

Response to Request for Proposals

# ROUTE 29 WIDENING PHASE II

Fairfax County, Virginia

**State Project No.:** 0029-029-350, P101, R201, C501, D612

**Federal Project No.:** NHPP-5A01(917)

**Contract ID Number:** C00110329DB113

**March 9, 2022**



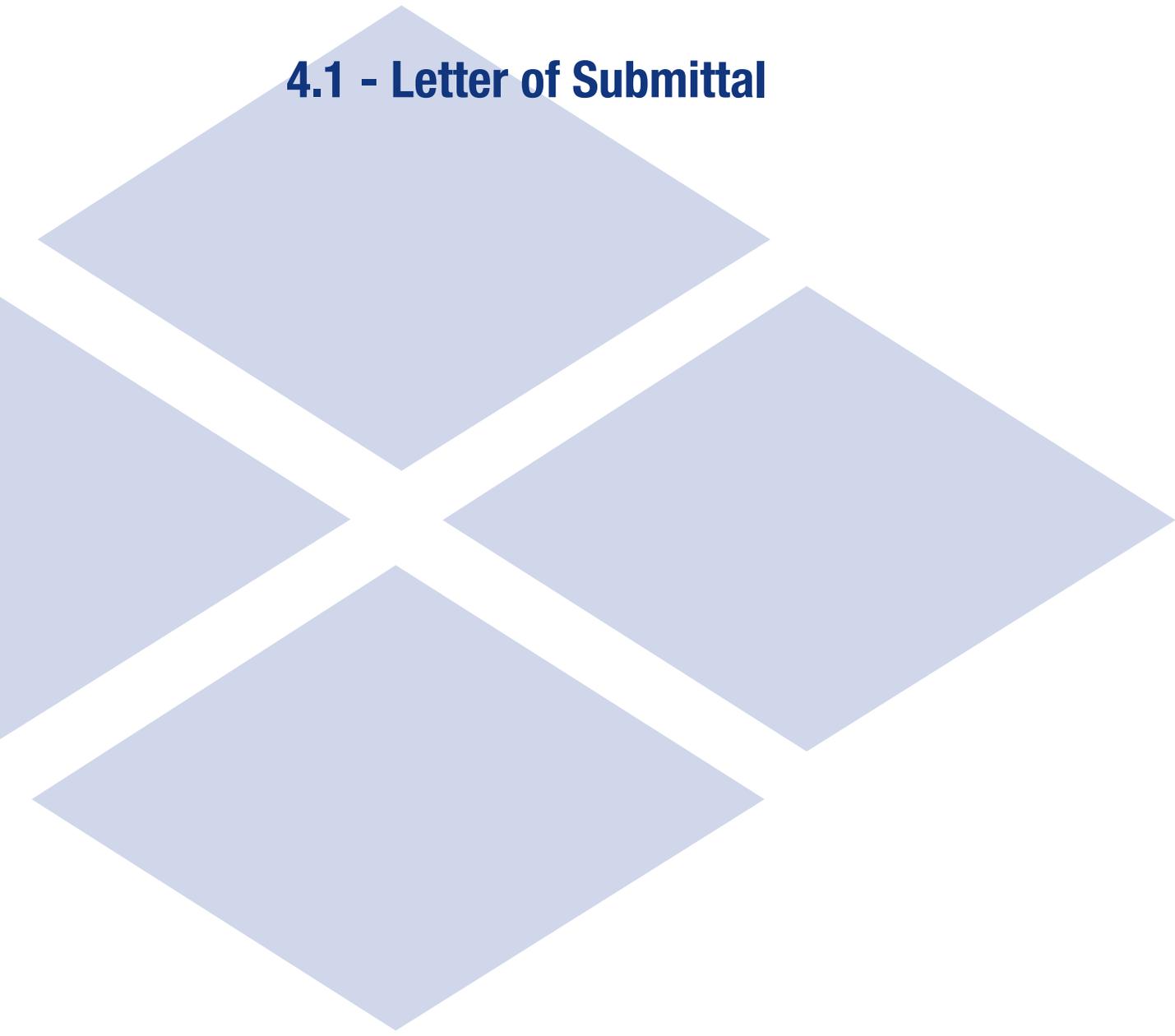
Submitted By:



In Association With:



## **4.1 - Letter of Submittal**





March 9, 2022

Ms. Sudha Mudgade, PE, PMP, DBIA  
Alternative Project Delivery Division  
Virginia Department of Transportation  
1401 East Broad Street, Annex Building, 5th Floor  
Richmond, VA 23219

Re: Route 29 Widening Phase II, Fairfax County, Virginia  
Contract ID Number: C00110329DB113

#### **4.1 Letter of Submittal**

Dear Ms. Mudgade:

Shirley Contracting Company, LLC (Shirley), as the Offeror, and Dewberry Engineers Inc. (Dewberry), as the Lead Designer, are pleased to submit our Team's Technical Proposal for the Route 29 Widening Phase II Project (the Project). Our Team will provide VDOT and the traveling public with an unequalled level of assurance that the Project is completed successfully and exceeds the priorities established while limiting risk to all stakeholders.

**4.1.2 - 4.1.3 Declarations:** Should Shirley be selected, it is our intent to enter into a contract with VDOT for the Project in accordance with the terms of the Request for Proposal (RFP). Further, the offer represented by our Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days after the date the Price Proposal is actually submitted to VDOT.

**4.1.4 Point of Contact:** Garry Palleschi, Vice President, Shirley Contracting Company, LLC  
8435 Backlick Road, Lorton, VA 22079  
(P) 703.550.3579, (F) 703.550.9346  
(E) gpalleschi@shirleycontracting.com.

**4.1.5 Principal Officer:** Gregory Smith, Division President, Shirley Contracting Company, LLC,  
8435 Backlick Road, Lorton, VA 22079, (P) 703.550.8100.

**4.1.6 Final Completion Date:** April 29, 2026

**4.1.7 Unique Milestone 1 Date:** November 3, 2023

**Unique Milestone 2 Date:** May 21, 2024

**Unique Milestone 3 Date:** August 28, 2024

**4.1.8 Proposal Payment Agreement:** An executed Proposal Payment Agreement, Attachment 9.3.1 is included in the Appendix.

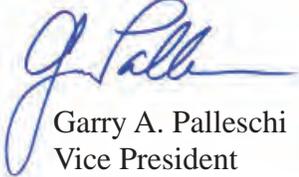
**4.1.9 Certification Regarding Debarment:** Signed Certification Regarding Debarment Forms from all team members are included as an attachment in the Appendix.

**4.1.10 DBE Participation Goal:** Shirley commits to achieving a 9% DBE participation goal for the entire value of the contract.

**4.1.11 Confirmation of Commercial and Professional Registrations:** We confirm that all commercial and professional registration requirements contained in our Statement of Qualifications are complete and accurate and that Offeror, and business entities on Offeror's Team, remain in good standing with all applicable regulatory bodies and are eligible to provide the services required on the Project.

On behalf of the entire Team, we thank VDOT for the opportunity to submit this Technical Proposal and look forward to your favorable review.

Sincerely,



Garry A. Palleschi  
Vice President

## **4.2 - Offeror's Qualifications**





## 4.2 Offeror's Qualifications

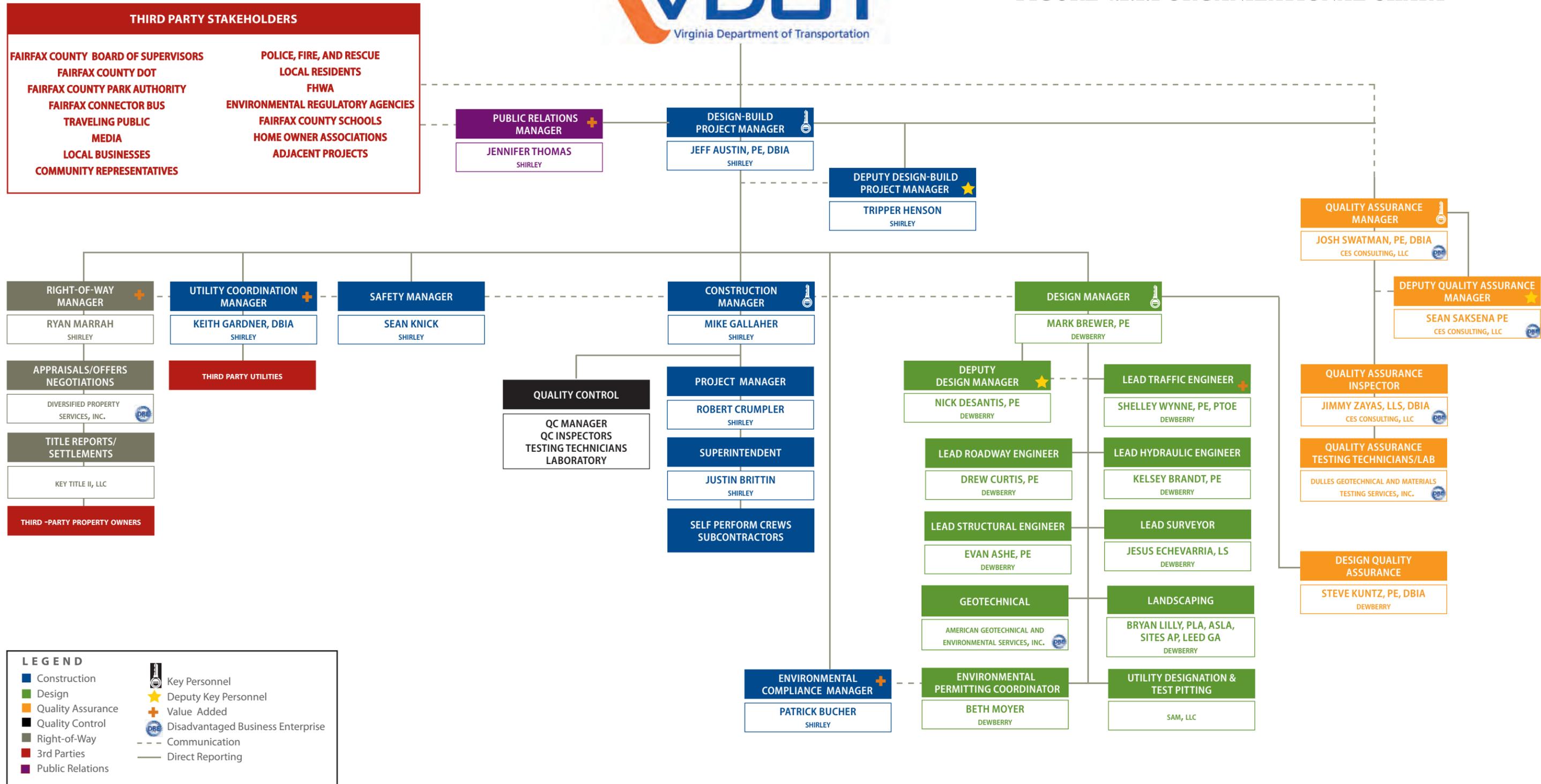
### 4.2.1 Confirmation

We confirm that the information contained in our Statement of Qualifications (SOQ) remains true and accurate in accordance with Part 1, Section 11.4. As allowed by Section 4.2 of the RFP, our Team intends to include Tripper Henson as Deputy Design-Build Project Manager (DDBPM), Nick DeSantis, PE as Deputy Design Manager (DDM), and Sean Saksena, PE as Deputy Quality Assurance Manager (DQAM). Resumes for each of these positions are included in the Appendix.

The Organizational Chart as shown in Figure 4.2.1.1 has been updated to reflect the addition of the Deputy Design-Build Project Manager (DDBPM), Deputy Design Manager (DDM), and Deputy Quality Assurance Manager (DQAM). As there is no change to any functional relationships among the participants since the submittal of the SOQ, an updated narrative is not required.



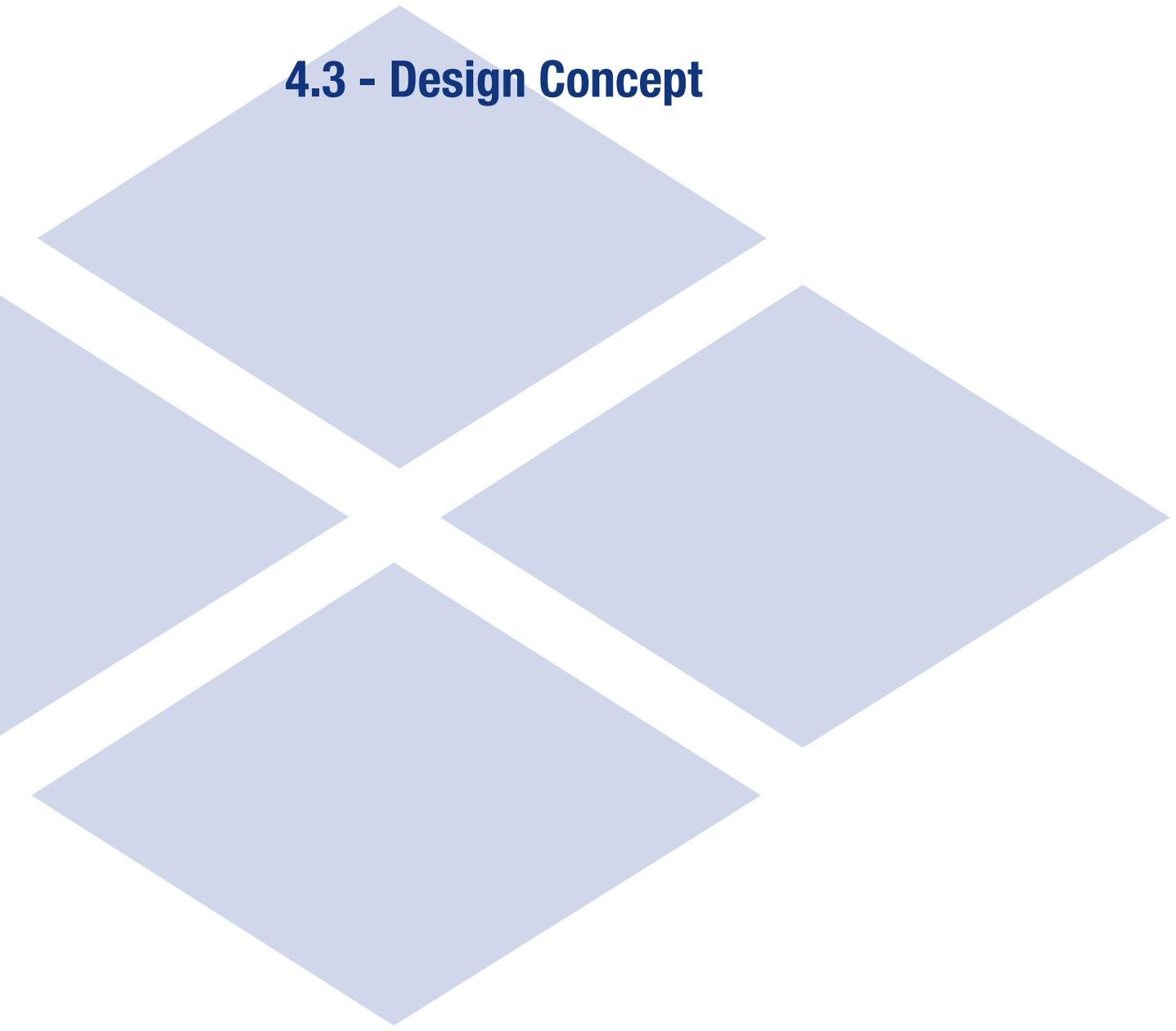
FIGURE 4.2.1.1 ORGANIZATIONAL CHART



**LEGEND**

- Construction (Blue box)
- Design (Green box)
- Quality Assurance (Orange box)
- Quality Control (Black box)
- Right-of-Way (Grey box)
- 3rd Parties (Red box)
- Public Relations (Purple box)
- Key Personnel (Key icon)
- Deputy Key Personnel (Star icon)
- Value Added (Plus icon)
- Disadvantaged Business Enterprise (DBE icon)
- Communication (Dashed line)
- Direct Reporting (Solid line)

## **4.3 - Design Concept**



## 4.3 Design Concept

### Introduction

Shirley and Dewberry bring unparalleled project delivery experience to this specific area of Fairfax County. We delivered the six-lane roadway improvement at the western Project terminus with the Route 29 Bridge Replacement Over Little Rocky Run Design-Build. This project provided a bridge crossing of the Little Rocky Run and widened the roadway to the same typical section the Route 29 Phase II Project proposes. This project was delivered within the last ten years providing our Team with invaluable experience and knowledge of existing conditions, such as utilities, the traffic network, and overall challenges working on this heavily traveled arterial roadway. In addition to the Little Rocky Run Project, our Team has completed other projects in close proximity, as shown in Figure 4.3.1, including:

- Route 28 and Route 29 Interchange;
- Route 29 Fairfax County Parkway Interchange; and
- Route 28 Centreville Road Widening.

We are prepared to apply lessons learned and experience from these improvements to this Project and deliver another successful design-build project for VDOT.



Figure 4.3.1. Nearby Projects Completed by our Team

While building on the extensive work already completed by VDOT to develop the RFP Concept, our Team has worked to enhance the Project design to improve value, schedule, and functionality by reducing impacts to the public, environment, and private properties. We have reviewed the RFP information, made field visits to the site, and coordinated internally on a weekly basis. The benefits of our Team's efforts will:

- ✓ Improve safety for the traveling public, construction personnel, and inspection staff;
- ✓ Enhance traffic operations during construction;
- ✓ Reduce overall construction cost;
- ✓ Minimize property impacts;
- ✓ Reduce environmental impacts;
- ✓ Minimize utility impacts;

- ✓ Shorten the Project Schedule; and
- ✓ Reduce the need for future inspection and maintenance.

Furthermore, our concept:

- Meets or exceeds all requirements listed in the Design Criteria Table;
- Indicates that the limits of construction to include all stormwater management facilities are within the right-of-way limits shown in the RFP Conceptual Plans for the parcels to be acquired by VDOT, and indicates the limits of construction to include stormwater management facilities are contained within the right-of-way limits as shown on the RFP with the exception of permanent (other than utility easements) and temporary easements for the parcels to be acquired by the Design-Builder, provided the changes to these temporary or permanent easements do not represent a net increase in area of impact per parcel; and
- Does not include design elements that require Design Exceptions and/or Design Waivers unless they are identified or included in the RFP or Addendum.

Our proposed enhancements are described in detail in the following sections, summarized in Table 1, and depicted in our Volume II Design Concept.

**Table 1: Enhancements and Benefits**

Location/ Design Element	Enhancement	Project Benefit
<b>Route 29 Vertical Profile</b>	Optimize vertical profile	<ul style="list-style-type: none"> <li>■ Reduce asphalt buildup.</li> <li>■ Reduce construction complexity, impacts and cost.</li> <li>■ Minimize slope tie-in impacts in fill scenarios.</li> <li>■ Reduce impacts to traffic.</li> </ul>
	Revise vertical profile from Station 332+57 to Station 350+35 to satisfy 45 MPH design criteria	<ul style="list-style-type: none"> <li>■ Improve vehicle safety with increased sight distance at three vertical curves.</li> <li>■ Eliminate roadway lighting and easements from Station 334+00 to Station 342+60.</li> <li>■ Minimize light pollution to Willow Pond Park and surrounding communities.</li> <li>■ Reduce construction impacts and cost.</li> <li>■ Simplify construction phasing.</li> </ul>
<b>Route 29 Lane Widths</b>	Reduce Route 29 dual left turn lanes and through lanes in the vicinity of the Union Mill Road and Centreville Farms Road intersection to 11 feet wide (per allowable design criteria)	<ul style="list-style-type: none"> <li>■ Reduce right-of-way impacts.</li> <li>■ Eliminate existing lane shift of SB Route 29 through the Centreville Farm Road intersection.</li> <li>■ Lower Retaining Wall “A” height.</li> <li>■ Decrease impervious area.</li> <li>■ Salvage existing signal pole at the southeast quadrant of the Route 29 and Union Mill Road intersection.</li> <li>■ Reduce maintenance costs for VDOT.</li> </ul>
<b>Salvage Existing Raised Median</b>	Reuse existing raised median on Route 29 east of Buckleys Gate Drive Intersection	<ul style="list-style-type: none"> <li>■ Improve maintenance of traffic operation through removal of construction stage.</li> <li>■ Reduce construction complexity and cost.</li> </ul>
<b>Utility Impacts</b>	Reuse signal pole at Union Mill Road and Summit Drive	<ul style="list-style-type: none"> <li>■ Avoid impacts to existing watermain.</li> <li>■ Eliminate open cut relocation through Union Mill intersection.</li> <li>■ Reduce maintenance costs for VDOT.</li> <li>■ Reduce impacts to traffic.</li> </ul>

Location/ Design Element	Enhancement	Project Benefit
<b>Stormwater Management</b>	Combine RFP dual pond design into one SWM water quality facility	<ul style="list-style-type: none"> <li>▪ Eliminate redundant drainage system.</li> <li>▪ Reduce maintenance costs for VDOT.</li> <li>▪ Maximize on-site water quality treatment and reduce nutrient credit purchase requirement.</li> </ul>
<b>Willow Springs Branch Hydraulic Crossing</b>	Optimize RFP box culvert crossing by replacing with multiple 84-inch pipes	<ul style="list-style-type: none"> <li>▪ Reduce construction complexity and cost.</li> <li>▪ Improve maintenance of traffic.</li> </ul>

### 4.3.1 Conceptual Roadway Plans

The Project improvements consist of roadway widening of Route 29 from four lanes to six lanes for approximately 2.14 miles. Currently Route 29 within the Project limits just west of Union Mill Road to just east of Buckleys Gate Drive is a four-lane section, divided by a grass median and grade bifurcation in several areas. The Project will connect previously widened portions of Route 29, including the Route 29 Bridge Replacement Over Little Rocky Run and Route 29 approaching the Fairfax County Parkway and West Ox Road interchange. The result will be a continuous six lane corridor from Route 28 to the Fairfax County Parkway. Improvements to pedestrian facilities are also provided, including enhanced crossings at major intersections and completion of shared use paths on both sides of Route 29.

The RFP addressed many of the concerns with the existing conditions of Route 29. Our Team has refined the design concept further to deliver a Project which prioritizes reducing cost, provides an efficient design that meets or exceeds RFP requirements, minimizes impacts to surrounding communities and the traveling public, and reduces risks to stakeholders.

#### (a) General Geometry

The general Geometry of our Team’s concept is depicted in our Volume II Design Concept, including:

- Horizontal curve data;
- Vertical curve data;
- Associated design speeds; and
- Number and widths of lanes, shoulders, sidewalks, and shared use paths.

The geometric requirements dictated by the RFP’s Design Criteria (Attachment 2.2) align with our Team’s conceptual design. The design for Route 29 includes six 11-foot lanes with curb and gutter along the outside and header curb with a raised 16 to 28-foot wide median separating northbound and southbound directions. Route 29 follows the VDOT GS-5 Standard for an Urban Principal Arterial. Improvements to Stringfellow Road and Clifton Road consist of turn lane length adjustments including 11-foot minimum travel lanes with curb and gutter and raised medians, and will follow the VDOT GS-6 Standard for Urban Minor Arterial. Ultimate turn bay and taper lengths will be no less than shown in the RFP. There are three Service Roads that match the RFP design, providing a minimum 20-foot wide pavement width for two lanes of traffic and follow the VDOT GS-8 Standard for Urban Local Street. An adjustment to the Fairfax County Parkway interchange ramp denoted as Ramp A will be designed in accordance with a VDOT GS-R Standard for an Interchange Ramp. Finally, there are numerous crossing roadways which connect to Route 29, along with various entrances and driveways, which all follow applicable VDOT standards. Further discussion on the roadway typical sections is provided in *Section (d) Typical Sections*.

The Route 29 corridor alignment is generally straight through the Project area, allowing the use of a normal 2% crowned section. The roadway curvature needed between Station 343+00 and Station 352+00

## 4.3 Design Concept

will require 2% superelevation of the northbound lanes. Route 29 is designed to a 45 MPH design speed per RFP criteria, and is reflected in both the horizontal and vertical design. Stringfellow Road and Clifton Road are designed for 45 MPH, and the Service Roads all meet a minimum 25 MPH design speed. The modifications to Ramp A match the design speed for Route 29.

The shared use paths are adjacent to both northbound and southbound Route 29 lanes and connect to existing facilities at both the east and west ends. Shared use paths are 10 feet in width with an 8-foot minimum buffer between the face of curb and asphalt path. The Team will utilize the approved Design Waiver provided with the RFP for a reduced 5-foot buffer and 8-foot shared use path width in segments between Station 390+50 and Station 409+47.

The Project includes improvements at the major intersections along the corridor, which require new signals and pedestrian crossings. Our Team has optimized elements of the design to salvage select existing signal poles with recertification, benefiting the overall Project cost and schedule. One example of this is shown in Figure 4.3.1.1 at the southwest quadrant of Route 29 and Summit Drive. Conflicts with the existing signal pole can be avoided with the proposed alignment of the SUP and curb ramps. A similar approach can be utilized at the southeast quadrant of Union Mill Road as demonstrated in our Volume II Design Concept.

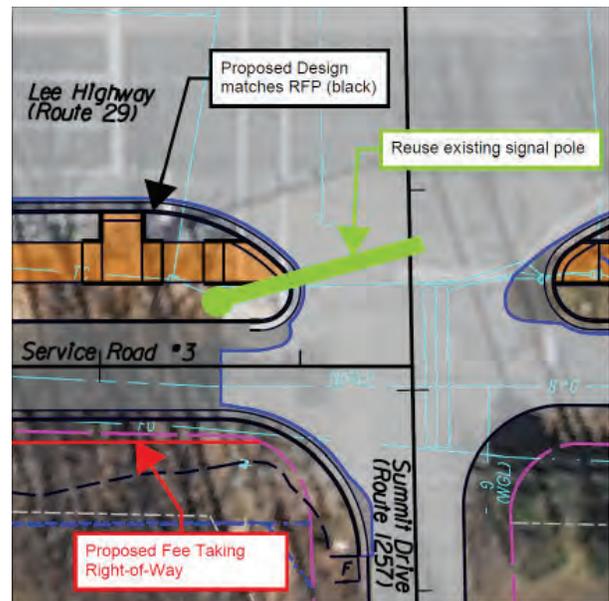


Figure 4.3.1.1 Salvage of Existing Signal Pole

### (b) Horizontal and Vertical Alignments

Recognizing the advanced stage of RFP design development and analyzing the alignment geometry and associated impacts, our Team's concept utilizes the same centerline horizontal alignment as the RFP. The combination of the horizontal and vertical alignment balances property impacts and shows consideration towards constructability while staying within the RFP right-of-way limits. Geometry meets the prescribed 45 MPH design speed horizontally and vertically. Our Team utilizes much of the RFP design and will implement design optimizations related to roadway width and refinement of the vertical alignments as describe in the following narrative.

