. 100+00.00 to Sta. 107+00.00

Chain CHURCHST contains:
CHURCHST01 CHURCHST02

Beginning chain CHURCHST description
==

Point CHURCHST01 N 7,015,346.64 E 11,835,080.31 Sta 100+00.00

Course from CHURCHST01 to CHURCHST02 N 43° 38' 42.34" E Dist 700.00

Point CHURCHST02 N 7,015,853.19 E 11,835,563.44 Sta 107+00.00

==
Ending chain CHURCHST description

GLYNDON STREET - ROUTE

Posted Speed 25 MPH
From Sta. 200+00.00 to Sta. 201+00.00

Chain GLYNDONST contains:
GLYNDON01 GLYNDON02

Beginning chain GLYNDONST description
==

Point GLYNDON01 N 7,015,375.95 E 11,835,108.26 Sta 200+00.00

Course from GLYNDON01 to GLYNDON02 N 46° 21' 17.66" W Dist 100.00

Point GLYNDON02 N 7,015,444.97 E 11,835,035.90 Sta 201+00.00

==
Ending chain GLYNDONST description

SCALE 0 25' 50'

PROJECT	SHEET NO.
-	1C

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services
Office Locations
927 Maple Grove Drive, Suite 105, Fredericksburg, VA 22407, Phone: (540) 548-4470, Fax: (540) 548-4471

TOWN OF VIENNA

10/8/2018

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PROJECT MANAGER Town of Vienna Public Works Dept.; Michael Gallagher, P.E., (703) 255-6383
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Geometric Data

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

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

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		IG

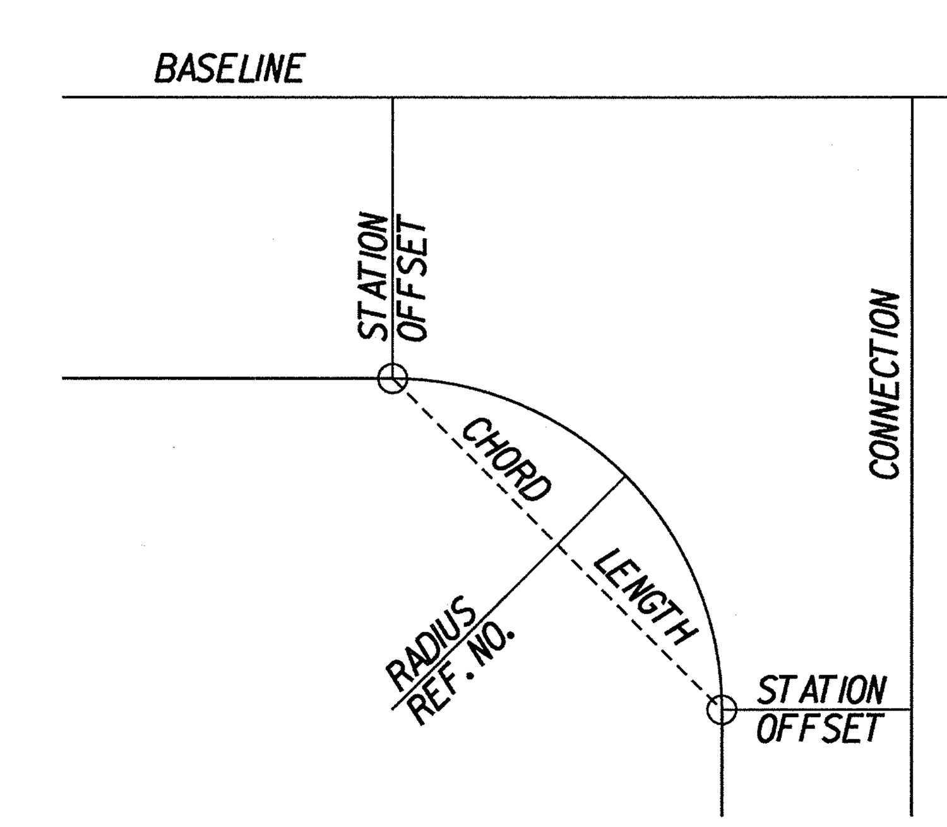
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

Rinker Design Associates, P.C.
Civil Engineering • Surveying • Land Planning
Transportation • Environmental
Right-of-Way Services

TOWN OF VIENNA

3A POT Rte. 6933, Church Street N.E. Sta. 100+40.50
POT Rte. 6442, Glyndon Street N.E. Sta. 200+00.00

RADIAL OFFSETS DATA

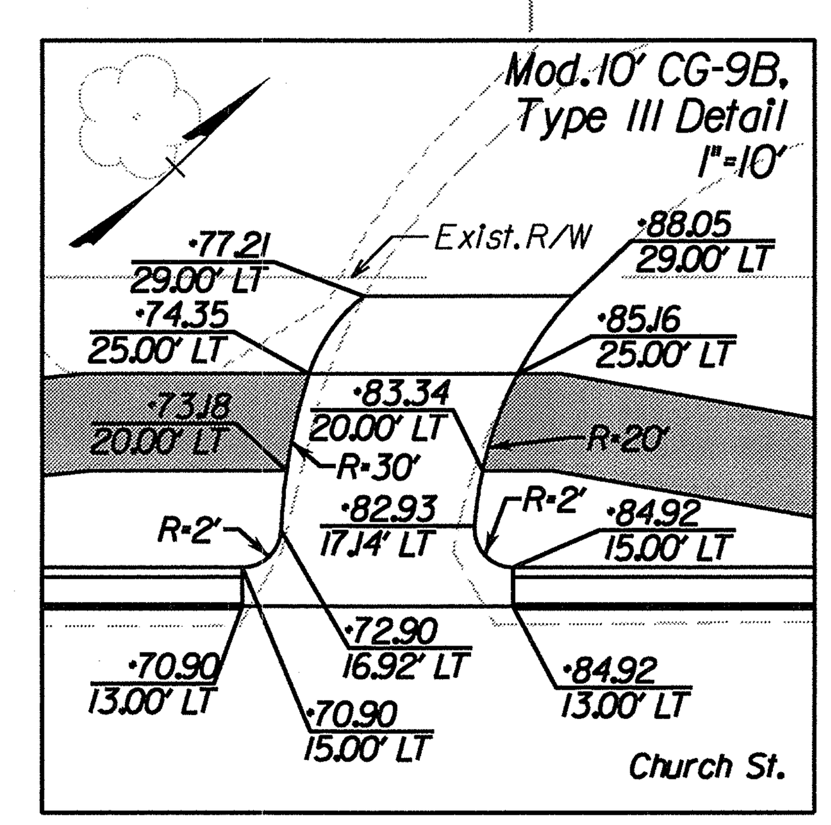


LOCATION (REF. NO.)	BASELINE		CONNECTION		RADIUS LENGTH	CHORD LENGTH	CURVE LENGTH
SHEET - ITEM	STATION	OFFSET	STATION	OFFSET	FEET	FEET	FEET
3-1	300+32.50	13.5	200+37.50	18.50	5.00	7.07	7.85
3-2	100+73.99	12.50	200+32.50	13.50	20.00	28.64	31.92

PAVEMENT LEGEND

- Full-Depth Pavement
- Demolition of Pavement
- Mill and Overlay/ Resurface Pavement

Mod. 10' CG-9B, Type III Detail 1"=10'



SCALE 0 25' 50'

PROJECT	SHEET NO.
	IG

10/8/2018

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TMP/SOC Phase 1 & 2

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

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

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		1J

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

FIRE DEPARTMENT NOTES:

1.ALL EXISTING FIRE HYDRANTS AND FIRE DEPARTMENT CONNECTIONS SHALL BE MAINTAINED UNOBSTRUCTED AND ACCESSIBLE AT ALL TIMES.

2.ACCESS TO BUILDINGS FOR FIREFIGHTING SHALL BE MAINTAINED AT ALL TIMES.EXISTING FIRE APPARATUS ACCESS ROADS (FIRE LANES) SHALL BE KEPT CLEAR OF OBSTRUCTIONS.ACCESS TO CONSTRUCTION SITES SHALL BE PROVIDED AND MAINTAINED.

3.IN THE EVENT THAT EXISTING FIRE DEPARTMENT CONNECTIONS OR FIRE APPARATUS ACCESS ROADS (FIRE LANES) MUST BE OBSTRUCTED TO FACILITATE CONSTRUCTION ACTIVITIES,CONTACT THE TOWN OF VIENNA FIRE AND RESCUE AT (703) 938-2242 TO COORDINATE REVIEW AND APPROVAL OF TEMPORARY FIRE DEPARTMENT CONNECTIONS AND/OR FIRE APPARATUS ACCESS ROADS PRIOR TO CREATING THE OBSTRUCTION.

TRAFFIC CONTROL NOTES (TTC NOTES):

1.PARKING RESTRICTIONS MUST BE COORDINATED WITH AND APPROVED BY THE TOWN OF VIENNA. AT LEAST 72 BUSINESS HOURS PRIOR TO COMMENCEMENT OF WORK WITHIN THE PUBLIC RIGHT-OF-WAY.TEMPORARY NO PARKING SIGNS TO BE POSTED 72 HOURS IN ADVANCE OF WORK DATE.

2.SIGNS SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF WORK AND REMOVED AFTER COMPLETION OF ACTIVITIES.EXISTING SIGNS IN CONFLICT WITH TEMPORARY SIGNS SHALL BE COVERED TO PREVENT CONFUSION.

3.CONTRACTOR MUST MAINTAIN EXISTING LANE MARKINGS FOR ALL ROADS.

4.SIGNS TO BE MOUNTED ON POSTS AND INSTALLED FOR THE DURATION OF CONSTRUCTION.

5.CONTRACTOR SHALL FOLLOW ALL CURRENT VWAPM,MUTCD,TOWN OF VIENNA,AND TEMPORARY TRAFFIC CONTROL STANDARDS.

6.ALL TEMPORARY TRAFFIC CONTROL DEVICES MUST BE IN PLACE BEFORE CONSTRUCTION BEGINS.

7.CURB LANE CLOSURES WILL BE IN PLACE FOR THE DURATION OF CONSTRUCTION EXCLUDING NON-WORKING HOURS.

8.TEMPORARY TRAFFIC CONTROL SIGNS ARE NOT TO BE PLACED IN LOCATIONS THAT OBSTRUCT PEDESTRIAN PATHWAYS.

Note to Contractor:
All personnel responsible for the following items,in the field,shall have completed the Basic Work Zone Traffic Control Training:
-Direct installation/placement of work zone traffic control devices
-Direct responsibility for on-going field maintenance of work zone traffic control devices

All personnel responsible for the following items,in the field,shall have completed the Intermediate Work Zone Traffic Control Training:
-Inspection of placement of operational functions of the work zone traffic control devices
-Construction Supervisor responsibilities

All personnel performing flagging operation duties shall have completed/obtained flagger certification from VDOT. Any person performing flagger operation duties shall submit a copy of their certification prior to the start of the project,at no additional cost to the project. No flagging operation may be started until all certifications for each person performing the work is submitted for acceptance/approval.

MAINTENENCE OF TRAFFIC GENERAL NOTES:

1.TRAFFIC CONTROL SHALL COMPLY WITH THE LATEST EDITION OF THE VIRGINIA WORK AREA PROTECTION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES,TOWN OF VIENNA STANDARDS,THE TRAFFIC CONTROL PLANS INCLUDED IN THE CONSTRUCTION DRAWINGS,THIS MAINTENANCE OF TRAFFIC PLAN,AND/OR AS DIRECTED BY TOWN OF VIENNA TRAFFIC ENGINEER.

2.CONSTRUCTION AREA SHALL BE CONSIDERED ACTIVE WHEN ANY IMPACT TO TRAFFIC OCCURS (1ST CONE IN ROAD).CONSTRUCTION AREA HOURS HAVE THE FOLLWING LIMITATIONS:
WEEKDAY WORK 9:30 AM TO 3:30 PM MONDAY TO FRIDAY
WEEKEND WORK: NOT PERMITTED UNLESS APPROVED BY TOWN ENGINEER IN WRITING

3.THE CONTRACTOR SHALL NOT USE THE ROADWAYS,SIDEWALKS,OR ANY OTHER PORTION OF THE RIGHT-OF-WAY,PRIVATE PARKING LOTS WITHIN PROJECT LIMITS TO UNLOAD AND/OR STORE MATERIALS AN EQUIPMENT WITHOUT WRITTEN PRIOR APPROVAL FROM THE TOWN OF VIENNA.

4.THE CONTRACTOR MUST ABIDE BY TOWN OF VIENNA NOISE ORDINANCES.(CONTRACTOR SHALL APPLY FOR NOISE VARIANCE PERMIT SEPARATELY IF NEEDED).

5.EXISTING PRIVATE ROADS,DRIVEWAYS,AND/OR ENTRANCES SHALL NOT BE USED TO ACCESS WORK ZONES.

6.DURING CONSTRUCTION,THE CONTRACTOR SHALL PERFORM LANE CLOSURES BY IMPLEMENTING TTC 23J AND/OR TTC 24J AS NECESSARY.

7.THE CONTRACTOR SHALL MINIMIZE THE DURATION OF ANY BLOCKAGE OF PRIVATE ENTRANCES AND DRIVEWAYS.THE AFFECTED PROPERTY OWNER SHALL BE NOTIFIED A MINIMUM OF 24 HOURS IN ADVANCE OF SUCH ACTIVITIES,AND THE CONTRACTOR SHALL MAKE ALL PRIVATE ENTRANCES AND DRIVEWAYS ACCESSIBLE AT THE CONCLUSION OF EACH WORKDAY.

8.ANY EXCAVATIONS WHICH ARE SPECIFICALLY APPROVED BY THE ENGINEER TO REMAIN OPEN PAST NORMAL WORKING HOURS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PROTECTED IN ACCORDANCE WITH THE VIRGINIA WORK PROTECTION MANUAL AND AS APPROVED BY THE ENGINEER.

9.ALL TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE RETROREFLECTIVE OR ILLUMINATED DURING NIGHT TIME HOURS.

10.ADEQUATE PROVISIONS FOR PERSONS WITH DISABILITIES SHALL BE PROVIDED AT ALL TIMES PER ADA REQUIREMENTS.

11.WHEN NECESSARY,PEDESTRIANS SHALL BE APPROPRIATELY DIRECTED (PER VWAPM) WITH ADVANCED WARNING SIGNS PLACES AT INTERSECTIONS,TO CROSS TO THE OPPOSITE SIDE OF THE ROADWAY IN ORDER TO PREVENT CONFLICT WITH MIDBLOCK WORK SITES.

12.PEDESTRIANS SHALL NOT BE LED INTO CONFLICT WITH WORK SITE EQUIPMENT,OPERATIONS, AND/OR VEHICLES MOVING THROUGH OR AROUND THE WORK SITE.(CONTRACTOR SHALL PROTECT WORK ZONE WITH TEMPORARY ORANGE SAFETY FENCE AT ALL TIMES,AS REQUESTED BY TOWN ENGINEER,AT NO ADDITIONAL COST TO THE PROJECT).

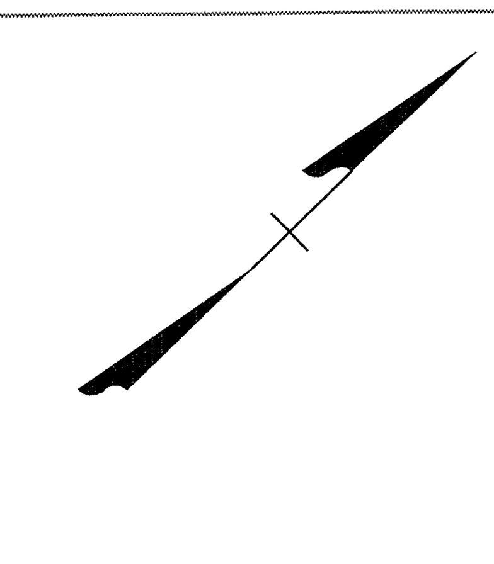
13.CONTROL MEASURES SHALL BE SIMILAR TO THOSE DEPICTED IN FIGURE TTC 35.0 "SIDEWALK CLOSURE AND BYPASS SIDEWALK OPERATION".

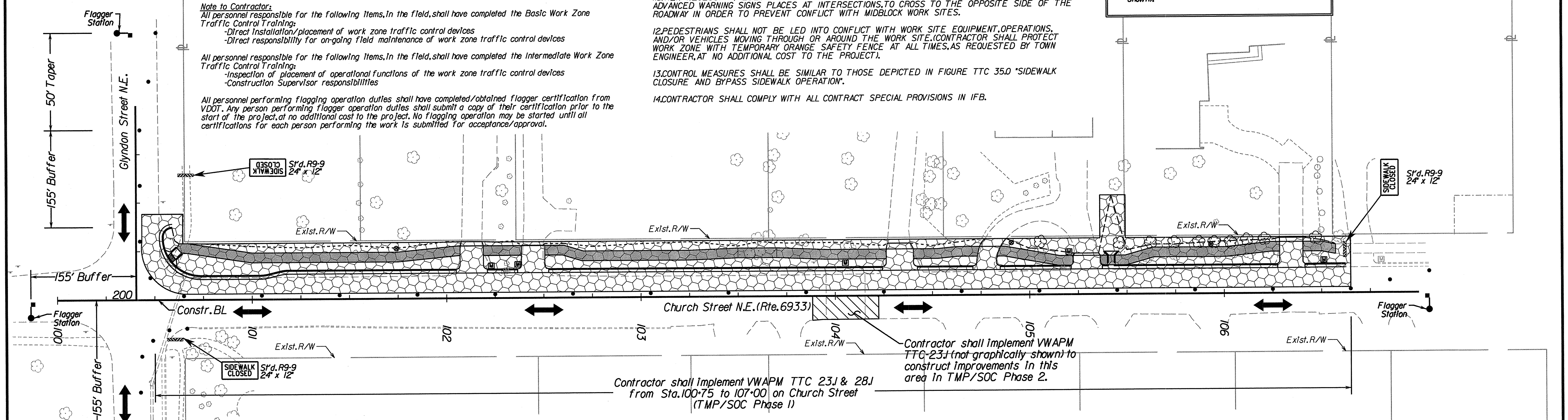
14.CONTRACTOR SHALL COMPLY WITH ALL CONTRACT SPECIAL PROVISIONS IN IFB.

Suggested TMP/SOC Legend

- Denotes Construction Work Zone (Phase 1)
- Denotes Construction Work Zone (Phase 2)
- Denotes Traffic Flow (Phase 1)
- Denotes Group 1 or 2 Channelizing Devices (Group 1 or 2 Devices shown on plans are schematic only.Follow VWAPM for spacing requirements.) (For Phase 1)
- Denotes Flagger Station
- Denotes Type 3 Barricade

Notes:
1. Temporary sign posts shall be 4" x 4" wood posts per VDOT WSP-1.
2. Contractor shall provide all (shown or unshown on this plan) signage,traffic control devices,electric arrow boards,etc.,as required by VDOT VWAPM TTC's directed on this plan.
3. In TMP/SOC Phase 2,Contractor shall implement VWAPM TTC 23J on Church Street (not graphically shown).





Note to Contractor:
All personnel responsible for the following items,in the field,shall have completed the Basic Work Zone Traffic Control Training:
- Direct installation/placement of work zone traffic control devices
- Direct responsibility for on-going field maintenance of work zone traffic control devices

All personnel responsible for the following items,in the field shall have completed the Intermediate Work Zone Traffic Control Training:
- Inspection of the placement of operational functions of the work zone traffic control devices
- Construction Supervisor responsibilities

Note: Contractor shall also implement VDOT VWAPM TTC-53.0 (not graphically shown) for TMP/SOC Phase 1 & 2 on Church Street and Glyndon Road

Upon request of the Town Engineer,each person in the field,with the responsibilities outlined above shall produce the Work Zone Training Card issued by VDOT,at no additional cost to the project.In the event any personnel,at the Town Engineer discretion,is not properly certified (i.e.cannot produce card,has expired card etc.) all work on the project shall be suspended at no additional cost to the Town.No additional time shall be added/granted to the Contractor,to the schedule for this suspension.

All personnel performing flagging operation duties shall have completed/obtained flagger certification from VDOT.Any person performing flagger operation duties shall submit a copy of their certification prior to the start of the project,at no additional cost to the project.No flagging operation may be started until all certifications for each person performing the work is submitted for acceptance/approval.

SCALE 0 25' 50'

PROJECT	SHEET NO.
-	1J

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services
Office Locations

TOWN OF VIENNA

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept.; Michael Gallagher, P.E. (703) 255-6383
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Erosion & Sediment Control Notes & Details

Erosion and Sediment Control Narrative

Project Description: The project proposes to add curb and gutter and a 5' concrete sidewalk for approximately 600 feet on the north side of Church Street N.E. In the Town of Vienna, Virginia. In the existing condition, this roadway has shoulder and ditch with existing curb and gutter east of the project which the project will tie into. The existing pedestrian facilities have a gap which will be filled in by this project. The roadway has an existing ditch that ties into an existing closed storm sewer system. The project is located in the Wolftrap Creek watershed management area which is within the greater Difficult Run watershed.

Existing Site Conditions: The project site is along the north side of Church Street N.E. between Glyndon Street N.E. and 450 feet west of Beulah Road N.E. Vegetation within the project site consists of landscaped lawns and some large trees. The majority of the site storm runoff is collected by a roadside ditch and conveyed to the southwest to an existing closed storm sewer system. The rest of the storm runoff discharges to existing curb and gutter and is collected by drop inlets, where it is conveyed to the southeast via an existing closed storm sewer system.

Adjacent Areas: Areas adjacent to the project are mostly residential in nature.

Off-site Areas: All work is proposed within the Right-of-Way. The Contractor shall be responsible for the locations of acceptable borrow and/or disposal sites, and these shall be in accordance with Town of Vienna or as directed by the Town.

Soils: See soils map located on this sheet.

Critical Areas: There are no critical areas within the project site.

Erosion and Sediment Control Measures: Water quality and sediment/erosion control are of extreme importance. Care must be taken to avoid discharge of sediment into the existing storm sewer system. In order to best control impacts on this watershed, all vegetative and structural sediment control practices shall be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook. Strict compliance with this program and standards is required. We are therefore specifying a plan to minimize impacts on the adjacent properties.

At the time of land disturbing activities within the Town right-of-way, the Contractor shall have a representative with Erosion and Sediment Control Contractor Certification (ESCCC) at the project site. The Town and Contractor is responsible for complying with applicable Local, State, and Federal Environmental Laws and Regulations, including acquiring clearances/authorizations from appropriate regulatory agencies.

Land Disturbing/Construction Sequence - Phase 1
1. The Contractor shall install the safety fence, inlet protection, and tree protection as shown on the Phase I Erosion & Sediment Control plan.
2. After the safety fence and inlet protection have been installed, the Contractor shall obtain the site inspector's approval of these controls.
3. After the site inspector's approval of the initial controls, clear and grub the site as necessary.

Land Disturbing/Construction Sequence - Phase 2
1. Fine grade the site and install all proposed storm sewer items.
2. Install curb & gutter, sidewalk, and entrance base course and concrete pavement.
3. Install all permanent seeding and sod, and fertilize all grassed areas.
4. Clean site of all trash and debris.
5. Have the Inspector inspect all areas to determine if they are adequately stabilized.

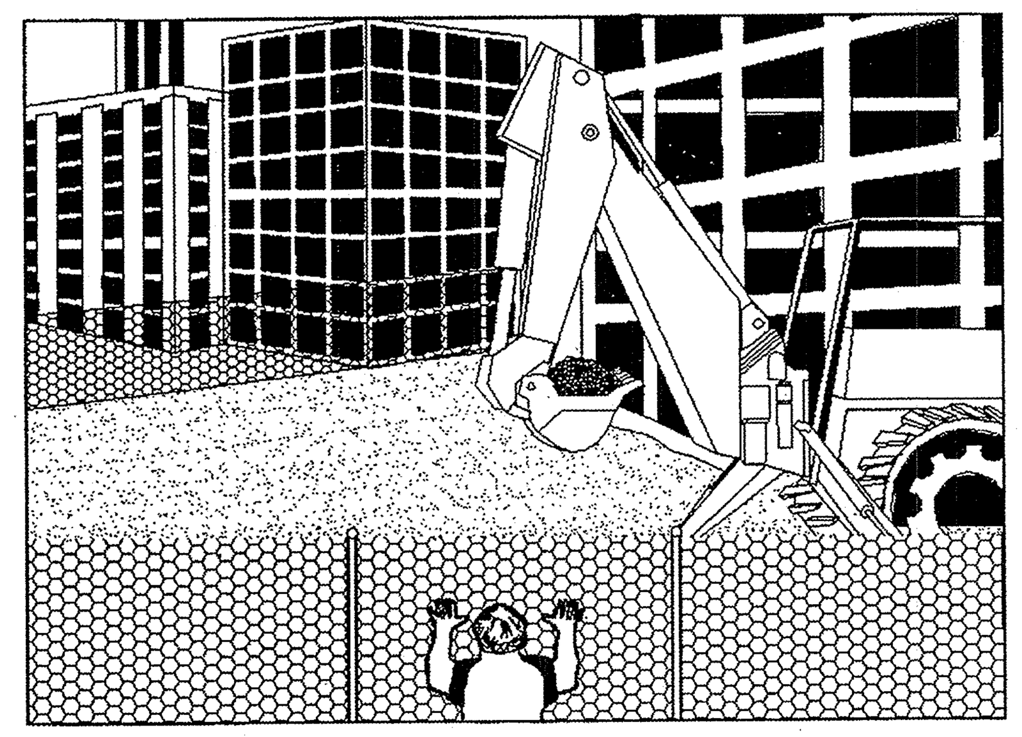
Maintenance Program: The Contractor shall make a visual inspection of all mechanical controls and newly stabilized areas (i.e. seeded, mulched, or sodded areas) on a daily basis and after each rainfall event to insure that all controls are functioning properly. The following items will be checked in particular: inlet protection will be checked regularly for sediment buildup which will prevent drainage, and if the gravel is clogged by sediment, it shall be removed and cleaned or replaced; and the seeded areas will be checked regularly to ensure that a good stand is maintained, and areas shall be fertilized and reseeded as needed. Any damaged controls shall be repaired by the end of the work day, including reseeding and mulching if necessary. The Contractor may install additional measures should he or she deem it necessary at the Inspector's approval. All erosion & sediment controls shall be removed within seven (7) days after the project is stabilized.

Structural Practices:
1. Safety Fence (3.01) - Safety fence will be installed downslope of areas with minimal grades to filter sediment-laden runoff from sheet flow as indicated in the Erosion and Sediment control plans.
2. Storm Drain Inlet Protection (3.07) - All storm sewer inlets shall be protected during construction. Sediment-laden water shall be filtered before entering the storm sewer inlets.
3. Culvert Inlet Protection (3.08) - A sediment filter located at the inlet to storm sewer culverts. (Per VDOT Standard EC-6 Type C)
4. Temporary Seeding (3.31) - All denuded areas which will be left dormant for extended periods of time shall be seeded with fast germinating temporary vegetation immediately following grading. Selection of the seed mixture will depend on the time of year it is applied.
5. Permanent Seeding (3.32) - Perennial vegetative cover shall be established on disturbed areas by planting seed to reduce erosion and decrease sediment yield and to permanently stabilize disturbed areas. Selection of the seed mixture will depend on the time of year it is applied.
6. Permanent Stabilization - Permanent stabilization shall be done in accordance with the VESCH and all Town of Vienna seeding standards.

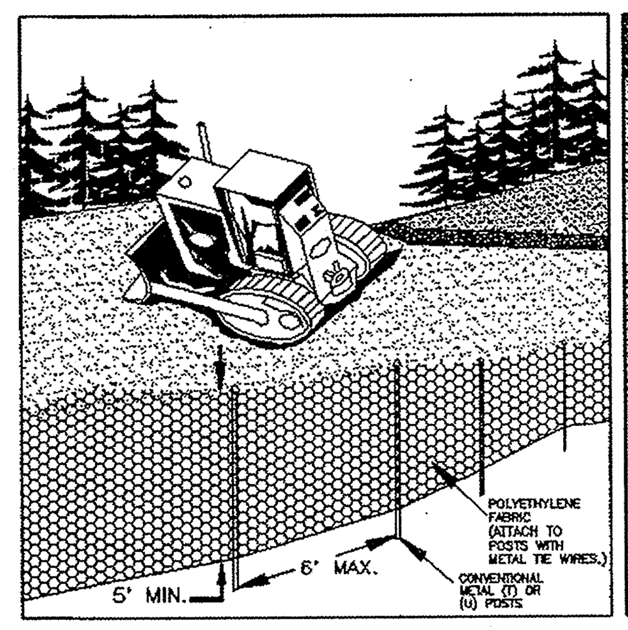
Stormwater Runoff Considerations: See sheets 2K(6) and 2K(7) for Outfall Analysis for this project.

(SAF) SAFETY FENCE

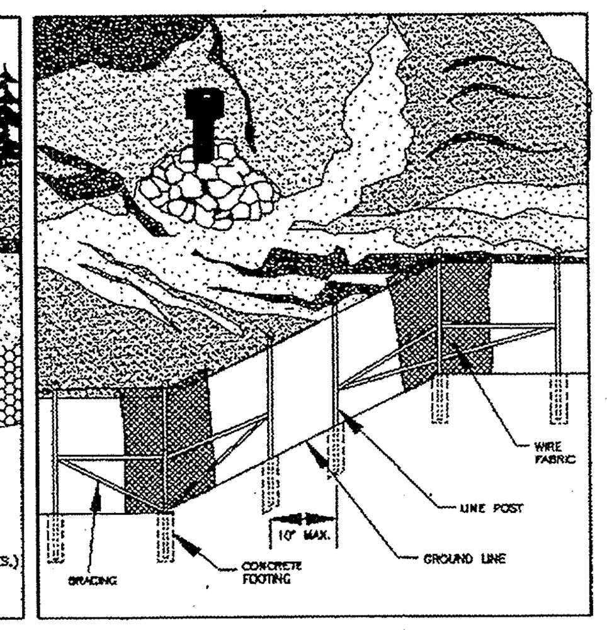
SAFETY FENCE



PERSPECTIVE VIEW



PERSPECTIVE VIEW
PLASTIC FENCE

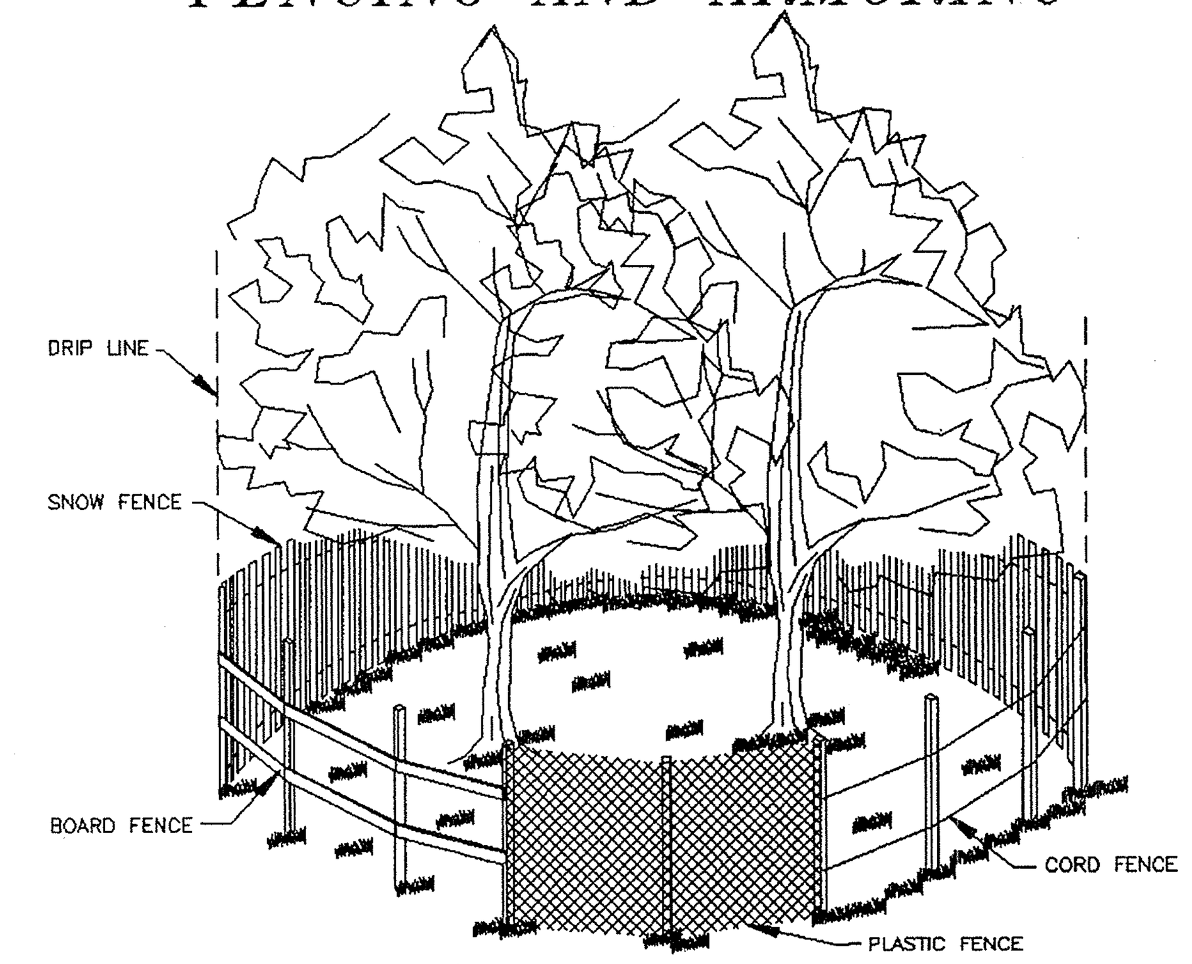


PERSPECTIVE VIEW
METAL FENCE

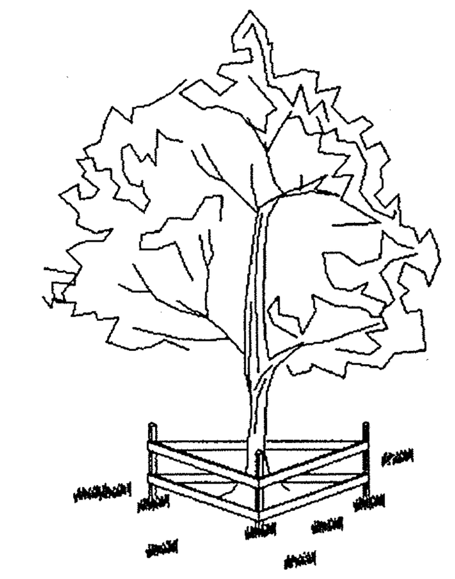
(TP) TREE PROTECTION

1992 3.38

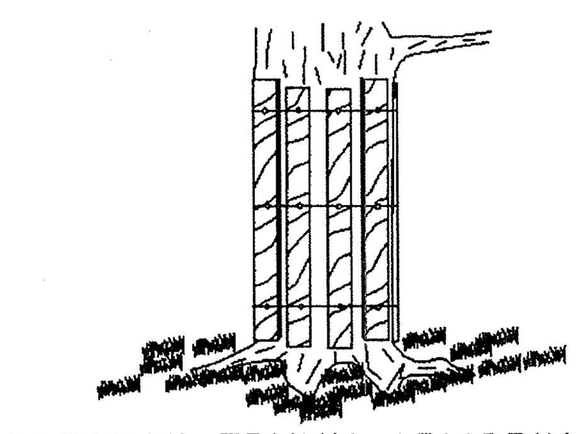
FENCING AND ARMORING



CORRECT METHODS OF TREE FENCING



TRIANGULAR BOARD FENCE



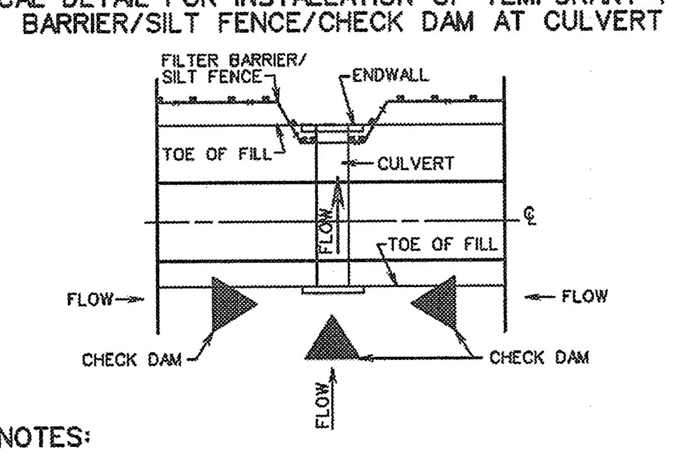
CORRECT TRUNK ARMORING

Source: Va. DSWC   Plate 3.38-2

(CIP) CULVERT INLET PROTECTION

EC-6

TYPICAL DETAIL FOR INSTALLATION OF TEMPORARY FILTER BARRIER/SILT FENCE/CHECK DAM AT CULVERT



NOTES:
1. IF ANY PORTION OF FILL IS GREATER THAN 5', SILT FENCE IS REQUIRED. IF FILL HEIGHT IS LESS THAN 5', FILTER BARRIER IS REQUIRED.
2. ROCK CHECK DAM IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-4.
3. FILTER BARRIER/SILT FENCE IS TO BE INSTALLED IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS, AND STANDARD EC-5.

* INSTALLATION DETAIL ONLY - ROCK CHECK DAMS, FILTER BARRIER, AND SILT FENCE TO BE PAID FOR IN ACCORDANCE WITH THE ROAD AND BRIDGE SPECIFICATIONS.

VDOT ROAD AND BRIDGE STANDARDS	INLET PROTECTION (TYPE C)	SPECIFICATION REFERENCE
SHEET 2 OF 2 / REVISION DATE / 113.10	VIRGINIA DEPARTMENT OF TRANSPORTATION	107 242 303

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

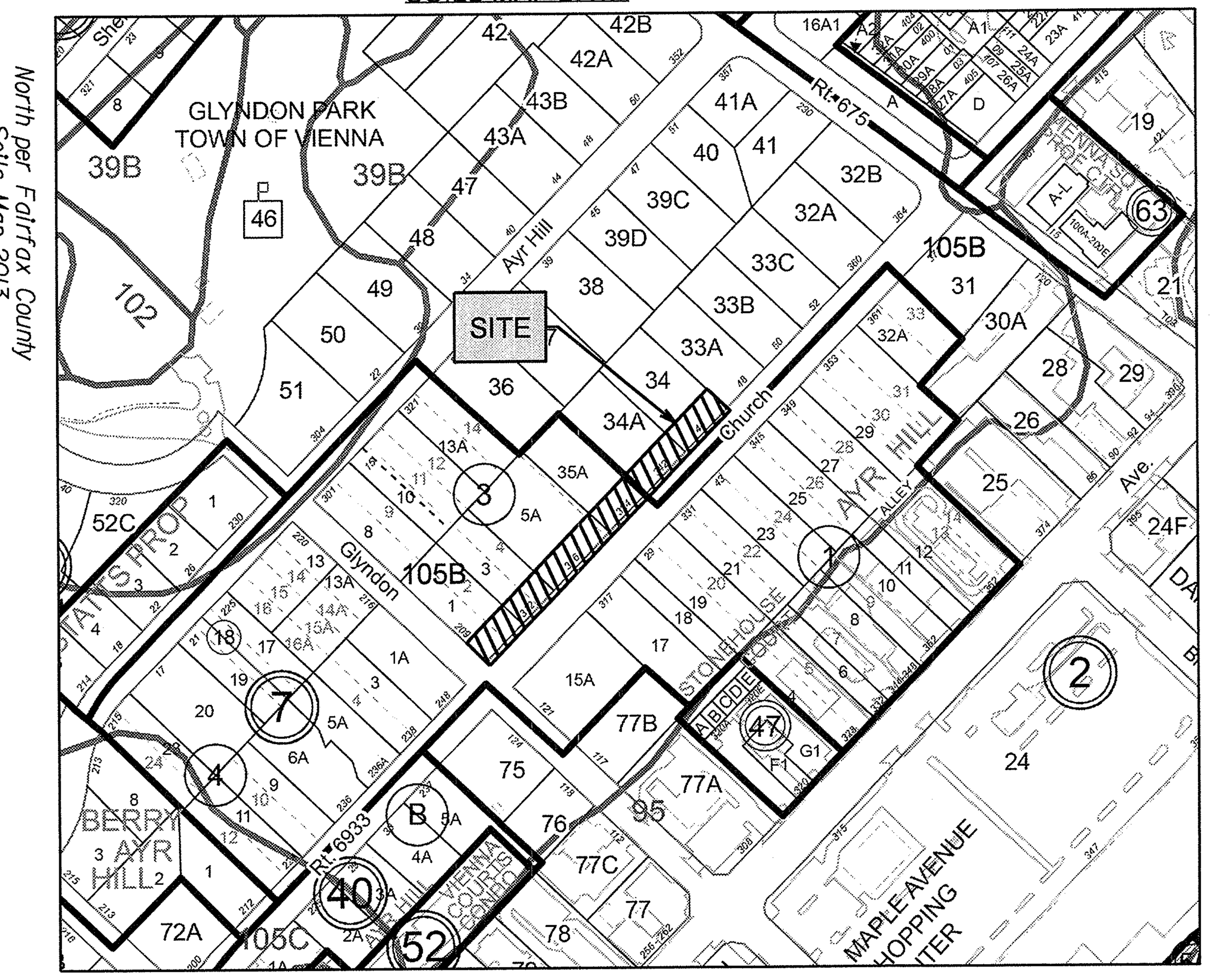
Rinker Design Associates, P.C.
Manassas, Virginia
ROADWAY ENGINEER

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		IP

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

SOILS MAP DATA SCALE: N.T.S

North per Fairfax County Soils Map, 2015



SOILS MAP SOURCE: ☒COUNTY MAP; ☐PRIVATE SOILS SCIENTIST (FOR UNMAPPED SITES)					
SOIL ID NUMBERS	SOIL SERIES NAME	FOUNDATION SUPPORT	SOIL DRAINAGE	EROSION POTENTIAL	PROBLEM CLASS
105B	WHEATON GLENELG COMPLEX	GOOD	GOOD	HIGH	IVB

IS THE SITE LOCATED WITHIN NATURALLY OCCURING ASBESTOS SOILS?
YES☐ NO☒

AREAS THAT MAY CONTAIN NATURALLY OCCURING ASBESTOS SOILS ARE LOCATED ON THE ORANGE SOILS TAX MAP GRIDS ON THE COUNTY WEBSITE. SPECIAL PRECAUTIONS REGARDIND THESE SOILS OR FILL ORIGINATING FROM THESE SOILS ARE REQUIRED BY OCCUPATIONAL SAFETY AND HEALTH REGULATIONS ENFORCED BY THE VIRGINIA DEPARTMENT OF LABOR AND INDUSTRY AND SPECIAL GUIDANCE HAS BEEN ISSUED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

SOILS MAPPED OVER NATUALLY OCCURING BEDROCK. THESE SOILS OCCUR WITHIN A GEOLOGIC FORMATION KNOWN AS THE PINEY BRANCH COMPLEX, LOCALLY KNOWN AS GREENSTONE. NATURALLY-OCCURRING ASBESTOS MINERALS, PREDOMINANTLY ACTINOLITE AND TREMOLITE, ARE KNOWN TO OCCUR IN THIS FORMATION. EXCAVATIONS IN BEDROCK OR EARTH MOVING ACTIVITIES WITHIN THIS FORMATION MAY EXPOSE THESE MINERALS TO THE ATMOSPHERE, ALLOWING THE FIBERS TO BECOME AIRBORNE.

Rinker Design Associates, P.C.
Civil Engineering - Surveying - Land Planning - Transportation - Environmental - Right of Way Services
Office Locations

TOWN OF VIENNA

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept.; Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.; Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.; Adam Welschenbach, P.E. (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

Erosion & Sediment Control Notes & Details

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
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Manassas, Virginia
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		IP(1)

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

4VAC50-30-40. Minimum Standards. (MS-19)

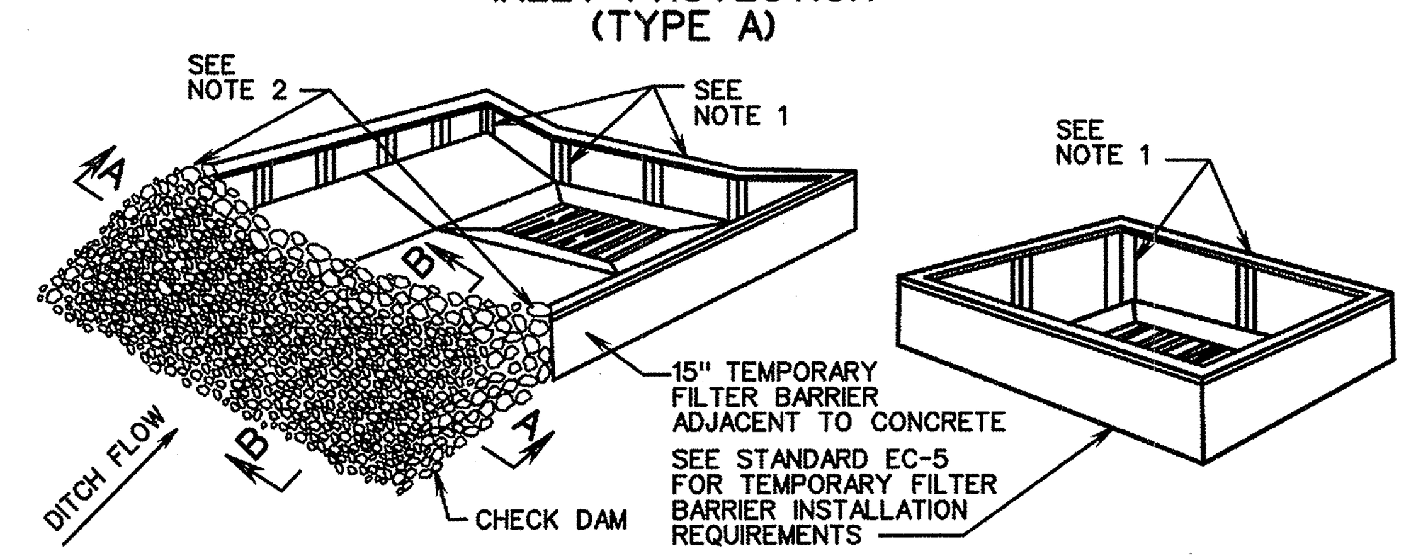
A VESCP must be consistent with the following criteria, techniques and methods:

1. Permanent or temporary soil stabilization shall be applied to denuded areas within seven days after final grade is reached on any portion of the site. Temporary soil stabilization shall be applied within seven days to denuded areas that may not be at final grade but will remain dormant for longer than 14 days. Permanent stabilization shall be applied to areas that are to be left dormant for more than one year.
2. During construction of the project, soil stock piles and borrow areas shall be stabilized or protected with sediment trapping measures. The applicant is responsible for the temporary protection and permanent stabilization of all soil stockpiles on site as well as borrow areas and soil intentionally transported from the project site.
3. A permanent vegetative cover shall be established on denuded areas not otherwise permanently stabilized. Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform, mature enough to survive and will inhibit erosion.
4. Sediment basins and traps, perimeter dikes, sediment barriers and other measures intended to trap sediment shall be constructed as a first step in any land-disturbing activity and shall be made functional before upslope land disturbance takes place.
5. Stabilization measures shall be applied to earthen structures such as dams, dikes and diversions immediately after installation.
6. Sediment traps and sediment basins shall be designed and constructed based upon the total drainage area to be served by the trap or basin.
   a. The minimum storage capacity of a sediment trap shall be 134 cubic yards per acre of drainage area and the trap shall only control drainage areas less than three acres.
   b. Surface runoff from disturbed areas that is comprised of flow from drainage areas greater than or equal to three acres shall be controlled by a sediment basin. The minimum storage capacity of a sediment basin shall be 134 cubic yards per acre of drainage area. The outfall system shall, at a minimum, maintain the structural integrity of the basin during a 25-year storm of 24-hour duration. Runoff coefficients used in runoff calculations shall correspond to a bare earth condition or those conditions expected to exist while the sediment basin is utilized.
7. Cut and fill slopes shall be designed and constructed in a manner that will minimize erosion. Slopes that are found to be eroding excessively within one year of permanent stabilization shall be provided with additional slope stabilizing measures until the problem is corrected.
8. Concentrated runoff shall not flow down cut or fill slopes unless contained within an adequate temporary or permanent channel, flume or slope drain structure.
9. Whenever water seeps from a slope face, adequate drainage or other protection shall be provided.
10. All storm sewer inlets that are made operable during construction shall be protected so that sediment-laden water cannot enter the conveyance system without first being filtered or otherwise treated to remove sediment.
11. Before newly constructed stormwater conveyance channels or pipes are made operational, adequate outlet protection and any required temporary or permanent channel lining shall be installed in both the conveyance channel and receiving channel.
12. When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during construction. Non-erodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by non-erodible cover materials.
13. When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of non-erodible material shall be provided.
14. All applicable federal, state and local chapters pertaining to working in or crossing live watercourses shall be met.
15. The bed and banks of a watercourse shall be stabilized immediately after work in the watercourse is completed.
16. Underground utility lines shall be installed in accordance with the following standards in addition to other applicable criteria:
   a. No more than 500 linear feet of trench may be opened at one time.
   b. Excavated material shall be placed on the uphill side of trenches.
   c. Effluent from dewatering operations shall be filtered or passed through an approved sediment trapping device, or both, and discharged in a manner that does not adversely affect flowing streams or off-site property.
   d. Material used for backfilling trenches shall be properly compacted in order to minimize erosion and promote stabilization.
   e. Restabilization shall be accomplished in accordance with this chapter.
   f. Applicable safety chapters shall be complied with.
17. Where construction vehicle access routes intersect paved or public roads, provisions shall be made to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or public road surface, the road surface shall be cleaned thoroughly at the end of each day. Sediment shall be removed from the roads by shoveling or sweeping and transported to a sediment control disposal area. Street washing shall be allowed only after sediment is removed in this manner. This provision shall apply to individual development lots as well as to larger land-disturbing activities.
18. All temporary erosion and sediment control measures shall be removed within 30 days after final site stabilization or after the temporary measures are no longer needed, unless otherwise authorized by the VESCP authority. Trapped sediment and the disturbed soil areas resulting from the disposition of temporary measures shall be permanently stabilized to prevent further erosion and sedimentation.
19. Properties and waterways downstream from development sites shall be protected from sediment deposition, erosion and damage due to increases in volume, velocity and peak flow rate of stormwater runoff for the stated frequency storm of 24-hour duration in accordance with the following standards and criteria. Stream restoration and relocation projects that incorporate natural channel design concepts are not man-made channels and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels:
   a. Concentrated stormwater runoff leaving a development site shall be discharged directly into an adequate natural or man-made receiving channel, pipe or storm sewer system. For those sites where runoff is discharged into a pipe or pipe system, downstream stability analyses at the outfall of the pipe or pipe system shall be performed.
   b. Adequacy of all channels and pipes shall be verified in the following manner:
      1) The applicant shall demonstrate that the total drainage area to the point of analysis within the channel is one hundred times greater than the contributing drainage area of the project in question; or
      2)
         a) Natural channels shall be analyzed by the use of a two-year storm to verify that stormwater will not overtop channel banks nor cause erosion of channel bed or banks.
         b) All previously constructed man-made channels shall be analyzed by the use of a ten-year storm to verify that stormwater will not overtop its banks and by the use of a two-year storm to demonstrate that stormwater will not cause erosion of channel bed or banks; and
         c) Pipes and storm sewer systems shall be analyzed by the use of a ten-year storm to verify that stormwater will be contained within the pipe or system.
   c. If existing natural receiving channels or previously constructed man-made channels or pipes are not adequate, the applicant shall:
      1) Improve the channels to a condition where a ten-year storm will not overtop the banks and a two-year storm will not cause erosion to channel the bed or banks; or
      2) Improve the pipe or pipe system to a condition where the ten-year storm is contained within the appurtenances;
      3) Develop a site design that will not cause the pre-development peak runoff rate from a two-year storm to increase when runoff outfalls into a natural channel or will not cause the pre-development peak runoff rate from a ten-year storm to increase when runoff outfalls into a man-made channel; or
      4) Provide a combination of channel improvement, stormwater detention or other measures which is satisfactory to the VESCP authority to prevent downstream erosion.
   d. The applicant shall provide evidence of permission to make the improvements.
   e. All hydrologic analyses shall be based on the existing watershed characteristics and the ultimate development condition of the subject project.
   f. If the applicant chooses an option that includes stormwater detention, he shall obtain approval from the VESCP of a plan for maintenance of the detention facilities. The plan shall set forth the maintenance requirements of the facility and the person responsible for performing the maintenance.
   g. Outfall from a detention facility shall be discharged to a receiving channel, and energy dissipators shall be placed at the outfall of all detention facilities as necessary to provide a stabilized transition from the facility to the receiving channel.
   h. All on-site channels must be verified to be adequate.
   i. Increased volumes of sheet flows that may cause erosion or sedimentation on adjacent property shall be diverted to a stable outlet, adequate channel, pipe or pipe system, or to a detention facility.
   j. In applying these stormwater management criteria, individual lots or parcels in a residential, commercial or industrial development shall not be considered to be separate development projects. Instead, the development, as a whole, shall be considered to be a single development project. Hydrologic parameters that reflect the ultimate development condition shall be used in all engineering calculations.
   k. All measures used to protect properties and waterways shall be employed in a manner which minimizes impacts on the physical, chemical and biological integrity of rivers, streams and other waters of the state.
   l. Any plan approved prior to July 1, 2014, that provides for stormwater management that addresses any flow rate capacity and velocity requirements for natural or man-made channels shall satisfy the flow rate capacity and velocity requirements for natural or man-made channels if the practices are designed to (i) detain the water quality volume and to release it over 48 hours; (ii) detain and release over a 24-hour period the expected rainfall resulting from the one year, 24-hour storm; and (iii) reduce the allowable peak flow rate resulting from the 1.5, 2, and 10-year, 24-hour storms to a level that is less than or equal to the peak flow rate from the site assuming it was in a good forested condition, achieved through multiplication of the forested peak flow rate by a reduction factor that is equal to the runoff volume from the site when it was in a good forested condition divided by the runoff volume from the site in its proposed condition, and shall be exempt from any flow rate capacity and velocity requirements for natural or man-made channels as defined in any regulations promulgated pursuant to 10.1-562 or 10.1-570 of the Act.
   m. For plans approved on and after July 1, 2014, the flow rate capacity and velocity requirements of 10.1-561 A of the Act and this subsection shall be satisfied by compliance with water quantity requirements in the Stormwater Management Act (10.1-603.2 et seq. of the Code of Virginia) and attendant regulations, unless such land-disturbing activities are in accordance with 4VAC50-60-48 of the Virginia Stormwater Management Program (VSMP) Permit Regulations.
   n. Compliance with the water quantity minimum standards set out in 4VAC50-60-66 of the Virginia Stormwater Management Program (VSMP) Permit Regulations shall be deemed to satisfy the requirements of Minimum Standard 19.

IP

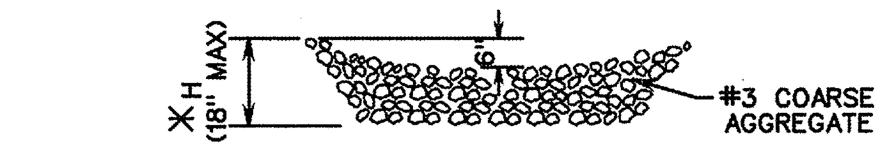
INLET PROTECTION

INLET PROTECTION (TYPE A)



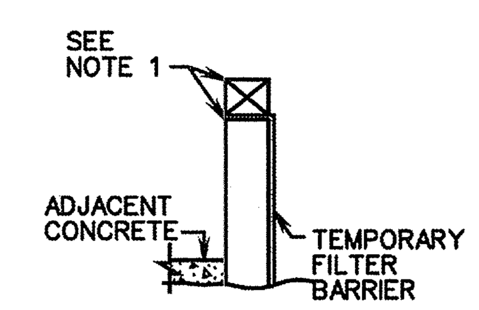
TYPICAL TREATMENT FOR DROP INLET WITH CONCRETE GUTTER

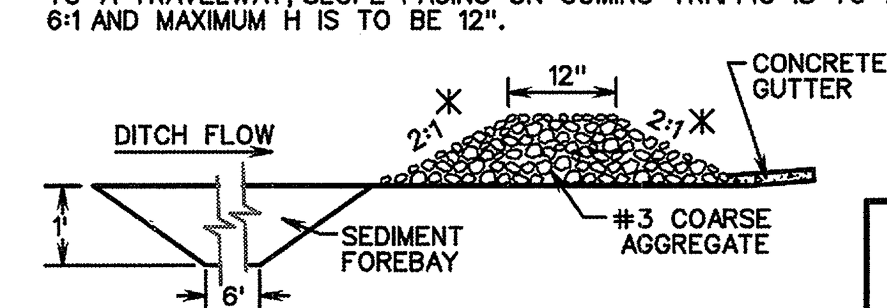
TYPICAL TREATMENT FOR DROP INLET WITHOUT CONCRETE GUTTER



SECTION A-A

* IF CHECK DAM IS LOCATED INSIDE CLEAR ZONE AND ADJACENT TO A TRAVELWAY, SLOPE FACING ON COMING TRAFFIC IS TO BE 6:1 AND MAXIMUM H IS TO BE 12".





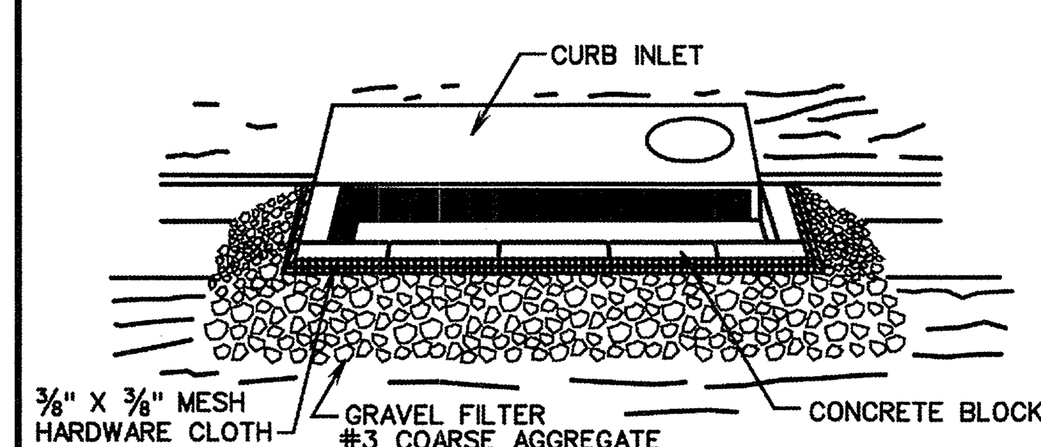
SECTION B-B

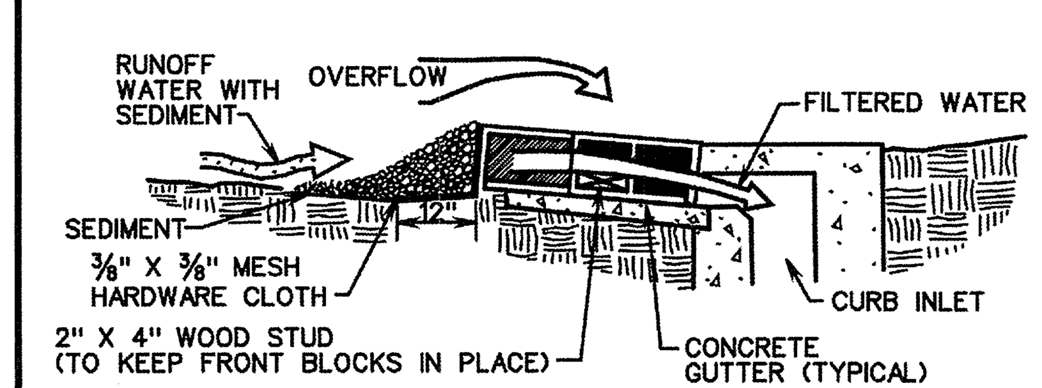
NOTES

1. POSTS AND TOP RAIL SHALL BE A NOMINAL 2½" X 2½" OR A 3" DIA. NO. 2 SOUTHERN PINE, A NOMINAL 2" X 2" OAK, OR STEEL HAVING A MIN. WEIGHT OF 1.25 LBS. PER LINEAR FOOT AND A MIN. LENGTH OF 5' FOR TEMPORARY SILT FENCES.
2. END OF FILTER BARRIER TO BE EMBEDDED INTO AGGREGATE.
3. IF A DROP INLET IS LOCATED IN A SAG IN THE DITCH GRADE, A CHECK DAM IS REQUIRED FOR EACH SIDE OF THE INLET THAT RECEIVES DITCH FLOW.
4. WHERE DRAINAGE AREAS EXCEED ONE ACRE OR DITCH GRADE EXCEEDS 3%, A TEMPORARY SEDIMENT FOREBAY SHALL BE INSTALLED WITH MINIMUM DIMENSIONS OF 12" DEPTH, 2' WIDTH AND 6' LENGTH.

INLET PROTECTION (TYPE B)

EC-6





SECTION VIEW

SPECIFIC 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.

NOTE:

GEOTEXTILE PRODUCTS DESIGNED TO BE INSERTED INTO GRATED DROP INLETS OR DESIGNED TO COVER THE SLOTS OF SLOT DROP INLETS, THAT HAVE BEEN APPROVED FOR USE ON VDOT PROJECTS AND ARE FOUND ON VDOT'S SPEL LIST, MAY BE SUBSTITUTED FOR THE DROP INLET PROTECTION DEVICES DETAILED HEREON.

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services

TOWN OF VIENNA

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept.:Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam. Welschenbach, P.E. (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		10

COMMONWEALTH OF VIRGINIA
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TOWN OF VIENNA

Erosion and Sediment Control Plan Phase 1

E&S LEGEND

- —x— (SAF) Denotes Temporary Safety Fence
- (IP-B) Denotes Inlet Protection, Std.EC-6 Type B
- (CIP) Denotes Culvert Inlet Protection, Std.EC-6 Type C
- X Denotes Tree to Be Removed
- O Denotes Tree to Be Relocated
- —LOD— Limits of Disturbance

C _ _ Denotes Construction Limits in Cuts
F _ _ Denotes Construction Limits in Fills

TREES TO REMOVE

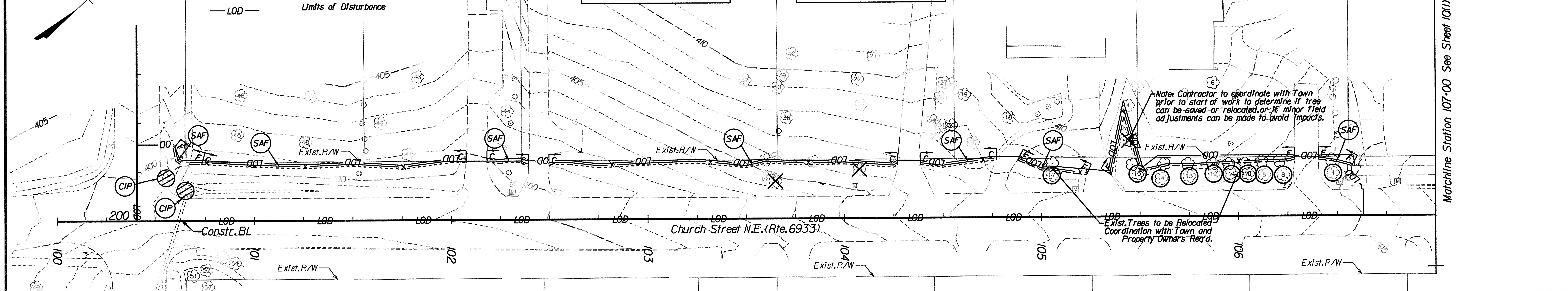
Tree#	Size	Tree Type
16	18in	Holly
24	3in	Deciduous
33	10in	Locust

TOTAL : 3

TREES TO RELOCATE

Tree#	Size	Tree Type
1	3in	Deciduous
8	4in	Deciduous
9	4in	Deciduous
10	4in	Deciduous
11	4in	Deciduous
12	4in	Deciduous
13	4in	Deciduous
14	4in	Deciduous
15	4in	Deciduous
17	9in	Cherry

TOTAL : 10



Erosion and Sediment Control Plan Phase 2

E&S LEGEND

- —x— (SAF) Denotes Temporary Safety Fence
- (IP-B) Denotes Inlet Protection, Std.EC-6 Type B
- X Denotes Tree to Be Removed
- O Denotes Tree to Be Relocated
- —LOD— Limits of Disturbance

TREES TO REMOVE

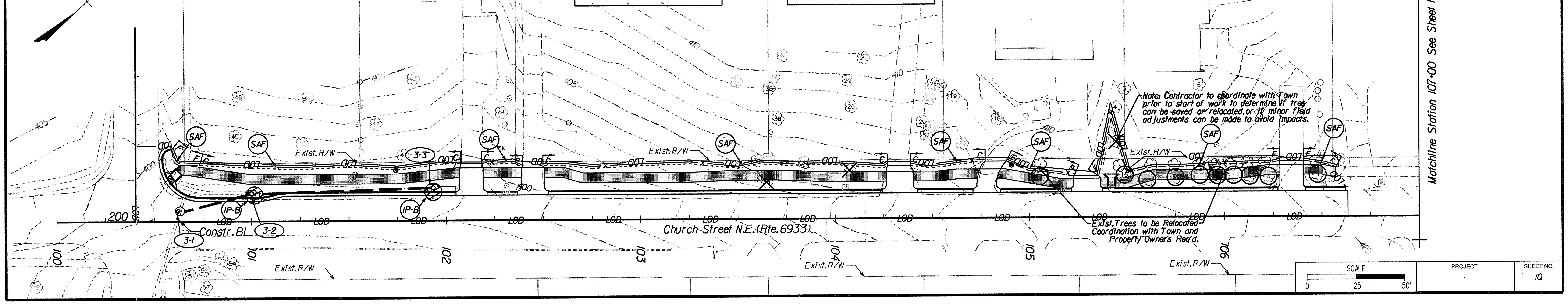
Tree#	Size	Tree Type
16	18in	Holly
24	3in	Deciduous
33	10in	Locust

TOTAL : 2

TREES TO RELOCATE

Tree#	Size	Tree Type
1	3in	Deciduous
8	4in	Deciduous
9	4in	Deciduous
10	4in	Deciduous
11	4in	Deciduous
12	4in	Deciduous
13	4in	Deciduous
14	4in	Deciduous
15	4in	Deciduous
17	9in	Cherry

TOTAL : 10



SCALE 0 25' 50'

PROJECT	SHEET NO.
-	10

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
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SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
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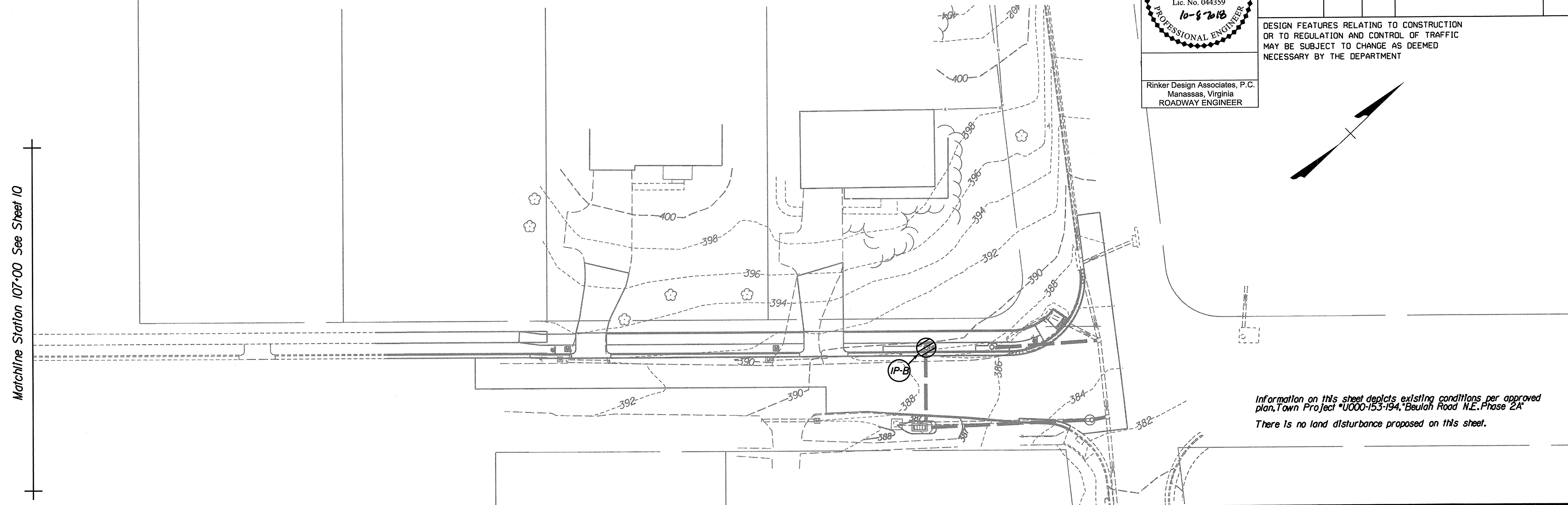
Office Locations

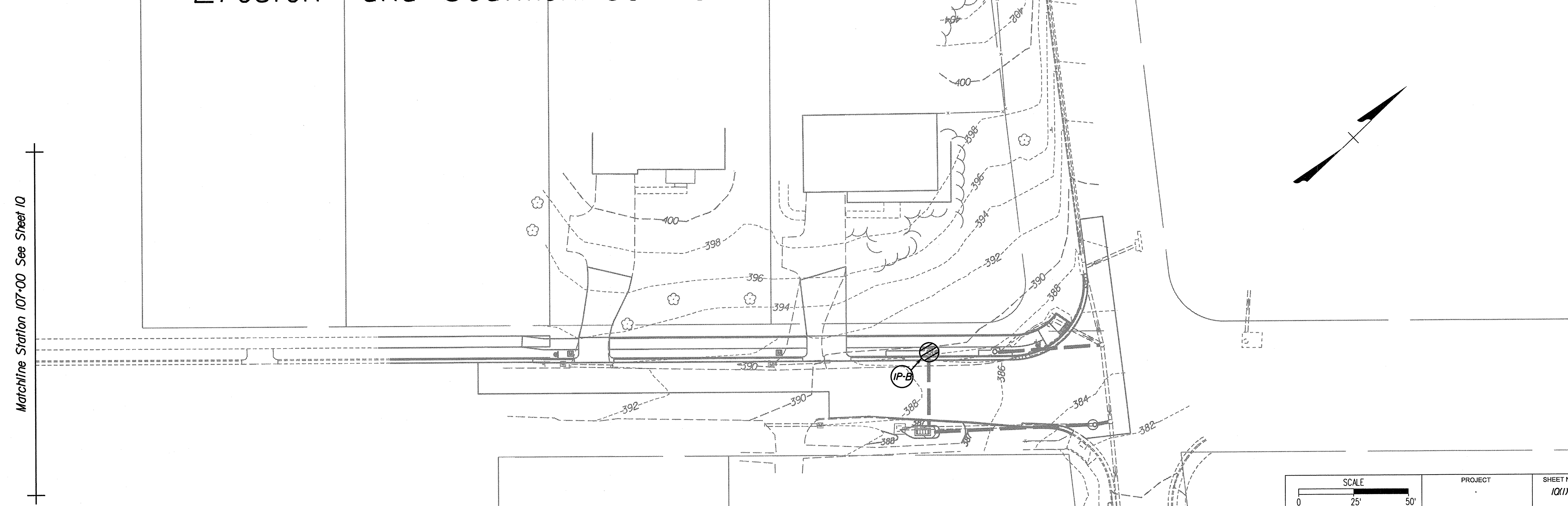
Erosion and Sediment Control Plan Phase 1



Information on this sheet depicts existing conditions per approved plan, Town Project #U000-153-194, "Beulah Road N.E. Phase 2A"

There is no land disturbance proposed on this sheet.