#### Roadway Width Optimization

The RFP design criteria outlined in Attachment 2.2 allows 11-foot lanes along Route 29 consistent with VDOT GS-5 criteria for a roadway designed at 45 MPH. The RFP primarily uses 11-foot lanes throughout the project limits; however, in several left turn lanes and some through lanes, 12-foot lanes are shown. The Team's optimized design concept utilizes 11-foot lanes and strategically modifies the transition from 12-foot lanes to 11-foot lanes to minimize roadway width and reduce impacts. By modifying the transition from 11-foot to 12-foot lanes just west of the intersection with Union Mill Road and Centreville Farm Road, our design provides the following benefits:

- Eliminates the undesirable existing lane shift through the intersection in the southbound lanes presented in the RFP design; and
- **Reduces the maximum roadway width by up to 10-feet** along Route 29 in this area.

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The RFP design includes 12-foot left turn lanes along northbound Route 29 from Station 318+00 to Station 325+90, and along southbound Route 29 from Station 308+15 to Station 316+55 and Station 327+75 to Station 335+50. Our Team's design maintains the consistent 11-foot wide lanes within these left turn bays, matching the through lane widths and providing the following benefits:

- A minimum **roadway width reduction of 2 feet**;
- Reduction of property impacts to two homeowner's association properties and the Fairfax County Park Authority property;
- Consistent use of 11-foot lanes east of Union Mill Road; and
- Reduction of construction and maintenance costs.

Figure 4.3.1.2 shows a typical section representation of our optimized modification.

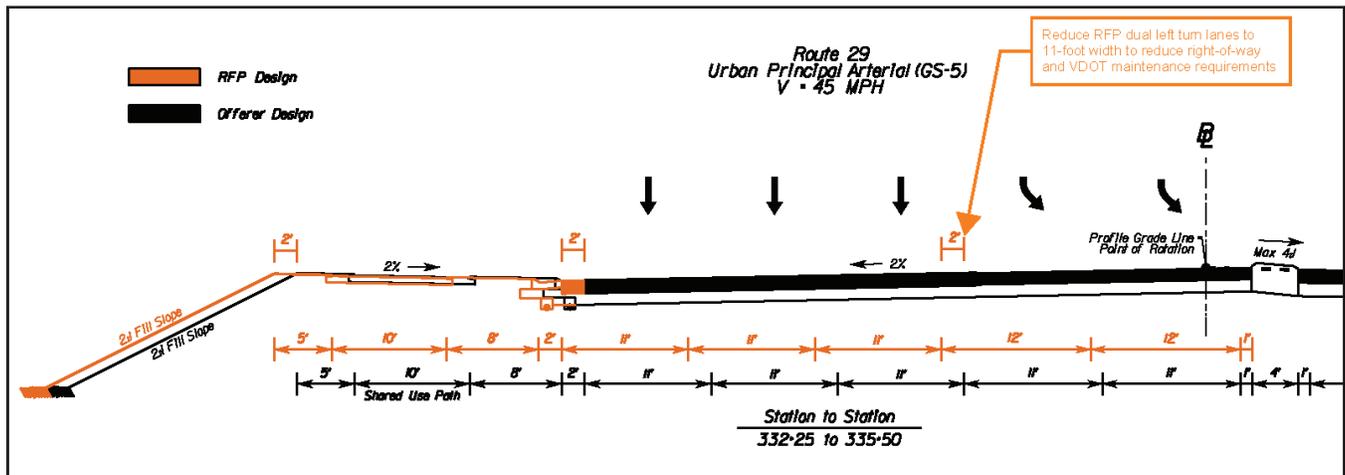


Figure 4.3.1.2 Turn Lane Width Optimization

### Optimized Profile within Mill and Overlay Areas

VDOT's RFP design proposes a vertically defined profile from Station 306+00 to Station 386+00, covering areas where new full depth pavement is required and where mill and variable depth overlay is planned. The RFP variable depth asphalt build-up is generally specified for the eastern and western portions of the Project, and the amount of buildup varies from a few inches to over 24 inches.

Where mill and excess variable depth overlay is specified, our Team is implementing an optimized profile to lower grades from those proposed with the RFP. The resulting finished grade from this profile better replicates existing pavement elevations, while not reducing existing pavement depths at any point. The profile is based on mathematical vertical definition just as the RFP design is, and meets Project criteria for the design speed. To avoid reducing the existing pavement section with the optimized profile, our Team utilized 3D modeling CAD tools which analyzed profile grade, proposed cross slopes, and

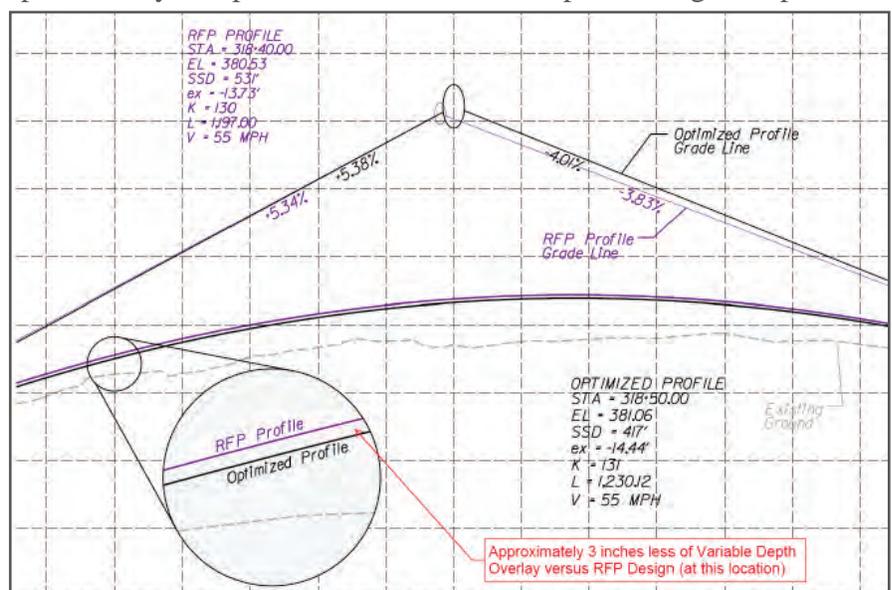


Figure 4.3.1.3 Optimized Profile With Mill and Overlay

## 4.3 Design Concept

existing surface information to test different profile options. Based on this information, the most efficient profile can be determined. Our Team's concept results in an average **reduction of overlay buildup by approximately 3 inches** when compared to the RFP for areas where mill and overlay is proposed as shown in Figure 4.3.1.3.

Minimizing the amount of pavement buildup reduces the number of asphalt lifts required to achieve the profile grade, simplifying construction methods, reducing construction costs, and limiting impacts to traffic. By lowering the profile within this area, which is predominantly in fill, our Team reduces impacts to private property. Reference *Section (f) Proposed Right-of-Way Limits* for further details related to this optimization.

### Improve Profile where RFP Required Lighting at Sag Locations

The RFP proposes vertical sag curves at Station 329+37 and Station 340+70 which do not obtain the required K value for 45 MPH, but do meet the necessary comfort criteria. In addition, roadway lighting is proposed to mitigate deficient sight distance due to vehicle headlight limitations during dark conditions. As shown in Figure 4.3.1.4, our concept corrects the deficient sag vertical curve at Station 340+70 with alternative vertical geometry which fully obtains the K value and sight distance requirements at 45 MPH.

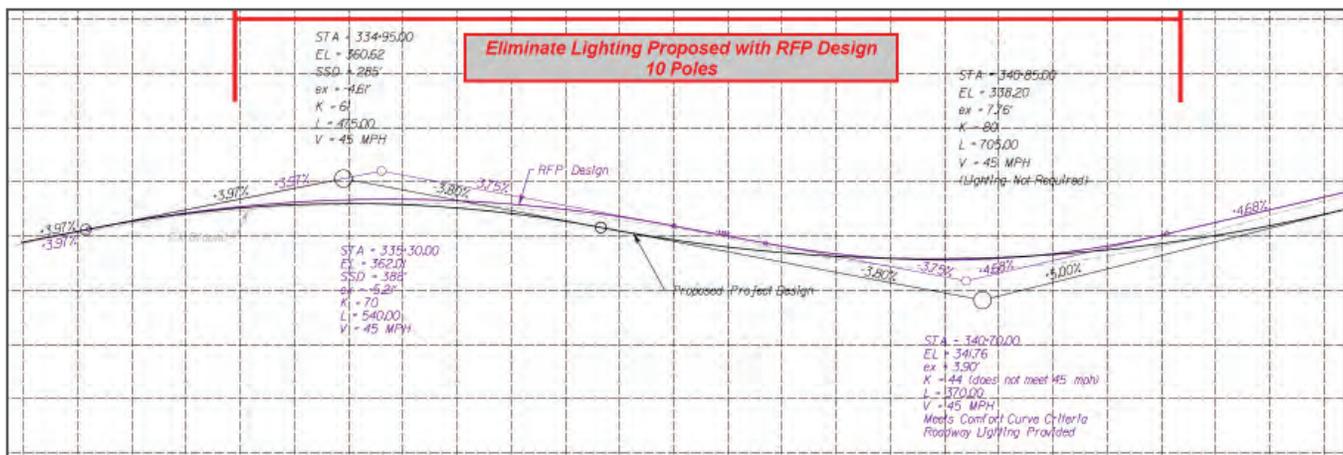


Figure 4.3.1.4 Optimized Profile to Meet Full 45 MPH Standards

This results in the elimination of 10 light poles as compared to the RFP between Station 334+00 and Station 342+60 and provides the following benefits:

- Optimizes vertical geometry to fully meet standards;
- Reduces light pollution;
- Eliminates the need for lighting easements on Fairfax County Park Authority property;
- Removes a fixed object hazard within the roadway clear zone;
- Improves sight distance and vehicle safety along the corridor; and
- Reduces construction and maintenance costs.

### (c) Maximum Grades

The maximum grades meet the VDOT and AASHTO criteria for each alignment's roadway classification and associated design speed and the requirements identified in Attachment 2.2 of the RFP. Profiles for Route 29 and the Service Roads are shown in our Volume II Design Concept and the maximum grades for all major roadways are provided in Table 2.

Within areas where vertical alignment optimizations are proposed, similar grades as those proposed with the RFP are implemented. Overall, the proposed grades along Route 29, while rolling in nature, are improved by reducing grades below the maximums allowed per VDOT and AASHTO.

**Table 2: Maximum Grades**

<b>Alignment</b>	<b>Maximum Allowable Grade</b>	<b>Maximum Proposed Grade</b>
Route 29	7.0%	5.3%
Clifton Road	7.0%	1.3%
Stringfellow Road	7.0%	3.4%
Service Road #1	8.0%	4.2%
Service Road #2	11.0%	4.6%
Service Road #3	11.0%	4.8%
Ramp A	5.0%	1.6%
Miscellaneous Side Roads	varies 7.0% to 15%	6.0%

#### **(d) Typical Sections**

Our Team’s design concept is fully compliant with the RFP Design Criteria Attachment 2.2 and applicable VDOT GS Standards for lane widths, buffer widths, median widths and types, pedestrian facility widths, and curb types.

A minimum lane width of 11 feet is provided for Route 29, Stringfellow Road, and Clifton Road. For the three Service Roads a minimum 20-foot width for two-way traffic is provided. For Ramp A, the lane width transitions from the Route 29 lane width to a 16-foot wide lane. Consistent with the adjoining sections of Route 29, the Project utilizes mountable CG-7 curb and gutter on the outside of the typical section, and mountable CG-3 header curb with the raised medians. Separation between northbound and southbound lanes vary from 4-foot wide concrete capped MS-1/1A strips within left turning areas to 26-foot wide raised grass MS-2 medians.

Pedestrian facilities are provided as 10-foot wide asphalt SUP, with VDOT standard 8-foot buffers from the face of curb. Exceptions to the 8-foot buffer are implemented along northbound Route 29 between Station 390+50 and Station 409+47, where this is reduced to a 5-foot buffer per the approved Design Waiver provided with the RFP Information Package. Continuous shared use paths are provided adjacent to both northbound and southbound Route 29 by connecting to existing facilities at the eastern and western Project termini. Outside of the shared use paths, side slopes are a maximum of 2:1 where contained within right-of-way or permanent slope easement. Side slopes of 3:1 will be used where slopes will be maintained by the property owner. Lastly, the typical sections reflect the three retaining walls necessitated by the Project design, shown schematically based on anticipated wall type.

#### ***Crown Roadway at Left Turn Lanes***

The RFP design utilizes a normal section without cross slope crowns within the northbound or southbound lanes; however, the existing typical section of Route 29 does contain crowns within each northbound or southbound directional barrel of roadway. Thus, the RFP design creates excessive pavement overlay buildups to correct this.

Within mill and overlay areas, our Team’s concept limits the amount of asphalt buildup that is required by introducing a cross slope crown in normal sections only to better match the existing pavement surface. We have restricted this such that the crown line separates the left turn lanes from the through lanes in the following locations:

- Dual left turn lanes along southbound Route 29 from Station 308+10 to Station 318+00;
- Dual left turn lanes along northbound Route 29 from Station 316+50 to Station 325+90;
- Single left turn lane along southbound Route 29 from Station 360+40 to Station 364+00;

## 4.3 Design Concept

- Single left turn lane along southbound Route 29 from Station 370+86 to Station 375+10; and
- Single left turn lane along northbound Route 29 from Station 380+00 to Station 384+31.

Transition of the crown at each intersection where the left turn lanes end is accomplished with a similar method to the current conditions. Through the intersection, the crown will be transitioned to match the adjacent travel lanes. Inlets are added to the median to control drainage, dividing drainage areas, and providing overall improvement for spread and sheet flow across travel lanes. This benefit is further described in *Section (e) Conceptual Hydraulic, Major Drainage, and Stormwater Management Design*.

Introducing a crown line along left turn lanes for a particular direction allows for further optimization of the design and elimination of excessive variable depth overlay due to grade differences. By modifying the profile grade of the opposite barrel to better align vertically with the existing pavement surface, asphalt buildup is further reduced. An example of this occurs along the southbound Route 29 left turn lane between Station 370+86 and Station 375+10, as shown in Figure 4.3.1.5. Along northbound Route 29 within this range, it is advantageous to modify the profile grade to better match existing pavement surfaces. Proposed profile grades in these situations meet all applicable criteria, including allowable vertical geometry for 45 MPH, and limiting median crosslope to a maximum of 4:1. The resulting benefit **reduces asphalt buildup by an average of 6"** within the left turn lanes where a crown line is introduced, **and an average of 5"** where the profile grade of the opposite direction roadway barrel is modified while still ensuring minimum pavement section criteria are met.

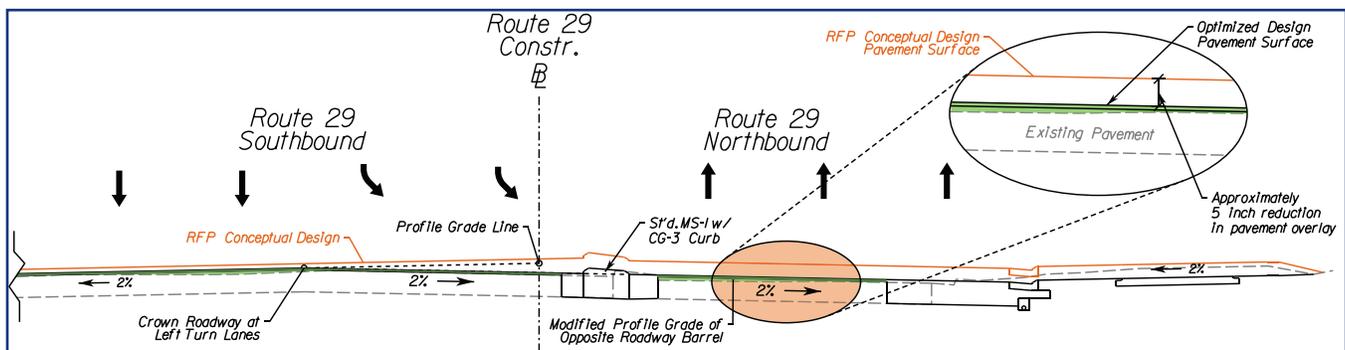


Figure 4.3.1.5 Crown Roadway at Left Turn Lanes

### (e) Conceptual Hydraulic, Major Drainage, and Stormwater Management Design

To develop our hydraulic and stormwater management approach, our Team relied on existing and proposed topography to ensure accurate and thorough understanding of drainage patterns within the Project limits. Our Team understands that all existing drainage facilities that are a functional element of the proposed drainage are subject to visual/video inspection and shall be repaired or replaced as indicated by the *Existing Pipe Inspection Recommendations Memo* dated December 19, 2019. Storm sewer pipes and culverts utilized in the RFP but not included in the assessment report are assumed to be in acceptable condition and will be inspected by our Team after Award. Our Team's optimized concept eliminates redundancy in the drainage system and reduces the overall number of drainage structures, storm sewer pipe length, and stormwater management facilities.

### Hydraulic Design Approach

Our drainage approach is based on utilizing the existing terrain to optimize the flow of existing and proposed runoff and maintain drainage divides as much as possible. Curb inlets are placed and sized in accordance with VDOT requirements to ensure spread and depth do not exceed allowable values during the appropriate design storm. Closed system storm sewer facilities will convey the collected flow into ditches, culverts, and the stormwater management facility for proper treatment and outfall controls. Our drainage layout and conceptual design is reflected in our Volume II Design Concept.

## 4.3 Design Concept

Our Team has incorporated the RFP design's hydraulic conveyance system, including the storm sewer and open channel network, but with our own enhancements and modifications that accommodate our design. In comparison to the RFP design, ***our Team's hydraulic system consists of 11 fewer storm inlets and approximately 700 linear feet less storm sewer pipe, which ultimately results in less future maintenance.*** Changes to the hydraulic design were also made to take Project flows to the appropriate outfall or stormwater management facility.

The crowned roadway at select left turns described in *Section (d) Typical Sections* introduces the need for inlets and storm sewer in the median to convey water away from the header curb. Our design accounts for this, meeting spread and depth of flow requirements per VDOT criteria. Even with the introduction of this median conveyance system, our design still has less total infrastructure than the RFP. Additionally, introducing the crown and dividing the sheet flow across travel lane pavement similar to existing conditions follows guidance from AASHTO 4.2.2.1 and Federal Highways Mitigation Strategies, which suggests limiting the number of lanes cross-sloped in one direction. This approach reduces the likelihood of vehicle hydro-planing. In the areas where Route 29 requires dual left turn lanes and a single right turn lane, the width in the RFP design sloped to the outside curb and gutter is six lanes of pavement width. Our design separates the flow, with two lanes sloped towards the median header curb, and the remaining four lanes sloped to the outside curb and gutter.

Snow removal within the crowned left turn lanes will function similar to the existing configuration, which mostly plows snow to the outside roadside areas. As a benefit, any snow that does get pushed to the median areas would not melt and sheet across the through travel lanes potentially resulting in icy conditions.

### **Stormwater Management Approach**

Stormwater management is based on Part IIB Criteria of the Virginia Administrative Code 9VAC25-870-62 et seq. A preliminary Virginia Runoff Reduction Method (VRRM) analysis was performed for our concept and determined that the Project land disturbing activities will require 19.2 pounds of phosphorous to be treated. The treatment requirement will be met through both on-site treatment and the use of nutrient credits. Our stormwater management approach combines the two facilities shown in the RFP into one water quality and quantity facility within the same footprint. This optimized approach provides the following benefits:

- Removes redundant storm drainage system, which accounts for the primary savings in storm sewer pipe and inlets described in the previous section;
- Decreases future VDOT maintenance responsibilities of two SWM management riser structures and outfalls by removing redundancy and utilizing only one facility which can be gravity drained for maintenance;
- Maximizes the phosphorus removal provided on-site by directing roadway flow into one water quality facility and treating all the eligible impervious within the drainage area;
- Decreases the amount of required nutrient credits and allows VDOT to apply unused purchased credits to other projects; and
- Has no impact to the jurisdictional stream located adjacent to the pond.

Concentrated flow leaves the Project site at 17 locations. The outfalls were analyzed using the Part IIB design criteria for both channel protection and flood protection. The proposed stormwater management pond will provide water quantity detention to meet the outfall requirements at the downstream outfall.

### **Willow Spring Branch Hydraulic Crossing**

Our drainage concept provides an improved hydraulic crossing at Willow Spring Branch, utilizing three parallel 84" culverts without impacting the 100-year floodplain. Utilizing pipes as opposed to box culverts

allows for faster installation and minimizes the impact to residential and commuting traffic as detailed in Section 4.5.2 *Traffic Management Plan*. This approach also avoids the need for temporary stream grading and a large stream diversion during culvert installation. In addition, the headwalls are configured to reduce impacts to the jurisdictional stream.

### (f) Proposed Right-of-Way Limits

It is understood that VDOT is in the process of acquiring fee simple right-of-way and easements from 23 parcels, and our Team is committed to design and construct the Project completely within those limits. The remaining parcels have identified right-of-way and easements which our design will not modify unless the change results in no net increase per parcel. Our Team was able to successfully work through similar constraints on the Route 630 widening component of the I-95/Route 630 Reconstruction and Widening Project where VDOT completed acquisitions on 83 parcels ahead of Project Award.

Our Team has focused on providing a concept that remains within the right-of-way footprint where required by the RFP and is able to reduce or avoid impacts as shown in Table 3. We have identified two parcels (Parcels 002 and 016(T)) where right-of-way modifications could be implemented on parcels VDOT is acquiring at their discretion. The roadway width optimization provides a benefit of fee simple reductions for parcels 001, 002, 005, and 016(T), and could minimize environmental impacts at Willow Pond Park. As a result of these fee simple reductions, both permanent and temporary easements will also be adjusted due to the revised site impacts. No net increase per parcel of fee simple right-of-way or easements is required for any parcel.

**Table 3: Right-of-Way Optimization**

Parcel Number	Owner	Parcel Responsibility	RFP Fee Simple (SF)	Proposed Fee Simple (SF)	Total Fee Simple Reduction (SF)
001	Faircrest HOA	Design Builder	15,534	12,433	3,101
002	PMG NOVA	VDOT	1,887	1,358	529
005	Townes at Woodland Glen HOA	Design Builder	681	0	681
016(T)	FCPA	VDOT	54,624	52,228	2,417
				<b>TOTAL</b>	<b>6,353</b>

One example of value added with the use of 11-foot lanes discussed in *Section (b) Horizontal and Vertical Alignments* is on Parcel 005, Townes at Woodland Glenn Homeowner’s Association. By designing all lanes as 11-feet wide within this section, including the dual left turn lanes, our reduction in width versus the RFP Concept enables the proposed fee simple right-of-way on this property to be eliminated completely. Further reduction to impacts on this parcel are achieved through coordination with Verizon and elimination of a proposed Verizon easement. ***More importantly, this enhancement eliminates the Verizon easement impact to an existing conservation easement.***

Our Team’s fee simple right-of-way, permanent easements, and temporary easements are provided in the Volume II Design Concept with the savings highlighted by cross-hatching. Complete comparison of our Team’s right-of-way and easements versus those of the RFP Concept is included with the layered PDF documents.

### (g) Utility Impacts

Proposed utility impacts, relocations, and mitigation strategies are described in greater detail in Section 4.4.2 and depicted in our Volume II Design Concept. There are both wet and dry utilities that are located along Route 29 and consist of overhead and underground utilities.

## 4.3 Design Concept

Our Team's primary approach is to avoid or minimize impacts through the optimization of the Project conceptual design. For example, the traffic signal pole identified in the RFP at the southwest quadrant of Union Mill Road and Route 29 conflicts with the existing 24-inch watermain, prompting the need for relocating the watermain. Our Team's concept, as shown in Figure 4.3.1.6, with 11-foot wide lanes allows for reuse of the existing signal pole in the southeast quadrant of the intersection, avoiding the need to relocate this portion of the 24-inch watermain. The existing signal pole location is also in a safer location outside of the roadway clear zone, reducing the potential of vehicle crashes with the pole within the channelizing island.

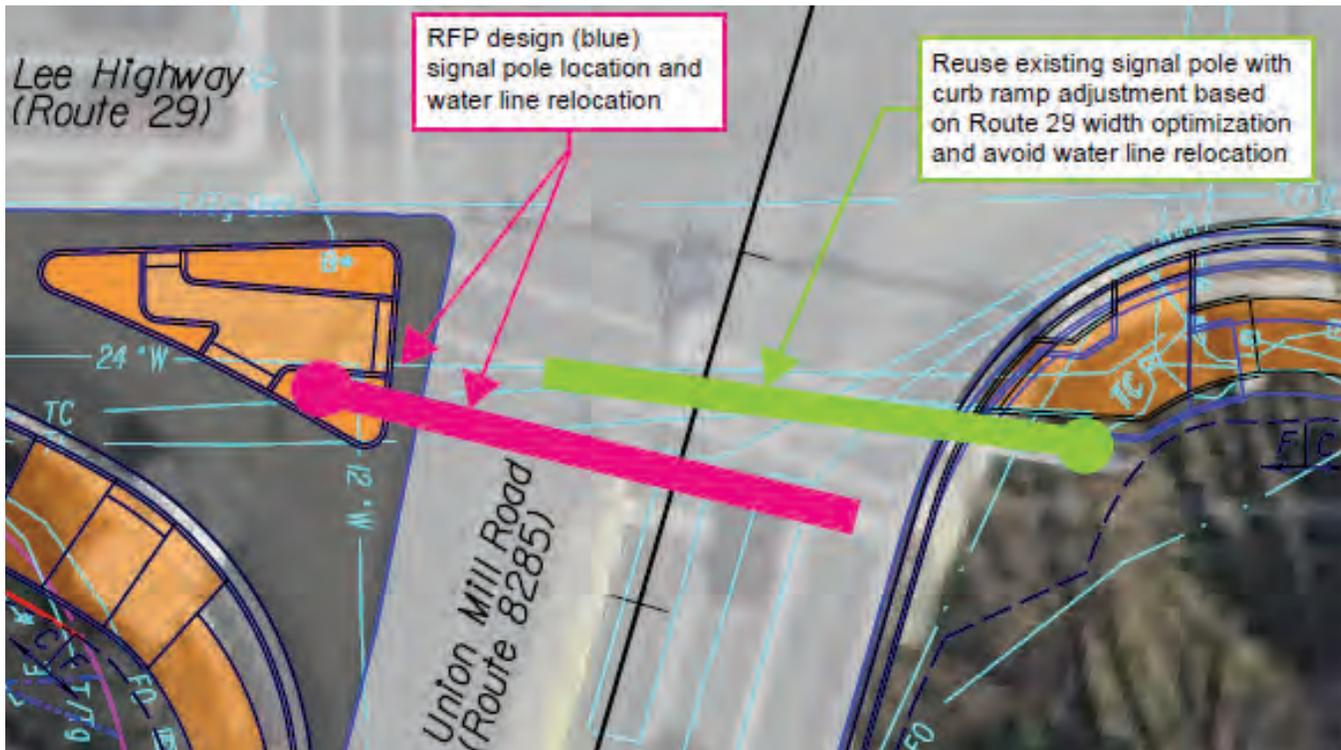


Figure 4.3.1.6 Signal Pole Reuse at Union Mill Road

### (h) Noise Barrier Locations

Consistent with the RFP Concept, our Team has accounted for the construction of four noise barriers, noted as Noise Barriers C(1), C(2), D, and G. Those barrier horizontal alignments and associated impacts are reflected in our Volume II Design Concept. Understanding that VDOT has already conducted the final noise analysis, documentation, and public voting on proposed barriers, our Team's design intends to preserve similar roadway horizontal and vertical characteristics to maintain the validity of the approved noise study. Our Team's design concept will potentially reduce noise compared to the RFP Concept by slightly lowering the roadway while maintaining the same noise attenuation. Should design modifications require re-analysis, we will assess and update this study to ensure compliance with Project requirements and Section 2.1 of the VDOT *Highway Traffic Noise Impact Analysis Guidance Manual*. The Team will take appropriate measures to mitigate the risk associated with any such modifications and the need to re-analyze the Project noise components.

### (i) Other Key Project Features

#### Lighting

As per the Project RFP requirements, lighting is provided at all signalized intersections to accommodate pedestrian crossings. Lighting is also provided along Ramp A to replace light poles removed as part of construction of the Project. Roadway lighting will be provided at sag vertical curve Station 329+37 along Route 29 due to a substandard profile K value. In this location, the necessary driver comfort criteria are

## 4.3 Design Concept

achieved. However, sight distance is inadequate, and therefore roadway lighting is required. Using our Team's optimized vertical alignment, lighting will not be required for the sag curve at Station 340+70 as proposed in the RFP. This eliminates the need for 10 light poles that the RFP design would otherwise require. Our Team will complete photometric analysis using AGI32 software to achieve compliance with the recommended illumination and uniformity levels. Light poles will include house-side shields to limit light trespass and utilize breakaway bases when inside roadway clear zone.

### Signalization

Four signalized intersections will require new or modified permanent signals. All proposed signals will be designed in accordance with the MUTCD, the 2011 Virginia Supplement to 2009 MUTCD, and VDOT Traffic Engineering memorandums and specifications described in the RFP. For all existing signal poles that are identified for reuse and require additional loading, recertification will be performed. The Team anticipates that existing signals can be utilized at the southeast quadrant of Union Mill Road and the southwest quadrant of Summit Drive through design optimization. Updated signal timings will be provided in advance of activation and newly constructed signals will be inspected by VDOT before they are turned over to VDOT maintenance and operations.

### Retaining Walls

Our Team's conceptual design requires three retaining walls consistent with the RFP. The proposed walls include the Retaining Wall "A" on southbound Route 29 from Station 314+55 to Station 318+77, Retaining Wall "B" on northbound Route 29 from Station 313+70 to Station 319+50, and Retaining Wall "E" along Ramp A from Station 96+14 to Station 97+08. Architectural treatments consisting of simulated drystack pattern and staining will be applied in accordance with RFP requirements and VDOT standards.

As discussed in *Section (f) Proposed Right-of-Way Limits*, Retaining Wall "A" can move south due to the reduction in roadway width. With the existing topography sloping away from the roadway and our optimization to lower Route 29, the wall height will be lowered, thereby reducing Project cost and future maintenance by VDOT.

### Landscaping

In accordance with the RFP and IIM-LD-235, the Project will provide landscaping compatible with existing landscaping adjacent to the Project, require minimal maintenance, and not be an obstruction to the traveling public. All proposed landscaping will be planted within fee simple right-of-way and permanent easements identified for planting and reforestation. Turf will also be established within temporary easements in congruence with roadside development criteria.

### Existing Sensitive Project Features

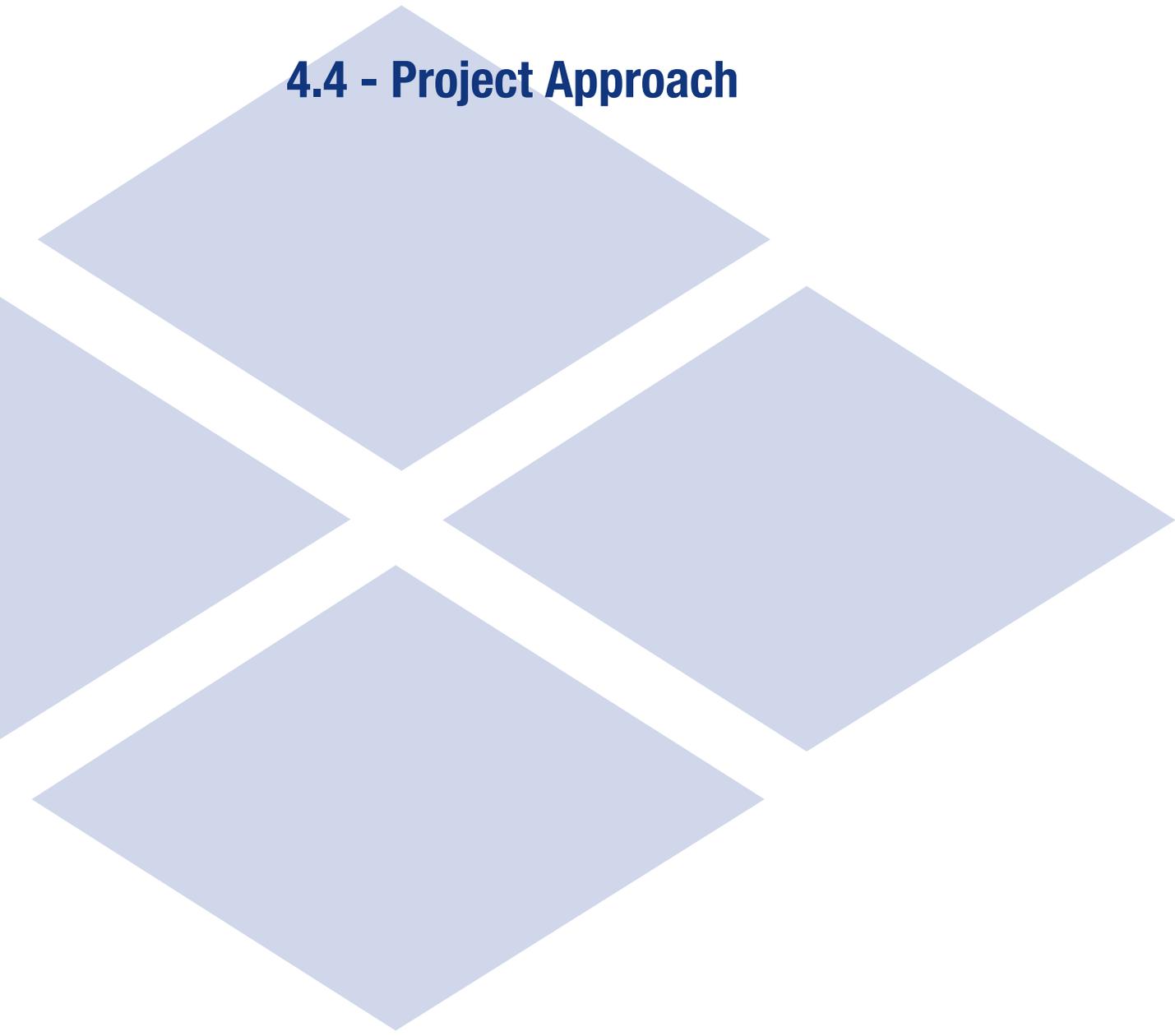
Plan Note D-2 identifies an existing pedestrian bridge to be removed and salvaged at Willow Spring Branch. We will coordinate with VDOT and FCPA personnel prior to removal of the structure and appropriate maintenance of pedestrian traffic will be implemented for continuous access. In addition to the Project RFP demolition summary requirements, it is understood that fourteen mailboxes require relocation as described in the conceptual design plans. All relocations of these proposed mailboxes will be coordinated with property owners in advance.

Fairfax Connector transit services exist within the Project corridor along Centreville Farms Road and Union Mill Road, but no active bus stops are currently located within the proposed construction limits. The Project scope does require the relocation of an existing bus stop situated in the northwest corner of Route 29 and Meadow Estates Drive. This shelter will be removed and relocated to the proposed bus shelter pad and an accessible boarding platform will be provided in accordance with standards in the *Road Design Manual Appendix A(1)*.

### **Coordination with Active Construction Projects and Proposed Developments**

The Team is aware of three site developments located within the vicinity of the Project and commits to coordinate design details, construction activities, and schedule to avoid impacts. The Brightview Fair Oaks Senior Living Facility was recently constructed on Parcels 056 and 057 and overlap with proposed Project improvements. These improvements will be incorporated into the Project design following additional survey and site investigation by the Team. The planned Autumn Willow Senior House along Stringfellow Road is located off-site from the Project, but coordination with the site developers will be required for scheduling, accessibility during construction, and stormwater and drainage purposes. In addition, there is an unapproved site plan for a Shopping Center at Parcel 008, which will require coordination for a connection to Service Road #1.

## **4.4 - Project Approach**





## 4.4 Project Approach

### 4.4.1 Environmental Management Approach

Comprehensive environmental risk management is one of the critical aspects of a successful Project and requires proper planning and coordination during design, but also proper implementation and monitoring during construction. Our approach to environmental management began during the preparation of our Technical Proposal and included involvement from our environmental team leads consisting of Shirley’s Environmental Compliance Manager (ECM) and Dewberry’s Environmental Permitting and National Environmental Policy Act (NEPA) Coordinator during each of our weekly coordination meetings. As a result of this close coordination and involvement of our environmental staff, we are able to ensure that:

- Environmental commitments and constraints are incorporated into the design;
- Impacts to environmental constraints are avoided;
- Erosion and Sediment Control (ESC) design matches the sequence of construction;
- Schedules are developed to accurately reflect early work and permit approval timelines;
- Permits are identified and obtained prior to construction commencing; and
- Construction is completed in accordance with permit, NEPA, and contract requirements.

Our Team has assembled a group of environmental professionals, design engineers, and construction personnel with extensive knowledge of the specific permitting, design, and construction processes required in Fairfax County, as well as experience complying with environmental requirements on similar projects. Our project-specific approach to mitigate environmental challenges due to the recognized environmental constraints and requirements are summarized in Table 4.

**Table 4: Strategies to Mitigate Environmental Challenges**

Environmental Resources	Project Phase	Strategy
NEPA	Design	<ul style="list-style-type: none"> <li>■ Ensure design is within limits of 2020 Categorical Exclusion (CE).</li> <li>■ Ensure compliance with previously coordinated commitments.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>■ Mandate environmental training of contractor and third-party staff concurrent with Shirley’s preconstruction safety training.</li> </ul>
Cultural Resources	Design	<ul style="list-style-type: none"> <li>■ Utilize the October 14, 2018 State Historic Preservation Officer’s (SHPO) concurrence with FHWA indicating No Adverse Effect on historic properties within the APE.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>■ Incorporate training to identify cultural resources.</li> <li>■ Stop work if graves, burial grounds, or remains are found.</li> </ul>
Noise	Design	<ul style="list-style-type: none"> <li>■ Confirm final design noise analysis is not affected by profile adjustments.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>■ Acquire noise waiver from Fairfax County prior to night work.</li> <li>■ Monitor compliance with Special Provision for Construction Noise Control.</li> </ul>
Threatened & Endangered Species	Design	<ul style="list-style-type: none"> <li>■ Early coordination with USFWS, DWR, and DCR during CZMA process.</li> <li>■ Provide the T&amp;E package to VDOT.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>■ Based on the findings of the Programmatic Biological Opinion for Final 4(d) Rule on Northern Long-Eared Bat and Activities Excepted from Take Prohibition, a TOYR for the northern long-eared bat (<i>Myotis septentrionalis</i>) is not anticipated.</li> </ul>
Stormwater Pollution Prevention	Design	<ul style="list-style-type: none"> <li>■ Prepare a Stormwater Pollution Prevention Plan (SWPPP).</li> <li>■ Prepare a Spill Prevention, Control, and Countermeasures Plan.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>■ Conduct SWPPP management training and bi-weekly ESC inspections.</li> </ul>

## 4.4 Project Approach

Environmental Resources	Project Phase	Strategy
<b>Section 4(f) Resources</b>	Design	<ul style="list-style-type: none"> <li>Develop constraints map tailored to the Project.</li> <li>Provide FCPA opportunity to review design plans prior to finalization to ensure protection of Willow Pond Park under Section 4(f).</li> <li>Design to avoid impacting Parcel 009, an adjacent Section 4(f) resource.</li> <li>Design to avoid encroachment outside of temporary, permanent, and fee right-of-way previously coordinated with VDOT and FCPA.</li> <li>Reduce ROW acquisition where possible to avoid known Section 4(f) resources. Reduces ROW impacts to FCPA property by 2,417 square feet.</li> <li>Incorporate 4(f) <i>de minimus</i> impacts.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>Installation of orange safety fence along surveyed LOD to prevent unauthorized encroachment into Willow Pond Park.</li> <li>Salvage existing pedestrian bridge on Willow Pond Trail to the maximum extent practicable for reuse by FCPA.</li> <li>SUP will be constructed to be fully compliant with the <i>2020 Americans with Disabilities Act Accessibility Guidelines for State and Local Government Facilities</i>.</li> </ul>
<b>Hazardous Waste</b>	Design	<ul style="list-style-type: none"> <li>Expedite Hazardous Materials Due Diligence Certification (EQ-121).</li> <li>Conduct Phase I Environmental Site Assessment (ESA) to identify any Recognized Environmental Conditions (REC) on the remaining 32 parcels.</li> <li>Develop a Spill Prevention, Control and Countermeasure Plan and implement work safety protocols.</li> </ul>
	Construction	<ul style="list-style-type: none"> <li>Provide preconstruction spill prevention training.</li> <li>Begin only upon completion of Phase I ESAs.</li> <li>Asbestos monitoring will be conducted by a qualified asbestos professional.</li> </ul>

In order to achieve full compliance with environmental commitments, considerations, NEPA documentation, permit conditions, EQ forms, and approval requirements for design and construction, our Team will prepare and execute an Environmental Management Plan (EMP), which will be implemented under the direction of our ECM. The objective of the EMP is to track Project progress and ensure compliance with the Project commitments by confirming that, at a minimum, the following requirements are met:

- Clear identification of responsible parties, including qualifications and a description of the hierarchy of communication;
- Ensure permit authorizations and conditions will be incorporated into the design plans and are to be strictly adhered to during construction;
- Compliance will be monitored with environmental commitments in the NEPA documentation, permits, and other pertinent documents during design and construction;
- Continuous evaluation during design and construction and as site conditions change to explore additional avoidance and minimization measures;
- Regular meetings with the designers and construction personnel to address any concerns or questions before formal submittals; and
- VDOT is provided with supporting documentation to verify compliance with all environmental commitments and permits.

### Approach to Risk Management During Design

One of the most formidable environmental challenges on large-scale transportation projects is obtaining timely permits and approvals, while maintaining compliance from Project conception through completion. As our Team begins the design phase, our approach to risk management continues with refinement of design details and confirming that the design accounts for all environmental commitments and constraints.

## 4.4 Project Approach

Coordination between design disciplines and the environmental team, as well as with construction, right-of-way, and utility management staff, is critical to ensuring all constraints are recognized and accounted for in the plans and schedule. To fully integrate environmental concerns into the overall plan and minimize the risk of unforeseen impacts and schedule delays, our Team has developed a constraints map, a living reference developed as a MicroStation file, and specifically tailored to this Project. The constraints map assists the Team in designing around environmental constraints as each discipline can reference this file into their design. The specific environmental management efforts that will be used during design are summarized below.

### **Environmental Management Plan (EMP)**

As a first step, our Team's RFQ response identified the ECM as a Value Added position to address the importance of environmental compliance. As we prepared this Technical Proposal, our Team identified key environmental features, Project commitments, and potential permitting challenges, which will be included in the Project-specific EMP. To further ensure compliance, the EMP will detail key milestones and timelines for the submittal of reports, permits, and monitoring documentation. Our Team will work directly with VDOT to provide documentation utilizing the EMP as a tracking mechanism to ensure the commitments of the NEPA documentation and associated state and federal permits are being met.

### **Environmental Permitting**

In addition to focusing on implementing design enhancements to minimize impacts, close coordination with the Team is also critical to the success of the Project. Bi-weekly formal meetings with design and construction personnel facilitate technical input and recommendations so all environmental considerations are addressed by each discipline. Anticipated permit requirements, Project constraints and environmental commitments are prioritized to promote avoidance and minimization efforts while maintaining constructability needs. Constant communication eliminates rework during later stages of design, helping to avoid potential environmental permit modifications.

Once the draft permit application and impact limits have been thoroughly vetted and reviewed, a meeting with the Virginia Department of Environmental Quality (DEQ), the U.S. Army Corps of Engineers (USACE), and other appropriate regulatory agencies will be held. As Time of Year Restrictions (TOYR) can adversely impact the schedule, a representative from the Department of Wildlife Resources (DWR) will be requested to participate. During this meeting, impact limits based on design plans will be reviewed and comments will be addressed to ensure the submission of a complete application. This approach also expedites the permitting process since each agency can comment on the information presented and provide any recommendations prior to submission. Necessary environmental permit applications will only be submitted after the pre-application meeting, 60% design comments, and utility field inspection plans have been fully vetted. Submission at this stage confirms constructability, minimizes utility conflicts, reduces the potential for delay of permit approvals, reduces the need for additional information requests, and eliminates the risk that any future permit modifications will be required.

Private wetland and stream mitigation bank credits and in-lieu fee program credits are in high demand in the region. We have ample experience in facilitating the necessary means of compensatory mitigation, whether it be through the purchase of private bank or in-lieu fee program credits within the Project HUC, pursuing out-of-service area requests with the Inter-agency Review Team (IRT), or Permittee Responsible Mitigation (PRM).

### **Virginia Stormwater Management Program Permitting / Erosion and Sediment Control Design**

Permitting agencies and localities, including Fairfax County, pay close attention to Erosion and Sediment Controls (ESC) and limiting offsite impacts associated with transportation improvement projects. The

## 4.4 Project Approach

VSMP falls under the Virginia Pollution Discharge Elimination System (VPDES), and the requirements will be addressed through the development and approval of drainage, stormwater management, and ESC designs. We will provide a comprehensive Stormwater Pollution Prevention Plan (SWPPP), including a Spill Prevention, Control, and Countermeasure Plan, to ensure compliance with VSMP requirements, which will be kept on-site and updated throughout construction. With our extensive experience in obtaining land disturbance permits, our schedule has accounted for the appropriate time to prepare, submit, and obtain approvals so that construction is not delayed.

### Schedule Integration

Our Team’s goal with respect to environmental management is to ensure that all possible avoidance and minimization efforts are implemented, there are no adverse impacts to environmental and natural resources, and an accurate schedule is developed. Obtaining environmental permits and environmental approvals in a timely manner is always a schedule and planning priority. In addition to our efforts to minimize and mitigate the risk of delays due to environmental approvals, we have integrated key environmental permits, environmental hold points, predecessor activities, and approvals into the Proposal Schedule shown in Section 4.6. This schedule realistically accounts for the time to obtain the required permits and approvals, which are summarized in Table 5 below.

**Table 5: Required Permits and Approval Time Frames**

Approval Agency	Permit Type/Approval	Anticipated Time Frame
<b>Design Permits/Approvals</b>		
VDOT	Environmental Management Plan	2 Months
USACE (Section 404, 408)	Nationwide Permit 6 (Survey Activities)	2-3 Months
Fairfax County Park Authority	Special Use Permit	4-6 Months
<b>Construction Permits/Approvals</b>		
USACE (Section 404, 408)	Nationwide Permit 23 (Categorical Exclusion)	2-3 Months
Fairfax County Park Authority	Special Use Permit	4-6 Months
USFWS	Section 7 Threatened & Endangered Species Concurrence	2 Months
VDEQ (Section 401)	Coastal Zone Management Act (CZMA) Determination and Section 401 Certification	3 Months
VMRC	No permit required	N/A
VDOT & VDEQ	VPDES Construction General Permit (LD-445)	3 Months
Fairfax County	Noise waiver	2 Months

### Approach to Risk Management During Construction

Environmental risk management continues through all phase of construction. We recognize the importance of environmental reviews and compliance during construction to ensure adherence to all permit and NEPA conditions and avoid unintended impacts. Our approach is outlined in detail in our EMP and developed with involvement from regulatory agencies, and uses previous experience and lessons learned to ensure environmental compliance is consistently maintained. This collaborative approach is highlighted in Figure 4.4.1.1 showing the coordination among our Team members to ensure environmental compliance.



Figure 4.4.1.1 - Environmental Compliance Team Collaboration  
Shirley Contracting Company, LLC | 21

### Environmental Management Plan

The ECM is responsible for overseeing the inspection of construction activities to ensure environmental compliance with the plans and the commitments detailed in the EMP. The EMP will also detail the following environmental management efforts that will be used during construction:

#### Pre-Construction Coordination

Prior to any construction activities, we will return to the field and properly demarcate all wetlands and WOUS to ensure limits are easily identifiable by construction personnel. The wetland and WOUS will be protected by super silt fence and orange safety fence, as shown in Figure 4.4.1.2, to ensure avoidance of impacts to non-permitted areas. Permit impact plates, approved during the permit application process, detailing the temporary and permanent impact limits, will be shared with construction personnel to ensure avoidance of non-permitted areas. Additionally, a preconstruction environmental constraints and commitments meeting will be held to educate all parties on the allowable limits of work specific to the Project, sensitive environmental resources, and compliance requirements of the CE and permits.



Figure 4.4.1.2 - Installation of safety fence to ensure avoidance of impacts to non-permitted jurisdictional areas.

#### Installation, Maintenance and Inspection of Erosion and Sediment Controls

Our Team takes an aggressive approach to environmental permit compliance by making the installation, maintenance, and inspection of ESCs a priority. The Team, lead by our ECM, has extensive experience and knowledge of the specific standards and specifications for all types of controls. Upon mobilizing, issuance of the Construction General Permit (CGP) and Release for Construction (RFC) plans, installation of ESCs takes place before any land disturbing activities. While it is common to dedicate one crew to the installation and maintenance of ESCs, all crews participate and review these critical activities daily, valuing environmental compliance equally with safe work practices.

#### C-107 Compliance Checks

Completed on a twice-weekly basis, these field inspections are performed by construction personnel, as depicted in Figure 4.4.1.3, to identify deficiencies in ESC measures and areas where additional controls may be necessary. These bi-weekly C-107 reviews will be combined with the monthly construction compliance inspections, as necessary, to ensure that compliance with the recently updated regulations released in the 2019 CGP are met.

#### Virginia Water Protection (VWP) Permit Inspections

Due to additional scrutiny being placed on environmental permit compliance, site visits during construction are essential to the success of the EMP. These site visits ensure permit requirements are met, ESC measures are properly installed and maintained, and areas that may require additional attention are identified before becoming a deficiency on a formal log or C-107 review. During these site visits, the ECM will utilize tablets, paired with GIS software, and KMZ files to display the Project area and jurisdictional impact limits on Google Earth. By pinpointing



Figure 4.4.1.3 - Environmental Compliance Inspection

the location of both the inspector and impacts in real time, any potential deviations from the permitted impacts can be assessed accurately and immediately. Additionally, these site visits provide the opportunity for the construction and design key personnel to evaluate upcoming field activities, which has proven to be effective in mitigating potential issues before they arise. This approach to environmental compliance provides additional assurances to regulatory agency personnel that permit requirements are met.

### VWP Compliance Reporting

To assure permit compliance, our Team will complete the monthly VWP Permit Inspection Checklist and Bi-annual Construction Status Update Forms to document construction progress and timing of impacts for all permitted jurisdictional areas. As needed, the ECM has the ability to provide additional site visits to ensure permit compliance throughout the duration of the Project. All necessary reports will be submitted to each regulatory agency, VDOT, and construction personnel.

In the event that a sediment release or non-permitted impact occurs during construction due to an unforeseen event, such as excessive rain events or an ESC control failure, we will contact the VDOT Project Manager and regulatory agencies to provide timely self reporting, well within the 24-hour time frame as required per the VWP Permits. Contact with these agencies will include identifying and implementing an appropriate corrective action plan in the field.

### 4.4.2 Utilities

#### Approach To Utility Coordination, Adjustments, and Relocations

Our Team has managed the utility relocation process on over 50 design-build projects for over 20 years. With this experience, we recognize the potential impact that utility conflicts can have on every discipline including design, permitting, right-of-way, construction, and the schedule and have developed our overall approach to utility coordination shown in Figure 4.4.2.1. Led by our in-house Utility Coordination Manager, we have established a group of experienced, dedicated resources that focus solely on overseeing and managing this scope. Further, our Team has developed strong working relationships with each of the utility owners located on this Project, which are vital to ensure timely and efficient coordination throughout all phases.

While coordinating with other Project disciplines, our first and highest priority throughout the design and construction phases of the Project will be to completely avoid utility impacts. If conflicts cannot be avoided by design, then we will work diligently with each utility owner to minimize these relocations through a combination of design and/or protection measures that allow the utilities to remain in place. Only as a last resort will we relocate utilities to eliminate conflicts with new construction. During construction, our Utility Team remains fully engaged to coordinate relocations between the utility companies and the construction team, ensuring their timely and successful completion.



Figure 4.4.2.1 – Approach to Utility Coordination

## 4.4 Project Approach

Throughout the Route 29 corridor several critical utilities will be impacted and require relocation. Our Team managed many of these same utilities several years ago on our Route 29 Bridge Replacement Over Little Rocky Run Project. These critical utilities include:

- **Verizon’s 15-Way Duct Bank:** The relocation of the Verizon duct bank will not only impact Verizon, but also MCI and Zayo, which are present within Verizon’s facility. The completion of duct studies and placement of innerduct to provide a path for the secondary utilities to relocate can be time consuming and cause schedule delays if not properly coordinated. During our pre-bid meeting, Verizon confirmed that they will not allow the relocated duct bank to tie into existing manholes, requiring overset manholes to be installed. Our similar experience with these overset manholes on the Route 7 Corridor Improvements Project allows us to accurately include these relocations in our cost and schedule.
- **Colonial Pipeline Transmission Crossing:** The Colonial Pipeline casing extensions necessary for the road widening could impact the construction sequence if not properly integrated into the schedule. Our Team has extensive experience working with Colonial on both the Route 7 Corridor Improvements and Route 28 (Centreville Road) Widening. We also have previous experience extending casings in a similar manner on Colonial Pipeline facilities on the Route 28 Corridor Improvements Project.
- **Dominion Energy Virginia (Dominion) Poles:** Dominion has over 70 poles in conflict, each with multiple communication facilities attached. This adds additional phasing to an already complex relocation. Our Team has experience coordinating with Dominion and each of the communication companies present on the Dominion poles. On the Route 50 Widening Project, our Team coordinated over 80 poles that contained Dominion, Verizon, COX, and Comcast. Similarly, on the Route 7 Corridor Improvements Project, we are currently relocating over 200 Dominion Poles with COX, XO, and Verizon. Schedule integration and phasing will be critical for these facilities.
- **Fairfax Water:** Fairfax Water maintains a 24” water transmission main along the full length of Route 29. This facility is in conflict where the profile is increased resulting in excess cover in two major sections. We have completed installation and relocation of more than 58,000 LF of watermain for Fairfax Water.