Erosion and Sediment Control Plan Phase 2



TOWN OF VIENNA

10/8/2018

SCALE	PROJECT	SHEET NO.
0 25' 50'	-	10(1)

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher, P.E. (703) 255-6383
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SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

General Notes & Details

REVISED	STATE	STATE ROUTE	PROJECT	SHEET NO.
	VA.	6933		2

COMMONWEALTH OF VIRGINIA — ADAM D. WELSCHENBACH Lic. No. 044359 10-8-2018 — PROFESSIONAL ENGINEER

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

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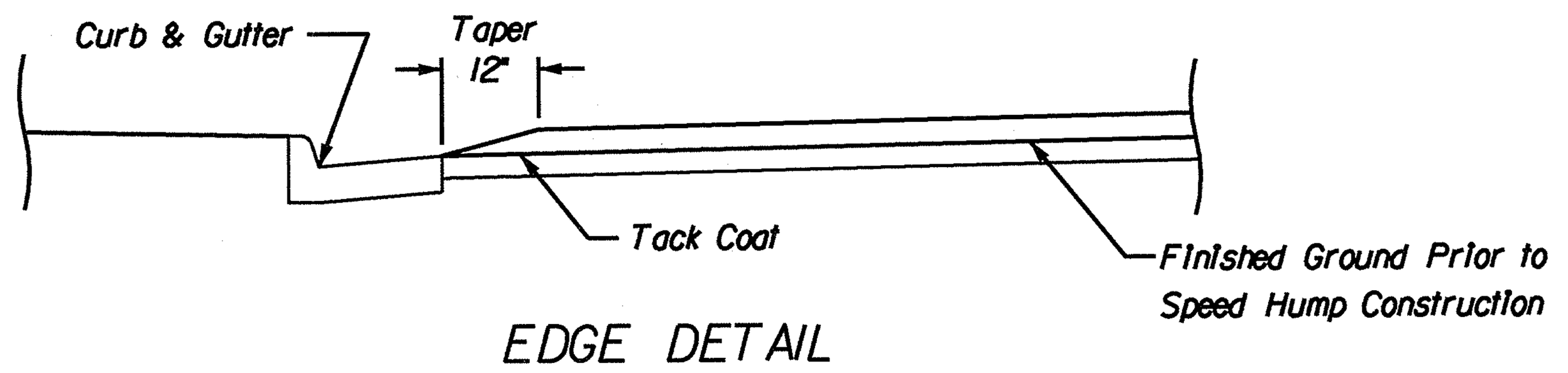
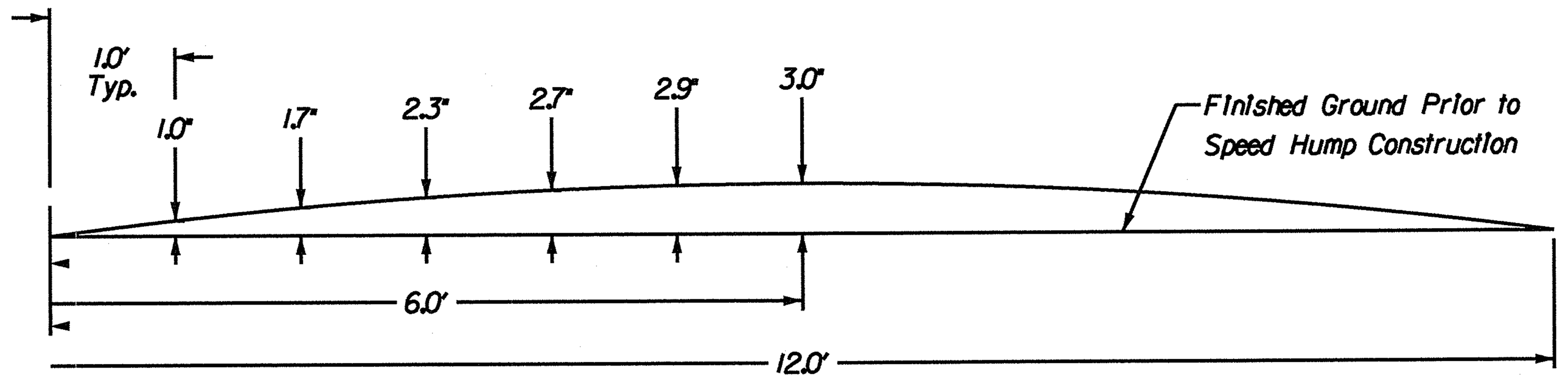
Traffic Calming Measure - Speed Hump
(Not to Scale)



EDGE DETAIL



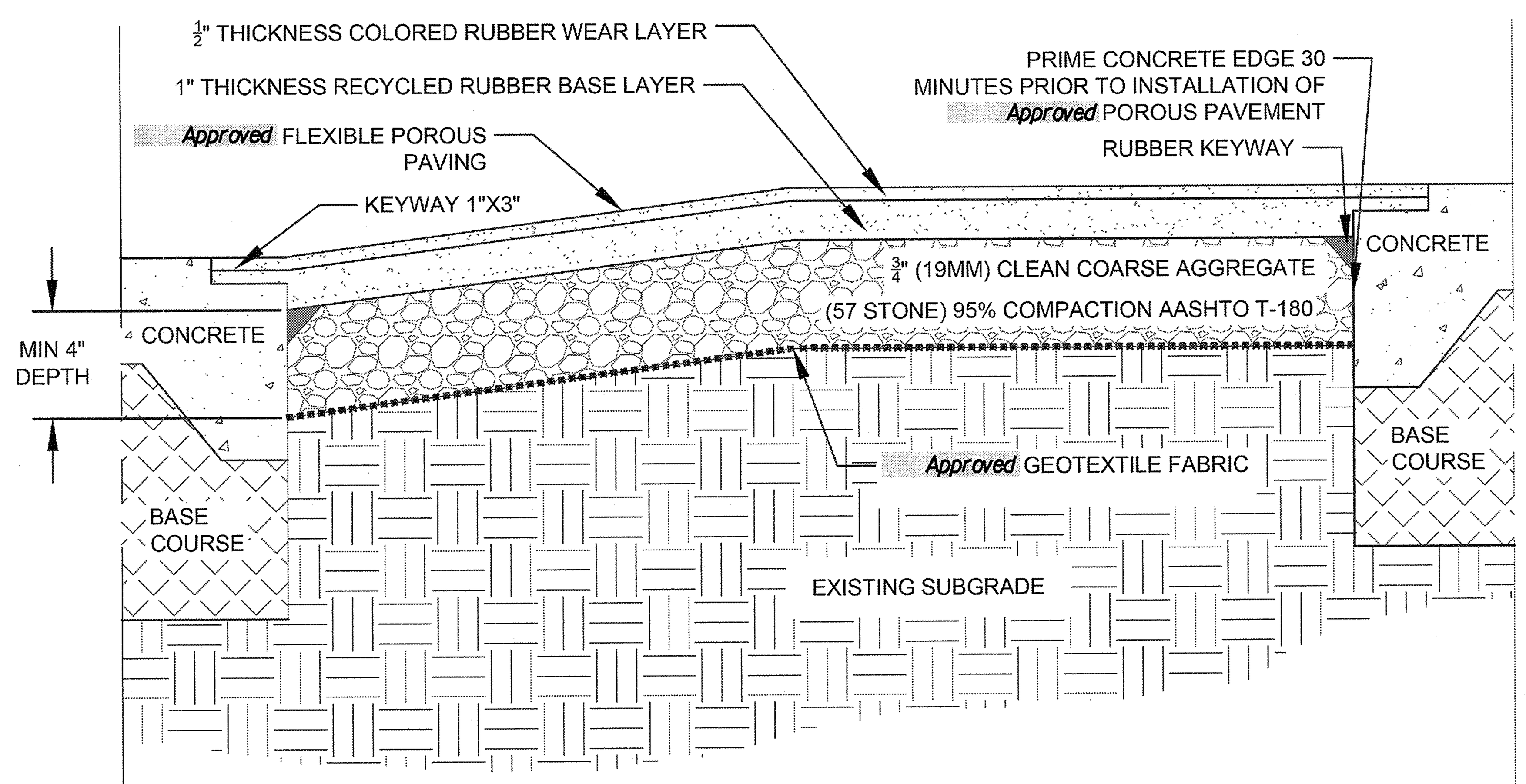
CROSS SECTION

Notes
1. The speed hump shall be constructed with the same surface mix asphalt used to pave the underlying and adjacent roadway.
2. The underlying pavement shall be milled a minimum of 2" along the entire speed hump perimeter including below the 12" tapers.
3. Pavement shall be milled and overlaid a minimum of 5 feet on each side of the speed hump as shown on plans.

Porous Sidewalk Details

Cost per Square Yard of Porous Sidewalk shall include all labor, materials (as per this typical section), and equipment needed to install porous sidewalk per this typical sction. No root cutting shall occur past a depth of 4" without the presence of Town Arborist. Porous Sidewalk shall be of a color near match to adjacent newly installed sidewalk. Porus Sidewalk rubber material shall be of a continous pour material, not segments or sheets (no exceptions).

Contractor shall provide all specifications to Town for approval prior to ordering of any materials related to porous sidewalk installation.



GRADING GENERAL NOTES

1. The grade line denotes top of finished pavement unless shown otherwise on typical sections or plans.
2. The cost of removal of all existing concrete items located in the area to be graded, including, but not limited to the following, shall be included in the price bid for regular excavation: Small Footings, Light Pole Foundations, End Walls, Drop Inlets, Manholes, Pipes, Concrete Slabs, Curb and Gutter, Concrete or Asphalt Sidewalk, Paved Ditches, Foundation Slabs, and Base or Brick Items.
3. The excavation of material as specified on these plans is subject to change. If, during construction, it is deemed necessary to change the depth more than 1 foot (0.3 m) or the limits of such excavation, such change shall be made at the direction of the Engineer and measurement and payment shall be made in accordance with Section 303 of the applicable VDOT Road and Bridge Specifications.
4. The borrow material for this project shall be a minimum CBR 6 or as approved by the Town Engineer. Material classified as CH or MH in its natural state according to ASTM D 2487 or ASTM D 2488 shall not be hauled on site as borrow material.

DRAINAGE GENERAL NOTES

1. Existing drainage facilities being utilized as a part of the drainage system, including three structures and pipes downstream of the project area, shall be cleaned out as directed by the Engineer. The cost incidental to this shall be included in the contract price for other items and shall not be covered as a separate pay item.
2. When CG-6 or CG-7 is specified on a radius (such as at a street intersection), the Engineer may approve a decrease in the cross slope of the gutter to facilitate proper drainage.
3. All excavated areas shall be restored and/or patched the same day. Prior to beginning the work, the Contractor shall submit an acceptable contingency plan to the Town outlining temporary protective measures to be utilized should the Contractor be unable to complete the restoration prior to the end of the work day.

PAVEMENT GENERAL NOTES

1. The pavement materials on this project will be paid for on a tonnage basis. The weight will vary in accordance with the specific gravity of the aggregates and the asphaltic content of the mix actually used to secure the design depth. The weight of the asphalt concrete is based on 95% of the theoretical maximum density.
2. For bidding purposes, the Contractor shall utilize the typical section on sheet 2A. Prior to the start of construction, the Contractor shall obtain pavement cores (as directed by the Town) and submit a pavement design for approval by the Town. Proposed pavement is required in all locations adjacent to proposed curb (1' width) in accordance with VDOT's WP-2 standard.

INCIDENTAL GENERAL NOTES

1. Certain trees shall be preserved as noted on plans or as directed by the Engineer.
2. When Standard slope roundoffs would damage trees, bushes or other desirable vegetation, they shall be omitted when so ordered by the Town.
3. Clearing and grubbing shall be confined to those areas needed for construction. No trees or shrubs in ungraded areas shall be cut without the permission of the Town.
4. Any monuments disturbed by the Contractor shall be restored at the Contractor's expense.
5. The "Underground Utilities" survey data on this project has been provided by Mid-Atlantic Utility Locating, LLC.
6. All pavement markings and traffic flow arrows shown on the roadway construction plans are schematic only. The actual location and application of pavement markings shall be in accordance with Section 704 of the applicable VDOT Road and Bridge Specifications, MUTCD, sequence of construction/traffic control plans, pavement marking plan sheet 5, and as directed by the Town.
7. The following outside sources have provided information on this project:
   Hydraulic Design — Rinker Design Associates, P.C.
   Roadway Design — Rinker Design Associates, P.C.
   Utility Designation — Mid-Atlantic Utility Locating, LLC
   Utility Location — Mid-Atlantic Utility Locating, LLC
   Survey — Rinker Design Associates, P.C.
   If questions or problems arise during construction, please contact the Town of Vienna. DO NOT CONTACT THE OUTSIDE SOURCES.
8. The Official Electronic PDF Version of the plans will override the paper copies or prints of specific layers.
9. All electronic plan assemblies will include the construction plans in one format: PDF files. Only the PDF files will be considered as part of the official plan assembly.

EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES

1. Rock for Check Dams, Inlet Protection, Erosion Control Stone and Riprap shall be in accordance with Section 203 and Section 414 of the applicable VDOT Road and Bridge Specifications.
2. See Sheets 1P and 1P(1) for additional Erosion & Sediment Control Notes and for the Erosion & Sediment Control Legend.

GENERAL NOTES

1. The Contractor shall conduct a post construction visual/video camera inspection of all storm sewer pipes and pipe culverts in accordance with the requirements of Section 302.03(d) of the VDOT 2016 Supplemental Road & Bridge Specifications and VTM 123.
2. The Contractor shall present a TMP/SOC plan to the Town for approval prior to the start of construction.
   -All entrances shall remain open during non-working hours or as directed by the Town.
3. All work shall be in accordance with the current edition of the Manual on Uniform Traffic Control Devices (MUTCD), the current edition of the VDOT Road and Bridge Specifications, the current edition of the VDOT Road and Bridge Standards, current VDOT insertable sheets to the Road and Bridge Standards, and all special provisions in effect at the time the plan is approved. The Contractor is to also perform all work in accordance with all current revisions to the Road and Bridge Standards, as applicable.
4. The Contractor shall follow all Town of Vienna requirements for planting trees (including installing any tree root barrier when trees are to be installed adjacent to proposed curb) at no additional cost to the project.
5. The Contractor is responsible for locating all utilities. Utilities shown on plans are not guaranteed. Any disruption/impact in utility service is the sole responsibility of the Contractor. The Contractor is responsible for all utility relocation efforts/coordination to ensure utilities are relocated and/or reset (as needed for utility boxes, pole guys etc.) and/or sidewalk guy wires are installed. The Contractor is responsible for all costs not covered by the Town of Vienna's utility franchise agreement(s). Coordination with Town of Vienna is required.
6. The Contractor shall provide Construction Surveying in accordance with VDOT's 2016 Road and Bridge Specifications under the direction of a Virginia Licensed Land Surveyor. Additionally the Contractor shall provide Construction Engineering Inspection (CEI) services as directed by the Town (if requested) at no additional cost to the project.
7. As required by state law, the Contractor shall contact Miss Utility of Virginia at 1-800-522-7001 or dial "811", a minimum of 48 hours prior to any construction activity.

Rinker Design Associates, P.C.
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services

TOWN OF VIENNA

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept.; Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.; Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.; Adam Welschenbach, P.E. (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

Typical Sections & Details

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		2A

COMMONWEALTH OF VIRGINIA — ADAM D. WELSCHENBACH Lic. No. 044359 — 10-8-2018 — PROFESSIONAL ENGINEER

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

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

PRIVATE ENTRANCES

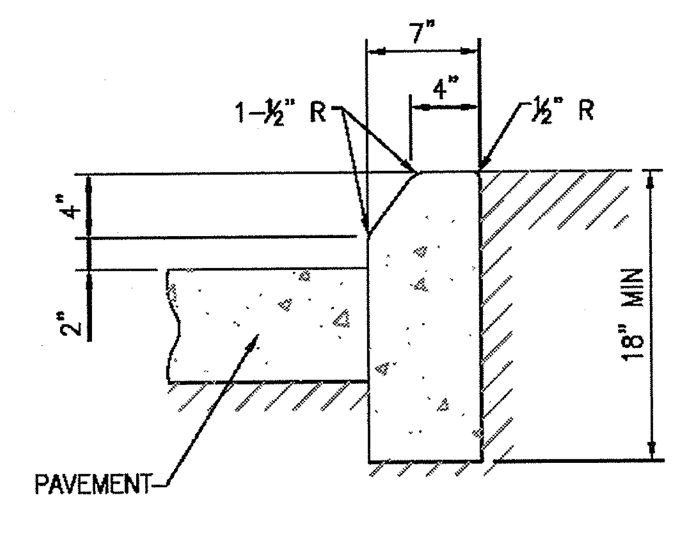
TYPE II Concrete	TYPE III Asphalt
Concrete Entrance Pavement 7" HES	Asphalt Conc. Type SM-9.5A or SM-9.5D @ 220 Lbs. per S.Y.
6" Aggr. Base Mat'l. Ty. I No. 21A or 21B	4" Aggr. Base Mat'l. Ty. I No. 21A or 21B

NOT TO SCALE

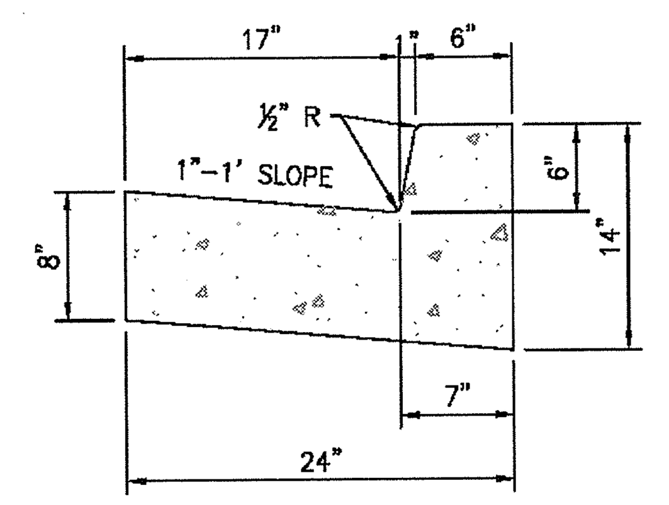
Notes:

1. The type of entrance (II or III) to be constructed will be determined by the existing condition at the time of construction or as directed by the Town Engineer.
2. Contractor shall ensure all driveway grading activities provide for positive drainage during and post-construction of the project. Any ponding/drainage issues arising due to construction activities are the sole responsibility (including costs) of the Contractor. The Contractor shall coordinate with the Town and property owners/residents prior to the start of construction.
3. The Contractor's price for Asphalt Conc. Type SM-9.5D shall include (at no additional cost to the project) the tie to existing driveways, 5' beyond what is shown in the plans, to provide a better (smoother) tie, at the discretion of the Town Engineer.

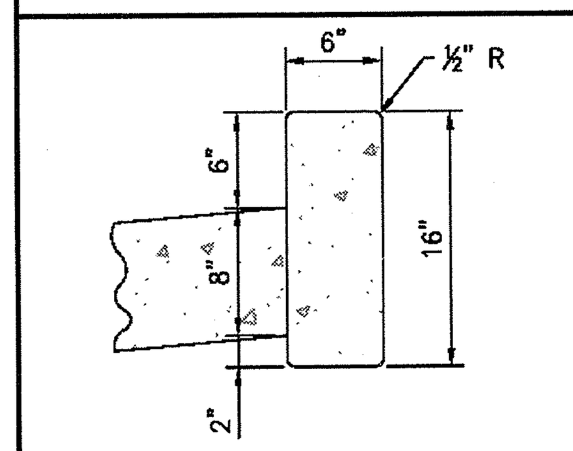
MODIFIED CG-6



STANDARD MEDIAN CURB



STANDARD CURB & GUTTER



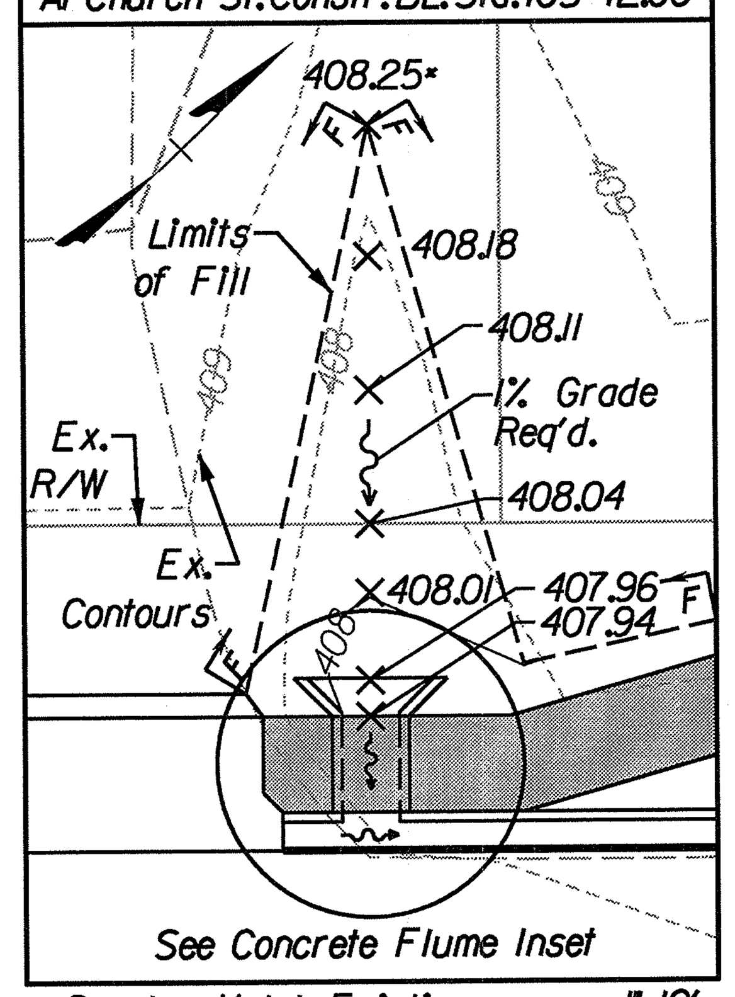
STANDARD HEADER CURB

NOTES:

1. CONSTRUCTION JOINTS AT 10' ON CURB.
2. ALL CONCRETE SHALL BE CLASS A-4, AIR-ENTRAINED.
3. EXPANSION JOINTS IN HEADER CURB, CURB AND GUTTER TO BE 40' APART AND AT ALL POINTS AT THE P.C. & P.T. OF CURVES.
4. CONSTRUCTION JOINTS IN SIDEWALK TO BE 5' APART. EXPANSION JOINTS IN SIDEWALK TO BE 40' APART. IF SIDEWALK IS AT THE CURB, EXPANSION JOINTS TO MATCH JOINT IN CURB, ALSO EXPANSION JOINTS BETWEEN CURB AND SIDEWALK. DOWELS AND SLEEVES TO BE INSTALLED IN C&G JOINTS WHERE SUB-GRADE IS UNSTABLE.
5. EXPANSION JOINTS REQUIRED WHERE SIDEWALKS MEET DRIVEWAY APRONS.

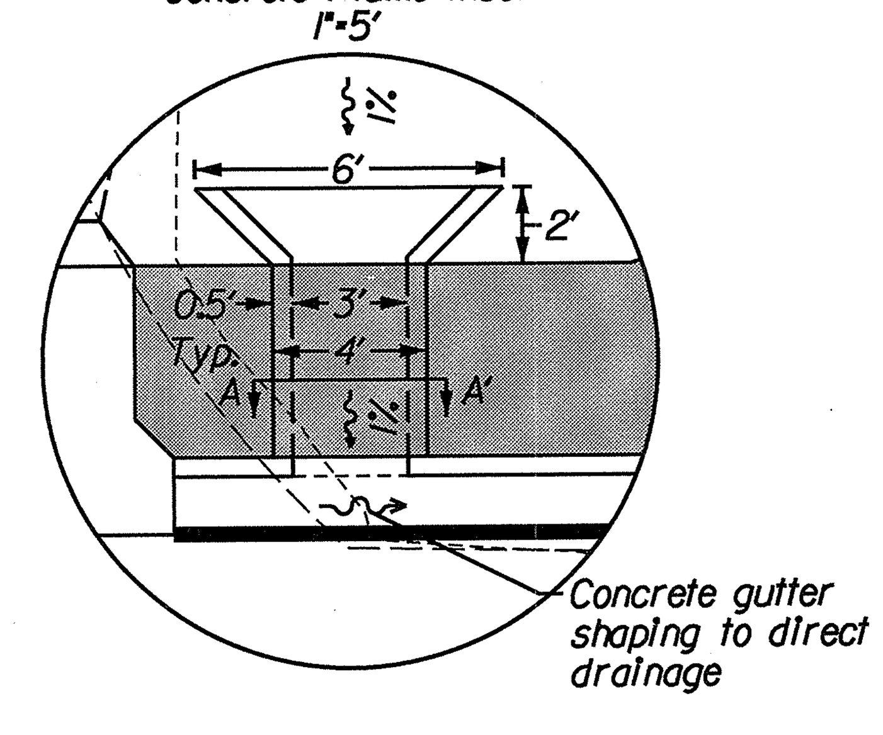
STANDARD CURB, GUTTER & SIDEWALK
TOWN OF VIENNA
DEPARTMENT OF PUBLIC WORKS
PREPARED: 11-10-2010
REVISED: 5-18-2011

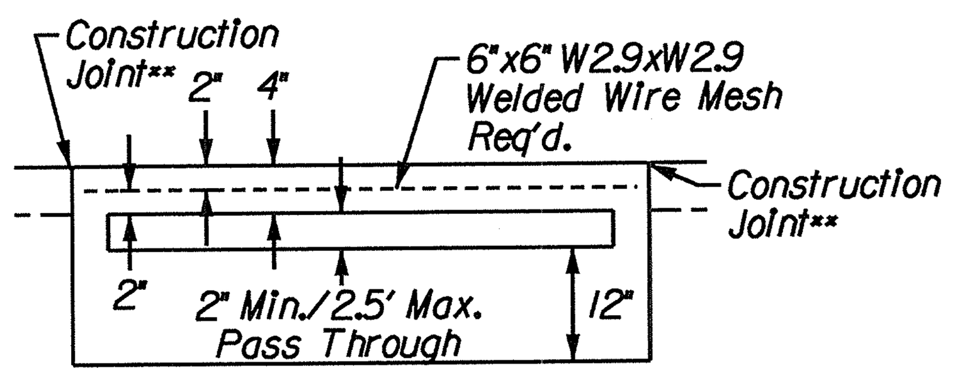
Concrete Flume Grading Detail At Church St. Constr. BL. Sta. 105+42.00



* Denotes Match Existing. 1"=10'
X Proposed Elevation
See Cross Section 105+42.00 on Sheet X-4 for addition details.