Our Team’s experience working on similar relocations with each of these utility companies facilitates our understanding of the processes each utility company requires to complete these complex relocations. This allows our Team to effectively manage each relocation and accurately incorporate them into our schedule, thereby reducing the risk of schedule impacts.

### Specific Utility Impacts

Table 6 is a summary of the known utilities, their potential conflicts, and our relocation/mitigation strategies. The Conflict ID# listed correlates to our Volume II Design Concept, where each conflict and proposed relocation is identified.

**Table 6: Known Utility Conflicts and Mitigation Strategies**

Utility/Owner Description	Conflict ID# and Station	Potential Conflict	Relocation Plan/ Mitigation Strategy
<b>OVERHEAD POWER/COMMUNICATION LINES</b>			
Dominion Energy Virginia	ID# 100 301+00 to 347+00	Conflict with widening	Relocate in-kind
Dominion Energy Virginia	ID# 101 347+00 to 407+00	Conflict with widening	Relocate in-kind
Dominion Energy Transmission	ID# 102 340+50	Conflict with overhead clearance	<b>Conflict avoided with design</b>

## 4.4 Project Approach

Utility/Owner Description	Conflict ID# and Station	Potential Conflict	Relocation Plan/ Mitigation Strategy
Shentel	ID# 100 301+00 to 315+50	Conflict with widening	Re-attach to Dominion poles
Cox	ID# 100 301+00 to 347+00	Conflict with widening	Re-attach to Dominion poles
Cox	ID# 101 347+00 to 407+00	Conflict with widening	Re-attach to Dominion poles
Verizon	ID# 212 315+50 to 355+50	Conflict with widening	Relocate into existing Verizon duct bank
Verizon	ID# 213 355+50	Conflict with widening	Relocate in-kind
<b>UNDERGROUND POWER/COMMUNICATION LINES</b>			
Summit	ID# 207 325+00 to 326+00	Conflict with storm and grading	Relocate in-kind
Summit	ID# 208 325+00 to 326+00	Conflict with widening	Relocate in-kind
Fiberlight	ID# 200 310+00 to 311+50	Conflict with storm	Adjust in place
Fiberlight	ID# 201 316+00 to 320+75	Conflict with retaining wall, grading, and storm	Adjust in place
Fiberlight	ID# 202 325+50 to 330+00	Conflict with storm	Adjust in place
Fiberlight	ID# 203 331+25 to 342+25	Conflict with storm and grading	Adjust in place
Fiberlight	ID# 204 345+50 to 349+75	Conflict with storm	Adjust in place
Fiberlight	ID# 205 253+75 to 356+00	Conflict with box culvert	Adjust in place
Fiberlight	ID# 206 362+50 to 376+00	Conflict with storm	Adjust in place
Zayo	ID# 209 326+00 to 329+50	Conflict with storm	Relocate in-kind
Verizon	ID# 210 332+50 to 342+50	Conflict with storm and grading	Relocate in-kind
Verizon	ID# 211 345+50 to 355+50	Conflict with storm and grading	Relocate in-kind
<b>WATER</b>			
24" Water	ID# 300 305+75 to 308+25	Conflict with signal pole	<b>Conflict avoided with design</b>
8" Water	ID# 301 310+75	Connect lateral to 24" main	<b>Conflict avoided with design</b>
24" Water	ID# 302 315+50 to 329+25	Conflict fill and storm	Relocate in-kind
24" Water	ID# 303 337+75 to 357+00	Conflict fill and storm	Relocate in-kind
24" Water	ID# 304 363+50 to 377+00	Conflict fill and storm	Relocate in-kind

## 4.4 Project Approach

Utility/Owner Description	Conflict ID# and Station	Potential Conflict	Relocation Plan/ Mitigation Strategy
<b>SANITARY SEWER</b>			
8" Gravity in 16" Casing	ID# 400 330+00	Conflict with widening	Relocate in-kind
8" Gravity	ID# 401 343+10	Conflict with widening	Relocate in-kind
<b>GAS</b>			
Colonial Pipeline Transmission	ID# 500 341+00	Conflict with widening on north side	Extend casing to the north
Colonial Pipeline Transmission	ID# 501 341+00	Conflict with SUP and grading on south side	<b>Conflict avoided with design</b>
Plantation Pipeline 6" Transmission	ID# 502 357+25	Conflict with widening on south side	Extend casing to the north
Plantation Pipeline 6" Transmission	ID# 503 357+25	Conflict with widening on north side	<b>Conflict avoided with design</b>
Washington Gas 4" Plastic	ID# 504 328+75	Conflict with storm and grading	Relocate in-kind
Washington Gas 6" Plastic	ID# 504 331+75 to 334+00	Conflict with grading	Relocate in-kind
Washington Gas 6" Plastic	ID# 505 354+00 to 355+00	Conflict with box culvert	Relocate in-kind
Washington Gas 8" Plastic	ID# 506 364+00 to 378+00	Conflict with storm and grading	Relocate in-kind
Washington Gas 8" Plastic	ID# 507 404+00 to 408+25	Conflict with retaining wall and grading	Relocate in-kind

### Mitigation of Unexpected Conflicts

Encountering unexpected utilities is a risk that can cause many challenges, including added cost and potential delay to the schedule. The following are strategies our Team has utilized on past projects that successfully limited these risks:

**Early Coordination:** Our Team initiated early coordination by meeting with each utility owner, obtaining as-built drawings and GIS mapping, and reviewing RFP and as-built plans to ensure the utility designations are complete and accurate. This coordination and review of the existing facilities limits the risk of discovering an unidentified utility during construction.

**Test Pitting:** Shirley Underground, a division of Shirley Contracting Company, LLC, helps our project teams develop a clear picture and understanding of the conditions beneath a job site before major construction work begins. Using in-house resources, including our fleet of vacuum truck allows our Team to test pit utilizing hydro-excavation that expedite locating utilities while minimizing the risk of damage to them.

**Adjust in Place:** If an unidentified utility is discovered during construction, our Team has successfully raised, lowered, or performed a “lift and lay” to eliminate the conflict. Adjusting the utility in place to eliminate the conflict without the need for a complete relocation limits risk of delay, reduces the cost, and minimizes the impact to the utility company.

**Assisting in Construction of the Relocation:** Another method our Team uses to mitigate the impact of unidentified utility conflicts is assisting the utility companies with the utility relocation. We have assisted

## 4.4 Project Approach

in the construction of duct banks, performed underground directional drilling, and performed drilling for poles to assist with relocations. Self performing this work allows our Team to better control the schedule and reduce the risk of delay.

### Mitigation Strategies

Our design concept presented with this Technical Proposal has been developed after reviewing the existing facilities and proposed work with each utility owner. Through this coordination, we have ensured our design meets their standards, and established the needs for each utility owner to determine the impacts our concept will have on their systems.

After discussions with each utility owner, our Team has developed a design concept that has avoided several utility impacts throughout the corridor. Those design concepts include:

- **Modified Drainage Design:** Our design optimized the drainage design to eliminate five conflicts with the 15-way Verizon duct bank, reducing impacts to Verizon, and Zayo. This avoids costly and time consuming relocations.
- **Modified Union Mill Signal Design:** Our Team's concept avoids the need to replace the signal pole at the intersection of Union Mill Road and Route 29, eliminating the conflict with 24 inch watermain. This avoids relocation of 351 feet of 24 inch and 132 feet of 12 inch watermain.
- **Adjusted Grading to Reduce Impact to Plantation Pipeline:** On the south side of Route 29, our Team adjusted the grading to reduce the impact to Plantation Pipeline's facility. This change eliminates all grading impacts to Plantation Pipeline, reducing their impacts to only the area of road widening.
- **Minimizing Impact to Colonial Pipeline:** Our Team optimized the ditch design on the south side of Route 29 to eliminate construction near Colonial's facility. This will eliminate Colonial's need to extend the casing to the south.

### Schedule Integration and Mitigation of Delays

During the RFP phase, our Team has coordinated with each discipline and utility owner to develop phasing and relocation durations for each utility relocation, as detailed in Section 4.6. This advanced schedule coordination included multiple discussions with each utility owner, and historical data developed from our past design-build experience.

After Award, our Team continues developing a detailed schedule for each utility relocation. These utility relocation activities are integrated into our Proposal Schedule with appropriate ties to design, easement acquisition, permitting, and construction activities. As the utility relocation activities are performed, we monitor progress to determine if relocations are on schedule, or are on the Project's critical path. In order to avoid any delays due to utility relocations, our Team implements several strategies to mitigate impacts to maintain the schedule:

- **Performing In-Place Relocations:** During our pre-bid meetings, we confirmed that portions of Verizon, and Fiberlight's ducts have slack in their cables and will be able to lift and lay in multiple areas throughout the Project. Avoiding a complete relocation of these facilities will allow our Team to phase each relocation with our roadway phasing, and reduce the duration of the utility relocation to avoid impacts to the Project schedule.
- **Utilizing Spare Conduit in Verizon Duct Bank:** During on pre-bid meetings with Verizon, we confirmed that they are able to eliminate the conflicts with the overhead line between Station 315+50 and Station 355+50 early in the Project by relocating into the existing Verizon duct bank in this area. This allows our Team to begin the Verizon relocations in this area early in the schedule,

without needing to wait on right-of-way to be acquired. This also eliminates the overhead line in this area, avoiding the need to acquire a Verizon easement on Parcel 005 and impacts to an existing conservation easement.

- **Phasing Dominion Energy Virginia’s Relocations:** We confirmed with Dominion that we can split their relocation into two phases. We will divide their relocation at Station 347+00, to utilize the early right-of-way being acquired by VDOT. This will allow our Team to start the Dominion, Shentel, and COX relocations west of Station 347+00 early in the schedule.

### 4.4.3 Geotechnical Approach

#### Coordination of Geotechnical Design Concepts and Construction Activities

VDOT has performed the preliminary subsurface investigation provided with the RFP which provides detailed geotechnical information to develop accurate and complete strategies for design and construction. In final design, our Team makes a priority of including geotechnical considerations as part of the overall Project approach, and places importance on identification of risks posed by the subsurface conditions. The geotechnical design process begins with reviewing the preliminary information and geologic literature, preparing and developing a comprehensive subsurface exploration and geotechnical laboratory testing program, providing complete and clear geotechnical recommendations, and ends with remaining engaged and available during construction to provide clarification, oversight, and input.

The boring layout for the final design subsurface exploration program is developed to satisfy the requirements of Part 2, Section 2.6 and the VDOT *Material Division Manual of Instructions, Chapter III*, and will be modified as design progresses. The subsurface exploration will characterize the site conditions and minimize uncertainty for proper geotechnical design and construction of the roadway, pavement, subgrade, retaining structures, noise walls, stormwater management facilities, sign structures, and drainage pipes. The phasing of the subsurface exploration program will be conducted to maintain the Project Schedule and there will be careful coordination within the Team to identify early action borings that are necessary for critical design items. The laboratory testing for the borings will provide a comprehensive characterization of the soils for design and construction.

As the Project scope consists of pavement widening and reconstruction, the critical geotechnical concerns relate to the potential for unsuitable subgrade materials to be encountered during construction and the extent of poor existing pavement sections. Depth to bedrock is variable along the length of the Project, and excavation of weathered to competent siltstone, sandstone, diabase, schist, gneiss, and gabbro may be required for areas with appreciable cut depths. The Team has specific experience on the adjacent Route 29 Bridge Replacement Over Little Rocky Run Project with installing deep foundations in highly variable and very hard diabase bedrock. The roadway and other design elements include considerations for geotechnical constraints, with the Team working to recognize concerns in the design phase to find a clear approach prior to construction as identified in Table 7.

**Table 7: Geotechnical Approach**

Geotechnical Design Procedures	Project Benefit
Prioritization of additional borings to advance design of schedule critical items.	<ul style="list-style-type: none"> <li>▪ Early action design packages will accelerate overall schedule and identify geotechnical risks for mitigation.</li> </ul>
RFP allows multiple subgrade treatments depending on conditions.	<ul style="list-style-type: none"> <li>▪ Refinement of subgrade improvements to limit impacts to adjacent utilities and existing features considering soil type.</li> </ul>
Design of widened embankment slopes and retaining walls through site-specific analyses.	<ul style="list-style-type: none"> <li>▪ Embankments and retaining wall foundations will be selected to minimize impacts to adjacent structures and slopes.</li> </ul>

Geotechnical Design Procedures	Project Benefit
Considerations for bedrock depth related to excavation limits.	<ul style="list-style-type: none"> <li>Excavation methods will be selected and adjusted based on actual subsurface and groundwater conditions.</li> </ul>

### Managing Geotechnical Risk

Although the excavation of weathered and intact bedrock is likely limited due to the depth at which refusal was exhibited in the preliminary design borings and knowledge of the local geology, the variability of bedrock depth and weathering of schist, gneiss, and diabase will be investigated during design to allow for proper construction techniques. Rock excavation may be necessary to construct the retaining wall and noise wall foundations, drainage structures, sign structure foundations, and stormwater basins. In addition to the difficulties of bedrock excavation, the residual soils mainly derived from the Piney Branch formation between Stringfellow Road and Willowmeade Drive have the potential for containing naturally-occurring asbestos fibers. Subsurface exploration will be performed under a site-specific Health and Safety Plan to minimize dust. Testing of the residual soil to identify asbestos fibers will be performed on each boring drilled in this area to allow for proper handling during geotechnical laboratory testing and to aid in the determination of monitoring and mitigation procedures for construction. Screening for asbestos was performed for several borings completed in preliminary design and did not indicate asbestos fibers were present in the tested soils.

The subgrade soils exhibit prevalence for natural moisture greater than the optimal moisture contents, and a majority of the subgrade also includes fine-grained materials. For full-depth construction, the subgrade will be exposed to moisture and construction traffic. Due to the fine-grained nature of the soils and retained moisture, rutting of the subgrade may occur due to heavy loading from construction equipment and treatment will be required to obtain proper subgrade compaction.

The presence of deficient or variable thickness pavement has been identified by the RFP between Union Mill Road and Meadow Estates Drive. Additional pavement cores will be taken in locations that present concerns to better define the limits of the necessary reconstruction and widening, and inspection of the existing pavement sections will be performed during excavation to validate the design parameters. The use of proper drainage for the final pavement section and throughout construction is vital to the integrity of the construction product. Providing positive drainage allows for adequate compaction of the subgrade soils and reduces future pavement maintenance costs.

In applying the recommended subgrade treatments, it is necessary to evaluate the specific concerns in selection of the most appropriate remediation. Our Team has completed similar evaluations of subgrade treatments on the nearby Route 28 (Centreville Road) Widening Project. A toolbox of potential mitigation methods for treatment is listed below in Table 8 and will allow the Team the flexibility to perform specific subgrade treatments while protecting VDOT assets. Regular communication within the Team will be important in choosing the proper subgrade stabilization during construction to ensure excavation depths are minimized near existing foundations and structures to avoid impacts. Early installation of underdrains will aid in minimizing damage to the subgrade material due to construction traffic and moisture. The use of chemical subgrade stabilization near traffic stage lines and utilities will aid in control of the excavation limits to reduce conflicts with existing features with the understanding that the full treatment of unsuitable material is required to ensure long-term performance of the pavement structure. The sequencing of treatments to minimize unnecessary subgrade removal will include proper drainage installation and early action remediation in high volume construction traffic locations.

**Table 8: Potential Subgrade Treatment Methods**

Unsuitable Soil Condition	Treatment Method
Highly Plastic Soils / Organic Material	<ul style="list-style-type: none"> <li>Replace with suitable soil up to 3 feet below subgrade.</li> </ul>
Loose / Soft Soil	<ul style="list-style-type: none"> <li>Chemical stabilization in upper 12 inches.</li> <li>Replace 24 inches with select material Type I, CBR-30 / geosynthetic fabric.</li> </ul>
Wet Soil	<ul style="list-style-type: none"> <li>In-place mixing with lime or cement to dry soils.</li> <li>Dry soils by aerating and re-compact.</li> </ul>

*Notes: Careful site inspection during construction is required to limit depth and lateral extent of treatments. If permitted based on soil type, the selection of subgrade treatment near utilities and existing structures will consider methods to reduce depth of excavation.*

### Maintaining Existing Structures and Slopes During Construction

Widening the embankment slopes and construction of retaining wall structures requires excavations into the existing slopes for benching and construction. The selected slope and retaining wall treatments minimize the need for temporary excavation support adjacent to the roadway. Excavations for drainage structures consider adjacent facilities and necessary measures are taken to avoid disturbance of existing features.

The widened slopes will be properly keyed in at the base and standard benching along the existing slope will be utilized to provide an adequate embankment to minimize requirements for maintenance. Undercuts will be recommended at certain widened embankment areas to mitigate long-term settlement concerns where soft and compressible soils are identified. Global slope stability analysis is performed at critical slope locations with the maximum embankment height using the SLIDE2 computer program. Retaining wall design considers global slope stability, bearing capacity, settlement, sliding, and overturning and the wall type selection will minimize impacts to adjacent properties.

#### 4.4.4 Quality Assurance/Quality Control (QA/QC)

Our Team refines our quality approach from project to project to ensure we are providing VDOT with confidence and objective evidence that Project deliverables meet or exceed the Project-specific contract requirements. For the Route 29 Widening Phase II Project, we are committing the resources and establishing the transparency and audit capability that demonstrate our quality management systems are adhered to by our qualified quality management professionals. Our QA/QC approach addresses both design and construction and defines the organization, work processes, and systems necessary to provide assurance that a quality Project is successfully delivered by our Team. Our QA/QC Plan is in accordance with VDOT's *Minimum Requirements for Quality Assurance and Quality Control on Design-Build and Public-Private Transportation Act Projects, July 2018 (QA/QC Guide)* and establishes criteria for quality control, quality assurance, owner's independent assurance, owner's verification sampling and testing, and oversight duties for all personnel.

#### Design QA/QC Approach

Our approach to design QA/QC includes implementing multiple processes with various QA/QC personnel throughout the duration of the Project. Our approach ensures that the appropriate quality standards are included, suitable materials are selected, and the safety and constructability of the work is addressed. The benefits of our design QA/QC process are that it is:

- Well-structured;
- Easily audited; and
- Continually maintained to minimize VDOT's resource requirements.

**Our Team has over 20 years of experience performing Quality Assurance/Quality Control on VDOT design-build projects.**

## 4.4 Project Approach

Our Team implements design QA/QC by adhering to the approved QA/QC Plan, conducting design reviews, completing interdisciplinary coordination, performing constructability reviews, involving VDOT in the overall design review process, and confirming that all field changes follow the same process as the original design.

### Design QA/QC Plan

Our Design Manager, Mark Brewer, PE, implements and manages the design QA/QC program (a subset of our QA/QC Plan) which identifies design quality assurance and quality control requirements. The design QA/QC program establishes the following:

- Procedures for preparing and checking all drawings, specifications, and other design submittals including procedures to correct errors and deficiencies prior to submission;
- Processes to ensure design submittals are stamped, signed, and dated by the responsible Professional Engineer licensed by the Commonwealth of Virginia;
- Actions to confirm that the level, frequency, and methods for review of design including independent review are in compliance with VDOT's functional requirements;
- Procedures for ensuring designs developed by different disciplines are coordinated and avoid conflicts, omissions, or misalignments;
- Procedures for identifying design elements that require special construction, QA/QC attention, or emphasis;
- Identification by firm, discipline, name, qualification, duty, responsibility, and authority for all personnel and/or entities responsible for design QA/QC including sub-consultants; and
- Establishment of design QA/QC functions, including scheduled activities for design QA/QC, identifying the drawings, specifications, and other design submittals that are submitted to VDOT.

The Design Manager verifies conformance with the QA/QC Plan using informal observations and by conducting audits of the checking and review processes established within the QA/QC Plan. Documents marked "Released for Construction" are accompanied by written certification from the Design Manager that the documents were reviewed in accordance with the QA/QC Plan.

### Design Review

Design quality control includes review of drawings, engineering computations, and other design related documents for technical accuracy, conformance to contract requirements, grammar and style, and formatting. Design quality assurance evaluates whether the designers assessed problems appropriately, applied correct analyses, and assigned qualified personnel to tasks when conducting design related activities.

Design quality control functions are provided by design discipline leads checking completed work and are carried out to a level commensurate with the complexity of the design element. This effort is managed by the Design Manager who ensures formal and documented reviews occur at predetermined times for submitted design documents as identified within the QA/QC Plan.

The Design QA Manager, Steve Kuntz, PE, DBIA, performs design quality assurance reviews as set forth in the QA/QC Plan.

#### Our QA/QC Process for Deliverable Documents:

1. **Creation of the QC Document (copy of the deliverable) by the Originator.**
2. **The QC Document is then dated, reviewed, and "red-lined" as appropriate by the design discipline leads.**
3. **The QC Document is returned to the Originator.**
4. **The Originator "highlights" the "red-line" comments. Discussions of the comments with the discipline leader for final determination, making note of final resolution.**
5. **Originator keeps the QC Document for record purposes.**
6. **The Design Quality Assurance Manager provides oversight that design activities adhere to this process and records all reviews.**

## 4.4 Project Approach

He verifies that required quality control functions were performed properly and in conjunction with the Design Manager and directs the correction of nonconforming design practices. He ensures that:

- Design standards, methods, and requirements of the Project are met;
- Correct application of engineering judgment was made; and
- Appropriate degree of care was utilized.

### **Interdisciplinary Coordination**

Coordination between disciplines is critical to the success of the Project, not just during design, but during right-of-way acquisition, utility relocation, and construction phases. Interaction between all discipline leaders through all phases leads to properly coordinated project elements and minimal impacts to the schedule.

During design, weekly meetings are held, where design details are discussed and coordinated with the multiple discipline leaders including roadway, structural, hydraulics, and traffic engineers. Environmental permitting, utility relocation, right-of-way acquisition, and construction staff are involved to ensure the design progresses in a manner which considers environmental commitments, utility conflicts, property impacts and construction means, methods, and schedule. Potential conflicts or challenges are recognized and discussed at these meetings, and the entire project Team is able to efficiently identify alternate solutions. Coordination between disciplines continues beyond the design phase, ensuring that unforeseen situations which may arise are addressed efficiently and collectively.

### **Constructability Review**

Throughout our Team's history of working on VDOT design-build projects, we have found that regular, informal, over-the-shoulder type reviews from construction personnel work best to produce quality designs. These types of reviews are conducted at weekly internal progress meetings where roll plots and/or developed plans are presented to the construction personnel who are building particular pieces of the Project. Immediate feedback regarding the design is provided and appropriate adjustments are discussed so that unnecessarily difficult, unsafe, or out of sequence construction is avoided. Explanations regarding design requirements are conveyed to construction personnel, resulting in a greater overall understanding of Project requirements.

In addition to informal constructability reviews, the Design-Build Project Manager (DBPM), Jeff Austin, PE, DBIA, coordinates formal reviews of the design by construction personnel prior to each plan submission. Comments regarding the constructability of the design are provided to the Design Manager for incorporation and/or further discussion prior to completing each design phase.

### **Quality Assurance and Quality Control of Design and Field Changes**

Design changes, including proposed field modifications to the design, occurring after final approval of Release for Construction Documents are subjected to the same procedures stipulated in the Design QA/QC Plan. Requests for field changes are reviewed by the engineer that performed the original design. After the engineer affirms compliance with applicable design standards and contractual requirements, the proposed change is only accepted after certification by the Design Manager confirming completion of all design quality assurance and quality control procedures. When the need for a field change is identified, the Construction Manager and Design Manager discuss the requested change and determine if it is minor in nature and can be documented through a Request for Information (RFI), or if a formal plan revision is necessary to document a major field change. All field changes, whether resulting from RFIs or plan revisions, are not issued for construction until approved by VDOT.

### Construction QA/QC Approach

Our Team's Construction QA and QC Procedures, further described within our QA/QC Plan, have been established to conform to VDOT's July 2018 QA/QC Guide. Our Plan provides the specific requirements of the Project and encompasses procedures for Construction Quality Assurance, Construction Quality Control, VDOT's role, Materials Testing, Inspections, Documentation, Auditing, and Recovery. Schedule and coordination of QA and QC activities are addressed including Witness and Hold Points for inspection of work at critical stages. During construction, the QA and QC Teams follow the established and approved QA/QC Plan. The QA/QC Plan is structured to ensure that QC and QA functions are performed independently and that procedures are closely followed and verified through audit processes. Key elements of the Construction QA/QC procedures are outlined in the following paragraphs.

### Construction Quality Assurance

The Quality Assurance Team, led by the Quality Assurance Manager (QAM), Josh Swatman, PE of CES Consulting, is independent of the designer and contractor and is responsible for Quality Assurance of the roadway, structures, and all other construction operations, including managing the independent QA testing technicians. The QA Team includes two lead inspectors, one for structures and one for roadway construction, supported by additional inspectors and testing technicians. The QA Team will be present during all construction operations and ensure that the work and QC activities are performed per Contract requirements. The QAM reports directly to the DBPM and has the authority and responsibility to stop work if not performed in accordance with the Contract requirements.

The QAM conducts Preparatory Inspection Meetings for all major trades and work activities. These meetings are held prior to the start of any new work packages and are attended by the Construction Manager, Superintendent, subcontractors, QA staff, QC staff, and VDOT. QA and QC procedures are reviewed in detail in the meetings and Witness and Hold Points are identified. QA inspectors perform daily inspections and material testing as required by to meet all QA sampling, testing and analysis of materials on the Project. The QA Team ensures that construction quality is verified at frequencies meeting or exceeding those required by the *VDOT Construction Manual*, the *Materials Manual of Instructions*, and the *QA/QC Guide*. All QA inspectors complete daily inspection reports and document all QA Independent Assurance (QA IA) and Verification Sampling and Testing (QA VST). The QAM compares QA IA and QA VST results to the QC, Owner Independent Assurance (OIA) and Owner Verification Sampling and Testing (OVST) results for consistency.

The QAM oversees the maintenance of the Project's Materials Book, ensuring documentation of all materials, source of materials, method of acceptance, and compliance with Buy America requirements. Each month the QAM audits project documentation, approves applications for payment and reports to VDOT if payments should be withheld for non-conformance or work that lacks the proper materials documentation.

### Construction Quality Control

The Quality Control Team, led by Quality Control Manager (QCM), is responsible for daily QC inspections and material testing for all construction operations as directed by the Construction Manager. In addition to inspection of the construction activities, the QC Team is responsible for all QC sampling, testing and analysis of materials and verifying quality at frequencies meeting or exceeding the *VDOT Construction Manual*, the *Materials Manual of Instructions*, and the *QA/QC Guide*. The QCM participates in preparing the QA/QC Plan, including the checklists utilized by QC inspectors during the inspection process.

All QC staff actively inspecting and/or testing components of the Project complete an Inspector Daily Report (IDR). The IDRs are electronic diaries in accordance with VDOT guidelines and include, as an

## 4.4 Project Approach

attachment, copies of all QC materials tests completed for the day's activities. Signed hard copies of the IDR's are submitted to the QCM daily for review and approval and saved to a shared drive for access and immediate review by the QAM and VDOT. The QCM prepares and submits an electronic Quality Control Monthly Report which summarizes all work completed during the period, inspections, tests, materials placed, action taken for failing material, and NCR's. The QC Team coordinates daily with the construction staff to facilitate scheduling and coordination of testing and inspections.

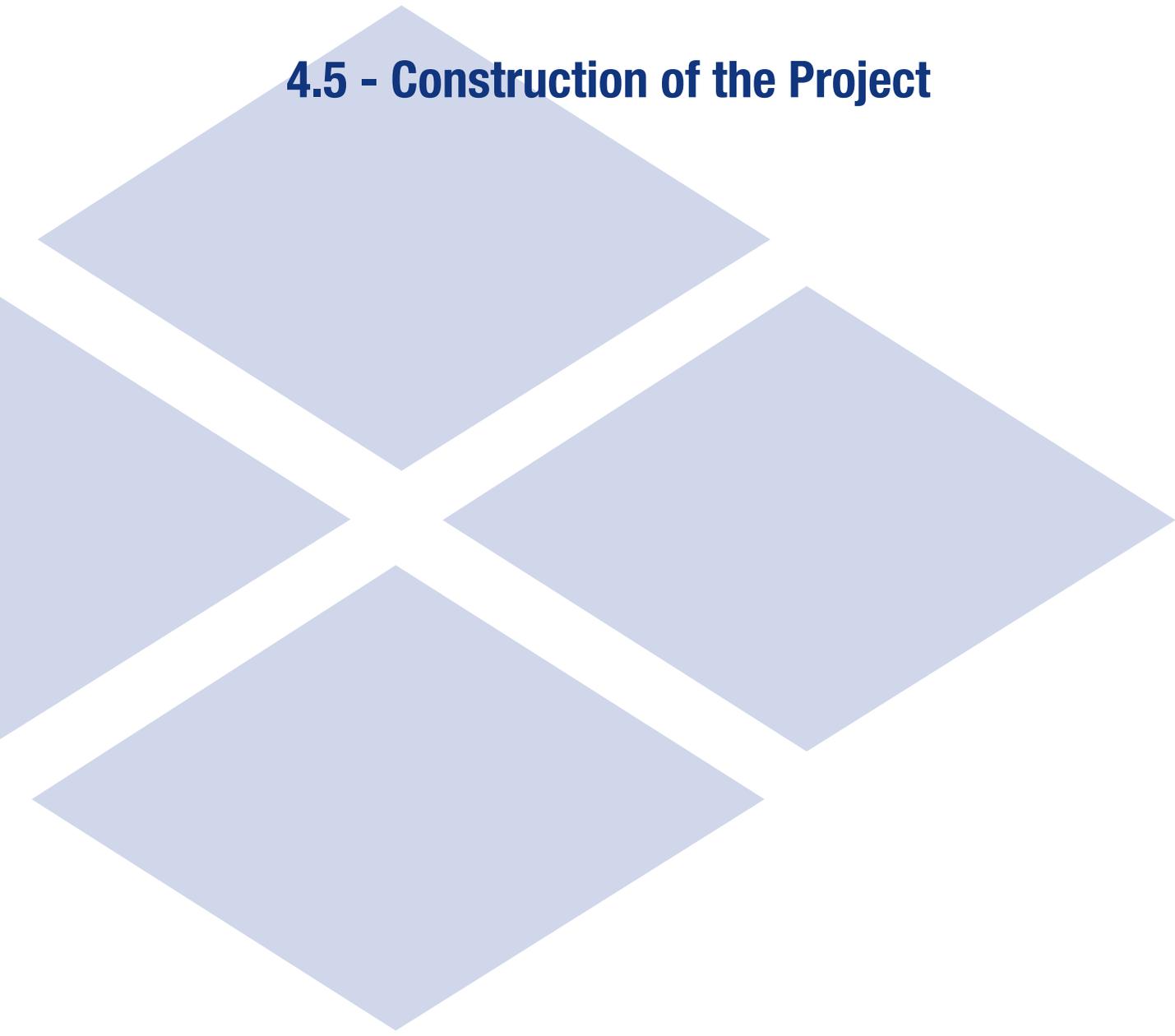
### QA/QC Staffing Plan

Our QA/QC Team has the training and experience required to properly execute the quality program that has delivered numerous, successful projects. All staff hold the applicable certifications required by the *QA/QC Guide* for the work they are inspecting. Our design, construction, and quality staff has worked together and with VDOT for many years and will be responsible for the successful delivery of the Route 29 Widening Phase II Project. A list of QA/QC staff and duties is provided in Table 9.

**Table 9: Description of QA/QC Staff and Duties**

<b>Design-Build Project Manager</b>
<b>Jeffrey Austin, PE, DBIA</b> provides supervision and administrative management of the entire Project including the overall design and construction. He establishes the QA/QC program and ensures design and construction QA and QC efforts are adequate.
<b>Design Manager</b>
<b>Mark Brewer, PE</b> directs and coordinates the design process including work by subconsultants and is accountable for the Design QA/QC Plan. He is responsible for implementing, monitoring, and adjusting, as necessary, the Design QA/QC Plan to ensure acceptable quality of the design work.
<b>Design Quality Assurance Manager</b>
<b>Steve Kuntz, PE, DBIA</b> is responsible for quality assurance of design elements included in the Project. Following completion of design quality control reviews, he performs a complete QA review of all design documents prior to submission to VDOT.
<b>Construction Manager</b>
<b>Mike Gallaher</b> directs and manages day-to-day construction operations and the construction QC. He ensures construction is in accordance with the Project requirements and will be on site full-time for the duration of construction operations.
<b>Quality Assurance Manager</b>
<b>Josh Swatman, PE, DBIA</b> is responsible for the development of and adherence to the QA/QC Plan, ensuring all work and materials as well as testing and sampling are performed in accordance with the Contract requirements and approved construction plans and specifications. He has full authority to initiate work stoppage and is able to recommend to VDOT withholding payment for design and/or construction activities that are not acceptable. This authority will be made in writing as part of the QA/QC Plan.
<b>Quality Assurance Inspections</b>
<b>CES Consulting, LLC</b> will provide full-time Quality Assurance Inspectors for both structures and roadway construction elements. There will be two lead QA inspectors with additional inspectors assigned during peak construction months to ensure quality assurance testing and inspections of work items is performed, QC inspections are observed, and correction of non-conformities are completed in accordance with the Contract documents.
<b>Quality Assurance Testing Laboratory</b>
<b>Dulles Geotechnical and Materials Testing Services, Inc.</b> is AMRL and CCRL certified and will perform QA laboratory testing for the Project
<b>Quality Control Manager</b>
The QCM is responsible for construction quality control and oversees construction quality control inspection and testing activities. The QCM assigns inspectors and testing technicians for each work package and monitors reporting documentation to ensure that the work was completed per Contract requirements.
<b>Construction Quality Control Inspections and Testing Laboratory</b>
Similar to the QA staffing plan, there will be two lead Quality Control Inspectors on site full-time - one for roadway and one for structures. Additional inspectors will be utilized when required by the Project Schedule to ensure sufficient coverage is provided at all times. An independent certified QC laboratory will be engaged to perform all QC laboratory tests.

## **4.5 - Construction of the Project**



# 4.5 Construction of the Project

## 4.5.1 Sequence of Construction

From the earliest stages of preparing this Technical Proposal, our Team focused on developing a Sequence of Construction approach that exceeds VDOT’s schedule goals, promotes a safe environment for workers and the public, and limits disruptions to motorists and pedestrians while providing early beneficial use of Project elements. As a result, we will achieve **Final Completion by April 29, 2026 – 124 days ahead of schedule**, as detailed in Section 4.6. We also commit to three Unique Milestones as detailed in Table 10.

**Table 10: Construction Milestones and Benefits**

Unique Milestone	Date	Benefits
<b>Unique Milestone 1</b> – Clifton Road/ Stringfellow Road Turn Lane Extension	November 3, 2023	<ul style="list-style-type: none"> <li>Improve signal operations for left turns onto Route 29.</li> </ul>
<b>Unique Milestone 2</b> – Area 6 Trail Connection	May 21, 2024	<ul style="list-style-type: none"> <li>Provide pedestrian connectivity between Summit Drive and Fairfax County Parkway.</li> </ul>
<b>Unique Milestone 3</b> – Third Lane Southbound from Stringfellow Road to Western Limits	August 28, 2024	<ul style="list-style-type: none"> <li>Provide evening rush hour congestion relief eliminating southbound bottleneck.</li> </ul>

Our Proposal Schedule, presented in Section 4.6, provides a detailed outline of our interdisciplinary approach. In addition, our Team’s Sequence of Construction, described below, provides an overview of our approach to completing the Project ahead of schedule.

### Project Work Areas

Our Sequence of Construction is developed to allow efficient execution and progress tracking of the Project Schedule. To facilitate this effort, we have divided the work along Route 29 into six overall areas, as shown in Figure 4.5.1.1. Work required along Stringfellow Road and Clifton Road has also been separated to allow efficient planning to achieve **Unique Milestone 1**. These Area designations represent logical breaks in our approach to the work, utility relocation restrictions, and right-of-way constraints. Adjacent side street improvements will be constructed in conjunction with each logical segment along Route 29 to minimize impacts to Project stakeholders.

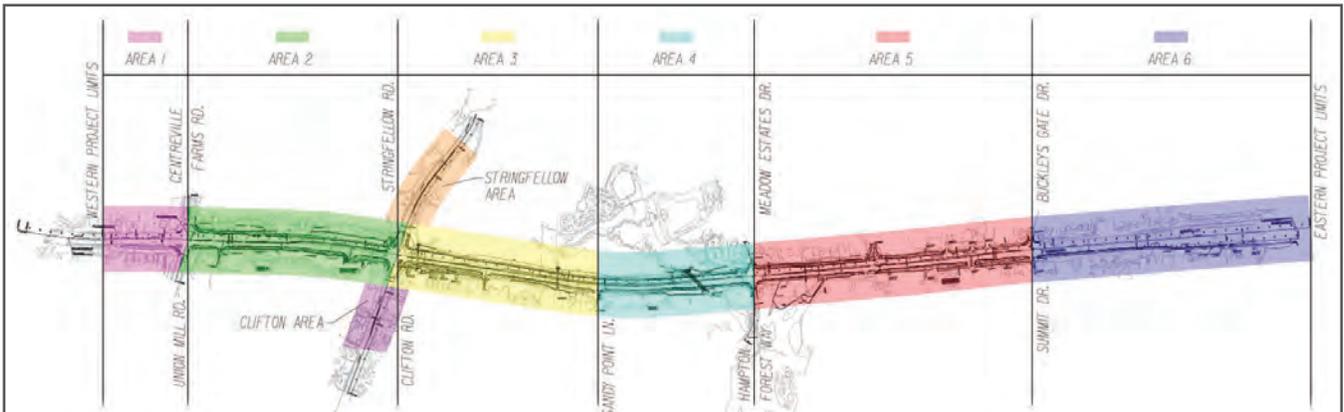


Figure 4.5.1.1 - Work Area Map

The six areas along Route 29 are described as follows:

- **Area 1** from Western Limits to Union Mill/Centreville Farms Road
- **Area 2** from Union Mill/Centreville Farms Road to Stringfellow/Clifton Road
- **Area 3** from Stringfellow/Clifton Road to Sandy Point Lane
- **Area 4** from Sandy Point Lane to Meadow Estates Drive/Hampton Forest Way

## 4.5 Construction of the Project

- **Area 5** from Meadow Estates Drive/Hampton Forest Way to Summit Drive/Buckleys Gate Drive
- **Area 6** from Summit Drive/Buckleys Gate Drive to Eastern Limits

### Construction Sequence

Our Team's overall approach to construction phasing is divided into three major stages and several sub-stages. This allows our Team to maintain all existing lanes of traffic and minimize impacts to the traveling public while providing access for construction in a logical sequence within each area. The phasing and general sequence of activities to complete the work is depicted in plan view on Exhibits 4.5.2.1 and 4.5.2.2 and described as follows:

### Stage 1A

#### Areas 2-5

Stage 1A, shown in Figure 4.5.1.2, includes temporary widening to the median to provide room to shift traffic for future stages. During this Stage the existing travel lanes will be maintained in their current alignment throughout the corridor.

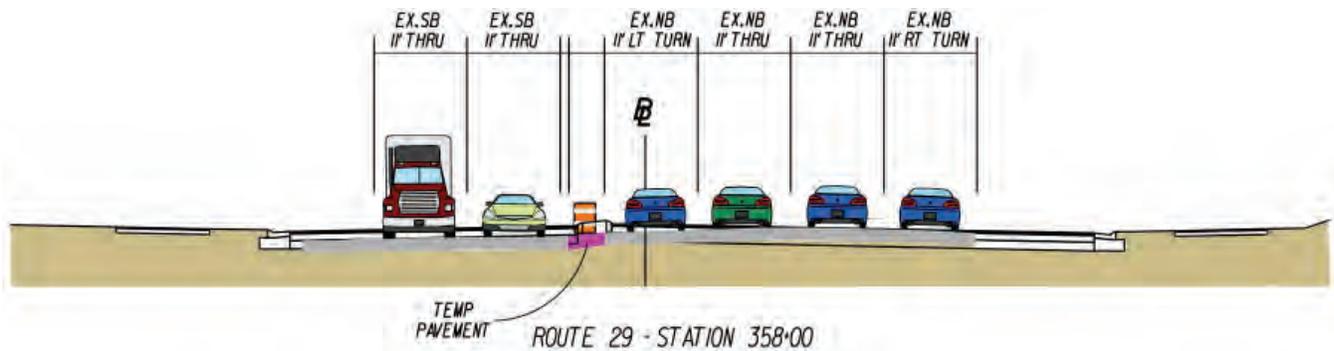


Figure 4.5.1.2 - Stage 1A Areas 2-5

With no right-of-way or utility constraints, this work will begin upon plan approval during off-peak lane closures. Because this work is to the existing median, no modifications to signals are necessary and all existing equipment will be maintained. Once complete, southbound traffic will be shifted onto this temporary work to facilitate Stage 1B construction.

### Stage 1B

#### Areas 1 & 2 and 5 & 6 Outside Widening

Stage 1B begins after the shifting of southbound traffic to the temporary widening in Stage 1A. All northbound traffic will be maintained in its current alignment in this Stage. No temporary signalization is required due to traffic shifts in this Stage.

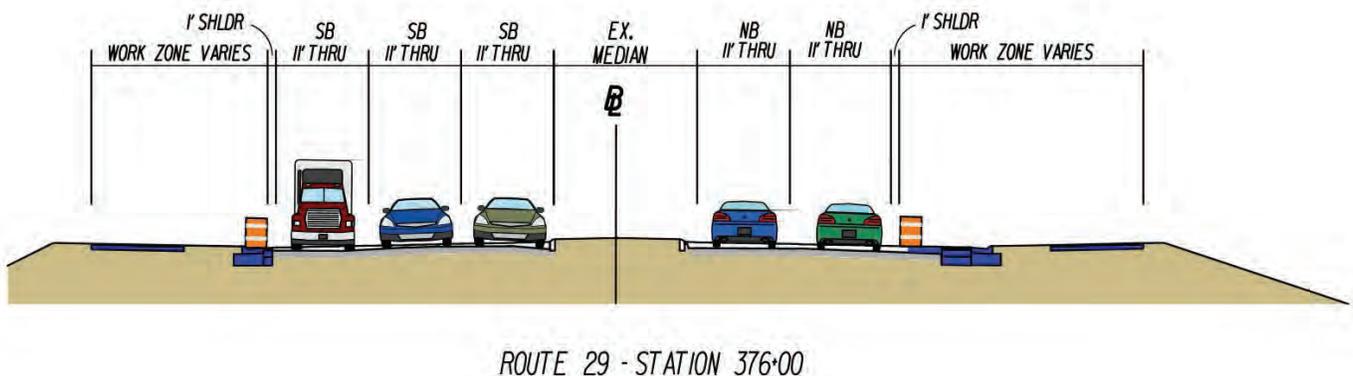


Figure 4.5.1.3 - Stage 1B Areas 1 & 2 and 5 & 6

## 4.5 Construction of the Project

As shown in Figure 4.5.1.3, outside widening work will occur in Areas 1, 2, 5 and 6 in this Stage. The entirety of Areas 1 and 2 will have right-of-way acquired early by VDOT, which will allow for Dominion's Phase 1 overhead relocation to begin upon utility plan approval. Once the overhead lines are relocated, storm drainage, Noise Barrier D, and widening activities will be completed.

The right-of-way in Areas 5 and 6 will be acquired by our Team allowing for Dominion's Phase 2 overhead relocation to begin immediately following Phase 1 relocation discussed above. Following utility relocations, storm sewer, roadway widening, overhead signage, as well as the Stormwater Pond construction will be completed. In Area 6, Washington Gas relocations are required prior to construction of Retaining Wall E. This work is prioritized to allow our Team to construct the shared use path and deliver **Unique Milestone 2** - Area 6 Trail Connection by May 21, 2024 providing early beneficial use of pedestrian facilities between Summit Point and the Fairfax County Parkway.

Right-of-way constraints and required utility relocations limit our ability to work early along the Southbound lanes in Area 5. Our schedule assumes retaining wall demolition, roadway widening, and Noise Barrier G construction will occur following the completion of utility relocations. This approach allows for natural crew flow from Northbound widening construction to work in this area and limits the overall duration of impact on adjacent properties.

### **Stringfellow Road and Clifton Road**

There are short segments of construction along Stringfellow Road and Clifton Road which extend the existing left turn lanes onto Route 29. With traffic in the existing location and during off-peak lane closures, our Team will complete the demolition of the existing medians, storm sewer, and pavement section work required to complete these areas. A Team priority is to facilitate early operational improvements of this signal and our Team is committed to complete **Unique Milestone 1** by November 3, 2023.

### **Areas 2-5 Southbound Outside Widening**

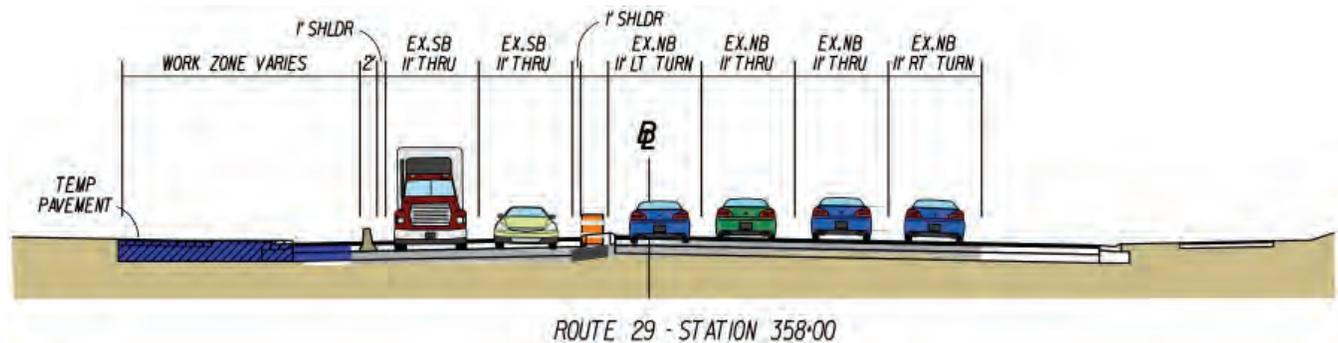


Figure 4.5.1.4 - Stage 1B Areas 2-5

As shown in Figure 4.5.1.4, with traffic shifted onto Stage 1A's temporary widening, barrier will be placed on the outside shoulder along the southbound lanes. The existing signals will remain throughout this Stage, which allows for the existing CCTV camera at the Stringfellow Road/Clifton Road intersection to be maintained.

Stage 1B focuses on constructing significant portions of the proposed southbound lanes. Stripping of topsoil and regular excavation will be prioritized in areas of future watermain and sanitary sewer relocation early to allow for these relocations to get underway.

The advanced right-of-way acquired by VDOT in Area 3 allows our Team to start immediately after plan approval. While Area 2 requires right-of-way to be acquired by our Team, significant portions of

## 4.5 Construction of the Project

grading, watermain relocations, storm sewer, overhead utility adjustments, and other features of work can be completed within existing right-of-way. Working in these Areas early limits the amount of work required after right-of-way is acquired and therefore sets our Team up to open portions of the southbound lanes in Area 2 and 3 upon completion of Stage 2.

Area 4 includes the challenging triple 84" storm crossing to convey Willow Springs Branch across Route 29. Upon plan approval, utility relocations will be prioritized to allow for the temporary 16" watermain relocation required to install this culvert as well as remove the communication duct bank conflict with the proposed culvert. After utilities are relocated, out of traffic culvert construction will occur adjacent to the southbound lanes. A series of weekend detours utilizing Braddock Road will be utilized to install this crossing across active lanes of Route 29. This detour minimizes the overall lane closure requirements to construct this crossing under active traffic, and months of work can be minimized to three to four weekends. Concurrent to the culvert work, during regular week day shifts, southbound widening construction will occur. After completion of the culvert, and the start of fill placement, the proposed 24" watermain will be installed and phased demolition of the existing bridge will be completed. During this Stage, pedestrian traffic will be safely routed away from the work area via the temporary Willow Pond Trail detour to ensure pedestrian safety while still maintaining all access points through the corridor.

Area 4 also includes temporary pavement widening in the shared use path area to facilitate maintenance of traffic in future stages. After completion of the southbound widening in Areas 2, 3, and 4, southbound traffic will be shifted to the north on the newly constructed pavement to provide room for Stage 1C maintenance of traffic.

### Stage 1C

#### Areas 4 and 5 Northbound Widening

Stage 1C begins by shifting northbound traffic to the north into the area vacated by the southbound traffic shift at the end of Stage 1B in Areas 4 and 5, as shown in Figure 4.5.1.5. This opens up a work area along the outside of the northbound lanes for permanent construction in this Stage. Temporary signalization is provided at the Hampton Forest Way/Meadow Estates Drive intersection to accommodate the lane shifts in both the northbound and southbound direction.

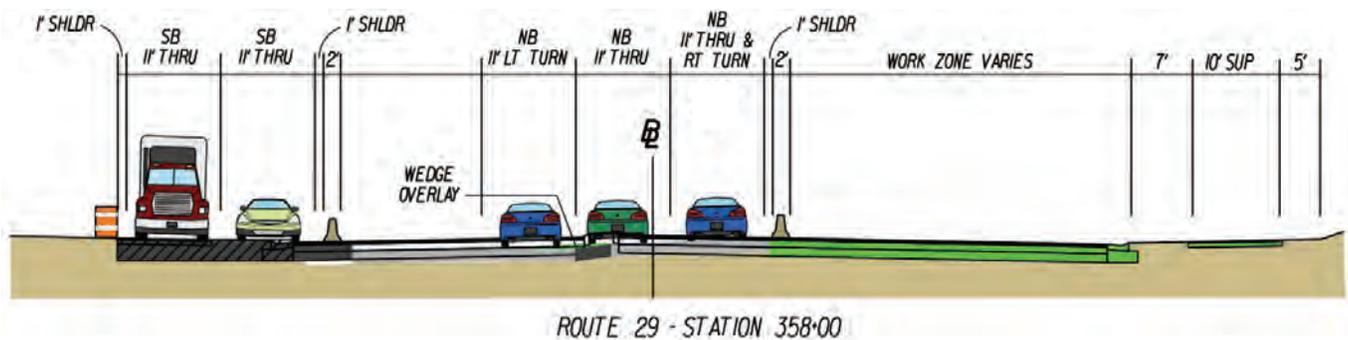


Figure 4.5.1.5 - Stage 1C Areas 4 & 5

With northbound traffic shifted to the north, room is created for demolition and reconstruction of the existing northbound pavement in Areas 4 and 5. Barrier will be placed at the right shoulder to allow storm sewer, grading, full depth pavement section and pedestrian facilities to be completed. At the completion of Stage 1C, northbound traffic will be shifted to the south, opening up the entirety of Stage 2 for construction in the median.

## 4.5 Construction of the Project

### Stage 2

#### Areas 2-5

Stages 1B and 1C shifted traffic northbound and southbound to the outside to facilitate median construction in Stage 2. Signalization for this phase will be accommodated through a combination of temporary and proposed signal poles.

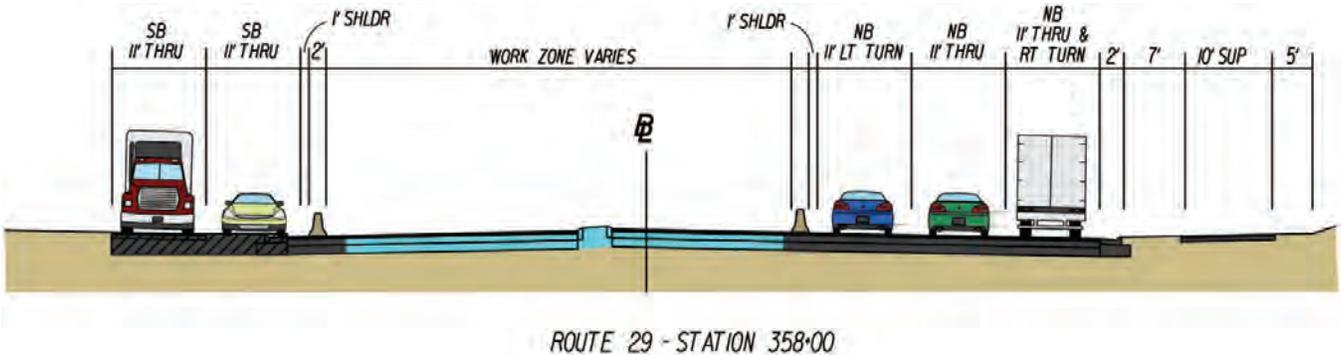


Figure 4.5.1.6 - Stage 2 Areas 2-5

With traffic shifted to the outside for both northbound and southbound lanes as shown Figure 4.5.1.6, Stage 2 will be constructed in the median behind barrier on both sides. Storm sewer, and the left lane in both the northbound and southbound directions will be completed as well as MS-1 and MS-2 medians. In Area 3 the MS-1 median will be left out to allow room for maintenance of traffic in Stage 3. At the east end of Area 5 where three southbound lanes are maintained, median construction will occur behind barrels in off-peak lane closures.

Our Team's early focus in this Stage will be in Areas 2 and 3. Once Area 2 and the portion of Area 3 approaching the Stringfellow Road/Clifton Road intersection are complete, three southbound lanes from Route 29 Station 330+00 to the western limits of the Project will be opened to the traveling public. Opening the third southbound lane East of the Stringfellow Road/Clifton Road intersection provides early operational benefits at this signal, relieving the worst bottleneck in the corridor during the afternoon rush. This **Unique Milestone 3** will be delivered by August 28, 2024.

At the completion of Stage 2, southbound traffic east of Station 330+00 will be shifted toward the median to provide room to demolish the temporary pavement in Area 4 and complete the shared use path. Northbound lanes will be shifted to the north in Areas 3 and 4 on the newly constructed left and center lanes.