Concrete Flume Inset 1"=5'

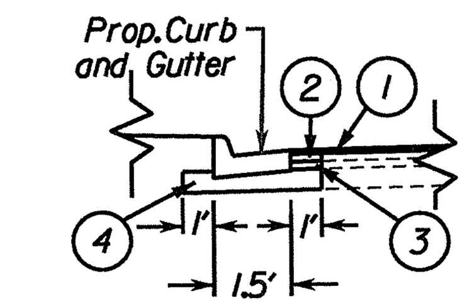




Concrete Flume Section A-A' (Not to Scale)

** Construction Joints to be 1/4"W x 1/2"D grooves finished with hot-poured elastomeric sealant all-around
Concrete Flume Shall be Class A4 Concrete

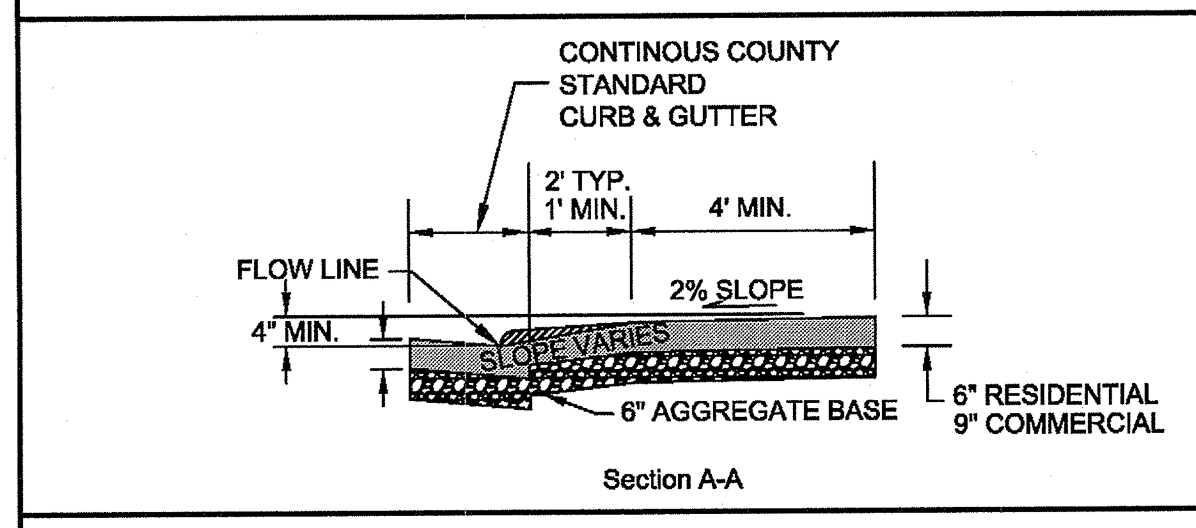
Recommended Pavement Typical (For "Full Depth Pavement")

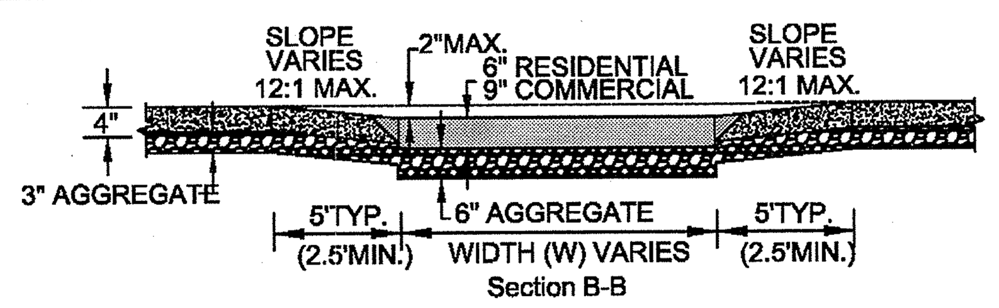


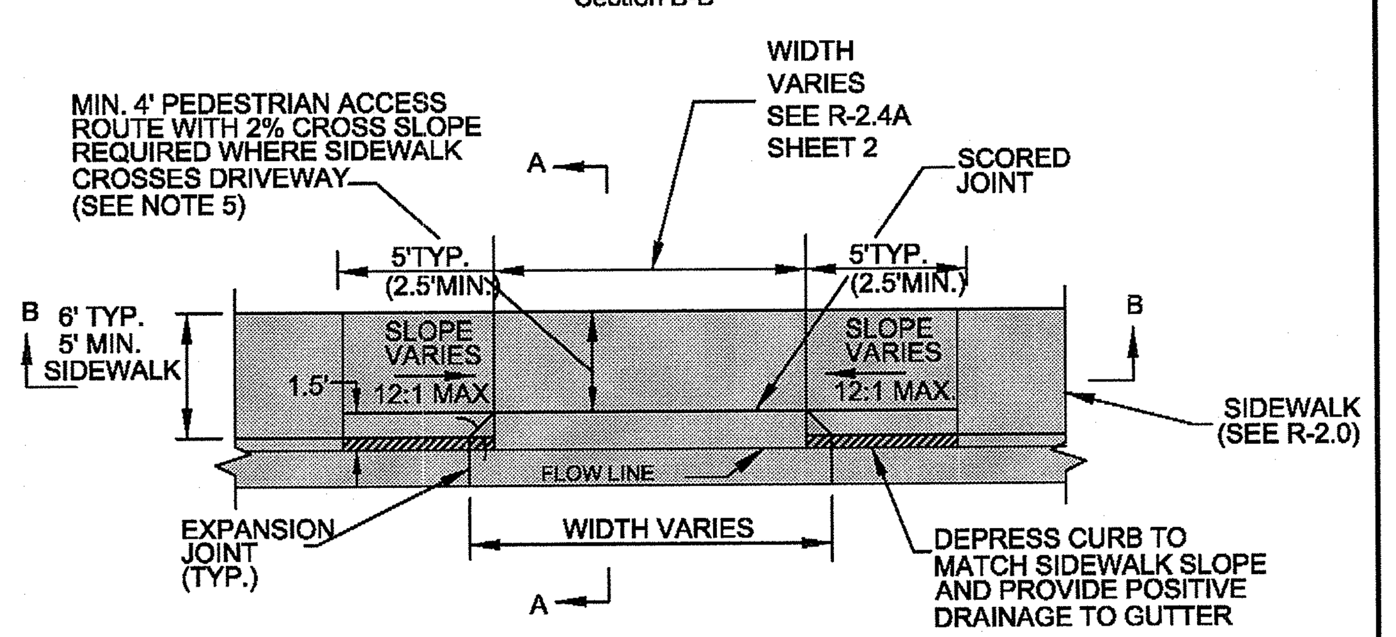
Note: Pavement design shown is for estimate purposes only. Contractor shall obtain two (2) pavement cores and match existing pavement.

1. Surface Course - (2") Asph. Conc. Type SM-9.5A
2. Intermediate Course - (3") Asph. Conc. Type IM-19.0A
3. Base Course - (3") Asph. Conc. Type BM-25.0A or match existing, whichever is greater
4. Sub-base Course - (8") Aggregate Base Material, Type I, Size No. 21B or match existing, whichever is greater

Standard R-2.4C

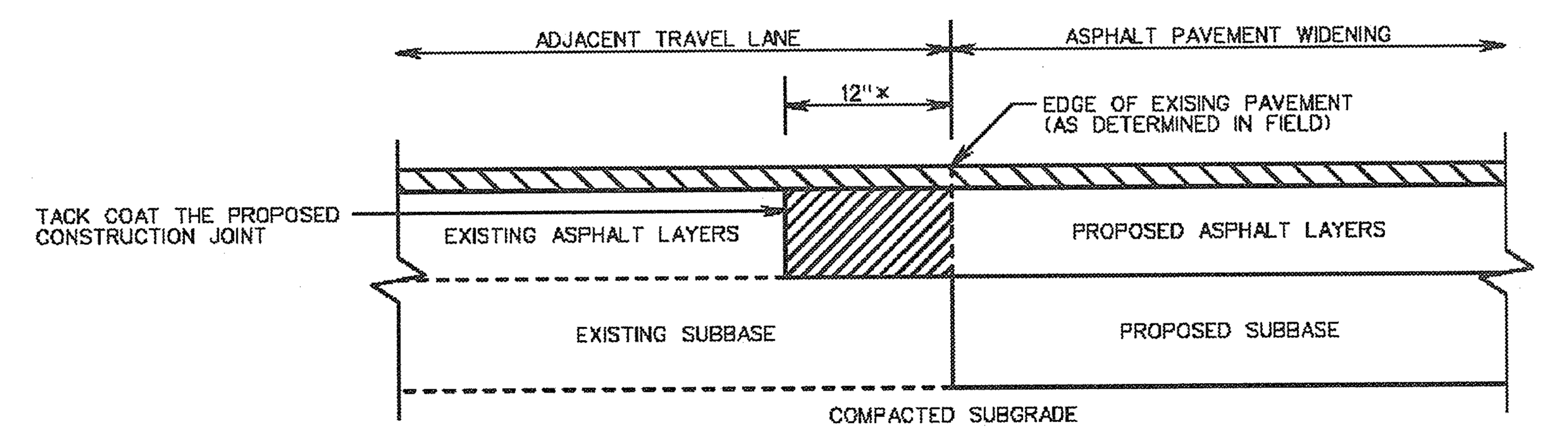






CONCRETE DRIVEWAY ENTRANCE (MOUNTABLE CURB)	07-08
	04-10
	9/26/13 Naming
	REVISION & DATE

WP-2



CONSTRUCTION JOINT DETAIL

- REMOVE EXISTING ASPHALT LAYERS TO EXISTING SUBBASE AND REPLACE WITH PROPOSED ASPHALT WIDENING LAYERS
- PROPOSED MINIMUM 1½ INCH THICK ASPHALT SURFACE COURSE (SEE NOTE 5)
- * MINIMUM 12 INCHES, OR GREATER AS NECESSARY TO ABUT THE FULL THICKNESS OF EXISTING ASPHALT LAYERS AS DETERMINED BY CORES (SEE NOTE 3)

NOTES:

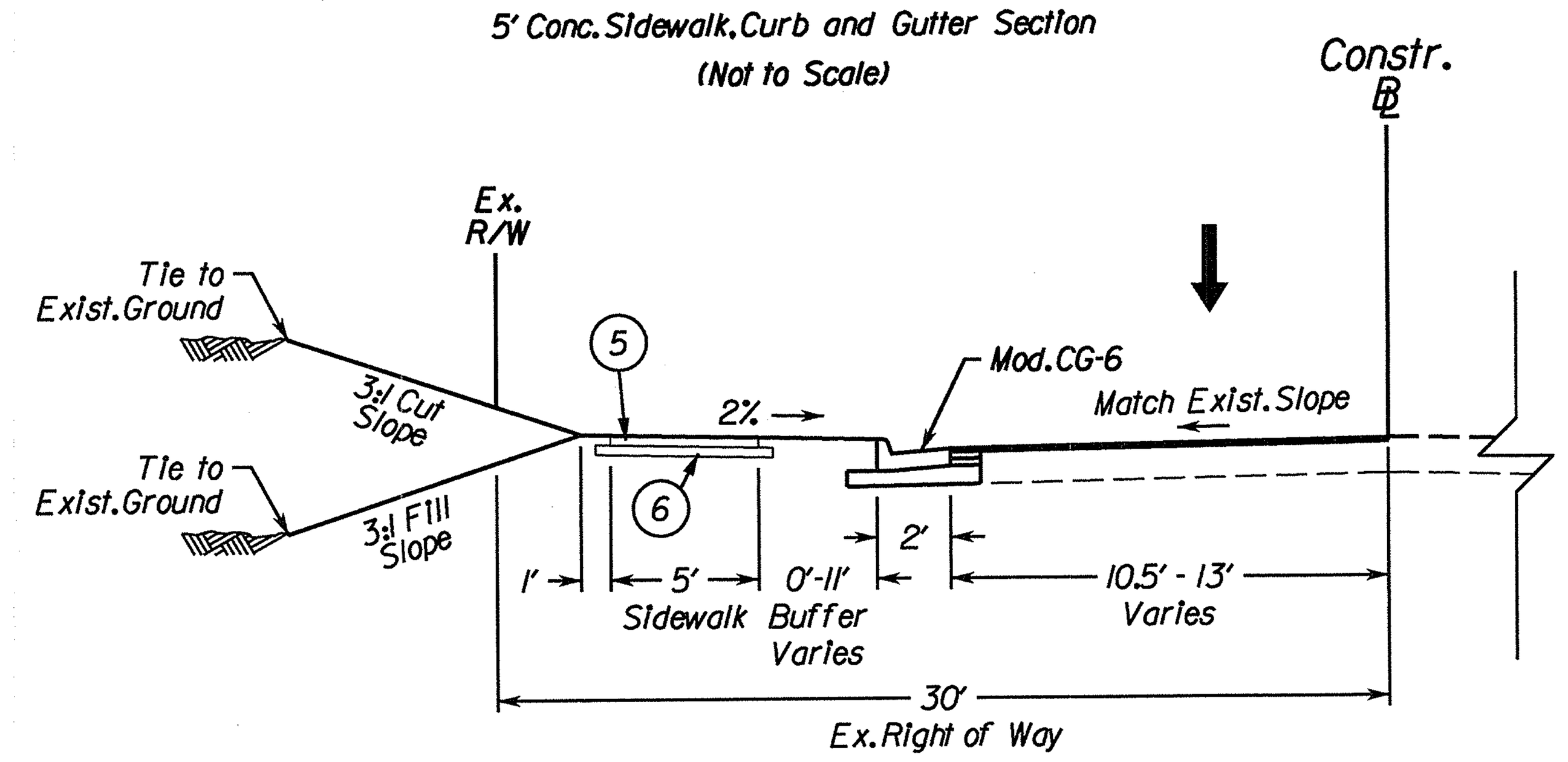
1. ASPHALT PAVEMENT WIDENING SHALL HAVE A PAVEMENT DESIGN IN ACCORDANCE WITH CURRENT VDOT PROCEDURES AND BE APPROVED BY THE ENGINEER.
2. THE PAVEMENT DESIGN FOR ASPHALT PAVEMENT WIDENING SHALL MEET OR EXCEED THE DEPTHS AND TYPES OF THE LAYERS OF EXISTING PAVEMENT. SUBSURFACE DRAINAGE OF THE EXISTING AND PROPOSED PAVEMENT SHALL BE ADDRESSED IN THE PAVEMENT DESIGN.
3. A MINIMUM OF THREE CORES SHALL BE TAKEN ALONG THE CENTER OF THE ADJACENT TRAVEL LANE TO DETERMINE THE TYPE AND THICKNESS OF EXISTING PAVEMENT LAYERS. THESE CORES SHALL BE SPACED NO MORE THAN 500 FEET APART.
4. THE ADJACENT TRAVEL LANE SHALL BE MILLED A MINIMUM DEPTH OF 1½ INCHES AND REPLACED WITH AN ASPHALT SURFACE COURSE TO MATCH THE PROPOSED PAVEMENT WIDENING SURFACE COURSE, UNLESS WAIVED BY THE ENGINEER.
5. THE ENGINEER MAY REQUIRE THE MILLING DEPTH OF THE EXISTING PAVEMENT TO BE ADJUSTED TO ACHIEVE AN ACCEPTABLE PAVEMENT CROSS-SLOPE AND EFFECTIVE SURFACE DRAINAGE.
6. EXISTING PAVEMENT MARKINGS AND MARKERS WITHIN THE PROJECT LIMITS SHALL BE RESTORED SUBJECT TO THE APPROVAL OF THE ENGINEER.
7. FINAL TRANSVERSE PAVEMENT TIE-IN SHALL CONFORM TO THE REQUIREMENTS OF SECTION 315.05(c) OF THE SPECIFICATIONS EXCEPT THAT ALL JOINTS AT TIE-IN LOCATIONS SHALL BE TESTED USING A 10 FOOT STRAIGHTEDGE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 315.07(a) OF THE SPECIFICATIONS.

* The Contractor shall obtain two pavement cores to verify existing pavement structure.

VDOT ROAD AND BRIDGE STANDARDS	ASPHALT PAVEMENT WIDENING FOR WIDENING SUBJECT TO TRAFFIC VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE
SHEET 1 OF 1 — REVISION DATE — 303.02		315

Church Street (Rte. 6933)

5' Conc. Sidewalk, Curb and Gutter Section
(Not to Scale)



STATION	TO	STATION
100+52.50		106+63.39

5. Concrete Sidewalk - (4") Class A4 Hydraulic Cement Concrete
6. Concrete Sidewalk Base - (4") Aggr. Base Material, Type I, Size No. 21A extended (6") either side of the Sidewalk

TYPICAL SECTION GENERAL NOTES

1. Contractor shall obtain two pavement cores on Church Street N.E. to determine the existing pavement design to install with curb/gutter installation. All pavement widening shall match existing pavement design and shall be done in accordance with VDOT's WP-2 standard and shall provide positive drainage for all layers applicable. The Town's approval of pavement to be applied is required prior to ordering of materials or pavement application.
2. Milling of the existing pavement shall consist of 2" minimum mill prior to any resurfacing/build-up.

Rinker Design Associates, P.C. Civil Engineering - Surveying - Land Planning - Transportation - Environmental - Right of Way Services
Office Locations

TOWN OF VIENNA

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

Drainage Descriptions, Details, and Profiles

COMMONWEALTH OF VIRGINIA — ADAM D. WELSCHENBACH, Lic. No. 044359, 10-8-2018, PROFESSIONAL ENGINEER

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

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		2K

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

Existing Drainage Descriptions

(1) Ex. Storm Inlet
Ex. Rim=385.77
Ex. Inv. In=379.70
Ex. Inv. Out=379.15

(2) Ex. Storm Manhole
Ex. Rim=386.02
Ex. Inv. In=381.22
Ex. Inv. Out=381.00

(3) Ex. Storm Manhole
Ex. Rim=390.48
Ex. Inv. In=386.93 (From 4)
Ex. Inv. In=386.71 (From 6)
Ex. Inv. Out=386.59

(4) Ex. Storm Manhole
Ex. Rim=395.89
Ex. Inv. In=392.86
Ex. Inv. Out=392.07

(5) Ex. Storm Pipe
Ex. Inv.=396.69

(6) Ex. Storm Inlet
Ex. Rim=390.82
Ex. Inv. Out=386.92

(7) Ex. Storm Manhole
Ex. Rim=384.75
Inverts Unobtainable (Silted In)

(8) Ex. Storm Inlet
Ex. Rim=385.58
Inverts Unobtainable (Silted In)

(9) Ex. Storm Inlet
Ex. Rim=385.04
Inverts Unobtainable (Silted In)

(10) Ex. Storm Manhole
Ex. Rim=384.90
Inverts Unobtainable (Silted In)

(11) Ex. Storm Inlet
Ex. Rim=384.40
Inverts Unobtainable (Silted In)

(12) Ex. Storm Inlet
Ex. Rim=384.34
Ex. Inv. In=380.18
Ex. Inv. Out=379.06

(13) Ex. End Section
Ex. Inv.=383.86

(14) Ex. Storm Pipe
Ex. Inv.=396.66

(15) Ex. Storm Pipe
Ex. Inv.=396.66

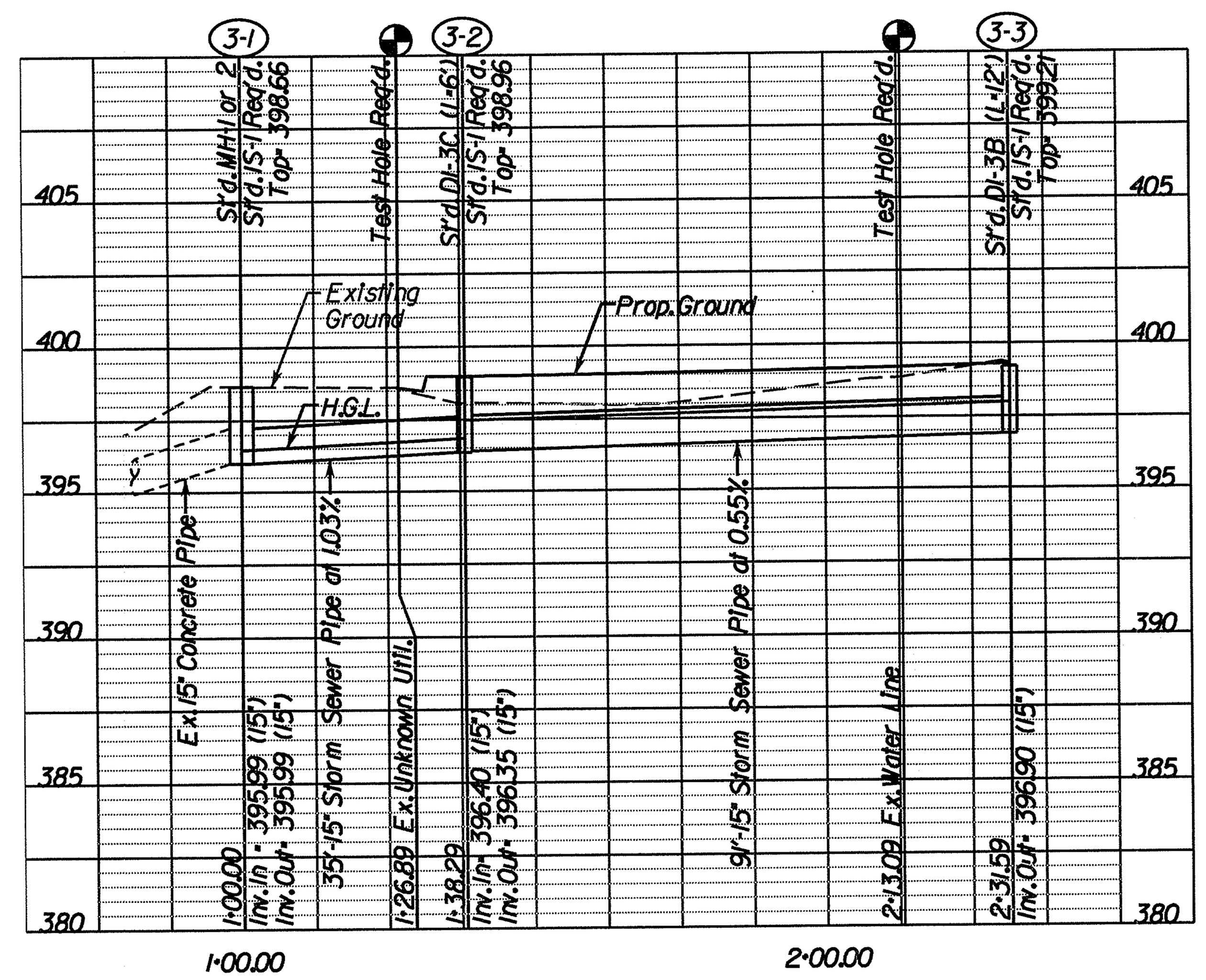
Proposed Drainage Descriptions

3-1	2.0 Lin. Ft. St'd. MH-1 or 2 Req'd. 1 St'd. MH-1 Frame & Cover Req'd. Inv.= 395.99 Top = 398.66 Connect to Existing 15" Pipe St'd. IS-1 Req'd.
3-2	1 Mod. DI-3C Req'd. L=6', H=2.6' Inv.=396.35 Top=398.96 1 St'd. Monolithic Box Req'd. (less than minimum height) See Detail this Sheet Type B Nose Req'd. St'd. IS-1 Req'd.
3-2 to 3-1	35'-15" Storm Sewer Pipe Req'd. (1' Cover) Inv. (in) 396.35 Inv. (out) 395.99
3-3	1 Mod. DI-3B Req'd. L=12', H=2.3' Inv.=396.90 Top=399.21 1 St'd. Monolithic Box Req'd. (less than minimum height) See Detail this Sheet Type B Nose Req'd. St'd. IS-1 Req'd.
3-3 to 3-2	91'-15" Storm Sewer Pipe Req'd. (1' Cover) Inv. (in) 396.90 Inv. (out) 396.40

Storm Sewer Profiles

PROP. STR. 3-3 TO PROP STR. 3-1

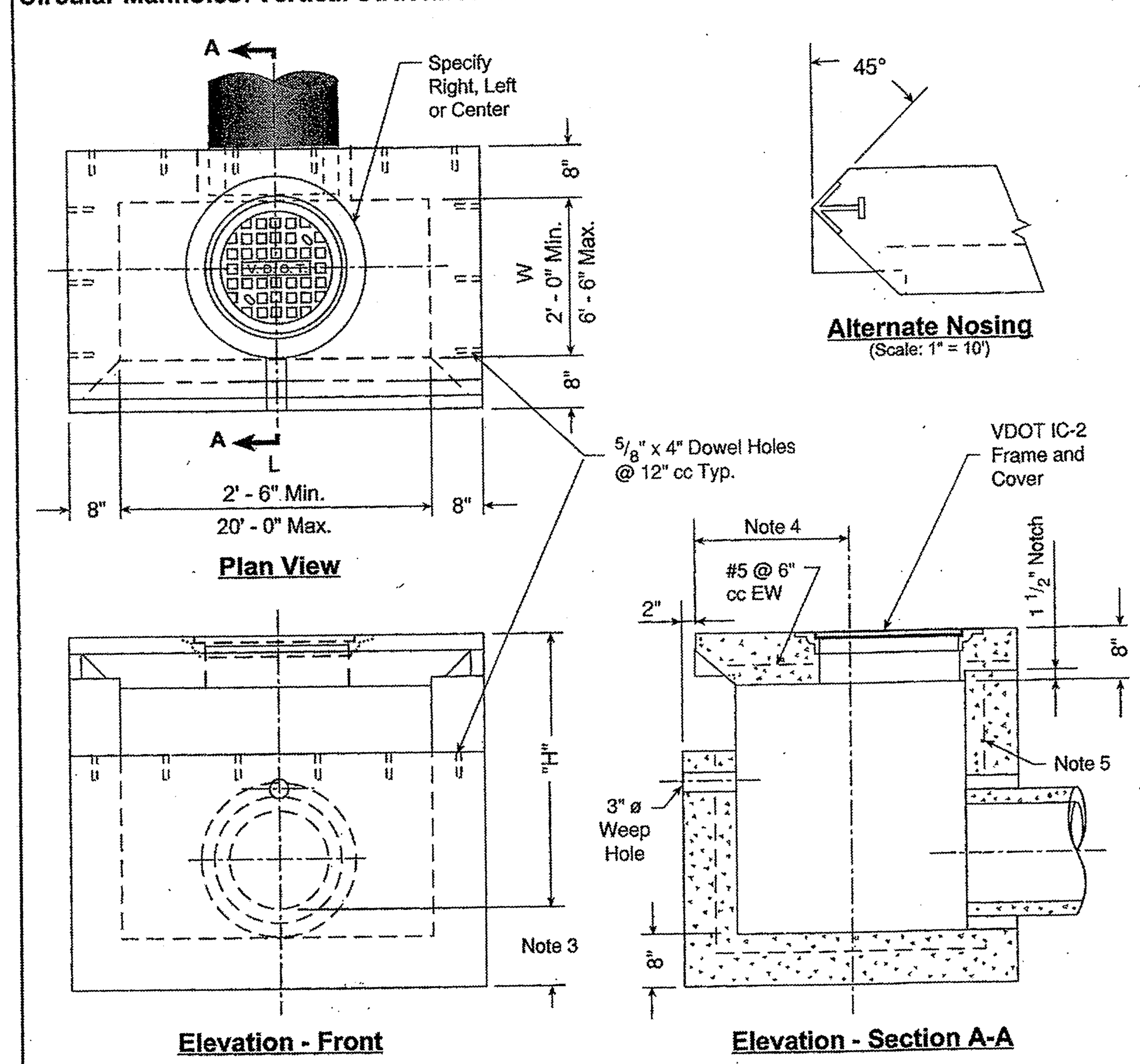
SCALE: H=1"=25', V=1"=5'



1) Only existing Utilities, at the time of the survey, are shown on the Storm Sewer Pipe Profiles. These profiles do not reflect either planned re-location of Utilities or proposed Utilities. All Utility locations are approximate. The Contractor is also directed to any Utility Plans that may exist as part of this plan assembly.