### Stage 3

#### Areas 2-4

With northbound and southbound traffic shifted toward the median, the eastern portion of Area 2 and Areas 3 and 4, outside widening, service roads, and shared use paths can be completed in this Stage.

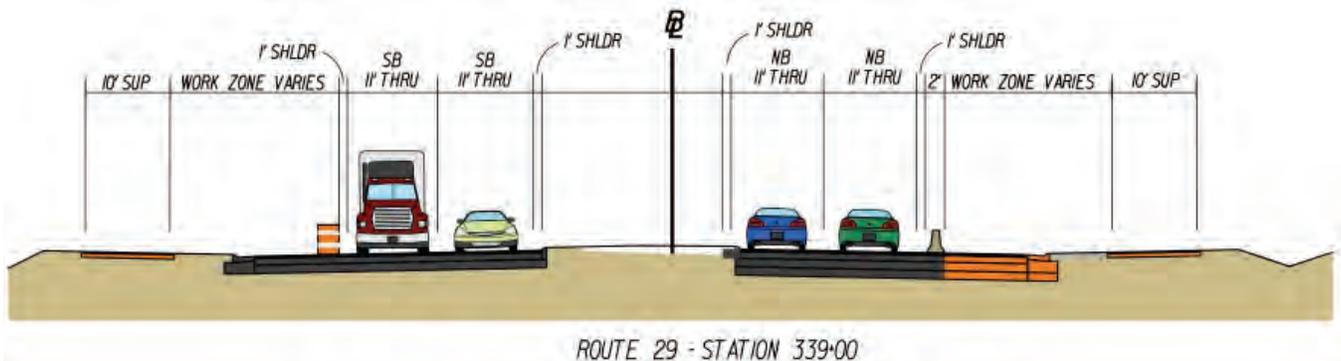


Figure 4.5.1.7 - Stage 3 Areas 2-4

## 4.5 Construction of the Project

As shown in Figure 4.5.1.7, barrier will be placed on the outside of the northbound lanes. This allows for construction of storm sewer, grading, pavement section, and Service Roads 1 and 2. Along the southbound lanes we will demolish temporary pavement constructed in Stage 1B to allow completion of outside curb and gutter and shared use path. Once the northbound right lane is complete in Area 3, the remaining MS-1 not completed in Stage 2 will be constructed.

### Project Finishes

Once Stage 3 work is complete, all lanes will be opened to the traveling public while final surface pavement, pavement markings, signage, and landscaping are completed. Once all work is complete, we will finish any remaining inspections and punchlist items in order to achieve ***Final Completion by April 29, 2026 – 124 days ahead of schedule.***

### Anticipating and Mitigating Potential Delays

The primary method that our Team uses to anticipate delays is through close updating and monitoring of the Project Schedule, as well as the 2 and 3-week look-ahead schedules. Progress that is lagging behind anticipated, activities taking longer than planned, or disruptions to the planned sequence of work are all indicators that the Schedule is being delayed or adversely impacted. A second method that indicates a potential delay is the close monitoring of production rates, particularly for self-perform activities. When delays are identified, the DBPM and CM will quickly review the issue to determine the cause and discuss appropriate recovery actions with the responsible discipline lead(s) to mitigate the impact. Mitigation measures can include re-sequencing the Schedule, adding resources, increasing work hours, or replacing resources with more productive ones.

Specific to this Project, utility relocations and right-of-way acquisitions pose the most significant risks to the Project Schedule due to the linear constraint of acquiring easements before relocating utilities. As VDOT has started the right-of-way process on 23 parcels, our Team has prioritized those areas of work for both utility relocations and construction. By prioritizing utility relocations within existing right-of-way and VDOT acquired parcels, we are able to provide more float to utility relocations in other areas thereby minimizing the risk that utility delays will impact the schedule. This also allows for construction to proceed in many areas ahead of the acquisition of the priority right-of-way parcels which are to be acquired by our Team.

Shirley Underground (SU), a division of Shirley, provides our Team an advantage related to the discovery of unknown utilities. Equipped with multiple hydro-excavation trucks, SU performs soft digging operations as a safe means to locate underground utilities and is immediately available to perform test pitting. This capability to quickly self perform test pitting facilitates our Team's ability to respond to a potential issue, minimize service disruptions, or crew downtime, when an unknown utility is discovered and allows our Team to safely and mitigate a potential delay.

### Safety and Operations

At the top of our list of core values at Shirley is the safety of our people, our subcontractor partners, the client, and the public. The design and the means and methods of construction are developed with the safety of the workers and the traveling public as the highest priority. Our motto "***Safety Starts with Me***" reflects the company's policy and position that every individual must be involved, empowered and accountable for project safety. The construction team will implement safety on site through the following practices:

- A Safety Manager is assigned to the Project with support from the corporate Safety Department;
- Task-specific training on construction safety, fall protection, first aid/CPR, rigging, trenching and excavation;

## 4.5 Construction of the Project

- Safety Orientation to the Project’s unique conditions for all Shirley and subcontractor employees;
- Daily “Take-5” safety discussions and review of the Safe Plan of Action (SPA) for the day’s activities;
- Issuance of an internal Shirley “Dig Permit” prior to any excavation activity or work adjacent to overhead utilities;
- 100% Glove Policy for all personnel on-site to mitigate hand injuries;
- “Safe Start” program requirements included in all subcontracts;
- Daily safety inspections performed by the Project team and designed to engage all on site workers;
- Monthly Safety Meetings to review incidents, trends, safety topic, and training;
- Recognition of employees who consistently display a good safety attitude, practice safe work, and achieve safety performance goals; and
- Jobwide safety incentives to reward a successful safety culture.

For the safety of the traveling public, our Team’s Transportation Management Plan (TMP), presented in the following Section 4.5.2, provides the baseline for maintaining mobility with limited interaction with construction activities. For any work zone setup, or any temporary lane closures allowed by the contract, the VDOT Work Zone Safety Checklist will serve as the minimum standard for conformance with the Project’s safety requirements, and checks will be performed daily. In the case of any incidents on or adjacent to the site, our Team will work closely with first responders and VDOT’s Traffic Operations Center (TOC) and Incident Management staff to make the scene safe and restore traffic when applicable.

### Staging and Storage Areas

While all storage and staging locations have not been determined at this time, the Team has identified several locations that are available both on and off the Project. Our approach to construction will include timely ordering and staging of material which eliminates unnecessary double handling of materials and greatly reduces the need for specific lay down areas. These areas will be developed early, such that inclusion in the initial SWPPP documents is possible. In the case that these areas cannot be secured prior to submission of our SWPPP, we will ensure that we attain the rights to and document them prior to commencing physical work requiring lay down areas.

In addition, once construction begins, our Team will provide deliverymen with specific guidance for all deliveries as well as specific directions for material haulers performing on-site movement of machinery and equipment to avoid conflicts with local businesses and citizens. Construction entrances will be strategically located at existing signalized intersections whenever possible for safe access at controlled locations.

### 4.5.2 Transportation Management Plan

Our Team is dedicated to delivering the Project in a way that exceeds expectations regarding the minimization of public impacts during construction. All aspects of our Transportation Management Plan (TMP) and Temporary Traffic Control (TTC) plans will be developed with a focus on maximizing safety for the traveling public and construction personnel while minimizing travel delays and access impacts throughout all stages of construction. To accomplish these safety, mobility, and communication goals, we have committed to numerous enhancements that exceed the requirements of the RFP. These strategies include:

- Analyzing existing safety concerns and mitigating them prior to construction;
- Monitoring of work zone conditions throughout construction by our Lead Traffic Engineer;
- Analyzing and adjusting temporary lane closure hours to further reduce public impacts;
- Early opening of the third southbound lane in the most congested area per *Unique Milestone 3*;
- Improving safety of pedestrian traffic during construction and providing early opening of pedestrian

## 4.5 Construction of the Project

the SUP along Route 29 east of Buckleys Gate Drive as *Unique Milestone 2*; and

- Utilizing enhanced safety devices and strategies that exceed minimum requirements.

### TMP Philosophy

Our TMP and construction program focuses on reducing the Project’s anticipated impacts to the traveling public and exceeding the safety requirements of the RFP. Our TMP will emphasize elimination of the need for temporary lane closures to the largest extent possible, as we thoroughly understand the impact that lane closures can have to traffic and access points for the traveling public and local businesses. To meet our high safety and mobility standards, the TMP and TTC plan development will be led by our Lead Traffic Engineer, who is a Professional Traffic Operations Engineer (PTOE) providing expertise in safety audits, traffic analysis, and traffic control device design to ensure mobility and safety are maximized during and after construction. Furthermore, our Team commits to additional field reviews by our traffic engineering staff during construction. These regular reviews will verify that traffic controls have been implemented correctly and will provide recommendations for further enhancements. This review is in addition to the Work Zone Safety Inspections completed by our QA and QC Team. An example of these traffic engineer reviews can be seen in Figure 4.5.2.1.

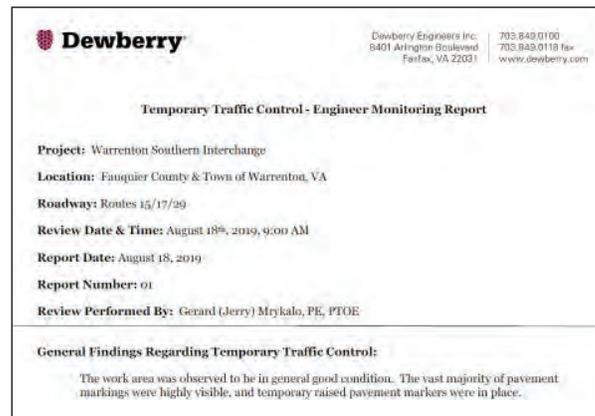


Figure 4.5.2.1 - TTC Engineer Monitoring Report

### Sequence of Construction Phasing

As introduced in Section 4.5.1, the Project will be segmented into three major stages and several sub-stages. These stages maximize public safety, minimize public impacts, and allow for the early completion of the Project. In addition, the sequence maintains continuous property access at all times during construction. This detailed and up-front planning also allows our Team the confidence that the Project will be delivered ahead of schedule in a safe manner with limited public impacts. For each of the Stages of construction, we have developed specific temporary traffic control strategies as highlighted in Exhibits 4.5.2.1 and 4.5.2.2, located at the end of this section. The Exhibits contain a typical section for each Stage of construction and explain the specific features, challenges, and solutions of each Area.

To improve capacity and operations, our Team’s sequence of construction includes *Unique Milestone 3* for the early opening of the third southbound lane on Route 29 from 300 feet east of the Stringfellow Road/Clifton Road intersection to the western Project limits. This intersection experiences severe traffic congestion in the PM peak and the early opening of this area by August 28, 2024 will provide relief to the traveling public.

As introduced in Section 4.5.1, this sequencing allows our Team to efficiently construct the Project while minimizing impacts to traffic. We carefully studied numerous options when developing this staging, resulting in a plan that minimizes the need for temporary lane closures and maximizes continuous surrounding multi-modal access and property access. Sequencing highlights detailed in Exhibits 4.5.2.1 and 4.5.2.2 include:

- Use of a pre-stage (1A) for temporary paving operations to strengthen and wedge widen the existing median in constrained areas to allow shifting of lanes for Stage 1B.
- Stage 1B is the first major widening stage, consisting of widening to the north on Route 29.
- Stage 1C is a sub-stage in a limited geographic area consisting of Route 29 southbound traffic being shifted north onto the newly constructed lanes in the vicinity of Meadow Estates Drive/Hampton

## 4.5 Construction of the Project

Forest Way. Route 29 northbound traffic in this same area will be shifted to the north to allow for widening and reconstruction along the northbound lanes.

- Stage 2 consists of Route 29 southbound traffic being shifted to the newly constructed widening for the majority of the Project length, with median work completed during this stage.
- Stage 3 consists of Route 29 northbound traffic shifted to the north on the newly constructed Stage 2 pavement while the Route 29 northbound lanes are being completed.

### Traffic Control Details

In addition to the sequence of construction and TTC typical sections shown on Exhibits 4.5.2.1 and 4.5.2.2, our Team has developed a temporary traffic control strategy that minimizes impacts to the traveling public. Upon Award, we will begin the design of the Type C, Category V TMP and will develop site-specific TTC plans for each stage of construction. The TTC plans will detail all controls required for construction, such as work areas, temporary barrier, attenuators, channelizing devices, signs, PCMS, temporary markings, temporary drainage elements, construction access points, and all other requirements per VDOT's I&IM-241/TE-351, the *Virginia Work Area Protection Manual*, and the *Manual on Uniform Traffic Control Devices (MUTCD)*. Our Team also recognizes common shortfalls with TTC in work zones, and we are committed to avoiding these conditions with carefully designed site specific TTC plans. For example, we will ensure that barrier ends and impact attenuators are flared as far away from traffic as possible to reduce the likelihood of a high severity crash into an attenuator.

Highlights of our Technical Proposal are as follows:

### Lane Closures, Detours, Restrictions, Flagging, and Lane Widths

- No planned long-term lane closures or long-term road closures with detours;
- Planned weekend detours of Route 29 to construct the Willow Spring Branch culverts to avoid multiple stages of construction, large traffic shifts, and weekday lane closures. Access to residential and business properties will be maintained on Route 29 outside of the main area of the culvert construction;
- Lane and road closure restrictions will follow Part 2, Section 2.11.2 of the RFP. Temporary lane closures are anticipated for activities such as paving, shoulder improvements, placement of traffic barriers, and delivery of materials;
- Temporary 20 minute maximum full stoppages on Route 29 will only be implemented when necessary to ensure public safety, such as overhead signal and sign work;
- No flagging operations are anticipated on multi-lane roadways;
- Minimum 11-foot wide lanes will be maintained; and,
- Temporary lane shifts will be designed to meet full posted speed limit, exceeding the requirements of the RFP.

### Work Zone Speed Reductions

Our Team recommends reducing the existing speed limit and have taken the proactive step of already completing an analysis utilizing VDOT's TE-350 to determine a preliminary recommendation for the posted speed limit during construction. Based on this analysis, we recommend reducing the existing posted speed limit of 45 mph to 40 mph for the following reasons:

- In Figure 4.5.2.2, the “dots” represent the 109 crashes that occurred between 2017 and 2021;
- The combination of high traffic volumes during peak periods and high existing speed limit presents increased risk for both the traveling public and construction workers;
- The presence of pedestrians and bicyclists along the corridor; and
- The need for work zone traffic control devices such as temporary concrete barrier.

## 4.5 Construction of the Project

While our Team recommends this reduction, our temporary geometry and lane shifts will meet the standards for the existing speed limit of 45 mph to enhance safety, exceeding the requirements of the RFP. This speed reduction recommendation will be discussed with VDOT post-Award, and the final determination will be made in coordination with the VDOT District Traffic Engineer. Upon implementation, our Team also commits to the utilization of a speed display trailer to promote speed reduction compliance and reduce the likelihood of rear-end and run-off-road crashes, exceeding the requirements of the RFP.

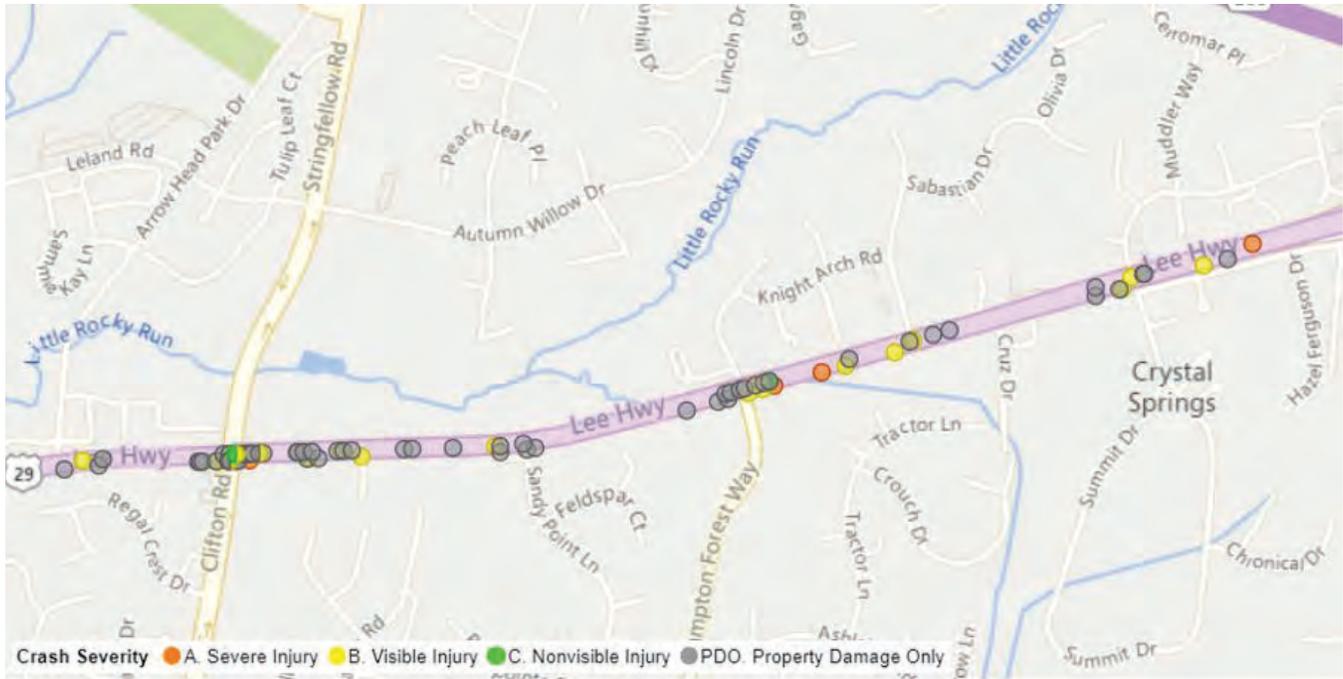


Figure 4.5.2.2 - Crash Map from 2017-2021

### Unique Project Challenges & Solutions

In addition to the minimum requirements of the RFP, specific attention has been given to the unique challenges of the Project, with focus on mitigation and communication strategies that maximize safety, minimize public impacts, and reduce schedule risk. By carefully studying these elements, our Team has identified the following challenges and devised unique solutions to address each:

#### Crash Avoidance and Safety Enhancements

We understand that Route 29 is a congested roadway during times of peak travel and a vital commuter route. Therefore, our Team commits to providing crash avoidance through targeted safety enhancements to reduce the number of incidents. We have proactively studied the existing crash trends, and commit to the utilization of the following enhanced safety devices that all exceed the requirements of the RFP:



Figure 4.5.2.3 - Raised Pavement Markers

- Full continuous temporary raised pavement markers with installation of all temporary markings, as shown in Figure 4.5.2.3 for increased lane visibility especially at night and during wet pavement conditions throughout the work zone. These are only required at lane shifts per the *Work Area Protection Manual*;
- Use of wider than required lane lines for increased delineation of lane shifts;
- Use of full “L” length for lane shifts (not  $\frac{3}{4}$  L as allowed) to provide “forgiving geometry” and reduce potential side-swipe and run-off-road crashes; and
- The use of tighter than required channelizing device spacing for increase work zone delineation and improved safety.

## 4.5 Construction of the Project

### Lane Closure Optimization

Lane closure impact minimization will be critical when working along Route 29. Our temporary traffic control strategy puts an emphasis on eliminating the need for temporary lane closures to the greatest extent possible. When temporary lane closures are necessary, we will take additional steps to ensure we achieve the goals of maximizing safety and minimizing travel delays. First, we will collect updated 24-hour volume information along Route 29 as an initial design activity. We recognize that lane closure restriction times of the RFP are to be followed. However, we also recognize that the impacts of closing a single lane on Route 29 is a major concern for the public. Once collected, we will ensure that the temporary lane closure hours specified in the RFP are in line with the hours of lowest volume along Route 29. This will be used to validate the lane closure schedule provided in the RFP to ensure unintended delays will not occur due to possible recent changes in traffic patterns.

An example of this process can be seen in Figure 4.5.2.4, which shows the 24-hour data for the northbound travel lanes on Route 29 collected in 2017 between Union Mill Road and Buckleys Gate Drive from the LD-104 Noise Analysis. From this graph, our Team can determine the hours during which temporary lane closures might cause traffic backups and delays. This undesirable condition occurs when traffic volumes (blue line) exceeds the capacity of the remaining open travel lane (red line). Utilizing this type of analysis gives us the ability to schedule short construction duration work during low-volume hours where feasible, providing a benefit that exceeds the RFP requirements.

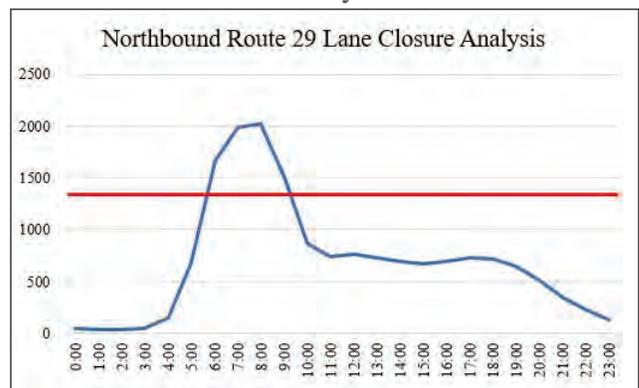


Figure 4.5.2.4 - Lane Closure Optimization

### Road Plan/Profile Design that Minimizes Impacts to Traffic

The optimized profile and cross slopes described in Section 4.3 reduces pavement overlays and reconstruction required along Route 29. This will minimize work required within the existing travel lanes. Coordination of roadway profile and horizontal alignment with the TTC design results in:

- Fewer lane shifts and less temporary pavement;
- Improved temporary drainage and reduced likelihood of ponding of water during construction; and
- Minimized pavement build up, reducing the number of temporary lane closures required.

### Intersection Sight Distance

The use of barrier at turn movements has the potential to affect intersection sight lines. To minimize these impacts, our Team will utilize the following strategies to ensure the safety of the traveling public.

- During design, perform intersection sight line assessments for applicable turn movements along the corridor;
- Where sight distances are found to be inadequate, flare barriers away from the roadway, or replace a section of barrier with channelizing devices in order to eliminate the sight distance restriction; and,
- Install intersection warning signs, such as “Watch for Turning Vehicle,” in advance of unsignalized intersections.

### Pedestrian and Bicycle Safety/Detour

With the Project focusing heavily on vehicular traffic, it is critical to also keep focus on pedestrian and bicycle traffic utilizing the existing pathways along Route 29 and connecting roadways. Of particular note is the existing asphalt path that runs along the north side of Route 29 (Willow Pond Trail), which will be

## 4.5 Construction of the Project

impacted by construction and replaced with a new shared use path. As part of our constructability and TTC concept development, we will work to ensure continuous safe pedestrian and bicycle passage is accommodated by a combination of:

- Temporary Willow Pond Trail detour during construction as shown in Figure 4.5.2.5. There are no active bus stops along existing Willow Pond Trail;
- **Unique Milestone 2**, early completion of the shared use path connection along Route 29 east of Buckleys Gate Drive as shown in Figure 4.5.2.6; and,
- Signalized crosswalks with high visibility pavement markings.



Figure 4.5.2.5 - Willow Pond Trail Detour

The planned early completion of the shared use path east of Buckleys Gate Drive by May 21, 2024 provides pedestrians with improved safety and accessibility to access commercial and employment centers to the east of the Project limits, exceeding the RFP requirements.



Figure 4.5.2.6 - Unique Milestone 2, Shared use Path East of Buckleys Gate Drive

### Weekend Detours of Route 29

Due to the complexity of the Willow Spring Branch hydraulic crossing construction across Route 29, multiple stages of construction with temporary pavement and grading impacts outside of the permanent construction limits were anticipated to be necessary. Additionally, extensive weekday temporary lane closures and traffic median crossovers would be needed, presenting challenges related to operations and safety. In order to mitigate this challenge, our Team proposes weekend detours of Route 29 within the Project area to complete the construction of the culvert in the most safe and efficient manner for both the traveling public and construction workers. The weekend detour of Route 29 would be operated for approximately 3 to 4 weekends to construct the culvert, and would use the surrounding transportation network encompassing Stringfellow Road/Clifton Road, Braddock Road, and Fairfax County Parkway. By utilizing weekend detours, traffic volumes on Route 29 are significantly lower than during the weekday which prevents straining the surrounding transportation network.

With the weekend detour route in place, local access for residents and businesses is still maintained on Route 29 outside of the main area of work as shown in Figure 4.5.2.7. The Team understands that this

## 4.5 Construction of the Project

detour configuration requires approval by applicable parties in final design as part of the TMP development, and commit to the use mitigation strategies such as public communication with PCMS signs and use of police assistance at signalized intersections along the detour route.

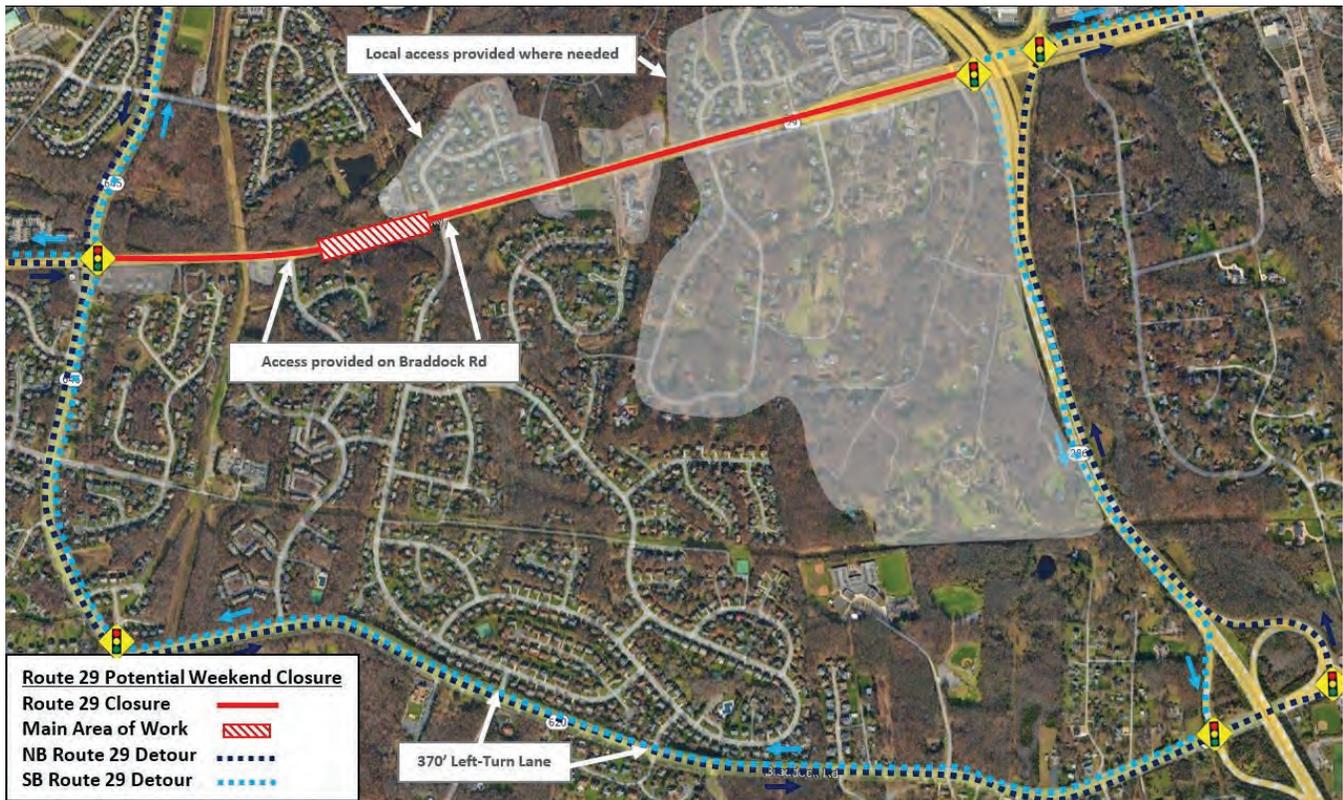


Figure 4.5.2.7 - Weekend Detour of Route 29

### Stakeholder Communication and Mitigation Strategies

The high traffic volumes during peak periods of travel combined with the numerous residential communities, businesses, and pedestrian and bicycle activity highlight the need for enhanced public communications during construction. For through traffic, notification of work zone traffic conditions, including lane restrictions and new travel patterns, is critical to maximize safety. For local traffic utilizing intersecting streets and driveways, thorough advance communication for lane shifts or changes to access points is essential. Our Public Relations Manager will meet with First Responders prior to traffic switches ensuring that response times for emergency personnel are not inhibited. Our Team will develop a communications plan to be updated and maintained as a living document until the Project is completed. This plan includes meeting with VDOT NOVA Communications staff on a monthly basis to coordinate communication strategies.

Our Team recognizes that proactive communication with all stakeholders is essential to a successful TMP. As with any large-scale transportation improvement project, some inconvenience may be unavoidable, but advance communication to the community and stakeholders will help to manage expectations and bolster positive Project perceptions. VDOT has already engaged in a public involvement process during the development of the RFP Conceptual Plans including a public information meeting, a public hearing, and several meetings with homeowners associations and property owners for this Project. Our Team commits to continuing the robust public involvement during final design, right-of-way acquisition, and construction. As detailed in Table 11, we have proactively identified the Project's stakeholders, determined how they will be impacted, and we have devised targeted communication and mitigation strategies to reduce these impacts.

## 4.5 Construction of the Project

**Table 11: Stakeholder Communication and Mitigation Strategies**

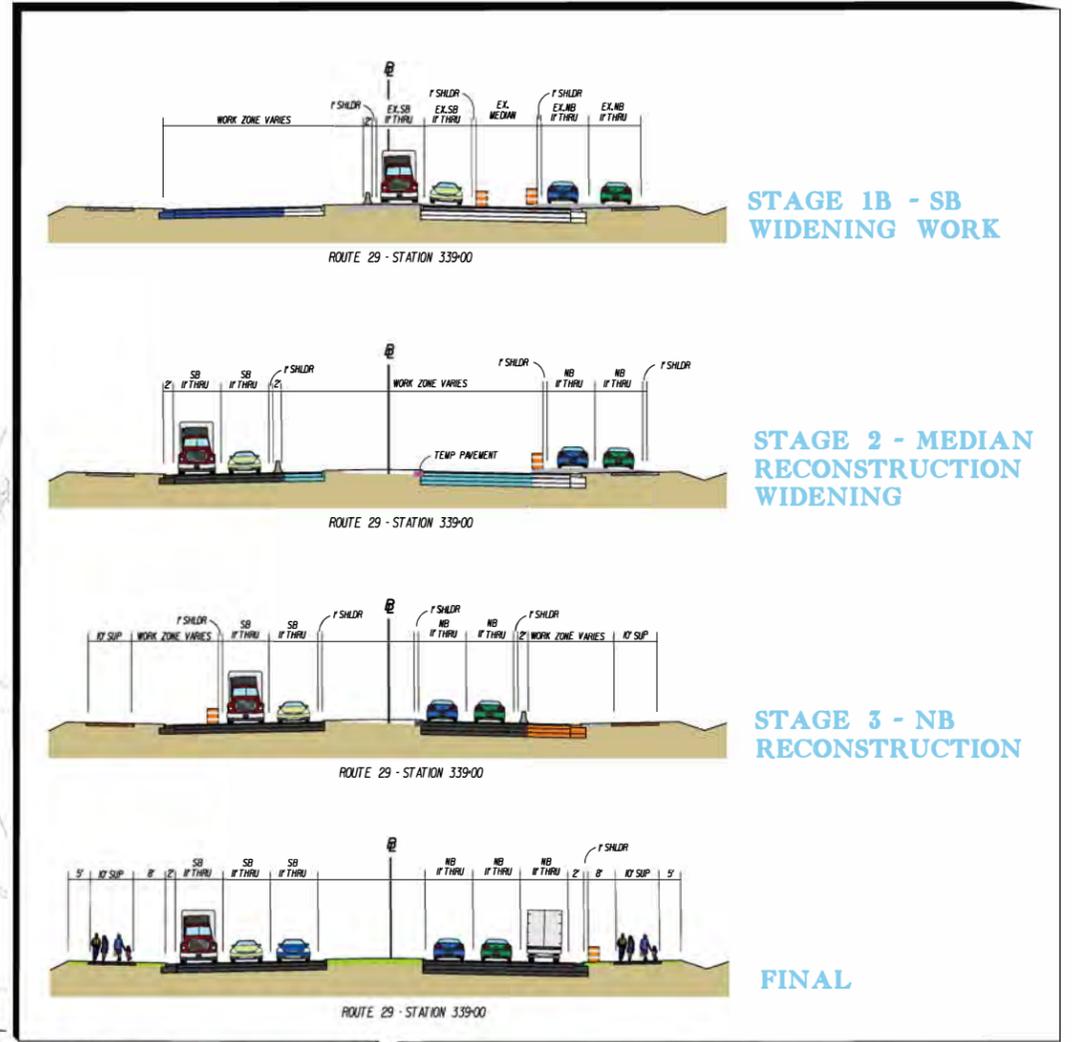
Stakeholders	Impacts	Communication/Mitigation Strategies
Traveling Public and Local Residents	Minimal travel time delays for temporary operations  Potential safety impacts	<ul style="list-style-type: none"> <li>▪ Conduct “Pardon Our Dust” meetings for the general public, public safety officials, and other stakeholders throughout design and construction of the Project.</li> <li>▪ 4 PCMS devices will be utilized for public notices.</li> <li>▪ Robust public outreach campaign.</li> </ul>
Fairfax County Board of Supervisors, Fairfax County Department of Transportation, FHWA, and Environmental Regulatory Agencies	Project reviews and comments  Coordination with adjacent projects	<ul style="list-style-type: none"> <li>▪ Coordinate reviews and address comments by Fairfax County Department of Transportation.</li> <li>▪ Operate as a liaison between VDOT and Fairfax County to ensure compliance with local ordinances.</li> <li>▪ Coordinate with FHWA and environmental regulatory agencies to meet environmental commitments.</li> </ul>
Local Businesses, Community Representatives, Homeowners Associations, and the Media	Potential access confusion during construction and after completion of the Project	<ul style="list-style-type: none"> <li>▪ Access to all stakeholder properties maintained at all times.</li> <li>▪ PCMS devices will be utilized for public notices.</li> <li>▪ Enhanced signing for new access roads.</li> <li>▪ Direct coordination with local businesses, community representatives, homeowners associations, and corresponding media outlets.</li> </ul>
Fairfax County Public Schools (FCPS) Colin L. Powell Elementary School	Potential delays to school buses/transportation services	<ul style="list-style-type: none"> <li>▪ Advance notification of traffic pattern changes to the FCPS Office of Transportation.</li> <li>▪ Coordination of construction activities directly with school staff.</li> <li>▪ No lane closures during school bus operating hours when possible.</li> </ul>
Fairfax County Park Authority (FCPA) Willow Pond Park and Trail	Potential trail detour	<ul style="list-style-type: none"> <li>▪ Coordination of construction activities with FCPA staff.</li> <li>▪ Maintain access to Willow Pond Park.</li> <li>▪ Coordination of potential trail detour with FCPA staff.</li> </ul>
Police, Fire & Rescue	Potential response time impact	<ul style="list-style-type: none"> <li>▪ Additional shoulders provided for incident management, police enforcement, and quicker response to incidents.</li> <li>▪ Advance notification of temporary lane restrictions and changes to traffic patterns.</li> <li>▪ Representatives will be notified of approved lane closure requests.</li> <li>▪ Emergency responder meetings prior to traffic switches for response planning.</li> </ul>
Bus Transit Services Fairfax Connector Bus	Potential impacts to bus transit routes	<ul style="list-style-type: none"> <li>▪ Notifications of work will be sent to transit operators in advance of traffic switches.</li> <li>▪ Coordination of bus stop relocations during temporary bus stop closures.</li> </ul>
Developer and Locality Projects F&M Shopping Center Autumn Willow Senior House	Possible conflicting construction operations.	<ul style="list-style-type: none"> <li>▪ Coordinate design interface to avoid conflicts.</li> <li>▪ Seamless coordination with construction activities that span multiple projects so that it satisfies both projects at one time.</li> <li>▪ Quarterly coordination meetings with other Contractors or as requested by VDOT.</li> </ul>

# EXHIBIT 4.5.2.1



STATE	ROUTE	STATE	PROJECT	SHEET NO.
VA.	29		0029-029-350 RW-201 C-501	1

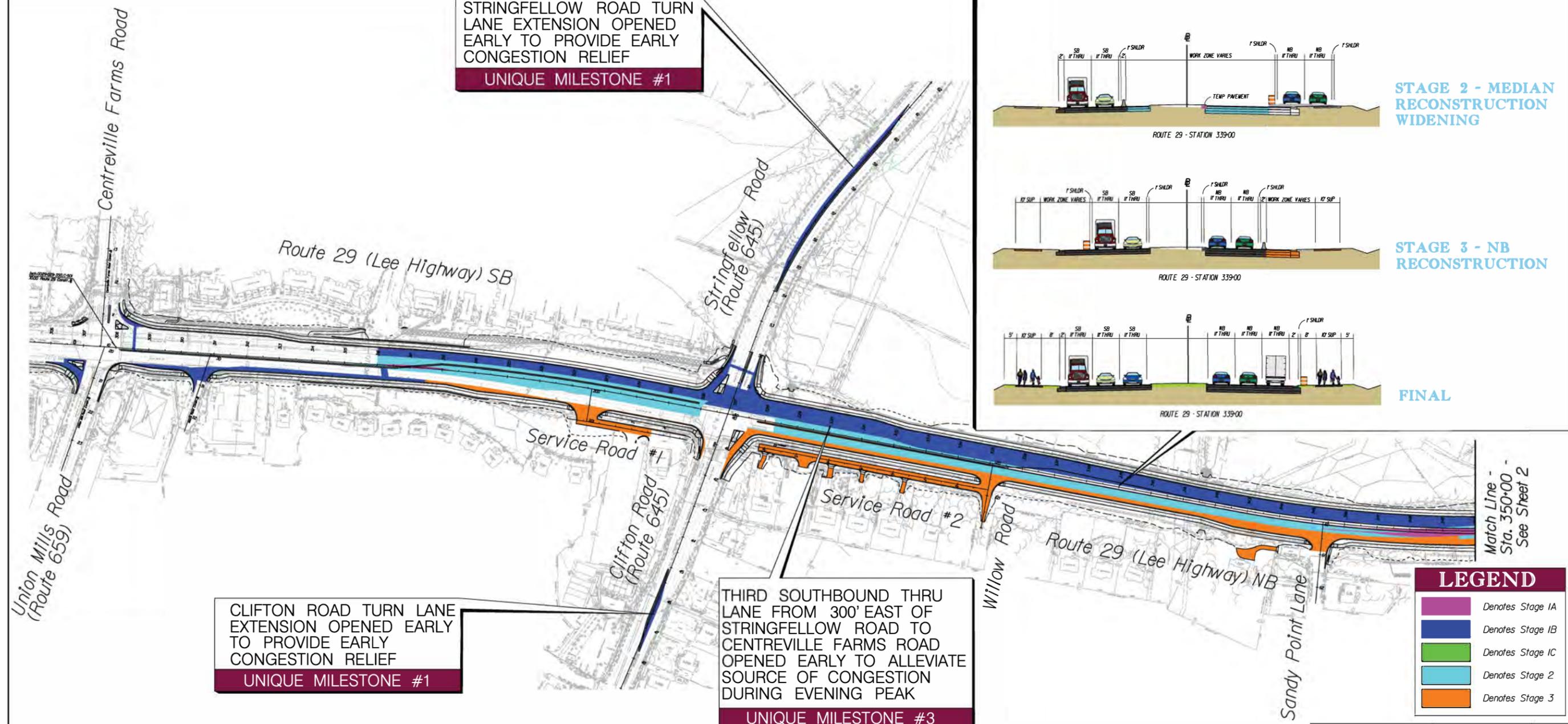
## EAST OF STRINGFELLOW RD./CLIFTON RD.



STRINGFELLOW ROAD TURN LANE EXTENSION OPENED EARLY TO PROVIDE EARLY CONGESTION RELIEF  
**UNIQUE MILESTONE #1**

CLIFTON ROAD TURN LANE EXTENSION OPENED EARLY TO PROVIDE EARLY CONGESTION RELIEF  
**UNIQUE MILESTONE #1**

THIRD SOUTHBOUND THRU LANE FROM 300' EAST OF STRINGFELLOW ROAD TO CENTREVILLE FARMS ROAD OPENED EARLY TO ALLEVIATE SOURCE OF CONGESTION DURING EVENING PEAK  
**UNIQUE MILESTONE #3**



**LEGEND**

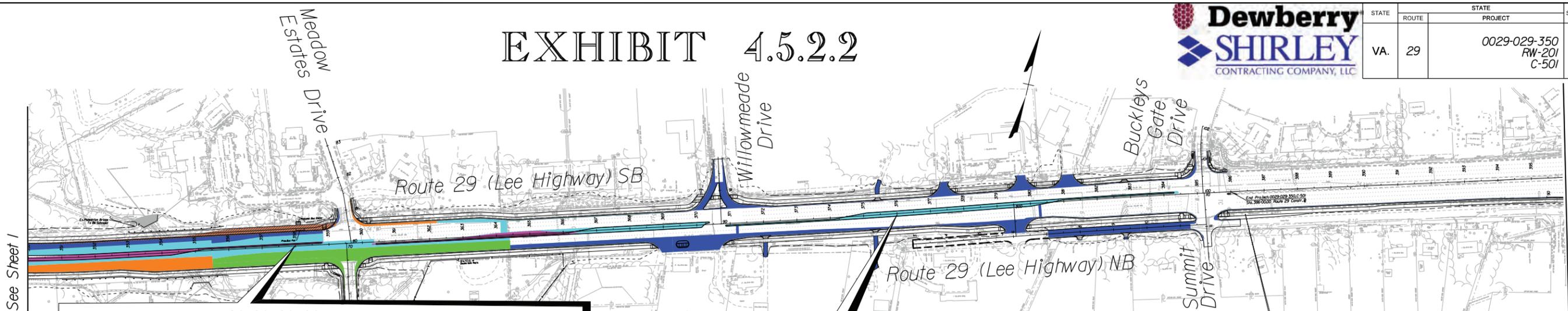
- Denotes Stage 1A
- Denotes Stage 1B
- Denotes Stage 1C
- Denotes Stage 2
- Denotes Stage 3

SCALE	PROJECT	SHEET NO.
0 150' 300'	0029-029-350	1

# EXHIBIT 4.5.2.2

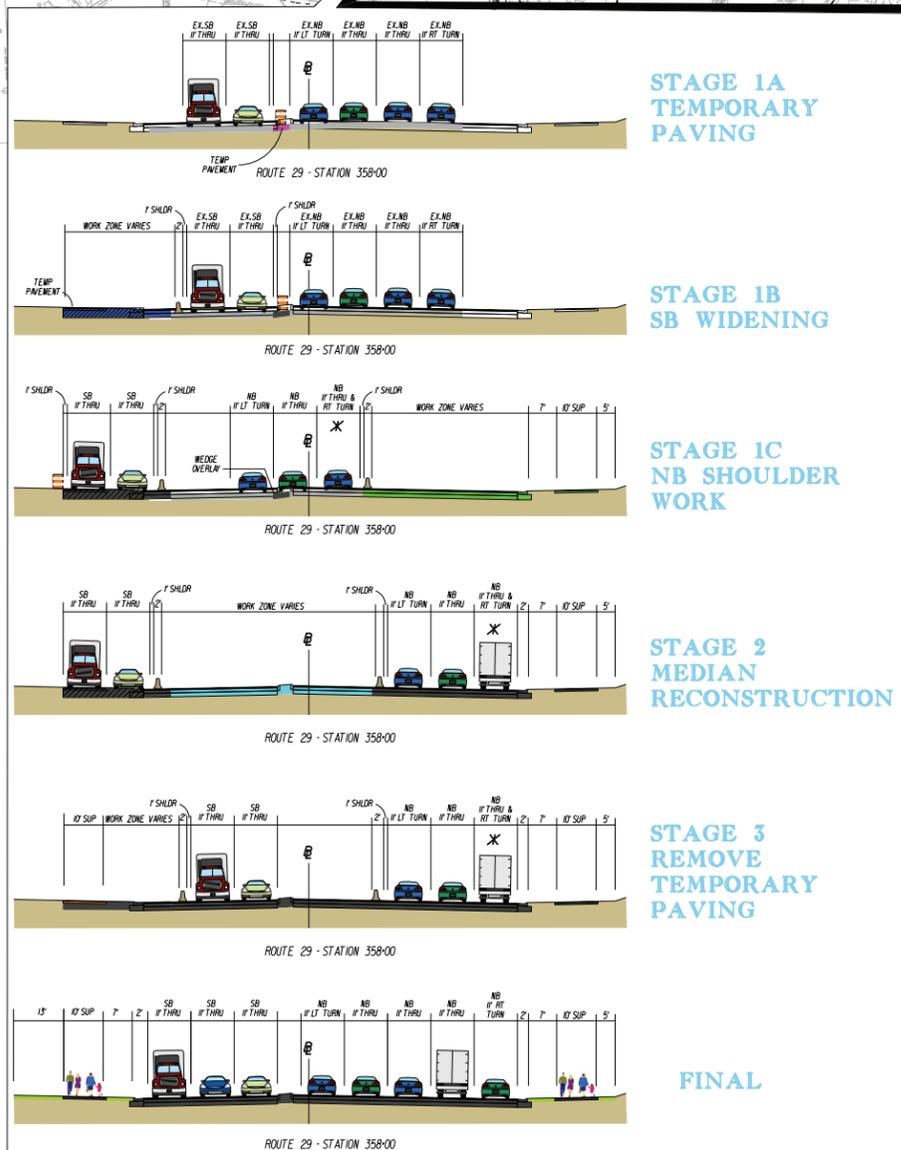


STATE	ROUTE	STATE PROJECT	SHEET NO.
VA.	29	0029-029-350 RW-201 C-501	2

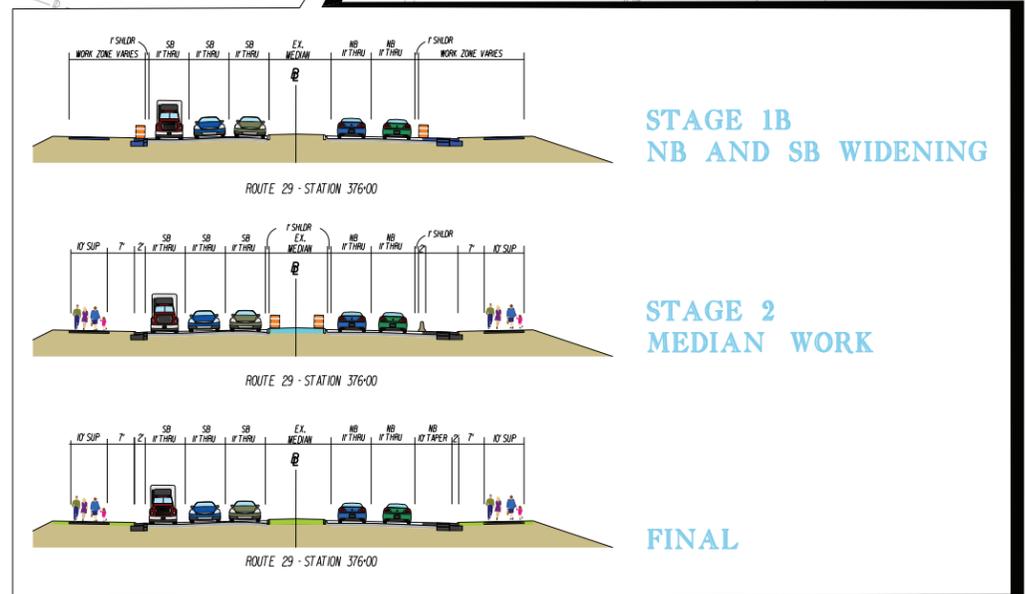


Match Line - Sta. 350+00 - See Sheet 1

Match Line - Sta. 396+00 - See Inset



WEST OF MEADOW ESTATES DR/HAMPTON FOREST WAY

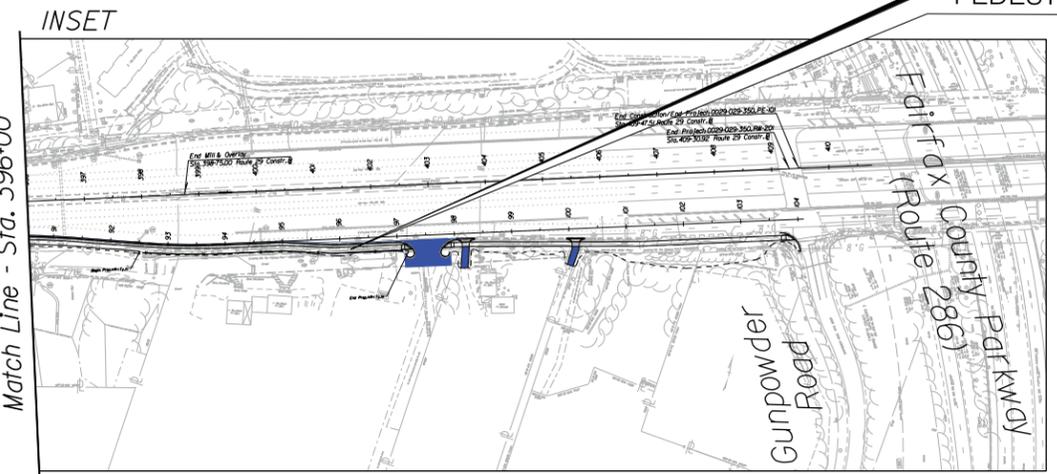


EAST OF MEADOW ESTATES DR/HAMPTON FOREST WAY

\* NOTE: EITHER COMBINED THRU / RIGHT TURN LANE OR DEDICATED RIGHT TURN LANE TO BE PROVIDED UTILIZING SUB-STAGING OF WORK, TO BE ASSESSED WITH TMP DEVELOPMENT DURING FINAL DESIGN

**UNIQUE MILESTONE #2**  
OPEN SHARED USE PATH FROM BUCKLEYS GATE DRIVE / SUMMIT DRIVE TO GUNPOWDER ROAD, PROVIDING EARLY SAFETY IMPROVEMENTS FOR PEDESTRIAN TRAFFIC.

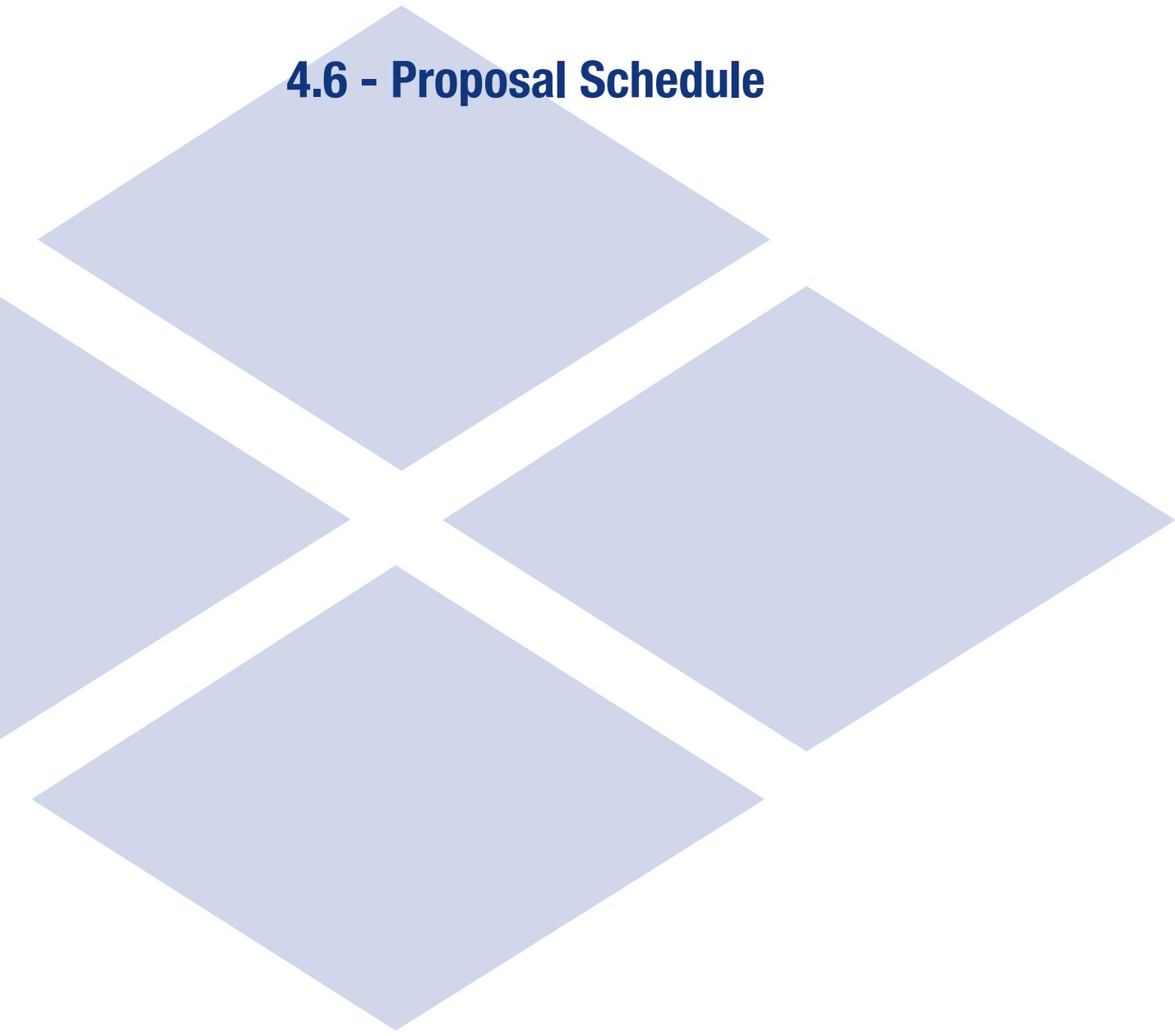
**UNIQUE MILESTONE #2**  
OPEN SHARED USE PATH FROM BUCKLEYS GATE DRIVE / SUMMIT DRIVE TO GUNPOWDER ROAD, PROVIDING EARLY SAFETY IMPROVEMENTS FOR PEDESTRIAN TRAFFIC.