2) In addition to the visual inspection performed by the Department during the initial installation of storm sewer pipes and pipe culverts, a post installation visual/video camera inspection shall be conducted by the Contractor in accordance with the requirements of Section 302.03(d) of the VDOT 2016 Road & Bridge Specifications.

Circular Manholes / Vertical Structures Curb Inlets



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

Note:
(1.) Dimensions subject to permissible variation of ASTM C478.
(2.) Maximum pipe size to be 60" thru sides, no practical limit thru front or rear.
(3.) Invert to bottom of base = 10" minimum.
(4.) Manhole ℄ to top face of curb = $\frac{W}{2}$ + 6", $\frac{W}{2}$ + 8" to bottom face.
(5.) Reinforcement to be ASTM A615 #4 bars @ 6" ± E.W. unless noted. Material properties: f'_c = 4,000 p.s.i., f_y = 60,000 p.s.i. Concrete cover over reinforcement (CCOR) = 1.5".
(6.) Throat and gutter pan to be poured in field by others.
(7.) Non-traffic loading only.

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

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

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TOWN OF VIENNA

10/8/2018

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25.00 ft / in.

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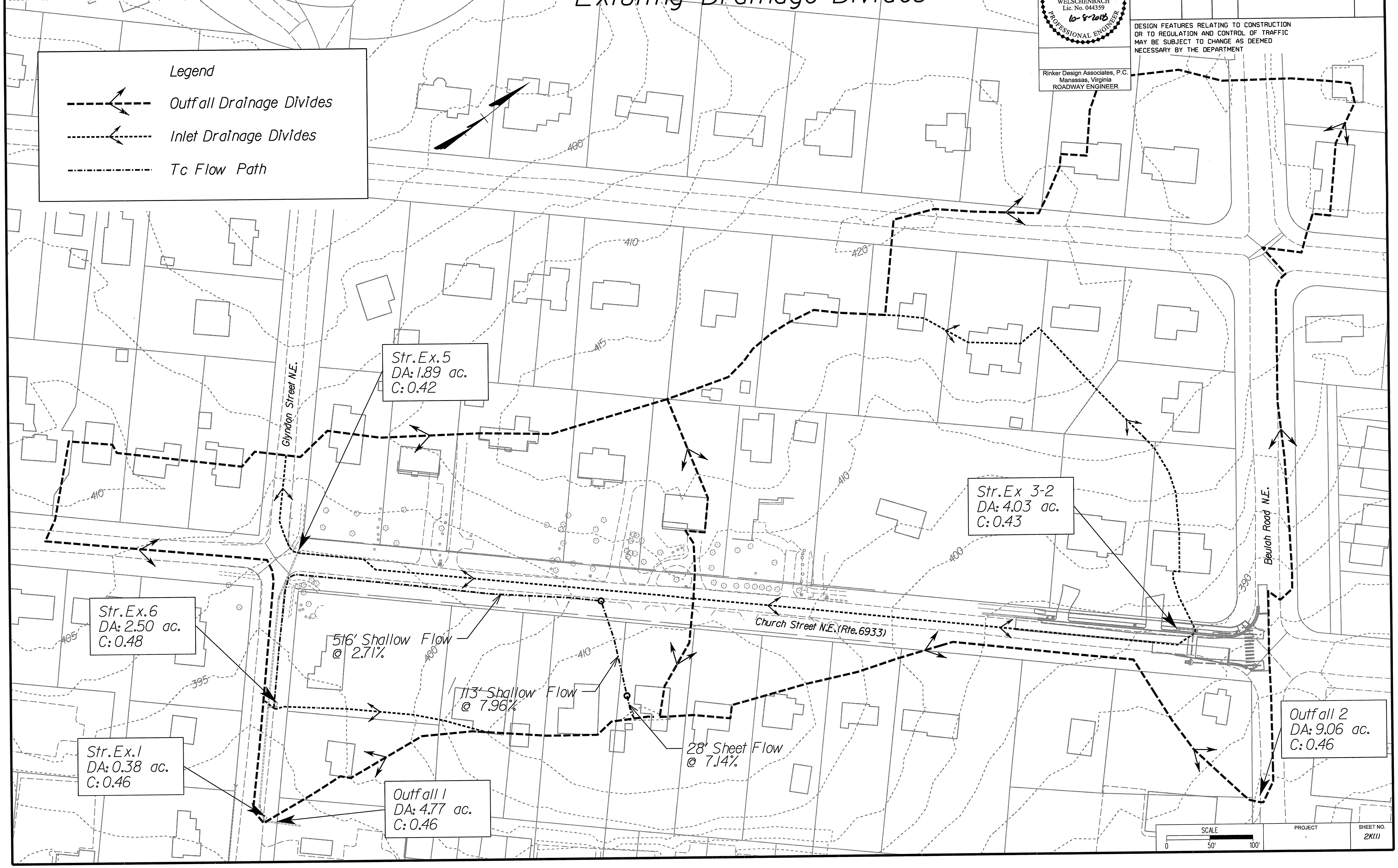
Plotted By: localuser

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

Existing Drainage Divides



COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

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

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		2K(1)

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

PROJECT	SHEET NO.
	2K(1)

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TOWN OF VIENNA

10/8/2018

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25.00 ft / in.

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Plotted By: localuser

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DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

Proposed Drainage Divides

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		2K(2)

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

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

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

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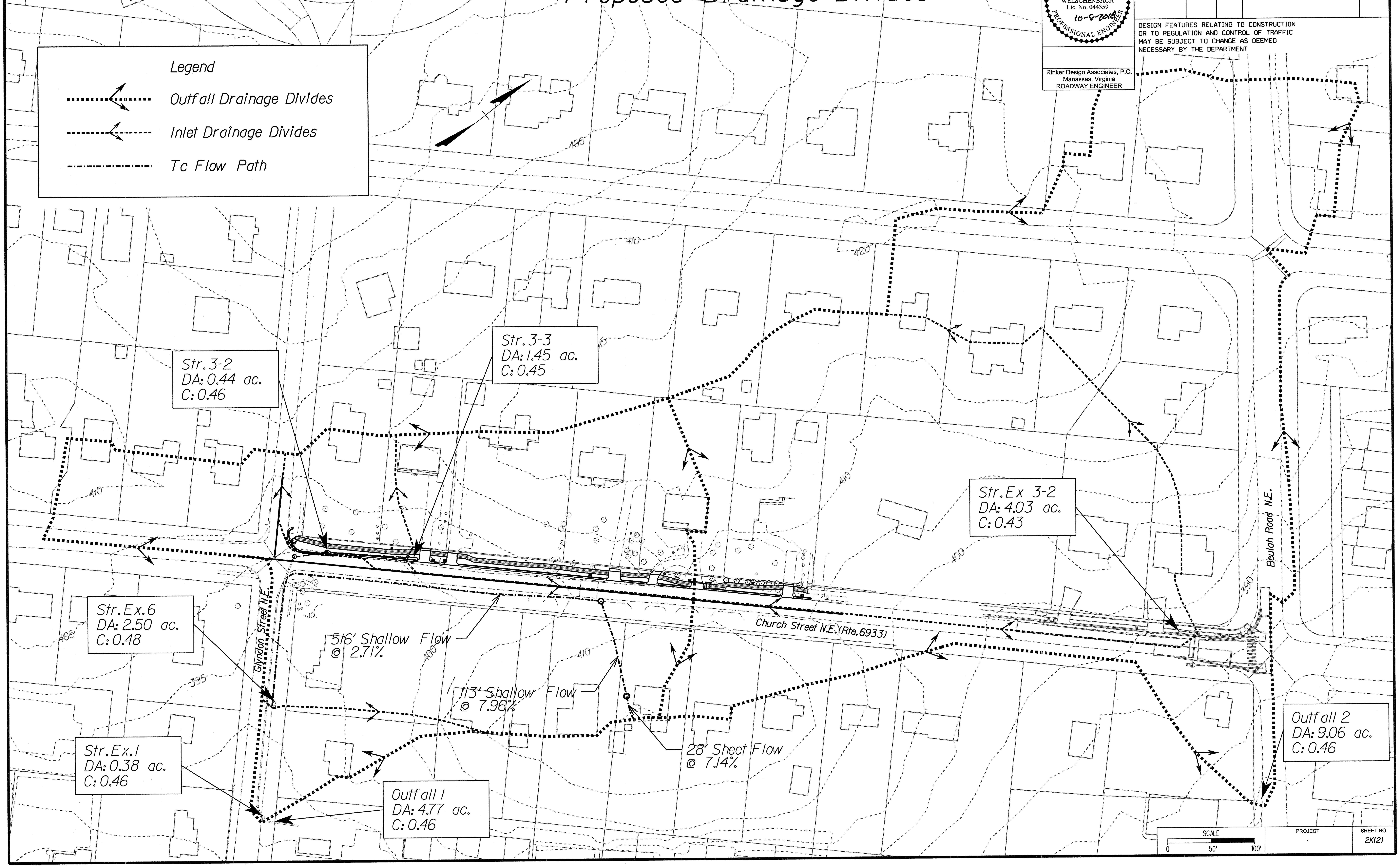
Civil Engineering · Surveying · Land Planning · Transportation · Environmental · Right of Way Services

TOWN OF VIENNA



SCALE	PROJECT	SHEET NO.
0 50' 100'		2K(2)

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept.; Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.; Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.; Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

Storm Sewer Computations

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

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

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		2K(3)

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

PRE-DEVELOPMENT INLET COMPUTATIONS

FORM LD-204
INLET COMPUTATIONS
ROUTE: Church Street NE

DESIGNED BY: APD DATE: 3/9/2018
CHECKED BY: NVD UNITS: ENGLISH

Inlet																														Sag Inlets Only					
Number	Type	Length (Ft)	Station	Drainage Area (Ac)	C	CA	Sum CA	I (In/Hr)	Q Incr. (CFS)	Qc Carryover (CFS)	QT Gutter Flow (CFS)	S Gutter Slope (Ft/Ft)	Sx Cross Slope (Ft/Ft)	T (Spread) (Ft)	W (Gutter Width) (Ft)	W/T	Sw (Gutter Slope) (Ft/Ft)	Sw/Sx	Eo (App.9C-8)	a	S'w	Se	Computed Length (Ft)	L Specified Length (Ft)	L/LT	E (App.9C-18)	Q Intercepted (CFS)	Qb Carryover (CFS)	Depth at Curb (In)	Allowable Ponding Depth (Ft)	Height of Curb Opening h (Ft)	d/h	Depth at Inlet (In)	T Spread @ SAG (Ft)	Remarks
Ex 1	DI-3A	8		0.30	0.40	0.12																													
			0'RIGHT	0.04	0.90	0.04																													
				0.04	0.50	0.02																													
							0.18	4.00	0.70	1.92	2.62	0.0309	0.0208	6.55	2.00	0.3053	0.0833	4.0048	0.778	3.50	0.146	0.134	13.142	8	0.609	0.82	2.14	0.49	3.14						
Ex 3-2*	DI-3B	20		2.00	0.45	0.90																													
			0'RIGHT	1.28	0.42	0.54																													
				0.75	0.40	0.30																													
							1.74	4.00	6.95	0.00	6.95	0.0480	0.0330	7.28	2.00	0.2748	0.0833	2.5242	0.665	3.21	0.134	0.122	23.942	20	0.835	0.96	6.68	0.27	4.09						
Ex 6	DI-3B	8		1.93	0.40	0.77																													
			0.000'RIGHT	0.37	0.90	0.33																													
				0.20	0.50	0.10																													
							1.21	4.00	4.82	0.00	4.82	0.0463	0.0256	7.17	2.00	0.2789	0.0833	3.2539	0.706	3.38	0.141	0.125	19.980	8	0.4	0.60	2.90	1.92	3.59						

* Information for Inlet Ex 3-2 was referenced from approved plans for project "U000-153-194, "Beulah Road N.E. Phase 2A, Pedestrian Traffic Improvements"

POST-DEVELOPMENT INLET COMPUTATIONS

FORM LD-204
INLET COMPUTATIONS
ROUTE: Church Street NE

DESIGNED BY: APD DATE: 3/9/2018
CHECKED BY: NVD UNITS: ENGLISH

Inlet																														Sag Inlets Only					
Number	Type	Length (Ft)	Station	Drainage Area (Ac)	C	CA	Sum CA	I (In/Hr)	Q Incr. (CFS)	Qc Carryover (CFS)	QT Gutter Flow (CFS)	S Gutter Slope (Ft/Ft)	Sx Cross Slope (Ft/Ft)	T (Spread) (Ft)	W (Gutter Width) (Ft)	W/T	Sw (Gutter Slope) (Ft/Ft)	Sw/Sx	Eo (App.9C-8)	a	S'w	Se	Computed Length (Ft)	L Specified Length (Ft)	L/LT	E (App.9C-18)	Q Intercepted (CFS)	Qb Carryover (CFS)	Depth at Curb (In)	Allowable Ponding Depth (Ft)	Height of Curb Opening h (Ft)	d/h	Depth at Inlet (In)	T Spread @ SAG (Ft)	Remarks
3-2	DI-3C	6	101+00	0.13	0.40	0.05																													Back/Lt.
			-14.000'LEFT	0.04	0.90	0.04																													Back/Lt.
				0.05	0.30	0.02																													Back/Lt.
							0.10	4.00	0.41	0.00		0.0010	0.0833	3.19	2.00	0.6270	0.0833	1.0000		2.00															Back/Lt.
				0.13	0.40	0.05																													Ahead/Rt.
				0.03	0.90	0.03																													Ahead/Rt.
				0.06	0.30	0.02																													Ahead/Rt.
							0.10	4.00	0.39	0.00																									Ahead/Rt.
											0.80	0.0010												6			0.80		1.31	0.666	0.0555	12	3.31	1.31	Weir Flow
3-3	DI-3B	12	101+94	1.01	0.40	0.40																													
			-16.000'LEFT	0.20	0.90	0.18																													
				0.24	0.30	0.07																													
							0.66	4.00	2.62	0.00	2.62	0.0160	0.0200	7.98	2.00	0.2508	0.0833	4.1650	0.690	3.52	0.147	0.121	11.469	12	1.046	1.00	2.62	0.00	3.43						
Ex 1	DI-3A	8		0.30	0.40	0.12																													
			0'RIGHT	0.04	0.90	0.04																													
				0.04	0.50	0.02																													
							0.18	4.00	0.70	1.92	2.62	0.0309	0.0208	6.55	2.00	0.3053	0.0833	4.0048	0.778	3.50	0.146	0.134	13.142	8	0.609	0.82	2.14	0.49	3.14						
Ex 3-2*	DI-3B	20		2.00	0.45	0.90																													
			0'RIGHT	1.28	0.42	0.54																													
				0.75	0.40	0.30																													
							1.74	4.00	6.95	0.00	6.95	0.0480	0.0330	7.28	2.00	0.2748	0.0833	2.5242	0.665	3.21	0.134	0.122	23.942	20	0.835	0.96	6.68	0.27	4.09						
Ex 6	DI-3B	8		1.93	0.40	0.77																													
			0.000'RIGHT	0.37	0.90	0.33																													
				0.20	0.50	0.10																													
							1.21	4.00	4.82	0.00	4.82	0.0463	0.0256	7.17	2.00	0.2789	0.0833	3.2539	0.706	3.38	0.141	0.125	19.980	8	0.4	0.60	2.90	1.92	3.59						

* Information for Inlet Ex 3-2 was referenced from approved plans for project "U000-153-194, "Beulah Road N.E. Phase 2A, Pedestrian Traffic Improvements"

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TOWN OF VIENNA

10/8/2018

10/8/2018 11:59:21 AM | 35x23 (In.) V:\DesignAid\PLOT-Drivers\default_RDA_25.tbl | default_RDA_25.tbl V:\DesignAid\PLOT-Drivers\Imperial\025-Plan VDOTLD Local PDF.pltcfg | 25.0000 FT / In. | d1514305002K(4).dgn Plotted By: localuser

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

Storm Sewer Computations

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
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Manassas, Virginia
ROADWAY ENGINEER

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		2K(4)

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

Rinker Design Associates, P.C.

TOWN OF VIENNA

PRE-DEVELOPMENT STORM COMPUTATIONS, 10-YEAR STORM

FORM LD-229
STORM SEWER DESIGN COMPUTATIONS
STORM FREQUENCY: 10-Year

DESIGNED BY: APD | DATE: 3/9/2018
CHECKED BY: NVD | UNITS: ENGLISH

Pipe No.	From Point Reference	From Point Sta.	To Point Reference	To Point Sta.	Drain Area "A" (Acre)	Runoff Coeff. "C"	CA Increment	CA Accumulated	Total Inlet Time (Minutes)	Rain Fall (In/Hr)	Runoff Lateral (CFS)	Runoff Total Q (CFS)	Invert Elevations Upper End	Invert Elevations Lower End	Length of Pipe (Ft)	Slope (Ft/Ft)	Size Dia. or Span/Rise (In)	Shape	Number of Pipes	Capacity (CFS)	Friction Slope (Ft/Ft)	Normal Flow Depth of Flow, dn (Ft)	Normal Flow Area of Flow, An (SqFt)	Normal Flow Hm (Ft)	Normal Flow Vn (Ft/Sec)	Normal Flow En (Ft)	Flow Time (Sec)	Remarks
Ex5toEx4	Ex 5		Ex 4		1.89	0.42	0.80	0.80	5.00	6.76	0.00	5.42	396.69	392.86	60.00	0.0638	15	Circular	1	16.32	0.0073	0.50	0.45	0.27	11.95	2.71	5.02	
Ex4toEx3	Ex 4		Ex 3		0.00		0.00	0.80	5.08	6.73	0.00	5.42	392.07	386.93	127.00	0.0405	15	Circular	1	13.00	0.0073	0.56	0.54	0.29	10.11	2.15	12.56	
Ex3toEx2	Ex 3		Ex 2		0.00		0.00	2.01	7.92	5.93	0.00	11.91	386.59	381.22	115.00	0.0467	15	Circular	1	13.96	0.0355	0.89	0.93	0.37	12.78	3.42	9.00	
Ex2toEx1	Ex 2		Ex 1		0.00		0.00	2.01	8.07	5.90	0.00	11.91	381.00	379.70	19.00	0.0684	15	Circular	1	16.90	0.0355	0.77	0.80	0.35	14.92	4.23	1.27	
Ex6toEx3	Ex 6		Ex 3		2.50	0.48	1.21	1.21	7.90	5.94	0.00	7.16	386.92	386.71	9.00	0.0233	15	Circular	1	9.87	0.0128	0.79	0.82	0.36	8.77	1.98	1.03	

POST-DEVELOPMENT STORM COMPUTATIONS, 10-YEAR STORM

FORM LD-229
STORM SEWER DESIGN COMPUTATIONS
STORM FREQUENCY: 10-Year

DESIGNED BY: APD | DATE: 3/9/2018
CHECKED BY: NVD | UNITS: ENGLISH

Pipe No.	From Point Reference	From Point Sta.	To Point Reference	To Point Sta.	Drain Area "A" (Acre)	Runoff Coeff. "C"	CA Increment	CA Accumulated	Total Inlet Time (Minutes)	Rain Fall (In/Hr)	Runoff Lateral (CFS)	Runoff Total Q (CFS)	Invert Elevations Upper End	Invert Elevations Lower End	Length of Pipe (Ft)	Slope (Ft/Ft)	Size Dia. or Span/Rise (In)	Shape	Number of Pipes	Capacity (CFS)	Friction Slope (Ft/Ft)	Normal Flow Depth of Flow, dn (Ft)	Normal Flow Area of Flow, An (SqFt)	Normal Flow Hm (Ft)	Normal Flow Vn (Ft/Sec)	Normal Flow En (Ft)	Flow Time (Sec)	Remarks
3-3to3-2	3-3	101+94	3-2	101+00	1.45	0.45	0.66	0.66	5.00	6.76	0.00	4.43	396.90	396.40	91.00	0.0055	15	Circular	1	4.79	0.0049	0.95	1.00	0.38	4.43	1.25	20.55	
3-2to3-1	3-2	101+00	3-1	100+63	0.44	0.46	0.20	0.86	5.34	6.76	0.00	5.78	396.35	395.99	35.00	0.0103	15	Circular	1	6.55	0.0084	0.91	0.96	0.38	6.03	1.48	5.81	
3-1toEx4	3-1	100+63	Ex 4		0.00		0.00	0.86	5.44	6.62	0.00	5.78	395.94	392.86	48.00	0.0642	15	Circular	1	16.36	0.0084	0.51	0.48	0.27	12.18	2.82	3.94	
Ex4toEx3	Ex 4		Ex 3		0.00		0.00	0.86	5.51	6.60	0.00	5.78	392.07	386.93	127.00	0.0405	15	Circular	1	13.00	0.0084	0.58	0.56	0.30	10.28	2.23	12.35	
Ex3toEx2	Ex 3		Ex 2		0.00		0.00	2.06	7.92	5.93	0.00	12.23	386.59	381.22	115.00	0.0467	15	Circular	1	13.96	0.0374	0.91	0.95	0.37	12.83	3.46	8.97	
Ex2toEx1	Ex 2		Ex 1		0.00		0.00	2.06	8.07	5.90	0.00	12.23	381.00	379.70	19.00	0.0684	15	Circular	1	16.90	0.0374	0.79	0.82	0.36	15.00	4.28	1.27	
Ex6toEx3	Ex 6		Ex 3		2.50	0.48	1.21	1.21	7.90	5.94	0.00	7.16	386.92	386.71	9.00	0.0233	15	Circular	1	9.87	0.0128	0.79	0.82	0.36	8.77	1.98	1.03	

10/8/2018

PROJECT	SHEET NO.
.	2K(4)

PROJECT MANAGER Town of Vienna Public Works Dept.; Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.; Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.; Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

Storm Sewer Computations

COMMONWEALTH OF VIRGINIA — ADAM D. WELSCHENBACH — Lic. No. 044359 — 10-8-2018 — PROFESSIONAL ENGINEER

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

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		2K(5)

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

PRE-DEVELOPMENT HGL COMPUTATIONS

FORM LD-347
HYDRAULIC GRADE LINE ANALYSIS
INCIDENCE PROBABILITY 10-Year

DESIGNED BY: APD DATE: 3/9/2018
CHECKED BY: NVD UNITS: ENGLISH

INLET OR JUNCTION	STA.	INVERT EL. OUTFLOW PIPE	DEPTH OF FLOW OUTFLOW PIPE	OUTLET WATER SURFACE ELEV.	DIA. PIPE Do (In/mm)	DESIGN DISCH. Qo (CFS/CMS)	LENGTH PIPE Lo (Ft/M)	FRICTION SLOPE, Sfo (FT/FT) (M/M)	FRICTION LOSS Hf (Ft/M)	JUNCTION LOSS Vo	Contr. Ho (Ft/M)	Vi	Vi*2/2g	Hi (Expn) 0.35*MAX. (Vi2/2g)	SKEW Angle	K	Bend H (Ft/M)	Sum HL (Ft/M)	SURFACE FLOW	Adj.Ht 1.3 Ht (Ft/M)	Inlet Shaping? Y/N	0.5 Ht (Ft/M)	FINAL H (Ft/M)	Inlet Water Surface Elevation	Top of MH Top of Inlet Elev. APPROX.	Adjustment?
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)		(14)	(15)		(16)		(16)	(17)	(18)	(19)	
Ex 1																								380.70		
Ex 2		379.70	1.25	380.70	15	11.910	19	0.0355	0.68	14.92	0.86	12.78	2.53	0.89	35.0	0.38	0.96	2.71	0.00	2.71	YES	1.36	2.03	382.73	386.02	O.K.
Ex 3		381.22	1.25	382.73	15	11.910	115	0.0355	4.09	12.78	0.63	8.77	1.19	0.42	90.0	0.70	0.84	1.89	0.00	1.89	YES	0.94	5.03	387.76	390.48	O.K.
Ex 6		386.71	1.25	387.76	15	7.156	9	0.0128	0.12	8.77	0.30	0.00	0.00	0.00	0.0	0.00	0.00	0.30	7.16	0.39	YES	0.19	0.31	388.07	390.82	O.K.
Ex 4		386.93	1.25	387.93	15	5.418	127	0.0074	0.93	10.11	0.40	11.95	2.22	0.78	20.0	0.24	0.53	1.70	0.00	1.70	YES	0.85	1.78	392.63	395.89	O.K.
Ex 5		392.86	1.25	393.86	15	5.418	60	0.0074	0.44	11.95	0.55	0.00	0.00	0.00	0.0	0.00	0.00	0.55	0.00	0.55	YES	0.28	0.72	397.19	397.94	O.K.

POST-DEVELOPMENT HGL COMPUTATIONS

FORM LD-347
HYDRAULIC GRADE LINE ANALYSIS
INCIDENCE PROBABILITY 10-Year

DESIGNED BY: APD DATE: 3/9/2018
CHECKED BY: NVD UNITS: ENGLISH

INLET OR JUNCTION	STA.	INVERT EL. OUTFLOW PIPE	DEPTH OF FLOW OUTFLOW PIPE	OUTLET WATER SURFACE ELEV.	DIA. PIPE Do (In/mm)	DESIGN DISCH. Qo (CFS/CMS)	LENGTH PIPE Lo (Ft/M)	FRICTION SLOPE, Sfo (FT/FT) (M/M)	FRICTION LOSS Hf (Ft/M)	JUNCTION LOSS Vo	Contr. Ho (Ft/M)	Vi	Vi*2/2g	Hi (Expn) 0.35*MAX. (Vi2/2g)	SKEW Angle	K	Bend H (Ft/M)	Sum HL (Ft/M)	SURFACE FLOW	Adj.Ht 1.3 Ht (Ft/M)	Inlet Shaping? Y/N	0.5 Ht (Ft/M)	FINAL H (Ft/M)	Inlet Water Surface Elevation	Top of MH Top of Inlet Elev. APPROX.	Adjustment?
(1)	(2)			(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)		(12)	(13)		(14)	(15)		(16)		(16)	(17)	(18)	(19)	
Ex 1																								380.70		
Ex 2		379.70	1.25	380.70	15	12.23	19	0.0375	0.71	15.00	0.87	12.83	2.56	0.89	35.0	0.38	0.97	2.74	0.00	2.74	YES	1.37	2.08	382.78	386.02	O.K.
Ex 3		381.22	1.25	382.78	15	12.23	115	0.0375	4.31	12.83	0.64	8.77	1.19	0.42	90.0	0.70	0.84	1.89	0.00	1.89	YES	0.95	5.25	388.03	390.48	O.K.
Ex 6		386.71	1.25	388.03	15	7.16	9	0.0128	0.12	8.77	0.30	0.00	0.00	0.00	0.0	0.00	0.00	0.30	7.16	0.39	YES	0.19	0.31	388.34	390.82	O.K.
Ex 4		386.93	1.25	388.03	15	5.78	127	0.0084	1.06	10.28	0.41	12.18	2.30	0.81	20.0	0.24	0.55	1.77	0.00	1.77	YES	0.88	1.95	392.65	395.89	O.K.
3-1	100+63	392.86	1.25	393.86	15	5.78	48	0.0084	0.40	12.18	0.58	6.03	0.56	0.20	60.0	0.55	0.31	1.09	0.00	1.09	YES	0.54	0.95	396.45	398.66	O.K.
3-2	101+00	395.99	1.25	396.99	15	5.78	35	0.0084	0.29	6.03	0.14	4.43	0.30	0.11	10.0	0.13	0.04	0.29	1.35	0.37	YES	0.19	0.48	397.47	398.96	O.K.
3-3	101+94	396.40	1.25	397.47	15	4.43	91	0.0049	0.45	4.43	0.08	0.00	0.00	0.00	0.0	0.00	0.00	0.08	4.43	0.10	YES	0.05	0.50	397.97	399.21	O.K.

Rinker Design Associates, P.C.

TOWN OF VIENNA

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, P.E. (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

Outfall Analysis

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		2K(6)

COMMONWEALTH OF VIRGINIA — ADAM D. WELSCHENBACH — Lic. No. 044359 — 10-8-2018 — PROFESSIONAL ENGINEER

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

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

OUTFALL ANALYSIS SUMMARY TABLE

DESIGNED BY: APD — DATE: 3/9/2018
CHECKED BY: ND — UNITS: ENGLISH

Outfall	Outfall Location (Station)	Outfall Structure (If any)	Drainage Area (ac) Total Area	Cw	I-Value (in/hr) 2-yr 24-hr	10-yr 24-hr	Peak Flow, Q (cfs) 2-yr	10-yr	Relative Increase In Peak Flow (cfs) 2-yr	10-yr	% Increase In Peak Flow 2-yr	10-yr	Stormdrain System Size (in)	10-yr Pipe Capacity (cfs)	Outfall Adequacy Yes/No	Remarks
Outfall 1	Glyndon Street NE															Outfall 1 is an existing pipe. Pipe capacity requirements are met
Pre-Developed	100+55 RT	Ex.1	4.77	0.46	0.132	0.203	0.29	0.45					15	16.9		when accounting for additional flow. Pipe velocity has a minor
Post-Developed	100+55 RT	Ex.1	4.77	0.47	0.132	0.203	0.30	0.46	0.01	0.01	3.4%	2.2%	15	16.9	Yes	increase over existing conditions. See LD 229.
Outfall 2*	Beulah Road															Outfall 2 is an existing inlet that flows into an existing storm sewer
Pre-Developed	-	-	9.06	0.46	0.132	0.203	0.55	0.85					N/A	N/A		system. Spread, depth at curb, and inlet efficiency requirements are
Post-Developed	-	-	9.06	0.46	0.132	0.203	0.55	0.85	0.00	0.00	0.0%	0.0%	N/A	N/A	Yes	met when accounting for additional flow. See LD 204

* Information for Outfall 2 was referenced from approved plans for project "U000-153-194, "Beulah Road N.E. Phase 2A, Pedestrian Traffic Improvements"

Outfall Narrative

Project Overview: This outfall analysis is for a linear pedestrian access improvement project along Church Street NE in the Town of Vienna, Virginia. The project proposes to add curb and gutter and a 5' concrete sidewalk for 600 feet on the north side of Church Street. In the existing condition, this roadway has shoulder and ditch with existing curb and gutter east of the project which the project will tie into. The existing pedestrian facilities have a gap which will be filled in by this project. The roadway ditch drains to an existing closed storm sewer system. The project is located in the Wolftrap Creek watershed management area which is within the greater Difficult Run watershed.

Outfall Descriptions: Drainage for this project impacts two outfalls as described below.

Outfall #1 - This outfall is an existing storm sewer system. The drainage consists of 4.77 acres of overland flow from the roadway and surrounding residential areas in the existing and proposed conditions. This project increases the amount of impervious area going to this outfall by 0.09 acre. The C-value changes slightly from 0.46 to 0.47. The peak flows for the 2- and 10-year 24- hour storm events increase by 0.01 cfs as shown in the Outfall Analysis Summary Table on this sheet. Storm Computations on Sheets 2K(3) through 2K(5) show that the storm sewer system is not adversely affected by the proposed development.

Outfall #2 - This outfall is an existing storm sewer system. The drainage consists of 9.06 acres of overland flow from the roadway and surrounding residential areas in the existing and proposed conditions. This project increases the amount of impervious area going to this outfall by 0.01 acre. The C-value remains the same at 0.45. As shown in the Outfall Analysis Summary, the peak flows for the 2- and 10-year storm events are unchanged in the proposed condition. Inlet computations show that the existing storm sewer system is adequate to handle the flow.

Drainage Area: The total project area for this project is 0.24 acre. The project proposes an increase of 0.10 acre of impervious area.

Final Opinion: The existing storm sewer system as improved with this project has adequate capacity to convey the proposed flows for both outfalls. It is our opinion that Outfall 1 and Outfall 2 will not be adversely impacted by the proposed pedestrian access improvements.

Water Quantity/Water Quality Narrative

The project proposes to add curb and gutter and a 5' concrete sidewalk for 600 feet on the north side of Church Street NE. Additionally, the existing closed storm sewer system will be upgraded where necessary with this project. The project is located in the Wolftrap Creek watershed management area which is within the greater Difficult Run (PL22) watershed. This project has two outfalls as described in the Outfall Narrative on sheet 2K(6). The Drainage Maps can be found on sheets 2K(1) and 2K(2) and Storm Computations can be found on sheets 2K(3), 2K(4), and 2K(5). From the computations, it can be seen that:

1. There will be a negligible increase in peak flow rates for Outfall #1.
2. The existing storm sewer system with the proposed improvements will be adequate to convey the flows for the outfall.
3. There are no additional anticipated flooding or erosion problems downstream.

Further, at the point of analysis, it can be seen that:

1. The increase in peak flow rates downstream of the discharge point are negligible.
2. There are no additional anticipated flooding or erosion problems downstream of the discharge point.

The Erosion and Sediment Controls for this project can be found on the IP and IQ sheet series.

Quantity Control: Based on the negligible impact to peak flow rates at the project outfall resulting from this project, water quantity controls should be waived because of SWM facilities managed and maintained by the Town of Vienna and in compliance with the Town Code, Chapter 23, Article 3.

Quality Control: Per the BMP Calculations on this sheet and in compliance with VSMP water quality control requirements, the phosphorus removal requirement of 0.20 pound/year can be met by the purchase of nutrients credits at the discretion of the Town Engineer.

WATER QUALITY CALCULATIONS

Project Name: Church Street N.E. Sidewalk
Date: 3/9/2018
Linear Development Project? Yes

CLEAR ALL — data input cells — constant values — calculation cells — final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area (acres) → 0.24

Maximum reduction required: 20%
The site's net increase in impervious cover (acres) is: 0.1
Post-Development TP Load Reduction for Site (lb/yr): 0.20

Check:
BMP Design Specifications List: 2011 Stds & Specs
Linear project? Yes
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

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
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				0.19	0.19
Impervious Cover (acres)				0.05	0.05
					0.24

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land					0.00
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed				0.09	0.09
Impervious Cover (acres)				0.15	0.15
Area Check	OK.	OK.	OK.	OK.	0.24

Constants

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

Runoff Coefficients (Rv)

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

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.00	0.00
Weighted Rv(forest)	0.00	0.00
% Forest	0%	0%
Managed Turf Cover (acres)	0.19	0.09
Weighted Rv(turf)	0.25	0.25
% Managed Turf	79%	64%
Impervious Cover (acres)	0.05	0.05
Rv(impervious)	0.95	0.95
% Impervious	21%	36%
Total Site Area (acres)	0.24	0.14
Site Rv	0.40	0.50

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.09
Weighted Rv (turf)	0.25
% Managed Turf	38%
Impervious Cover (acres)	0.15
Rv(impervious)	0.95
% Impervious	63%
Final Site Area (acres)	0.24
Final Post Dev Site Rv	0.69

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00
% Forest	0%
Managed Turf Cover (acres)	0.09
Weighted Rv (turf)	0.25
% Managed Turf	64%
ReDev. Impervious Cover (acres)	0.05
Rv(impervious)	0.95
% Impervious	36%
Total ReDev. Site Area (acres)	0.14
ReDev Site Rv	0.50

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	0.10
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

	Listed	Adjusted
Pre-ReDevelopment Treatment Volume (acre-ft)	0.0079	0.0058
Pre-ReDevelopment Treatment Volume (cubic feet)	345	254
Pre-ReDevelopment TP Load (lb/yr)	0.22	0.16
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	[illegible]	1.14
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		0.06

Final Post-Development Treatment Volume (acre-ft)	0.0138
Final Post-Development Treatment Volume (cubic feet)	599
Final Post-Development TP Load (lb/yr)	0.38
Final Post-Development TP Load per acre (lb/acre/yr)	1.57

Treatment Volume and Nutrient Load

Post-ReDevelopment Treatment Volume (acre-ft)	0.0058
Post-ReDevelopment Treatment Volume (cubic feet)	254
Post-ReDevelopment Load (TP) (lb/yr)*	0.16
Post-ReDevelopment TP Load per acre (lb/acre/yr)	1.14
Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	0.03

Post-Development Treatment Volume (acre-ft)	0.0079
Post-Development Treatment Volume (cubic feet)	345
Post-Development TP Load (lb/yr)	0.22
TP Load Reduction Required for New Impervious Area (lb/yr)	0.18

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

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr): 0.21
Linear Project TP Load Reduction Required (lb/yr): 0.20

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	1.55
Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	2.69

Virginia Runoff Reduction Method Worksheet

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

BMP Design Specifications List: 2011 Stds & Specs

Site Summary - Linear Development Project***

Total Rainfall (in):	43
Total Disturbed Acreage:	0.61

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.19	0.19	79
Impervious Cover (acres)	0.00	0.00	0.00	0.05	0.05	21
					0.24	100

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.00	0.00	0
Managed Turf (acres)	0.00	0.00	0.00	0.09	0.09	38
Impervious Cover (acres)	0.00	0.00	0.00	0.15	0.15	63
					0.24	100

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post-ReDevelopment	Post-Development (New Impervious)	Adjusted Pre-ReDevelopment
Site Rv	0.69	0.50	0.95	0.50
Treatment Volume (ft^3)	599	254	345	254
TP Load (lb/yr)	0.38	0.16	0.22	0.16

Pre-ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
1.14	1.57	1.14

Total TP Load Reduction Required (lb/yr)	0.20	N/A***	N/A***

***This is a linear development project

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre-ReDevelopment
TN Load (lb/yr)	2.69	1.55

Virginia Runoff Reduction Method Worksheet

Site Compliance Summary - ***Linear Development Project

Maximum % Reduction Required Below Pre-ReDevelopment Load	20%

Total Runoff Volume Reduction (ft^3)	0
Total TP Load Reduction Achieved (lb/yr)	0.00
Total TN Load Reduction Achieved (lb/yr)	0.00
Remaining Post Development TP Load (lb/yr)	0.38
Remaining TP Load Reduction (lb/yr) Required	0.20

SCALE 0 25' 50'

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TOWN OF VIENNA

10/8/2018

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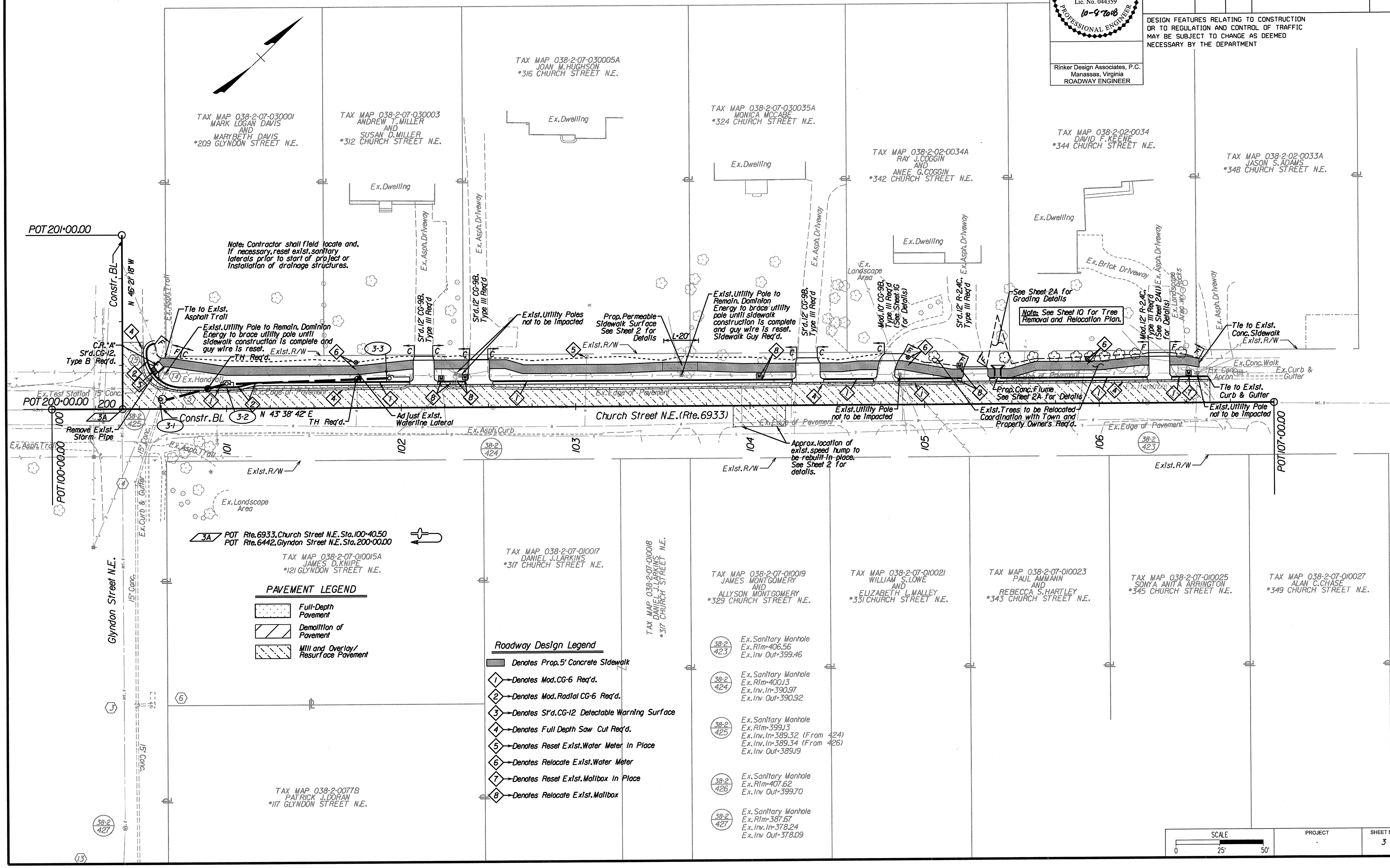
PROJECT MANAGER Town of Vienna Public Works Dept: Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, P.E. (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

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

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		3

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



POT 201+00.00
POT 200+00.00
POT 100+00.00
POT 107+00.00
Constr. BL
N 46°21'18" W
N 43°38'42" E
Church Street N.E. (Rte. 6933)
Glyndon Street N.E.
Note: Contractor shall field locate and, if necessary, reset exist. sanitary laterals prior to start of project or installation of drainage structures.
Note: See Sheet 10 for Tree Removal and Relocation Plan.
Tie to Exist. Asphalt Trail
Exist. Utility Pole to Remain. Dominion Energy to brace utility pole until sidewalk construction is complete and guy wire is reset.
Exist. Utility Poles not to be impacted
Prop. Permeable Sidewalk Surface See Sheet 2 for Details
Exist. Trees to be Relocated Coordination with Town and Property Owners Req'd.
Approx. location of exist. speed hump to be rebuilt in place. See Sheet 2 for details.
Adjust Exist. Waterline Lateral
Remove Exist. Storm Pipe
TAX MAP 038-2-07-030001 MARK LOGAN DAVIS AND MARYBETH DAVIS *209 GLYNDON STREET N.E.
TAX MAP 038-2-07-030003 ANDREW T. MILLER AND SUSAN D. MILLER *312 CHURCH STREET N.E.
TAX MAP 038-2-07-030005A JOAN M. HUGHSON *316 CHURCH STREET N.E.
TAX MAP 038-2-07-030035A MONICA MCCABE *324 CHURCH STREET N.E.
TAX MAP 038-2-02-0034A RAY J. COGGIN AND ANEE G. COGGIN *342 CHURCH STREET N.E.
TAX MAP 038-2-02-0034 DAVID F. KEENE *344 CHURCH STREET N.E.
TAX MAP 038-2-02-0033A JASON S. ADAMS *348 CHURCH STREET N.E.
TAX MAP 038-2-07-010015A JAMES D. KNIPE *121 GLYNDON STREET N.E.
TAX MAP 038-2-07-010017 DANIEL J. LARKINS *317 CHURCH STREET N.E.
TAX MAP 038-2-07-010018 DANIEL J. LARKINS *317 CHURCH STREET N.E.
TAX MAP 038-2-07-010019 JAMES MONTGOMERY AND ALLYSON MONTGOMERY *329 CHURCH STREET N.E.
TAX MAP 038-2-07-010021 WILLIAM S. LOWE AND ELIZABETH L. MALLEY *331 CHURCH STREET N.E.
TAX MAP 038-2-07-010023 PAUL AMMANN AND REBECCA S. HARTLEY *343 CHURCH STREET N.E.
TAX MAP 038-2-07-010025 SONYA ANITA ARRINGTON *345 CHURCH STREET N.E.
TAX MAP 038-2-07-010027 ALAN C. CHASE *349 CHURCH STREET N.E.
TAX MAP 038-2-0077B PATRICK J. DORAN *117 GLYNDON STREET N.E.
3A POT Rte. 6933, Church Street N.E. Sta. 100+40.50
POT Rte. 6442, Glyndon Street N.E. Sta. 200+00.00
PAVEMENT LEGEND
Full-Depth Pavement
Demolition of Pavement
Mill and Overlay/ Resurface Pavement
Roadway Design Legend
Denotes Prop. 5' Concrete Sidewalk
1 Denotes Mod. CG-6 Req'd.
2 Denotes Mod. Radial CG-6 Req'd.
3 Denotes Std. CG-12 Detectable Warning Surface
4 Denotes Full Depth Saw Cut Req'd.
5 Denotes Reset Exist. Water Meter in Place
6 Denotes Relocate Exist. Water Meter
7 Denotes Reset Exist. Mailbox in Place
8 Denotes Relocate Exist. Mailbox
Ex. Sanitary Manhole 38-2 423 Ex. Rim=406.56 Ex. Inv Out=399.46
Ex. Sanitary Manhole 38-2 424 Ex. Rim=400.13 Ex. Inv. In=390.97 Ex. Inv Out=390.92
Ex. Sanitary Manhole 38-2 425 Ex. Rim=399.13 Ex. Inv. In=389.32 (From 424) Ex. Inv. In=389.34 (From 426) Ex. Inv Out=389.19
Ex. Sanitary Manhole 38-2 426 Ex. Rim=407.62 Ex. Inv Out=399.70
Ex. Sanitary Manhole 38-2 427 Ex. Rim=387.67 Ex. Inv. In=378.24 Ex. Inv Out=378.09

SCALE 0 25' 50'

PROJECT	SHEET NO.
	3

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Plotted By: localuser

PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher, P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, P.E. (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC. August 2014.

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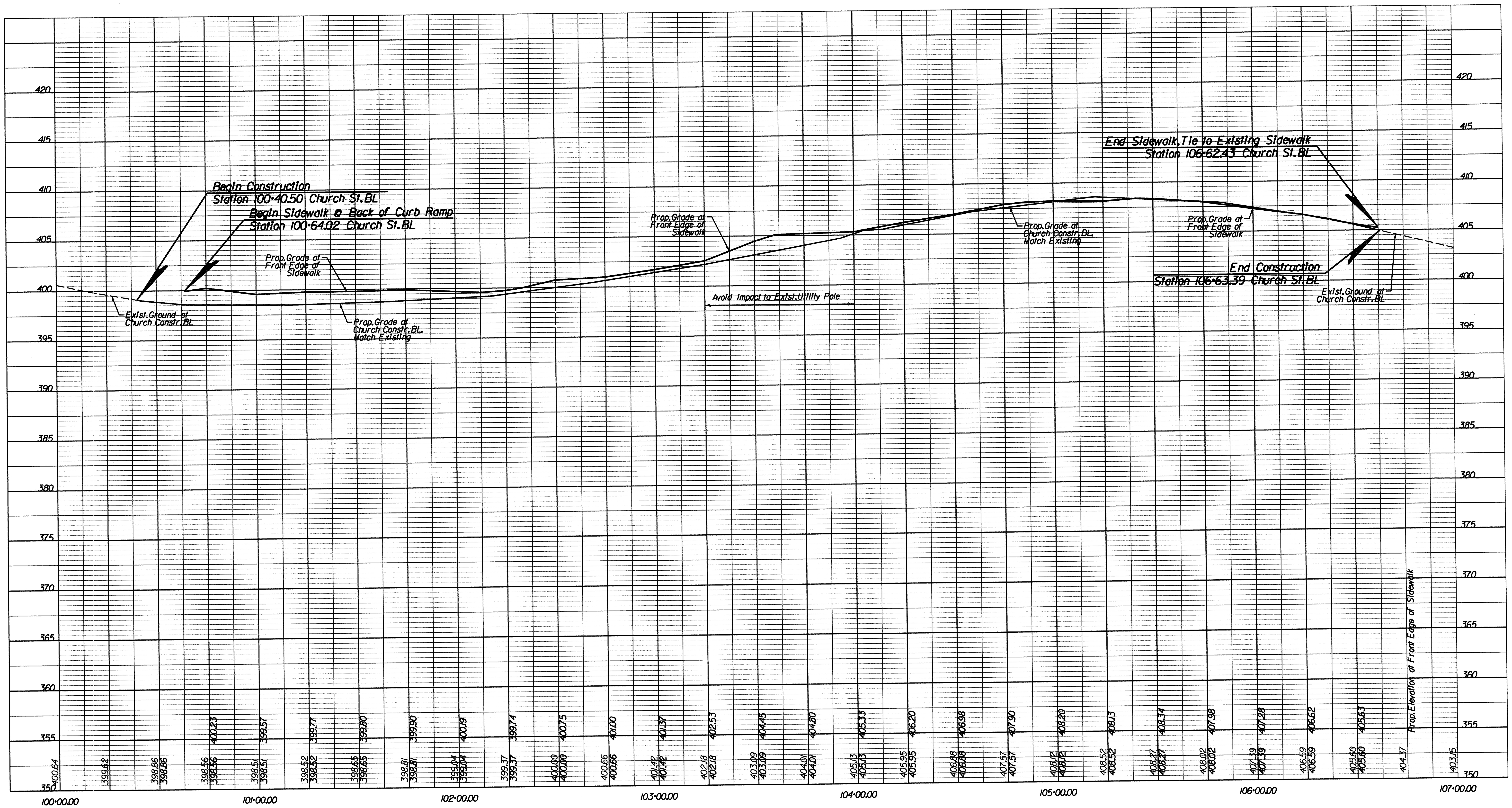
COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-9-2018
PROFESSIONAL ENGINEER

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

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		3A

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

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



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TOWN OF VIENNA

10/8/2018

PROJECT	SHEET NO.
.	3A

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9485 Discovery Boulevard, Suite 200, Manassas, VA 20109, Phone: (703) 368-7373, Fax: (703) 257-5448
4301 Dominion Boulevard, Suite 100, Glen Allen, VA 23060, Phone: (804) 612-0666, Fax: (804) 612-0668
927 Maple Grove Drive, Suite 105, Fredericksburg, VA 22407, Phone: (540) 548-4470, Fax: (540) 548-4471

TOWN OF VIENNA

10/8/2018

PROJECT MANAGER Town of Vienna Public Works Dept: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.: Adam Welschenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014.

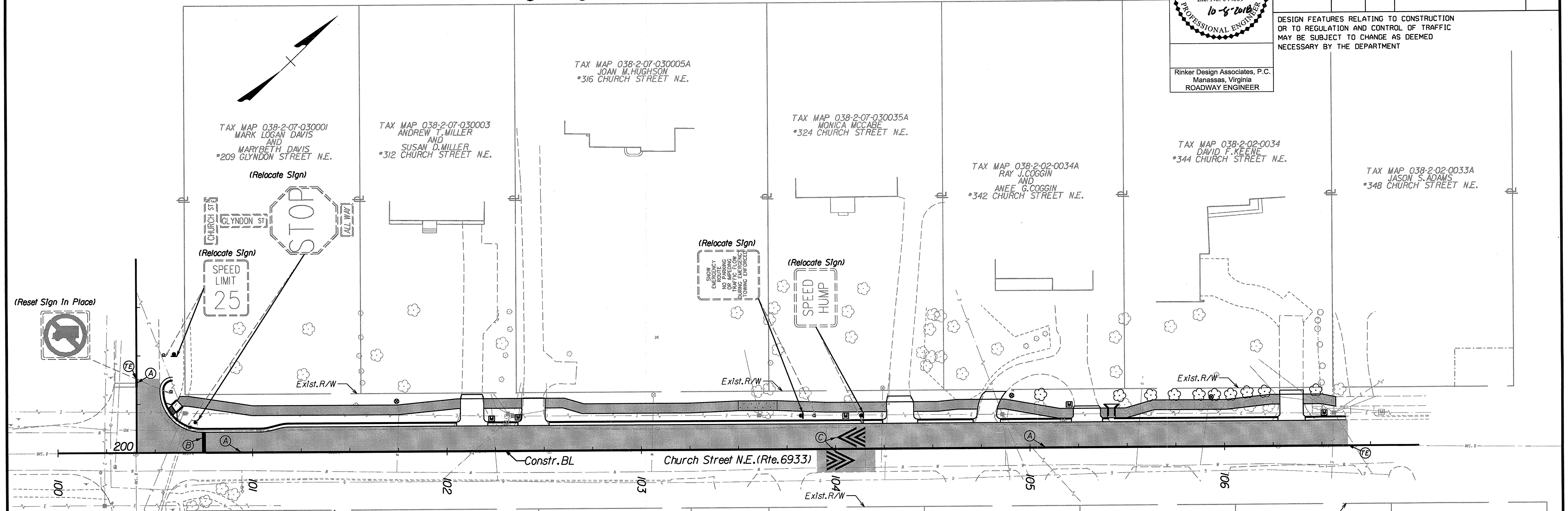
Signage and Pavement Marking Plan

COMMONWEALTH OF VIRGINIA
ADAM D. WELSCHENBACH
Lic. No. 044359
10-8-2018
PROFESSIONAL ENGINEER

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

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		4

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



Exist.R/W

**** Pavement Marking Legend ****

- (A) Type B,Class I,Yellow,4" Width,Double Line,4" Space (Under Construction BL)
- (B) Type B,Class I,White,24" Width
- (C) Type B,Class I,White,12" Width
- (TE) Denotes Tie to Existing Pavement Marking
- Denotes Areas of New Pavement Surface

Note: Any existing condition that does not reflect the pavement marking plan as shown on this sheet, shall be completely eradicated per VDOT Standards. The cost shall be incidental to the project and not paid for as a separate item.

TAX MAP 038-2-07-010015A
JAMES D.KNIPE
*121 GLYNDON STREET N.E.

TAX MAP 038-2-07-010017
DANIEL J.LARKINS
*317 CHURCH STREET N.E.

TAX MAP 038-2-07-010018
DANIEL J.LARKINS
*317 CHURCH STREET N.E.

TAX MAP 038-2-07-010019
JAMES MONTGOMERY
AND
ALLYSON MONTGOMERY
*329 CHURCH STREET N.E.

TAX MAP 038-2-07-010021
WILLIAM S.LOWE
AND
ELIZABETH L.MALLEY
*331 CHURCH STREET N.E.

TAX MAP 038-2-07-010023
PAUL AMMANN
AND
REBECCA S.HARTLEY
*343 CHURCH STREET N.E.

Exist.R/W

TAX MAP 038-2-07-010025
SONYA ANITA ARRINGTON
*345 CHURCH STREET N.E.

TAX MAP 038-2-07-010027
ALAN C.CHASE
*349 CHURCH STREET N.E.

** Pavement Marking General Notes **

1. All proposed pavement markings shall be in accordance with the most current edition of each of the following and any revisions/update thereof:

   A) Manual on Uniform Traffic Control Devices (MUTCD)
   B) The Virginia Supplement to the Manual on Uniform Traffic Control Devices
   C) The Virginia Department of Transportation Road and Bridge Specifications
   D) The Virginia Department of Transportation Road and Bridge Standards
   E) The discrection of the Town Engineer

2. Any existing pavement markings which will conflict with the proposed pavement markings as shown, shall be completely eradicated.
3. Limits shown for the proposed pavement markings are approximate and shall be verified/modified in the field to ensure that proposed pavement markings continue until existing pavement markings can be matched.
4. Any changes to this plan shall be approved by the Engineer.
5. Consistent with existing conditions upstream and downstream of the proposed improvements, no raised pavement markers are proposed with this project.

SIGNAGE GENERAL NOTES:

1. Unless otherwise specified, the Contractor shall have the option of refurbishing framing members on existing sign panels or furnishing new sign panels with corresponding sign message for mounting on new breakaway post.
2. Unless otherwise approved by the Town of Vienna Construction Manager, existing traffic signs, which are to be removed, shall remain in place until the new sign structure and critical message are in place.
3. Unless otherwise indicated on the plans, all breakaway sign structures shall be located within 25' of the sign's current field location or as directed by the Town of Vienna Construction Manager.
4. Proposed signs and sign structures shall not impact underground existing utilities. Contractor is responsible for any disruption in Utility Service due to digging for signage structure. Utilities as shown on plans are not guaranteed to be complete or accurate. The Contractor shall be responsible for ensuring that all utilities within the project are identified and located prior to installation of signs. If proposed signage location will cause impact to existing Utility Service, sign location shall be relocated at the approval of the Town of Vienna Traffic Engineer at no additional cost.
5. All signs, as necessary or directed by the Town of Vienna Construction Manager, shall be installed in accordance with St'd STP-1 with breakaway metal posts. All signs, as necessary or directed by the Town of Vienna Construction Manager, designated to be relocated shall be reinstalled in such a manner that the relocated sign complies with St'd STP-1.
6. Contractor must provide shop drawings for all non-standard signs to be approved by the Town of Vienna Construction Manager prior to fabrication. The Contractor shall design signs in accordance with Town of Vienna current Standards and any revisions thereof.
7. All signs which are to be relocated/reset, shall be relocated/reset with breakaway metal posts in accordance with VDOT St'd STP-1. The cost of relocating any signs and changing sign posts from wood posts to breakaway metal posts shall be incidental to relocating/resetting the signs.
8. All posts shall be installed with a St'd STP-1 Concrete Foundation, including posts relocated or reset as shown on the signage plans; No Exceptions.

SCALE	PROJECT	SHEET NO.
0 25' 50'	.	4

DGN
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PROJECT MANAGER Town of Vienna Public Works Dept.: Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.: Sidney Thomas, L.S. (703) 368-7373, July 2017
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SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

CROSS SECTIONS

SCALE 1 IN. = 10 FT

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

REVISED	STATE	ROUTE	PROJECT	SHEET NO.
	VA.	6933		X-1

Church Street N.E.

Station 100+00.00 To Station 101+75.00

PROJECT	SHEET NO.
	X-1

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DGN

$DGNLEV

PROJECT MANAGER Town of Vienna, Public Works Dept.; Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.; Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.; Adam Weisenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

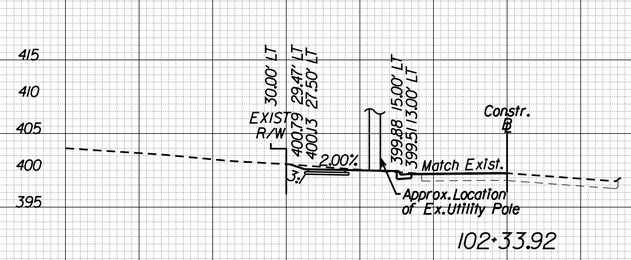
CROSS SECTIONS

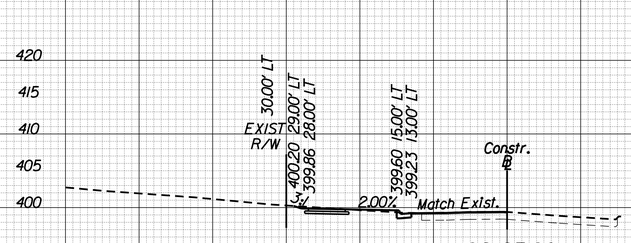
SCALE 1 IN. = 10 FT

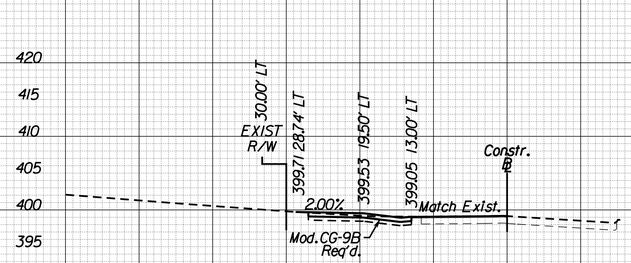
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

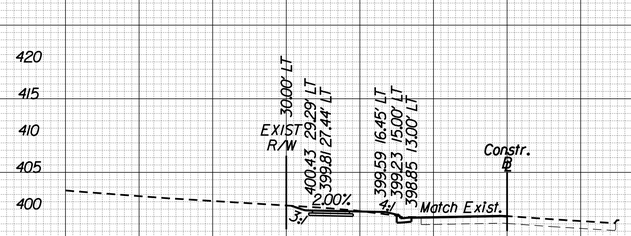
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		X-2

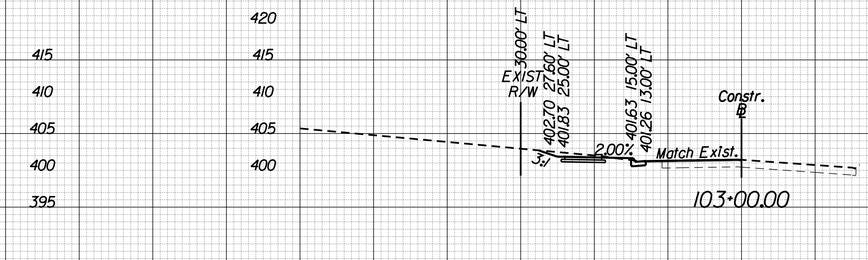
Church Street N.E.

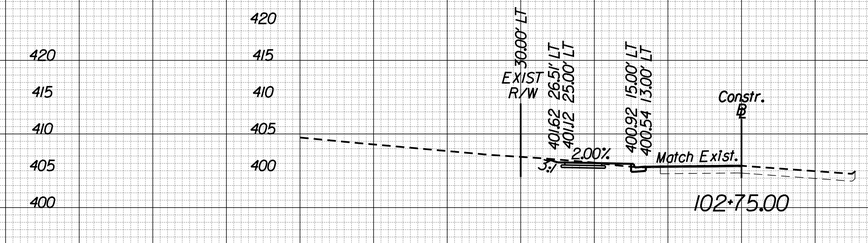


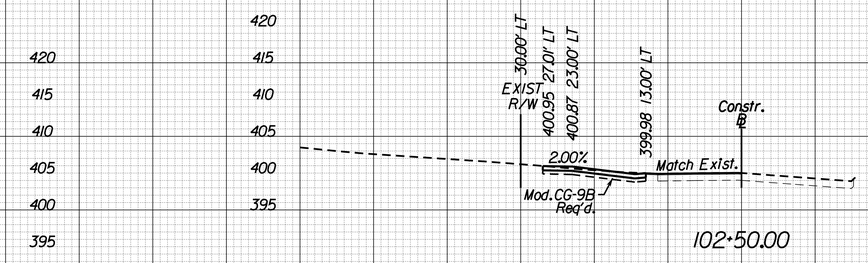


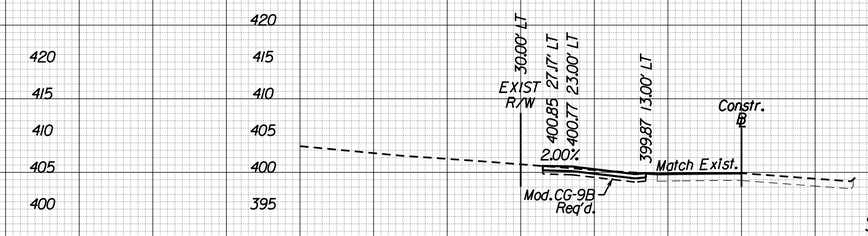












*316 CHURCH STREET N.E.

*312 CHURCH STREET N.E.

Station 102+00.00 To Station 103+00.00

PROJECT	SHEET NO.
	X-2

$TIME$STAMP$

DGN

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PROJECT MANAGER Town of Vienna, Public Works Dept.; Michael Gallagher P.E. (703) 255-6383
SURVEYED BY, DATE Rinker Design Associates, P.C.; Sidney Thomas, L.S. (703) 368-7373, July 2017
DESIGN BY Rinker Design Associates, P.C.; Adam Weisenbach, PE (703) 368-7373
SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

CROSS SECTIONS

SCALE 1 IN. = 10 FT

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

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		X-3

Church Street N.E.

*324 CHURCH STREET N.E.

103+75.00 — EXIST R/W 30.00' LT; 405.88 27.47' LT; 405.33 25.80' LT; 405.19 18.80' LT; 404.36 16.33' LT; 404.34 15.00' LT; 403.96 13.00' LT; Constr. ℄; 2.00%; 3:1; 2.00%; Match Exist.

103+60.70 — EXIST R/W 30.00' LT; 405.49 28.30' LT; 405.39 28.00' LT; 405.25 21.00' LT; 403.75 15.00' LT; 403.78 13.00' LT; Constr. ℄; 2.00%; 3:1; 4:1; Match Exist.; Approx. Location of Ex. Utility Pole

103+50.00 — EXIST R/W 30.00' LT; 404.76 26.08' LT; 404.57 25.50' LT; 404.45 19.50' LT; 403.32 15.00' LT; 402.95 13.00' LT; Constr. ℄; 2.00%; 3:1; 4:1; Match Exist.

103+25.00 — EXIST R/W 30.00' LT; 403.80 28.45' LT; 402.65 25.00' LT; 402.45 15.00' LT; 402.07 13.00' LT; Constr. ℄; 2.00%; 3:1; Match Exist.

104+50.00 — EXIST R/W 30.00' LT; 407.32 25.66' LT; 407.10 25.00' LT; 406.90 15.00' LT; 406.53 13.00' LT; Constr. ℄; 2.00%; 3:1; Match Exist.

104+33.31 — EXIST R/W 30.00' LT; 407.02 29.00' LT; 406.67 24.00' LT; 406.59 20.66' LT; 405.87 14.50' LT; 406.00 13.00' LT; Constr. ℄; 7.06%; 2.00%; 13.00%; Match Exist.; Mod. CG-9B Req'd.

104+25.00 — EXIST R/W 30.00' LT; 406.62 25.90' LT; 406.52 25.00' LT; 406.12 15.00' LT; 405.75 13.00' LT; Constr. ℄; 2.00%; 3:1; Match Exist.

104+00.00 — EXIST R/W 30.00' LT; 406.34 27.67' LT; 405.45 25.00' LT; 405.25 15.00' LT; 404.87 13.00' LT; See Sheet 2 for Speed Hump Details; Constr. ℄; 2.00%; 3:1; Match Exist.

Station 103+25.00 To Station 104+50.00

PROJECT	SHEET NO.
	X-3

$TIME$ $STAMP$

DGN

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PROJECT MANAGER Town of Vienna, Public Works Dept.; Michael Gallagher P.E. (703) 255-6383
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SUBSURFACE UTILITY BY, DATE Mid-Atlantic Utility Locating, LLC, August 2014

CROSS SECTIONS

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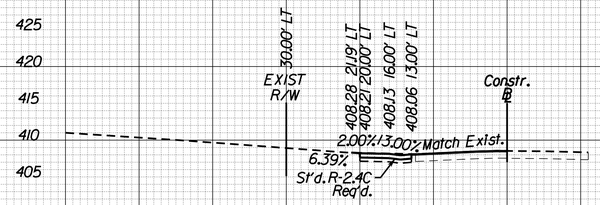
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		X-4

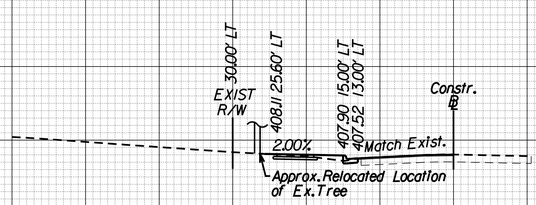
Church Street N.E.

105+25.00

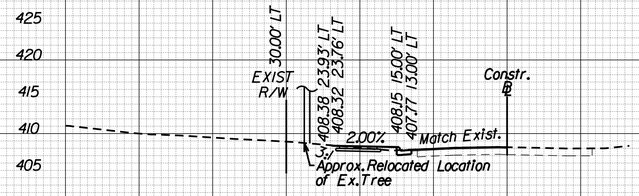


*342 CHURCH STREET N.E.

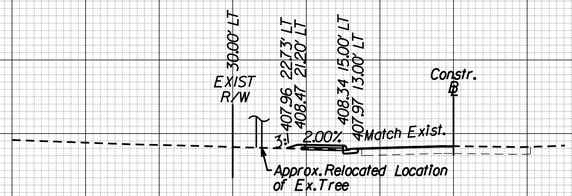
105+75.00



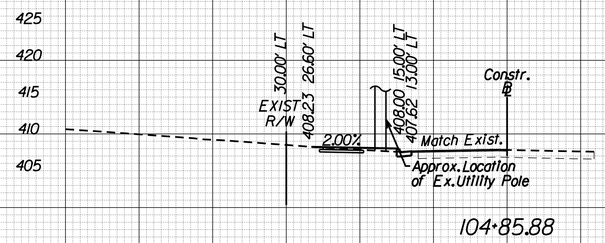
105+00.00



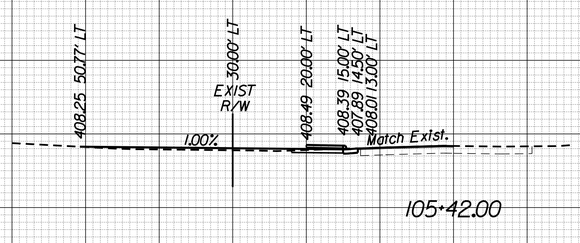
105+50.00



104+85.88

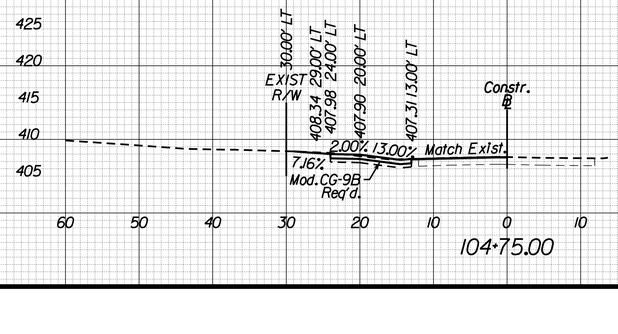


105+42.00



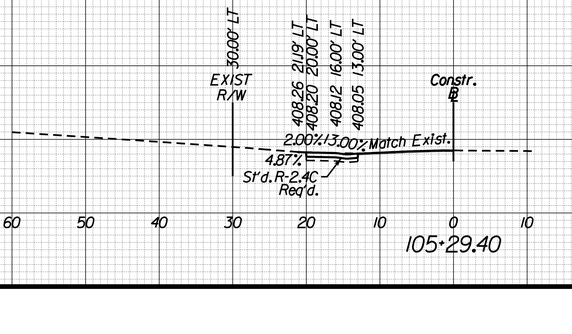
*342 CHURCH STREET N.E.

104+75.00



*342 CHURCH STREET N.E.

105+29.40



Station 104+75.00 To Station 105+75.00

PROJECT	SHEET NO.
	X-4

$TIME$ST AMP$

DGN

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PROJECT MANAGER Town of Vienna, Public Works, Dept.; Michael Gallagher P.E. (703) 255-6383
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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	6933		X-5

Church Street N.E.

*344 CHURCH STREET N.E.

106+50.00
30.00' LT EXIST R/W
27.34' LT 405.55
27.00' LT 405.67
21.95' LT 405.63
15.18' LT 405.43
13.18' LT 405.06
Constr. ℄
3:1
2.00%
Match Exist.
Approx. Relocated Location of Ex. Tree

106+34.54
30.00' LT EXIST R/W
28.64' LT 406.10
26.50' LT 406.06
16.00' LT 405.85
13.00' LT 405.85
Constr. ℄
2.00%
Match Exist.
Std. R-2.4C Req'd.

106+25.00
30.00' LT EXIST R/W
27.81' LT 406.46
27.00' LT 406.73
15.00' LT 406.49
13.00' LT 406.12
Constr. ℄
3:1
2.00%
Match Exist.
Approx. Relocated Location of Ex. Tree

106+00.00
30.00' LT EXIST R/W
27.03' LT 407.44
15.00' LT 407.20
13.00' LT 406.83
Constr. ℄
2.00%
Match Exist.
Approx. Relocated Location of Ex. Tree

107+00.00
30.00' LT EXIST R/W
Constr. ℄

106+75.00
30.00' LT EXIST R/W
Constr. ℄

106+56.28
30.00' LT EXIST R/W
25.66' LT 405.30
25.38' LT 405.20
15.18' LT 405.00
13.18' LT 404.52
Constr. ℄
3:1
2.00%
Match Exist.
Approx. Location of Ex. Utility Pole

Station 106+00.00 To Station 107+00.00

PROJECT	SHEET NO.
	X-5

$TIME$ST:AMP$