LEGEND	
<span style="display:inline-block; width:15px; height:10px; background-color:purple;"></span>	Denotes Stage 1A
<span style="display:inline-block; width:15px; height:10px; background-color:blue;"></span>	Denotes Stage 1B
<span style="display:inline-block; width:15px; height:10px; background-color:green;"></span>	Denotes Stage 1C
<span style="display:inline-block; width:15px; height:10px; background-color:cyan;"></span>	Denotes Stage 2
<span style="display:inline-block; width:15px; height:10px; background-color:orange;"></span>	Denotes Stage 3

SCALE	PROJECT	SHEET NO.
0 150' 300'	0029-029-350	2

## **4.6 - Proposal Schedule**





# 4.6 Proposal Schedule

## 4.6.1 Proposal Schedule

The Shirley Team’s Proposal Schedule is provided in our Volume II - Design Concept.

## 4.6.2 Proposal Schedule Narrative

Our Team has reviewed the Project and schedule requirements of the RFP in detail and developed a Proposal Schedule outlining our plan to successfully manage the anticipated scope of work. This schedule has been optimized to deliver the Project in the shortest time possible while meeting RFP requirements, minimizing impacts to road users and stakeholders, protecting the environment, and ensuring the safety of workers and the public. Activity durations are derived from estimated quantities and combined with anticipated productions based on our experience and historical data on similar projects, with consideration for site specific conditions.

### Schedule Milestones

Project milestones have been set up to easily monitor the delivery of the Project in advance of the RFP specified completion date of August 31, 2026. Our Team commits to an **Early Final Completion Date of April 29, 2026, 124 days earlier than the RFP**. Additionally, our Team commits to three Unique Milestones that will greatly benefit motorists and pedestrians in the Route 29 corridor. A summary of our contractual and schedule milestones are shown in Table 12.

**Table 12: Contract and Schedule Milestones**

Contract and Schedule Milestones	Date
Notice of Intent to Award	April 21, 2022
CTB Approval / Notice to Award	May 18, 2022
Design-Build Contract Execution	June 15, 2022
Notice to Proceed	June 17, 2022
<b>Unique Milestone 1</b> - Clifton Road/Stringfellow Road Turn Lanes Extension	<b>November 3, 2023</b>
<b>Unique Milestone 2</b> - Area 6 Trail Connection	<b>May 21, 2024</b>
<b>Unique Milestone 3</b> - Open Third Lane Southbound from Stringfellow Road to Western Limits	<b>August 28, 2024</b>
<b>Early Final Completion</b>	<b>April 29, 2026</b>
Construction Milestones	Date
Switch Traffic to Stage 1B Configuration	September 7, 2023
Switch Traffic to Stage 1C Configuration	June 28, 2024
Switch Traffic to Stage 2 Configuration - Areas 2 & 3	July 24, 2024
Switch Traffic to Stage 2 Configuration - Areas 4 & 5	September 24, 2024
Switch Traffic to Stage 3 Configuration	May 8, 2025

### Schedule Calendars

As specified below, Activity calendars are assigned using project-level calendars and all calendars are based on an 8-hour workday:

**5 HOL: “5-Day Workweek with Holidays”:** This calendar allows work five days per week except on standard holidays and is used for all design and administrative activities in the CPM network.

**5 HOL\_WTH: “5-Day with Normal Anticipated Weather”:** This calendar is used for most construction activities. It includes holidays as inserted in the ‘5 HOL’ calendar as well as ‘block-out’ days for the anticipated normal weather.

## 4.6 Proposal Schedule

**5HOL\_WTH ASPHALT: “Winter Shutdown”:** Assigned to activities that are anticipated to be affected by cold temperatures, such as asphalt surface paving and pavement markings. This calendar contains no working days from December 15 one year to March 15 of the next year.

**7DAY: “7-Day Workweek with No Holidays”:** Allows work seven days per week on activities that progress on a calendar-day basis such as design and construction submittal review activities.

**5 HOL\_WTH: Weekend Full Closure:** Assigned to activities which are expected to work during the weekend detour.

**5 HOL\_WTH\_LN:** Lane closure calendar assigned to set temporary barriers and MOT devices activities.

**5HOL\_LANDSCAPE “Landscaping Calendar”:** Assigned to activities that are unable to be performed during November 15<sup>th</sup> through March 15<sup>th</sup> and May 1<sup>st</sup> to August 31<sup>st</sup> due to the allowable planting season.

### Work Breakdown Structure

Our Team has developed a detailed Proposal Schedule in accordance with the RFP requirements. The schedule is organized into a hierarchical Work Breakdown Structure (WBS) to demonstrate the relationships and activity durations amongst the milestones, Scope Validation Period, design, public involvement, environmental permitting, right-of-way, utilities, and construction. All elements of the design-build process are captured under the Level 1 WBS and are described below:

- A. Schedule Milestones:** Area reserved for easy review of the Project status. This contains major milestones that are critical to the Project or prescriptive in RFP. This section also includes the Scope Validation Period and Construction Milestones.
- B. Design Phase:** Includes preliminary engineering services, plan development, QA/QC reviews, submittal milestones, and interim and final reviews and approvals of plans by VDOT, Fairfax County, and other agencies. This section of the schedule includes a second level WBS structure to group design activities by type of design submission classifying it by Preliminary Design and Final Design.
- C. Environmental Permitting:** Includes ESA reports, permit management and preparation, and permit submissions, reviews, and approvals. Initial efforts will focus on the LD 455/ VPDES Permit and the SWPPP submissions needed for the start of construction. This section also includes plans for threatened and endangered species and noise analysis.
- D. Public Involvement/Public Relations:** This section of the schedule allows for public coordination, planned public involvement meetings, and updates with the stakeholders.
- E. Right-of-Way/Easement Acquisition:** This section of the schedule is used to monitor the acquisition of right-of-way and easements, appraisals and appraisal reviews, offers, negotiations, and certificates. To prioritize groups of properties by order of need, we have included a second level WBS structure that includes separate right-of-way acquisition activities by Priority. Dividing the right-of-way activities into groups will enable our Team to focus our right-of-way acquisition efforts on the most schedule critical acquisitions and track these critical acquisitions to ensure on-time completion.
- F. Utility Relocations:** This section of the schedule includes activities for UFI meetings, preparation of plan and estimates (P&E), approval of P&E, and relocations separated by Owner.

## 4.6 Proposal Schedule

**G. Construction:** This section of the schedule is segmented by levels of WBS structure to divide the construction activities by Stages and Areas to show the interfaces and easily track progress to ensure early completion. This section also includes procurement, submittals and fabrication activities, and construction Quality Assurance and Quality Control processes.

The WBS hierarchy is shown in Table 13:

**Table 13: WBS Structure**

<b>WBS Path</b>	<b>WBS Name</b>
<b>C000110329DB113.A</b>	<b>SCHEDULE MILESTONES</b>
C000110329DB113.A.1	CONSTRUCTION KEY DATES
<b>C000110329DB113.B</b>	<b>DESIGN PHASE</b>
C000110329DB113.B.A	PRELIMINARY DESIGN
C000110329DB113.B.A.1	EARLY DESIGN / MOT
C000110329DB113.B.A.2	DESIGN QA/QC PLAN
C000110329DB113.B.A.3	SURVEYS
C000110329DB113.B.A.4	GEOTECHNICAL INVESTIGATION REPORTS
C000110329DB113.B.A.5	UTILITY DESIGNATION AND TEST PITS (BORE HOLES)
C000110329DB113.B.B	FINAL DESIGN
C000110329DB113.B.B.1	RIGHT OF WAY PLANS
C000110329DB113.B.B.2	ROADWAY DESIGN
<b>C000110329DB113.C</b>	<b>ENVIRONMENTAL PERMIT</b>
C000110329DB113.C.A	JOINT WETLANDS AND WATER PERMITTING
C000110329DB113.C.A.1	THREATENED & ENDANGERED SPECIES
C000110329DB113.C.B	HAZMAT AND ENVIRONMENTAL SITE ASSESSMENTS
C000110329DB113.C.C	LD 445 / STORMWATER PERMIT
C000110329DB113.C.C.1	STAGE 1A - LAND DISTURBANCE PERMIT
C000110329DB113.C.C.2	PROJECT WIDE LAND DISTURBANCE PERMIT
C000110329DB113.C.D	NOISE ANALYSIS
<b>C000110329DB113.D</b>	<b>PUBLIC INVOLVEMENT</b>
<b>C000110329DB113.E</b>	<b>RIGHT OF WAY ACQUISITIONS/ EASEMENTS</b>
C000110329DB113.E.A	PROJECT SPECIFIC ACQUISITION AND RELOCATION PLAN
C000110329DB113.E.B	ROW/EASEMENT ACQUISITIONS
C000110329DB113.E.B.1	PRIORITY 1 ROW ACQUISITION
C000110329DB113.E.B.2	PRIORITY 2 ROW ACQUISITION
<b>C000110329DB113.F</b>	<b>UTILITY COORDINATION</b>
C000110329DB113.F.A	FAIRFAX DPW
C000110329DB113.F.B	FAIRFAX WATER
C000110329DB113.F.C	DOMINION
C000110329DB113.F.D	COLONIAL GAS
C000110329DB113.F.E	PLANTATION GAS
C000110329DB113.F.F	SUMMITIG
C000110329DB113.F.G	VERIZON
C000110329DB113.F.H	FIBERLIGHT
C000110329DB113.F.I	SHENTEL
C000110329DB113.F.J	COX
C000110329DB113.F.K	MCI

## 4.6 Proposal Schedule

WBS Path	WBS Name
C000110329DB113.FL	AT&T LONG DISTANCE
C000110329DB113.FM	ZAYO
C000110329DB113.FN	WASHINGTON GAS
<b>C000110329DB113.G</b>	<b>CONSTRUCTION</b>
C000110329DB113.G.A	SHOP DRAWINGS SUBMITTALS AND PROCUREMENT
C000110329DB113.G.A.1	ROADWAY
C000110329DB113.G.A.1.1	C25'S AND WATERLINE MATERIALS
C000110329DB113.G.A.1.2	OVERHEAD SIGN
C000110329DB113.G.A.1.3	NOISE WALLS
C000110329DB113.G.A.2	STRUCTURES
C000110329DB113.G.A.2.3	DEMOLITION PLAN
C000110329DB113.G.A.2.4	MSE WALL
C000110329DB113.G.B	CONSTRUCTION QUALITY ASSURANCE / QUALITY CONTROL
C000110329DB113.G.C	CONSTRUCTION
C000110329DB113.G.C.1	PROJECT GENERAL ITEMS
C000110329DB113.G.C.2	STAGE 1A- EARLY TEMPORARY WORKS
C000110329DB113.G.C.3	STAGE 1B
C000110329DB113.G.C.3.1	AREA 1- NB- STA 296+00 TO 307+00
C000110329DB113.G.C.3.1.1	WATERMAIN
C000110329DB113.G.C.3.2	AREA 2- STA 307+00 TO 326+00
C000110329DB113.G.C.3.2.2	AREA 2- NB
C000110329DB113.G.C.3.2.2.2	ARE 2- NB- SERVICE ROAD #1
C000110329DB113.G.C.3.2.2.1	AREA 2- NB- NOISE BARRIER WALL "D"
C000110329DB113.G.C.3.2.3	AREA 2 - SB
C000110329DB113.G.C.3.2.3.2	AREA 2- SB WATERMAIN
C000110329DB113.G.C.3.2.5	AREA 2-SB- NOISE BARRIER WALL "C1"
C000110329DB113.G.C.3.2.3.6	AREA 2-SB- NOISE BARRIER WALL "C2"
C000110329DB113.G.C.3.2.3.3	AREA 2- SB- MSE WALL "A"
C000110329DB113.G.C.3.3	AREA 3 - STA 326+00 TO 346+00
C000110329DB113.G.C.3.3.1	AREA 3A - SB -STA 326+00 TO 332+00
C000110329DB113.G.C.3.3.2	AREA 3B - SB -STA 332+00 TO 346+00
C000110329DB113.G.C.3.3.8.1	AREA 3-SB- WATERMAIN
C000110329DB113.G.C.3.4	AREA 4 -SB- STA 346+00 TO 360+00
C000110329DB113.G.C.3.4.1	D-612 CULVERT CROSSING
C000110329DB113.G.C.3.4.2	WATERMAIN
C000110329DB113.G.C.3.6	AREA 5--STA 360+00 TO 385+00
C000110329DB113.G.C.3.6.1.1	AREA 5 - NB
C000110329DB113.G.C.3.6.1.2	SWMP AREA
C000110329DB113.G.C.3.6.1.3	AREA 5 NB - SERVICE ROAD # 3
C000110329DB113.G.C.3.6.2	AREA 5- SB
C000110329DB113.G.C.3.6.2.1	AREA 5- SB- WATERMAIN
C000110329DB113.G.C.3.6.2.3	AREA 5- SB- NOISE BARRIER "G"
C000110329DB113.G.C.3.7	AREA 6- STA 385+00 TO 409+30
C000110329DB113.G.C.3.7.1	AREA 6 - NB
C000110329DB113.G.C.3.7.1.1	AREA 6-NB- R-W-3 WALL "E"

## 4.6 Proposal Schedule

WBS Path	WBS Name
C000110329DB113.G.C.3.7.2	AREA 6 - SB
C000110329DB113.G.C.3.8	STRINGFELLOW ROAD
C000110329DB113.G.C.3.9	CLIFTON ROAD
C000110329DB113.G.C.4	STAGE 1C
C000110329DB113.G.C.4.1	AREA 4- NB- STA 346+00 TO 360+00
C000110329DB113.G.C.4.2	AREA 5 - NB-STA 360+00 TO 385+00
C000110329DB113.G.C.5	STAGE 2
C000110329DB113.G.C.5.1	AREA 2- STA 307+00 TO 326+00
C000110329DB113.G.C.5.1.1	AREA 2 - NB
C000110329DB113.G.C.5.1.2	AREA 2 - SB
C000110329DB113.G.C.5.2	AREA 3 - STA 326+00 TO 346+00
C000110329DB113.G.C.5.2.1	AREA 3 - SB
C000110329DB113.G.C.5.2.1.1	AREA 3A- SB- STA 326+00 TO 332+00
C000110329DB113.G.C.5.2.1.2	AREA 3B- SB- STA 332+00 TO 346+00
C000110329DB113.G.C.5.2.3	AREA 3 - NB
C000110329DB113.G.C.5.3	AREA 4- STA 346+00 TO 360+00
C000110329DB113.G.C.5.3.1	AREA 4 -NB
C000110329DB113.G.C.5.3.2	AREA 4 -SB
C000110329DB113.G.C.5.4	AREA 5 - STA 360+00 TO 385+00
C000110329DB113.G.C.5.4.1	AREA 5 - NB
C000110329DB113.G.C.5.4.2	AREA 5 - SB
C000110329DB113.G.C.6	STAGE 3
C000110329DB113.G.C.6.1	AREA 3 - NB- STA 326+00 TO 346+00
C000110329DB113.G.C.6.1.1	AREA 3- NB- SERVICE ROAD # 2
C000110329DB113.G.C.7	PROJECT FINISHES

### Critical Path

The critical path of the Project has been defined as the Longest Path. Following Notice to Proceed, we will progress preliminary design activities needed to identify utility conflicts and hold the UFI Meeting. The critical path then continues through design and construction of Verizon's relocation. Once Verizon's relocation is complete, the critical work in Area 4 in Stages 1B, 1C and Stage 2 will be performed followed by construction of Stage 3 in Area 3. Once this Stage is completed, surface asphalt and the pavement markings will be completed followed by punch list inspections to achieve Final Completion by April 29, 2026. A detailed listing of Critical Path is as follows:

### Schedule Milestones

- Notice of Intent to Award (04/21/2022)
- CTB award
- Design-build contract execution
- Notice to Proceed (06/17/2022)

### Construction Milestones

- Switch traffic to Stage 1C configuration
- Switch traffic to Stage 3 configuration

### Design Phase

#### Preliminary Design - Surveys

- Base mapping and field survey

#### Final Design - Roadway Design

- Set horizontal and vertical geometry
- Roadway drainage design

#### Utility Relocation

- Preliminary utility conflict investigations
- Prepare preliminary Utility Status Report
- VDOT review preliminary Utility Status Report
- Submit preliminary Utility Status Report

#### Verizon

- Hold UFI meeting with Verizon
- Prepare red-line/conceptual relocation design Verizon
- Verizon submits PE Estimate
- Review/approve PE Estimate
- Verizon completes utility design
- Approve utility design
- Verizon perform relocations Area 3 NB-from Station 333+00 to Station 342+00
- Verizon perform relocations Area 4 NB-from Station 345+50 to Station 355+50
- Verizon perform relocations Area 4 SB & 5 SB-from Station 355+50 to Station 373+00

### Construction Phase

#### Stage 1B - Area 4 Southbound Station 346+00 to Station 360+00

- Cut/fill Station 346+00 to Station 360+00 LHS
- Install storm sewer Station 346+00 to Station 360+00 LHS
- Fine grade roadway Station 346+00 to Station 360+00 LHS
- Install UD Station 346+00 to Station 360+00 LHS
- Place 21B stone Station 346+00 to Station 360+00 LHS
- Install CG Station 346+00 to Station 360+00 LHS
- Backup CG Station 346+00 to Station 360+00 LHS
- Install UD Station 346+00 to Station 360+00 RHS
- Install MS-2 Station 346+00 to Station 360+00 RHS
- Place asphalt Station 346+00 to Station 360+00
- 24" DIP W/M "C" Station 0+15 to Station 18+98 (Station 346+75 to Station 356+75 SB LHS)  
Section 2

#### Stage 1C – Area 4 Northbound Station 346+00 to Station 360+00

- Clearing and grubbing Station 351+50 to Station 360+00 RHS
- E&S Controls Station 351+50 TO 360+00 RHS
- Sawcut/demo existing roadway Station 351+50 v360+00 RHS
- Cut/fill Station 351+50 to Station 360+00 RHS
- Construct temporary widening Station 351+50 to Station 360+00 RHS
- Construct temporary crossover from Station 346+50 to Station 351+50 LHS
- Install storm sewer Station 351+50 to Station 360+00 RHS
- Fine grade roadway Station 351+50 to Station 360+00 RHS

## 4.6 Proposal Schedule

- Install UD Station 351+50 TO 360+00 RHS
- Place 21B stone Station 351+50 to Station 360+00 RHS
- Install CG Station 351+50 to Station 360+00 RHS
- Backup curb Station 351+50 to Station 360+00 RHS
- Place asphalt Station 351+50 to Station 360+00 RHS
- Cut/grade/21b/asphalt trail Station 351+50 to Station 360+00 RHS
- Respread topsoil Station 351+50 to Station 360+00 RHS

### Stage 2 – Area 4 Station 346+00 to Station 360+00

- Sawcut/demo existing roadway Station 346+00 to Station 360+00 LHS
- Cut/fill Station 346+00 to 360+00 LHS
- Install storm sewer Station 346+00 to Station 360+00 LHS
- Fine grade roadway Station 346+00 to Station 360+00 LHS
- Install UD Station 346+00 to Station 360+00 LHS
- Place 21B Stone Station 346+00 to Station 360+00 LHS
- Install CG Station 346+00 to Station 360+00 LHS
- Backup CG Station 346+00 to Station 360+00 LHS
- Install UD Station 346+00 to Station 360+00 RHS (Median)
- Install MS-2 Station 346+00 to Station 360+00 RHS (Median)
- Place asphalt Station 346+00 to Station 360+00
- Install MS-1 Station 346+00 to Station 360+00 RHS (Median)
- Backfill MS-2 Median Station 346+00 to Station 360+00 RHS (Median)
- Respread topsoil Station 346+00 tto Station 360+00 RHS/LHS
- Cut/grade/21b/asphalt trail Station 346+00 tto Station 360+00 LHS
- Install guardrail Station 346+00 to Station 360+00 LHS
- Demo/remove temporary widening Station 346+00 to 360+00
- Finish curb & trail from temp widening area

### Stage 3 – Area 4 Northbound Station 326+00 to Station 360+00

- Install construction signage 3-NB
- Set temporary concrete barrier/ MOT devices 3-NB
- Clearing and grubbing Station 326+00 to Station 46+00 RHS
- E&S controls Station 326+00 to Station 346+00 RHS
- Strip topsoil Station 326+00 to Station 346+00 RHS
- Cut/fill Station 326+00 to Station 346+00 RHS
- Install storm sewer Station 326+00 to Station 346+00 RHS
- Fine grade roadway Station 326+00 to Station 346+00 RHS
- Install UD Station 326+00 to Station 346+00 RHS
- Place 21B Stone Station 326+00 to Station 346+00 RHS
- Install cg Station 326+00 to Station 346+00 RHS
- Backup curb Station 326+00 to Station 346+00 RHS
- Place asphalt Station 326+00 to Station 346+00 RHS
- Cut/grade/21b/asphalt trail Station 326+00 TO 346+00 RHS
- Respread topsoil Station 326+00 to Station 346+00 RHS

### Project Finishes

- Surface asphalt and pavement markings Area 1-NB-Station 297+00 to Station 307+00
- Surface asphalt and pavement markings Area 2-NB-Station 307+00 to Station 326+00
- Surface asphalt and pavement markings Area 3-NB-Station 326+00 to Station 346+00

## 4.6 Proposal Schedule

- Surface asphalt and pavement markings Area 4-NB-Station 351+50 to Station 360+00
- Surface asphalt and pavement markings Area 5-NB-Station 360+00 to Station 385+00
- Surface asphalt and pavement markings Area 6-NB-Station 385+00 to Station 399+00
- Surface asphalt and pavement markings Area 6-SB-Station 385+00 to Station 399+00
- Surface asphalt and pavement markings Area 5-SB-Station 360+00 to Station 385+00
- Surface asphalt and pavement markings Area 4-SB-Station 351+50 to Station 360+00
- Surface asphalt and pavement markings Area 3-SB-Station 326+00 to Station 346+00
- Surface asphalt and pavement markings Area 2-SB-Station 307+00 to Station 326+00
- Final surface asphalt completed

### Schedule Milestones

- Punch list inspection
- Address punch list
- Early completion date- final completion date

### Plan to Accomplish the Work/Mean and Methods

The narrative below describes our Team's overall plan and sequence of operations grouped by the Level 1 WBS disciplines. The sequencing of each discipline was developed by considering the construction staging and determining the longest path to Project completion. The sequence was developed to address the full scope of work. We divided the Project into logical and manageable areas that can be tracked and managed by dedicated supervision during design and construction stages.

### Design

The Design Schedule has been broken down into various design packages that will be submitted for approval. These early design packages are as follows:

- MOT Plans
- Design QA/QC Plans
- Survey and Mapping
- Geotechnical Investigations and Reporting

Starting the design early for the above packages ensures that the schedule allows for design development phasing, environmental permit timelines, and critical items to proceed as early as possible. Detailed design submissions necessary to achieve RFC plans have been separated into three stages, allowing 21 calendar days for VDOT and Fairfax County DOT design reviews at interim periods throughout design development. Design stage submissions are as follows:

- 1st Submission: 60% Development
- 2nd Submission: 90% Development
- Final Submission: 100% Final Design

The RFC plans are scheduled to be approved by May 2, 2023 allowing for the early start of construction within existing right-of-way and on areas where VDOT has already acquired right-of-way.

### Environmental Permitting

This section of the schedule includes activities for preliminary environmental studies, hazardous material assessments, and environmental permits, including the joint permit application (JPA) for wetlands and waters and VPDES permits. The JPA will be submitted following 60% comment resolution and is expected to be acquired by June 5, 2023. Separate VPDES permits will be acquired for the early MOT plans and

## 4.6 Proposal Schedule

final roadway plans to allow MOT construction to begin, prior to RFC plan approval, on March 7, 2023. The overall VPDES permit will be acquired on May 8, 2023 following RFC plan approval.

### Public Involvement/Public Relations

The public involvement schedule includes submitting our Emergency Contact List, meeting with District Public Affairs and holding public outreach meetings at the start of the construction phase. The schedule includes a major milestone activity for the Public Information Meeting before the start of construction. However, there are many other public involvement activities that our Team will perform including meeting with affected stakeholders and weekly lane closure notices. We will also maintain a log and database of issues, questions and comments received from stakeholders and the public.

### Right-of-Way Acquisition

VDOT will acquire right-of-way and easements from 23 parcels by December 31, 2022, and we have sequenced schedule activities to take advantage of this early acquisition date. Parcels acquired by our Team are further sequenced into Priority 1 and 2 parcels to ensure critical utility relocations and early stage construction activities can proceed on schedule. Priority 1 acquisitions will begin immediately following right-of-way plan approval and all acquisitions are scheduled to be completed February 5, 2024.

### Utility Relocations

To organize and monitor the utility coordination and relocation process, our Team has grouped each utility in our schedule by owner as follows:

- Fairfax Department of Public Works
- Fairfax Water
- Dominion Energy Virginia
- Colonial Pipeline
- Plantation Pipeline
- Summit IG
- Verizon
- Fiberlight
- Shentel
- Cox Communications
- MCI
- AT&T long Distance
- ZAYO
- Washington Gas

Within each utility owner group, we have included activities for holding the Utility Field Investigation (UFI) meeting, the preparation of the relocation design, the preparation of the Plan and Estimates (P&E), and approval of the P&E.

Although our Team has already met with each individual utility company to discuss the proposed relocations and prior rights, the utility relocation schedule starts with formal coordination meetings upon NTP. Initial utility designations and test pits will be an early focus to enable our Team to confirm and adjust our list of utility conflicts based on the preliminary field surveys prior to holding the formal UFI meeting with each utility owner. The utility relocations are anticipated to be completed in each location prior to construction operations to avoid conflicts and potential for delays.

### Preconstruction, Submittals & Procurement

Key activities such as mobilization, submittals, subcontractor and major material/structures procurement, shop drawings, and fabrication procurement activities have been included in the schedule and linked with the relevant design and construction packages.

### Quality Assurance and Quality Control

In a separate WBS group, the Team has identified the QA/QC activities for the Project. These include the submission and approval of the QA/QC plan and the Preparatory Meetings that are required prior to

# 4.6 Proposal Schedule

commencing with construction activities. The overall Level of Effort for the QA/QC process is represented by a bar spanning all construction activities.

## Construction Sequence

Our Team’s overall approach to construction phasing is divided into three major stages and several sub-stages. This allows our Team to maintain all existing lanes of traffic and minimize impacts to the traveling public while providing access for construction in a logical sequence within each area. The phasing and general sequence of activities to complete the work is depicted in plan view on Exhibits 4.6.2.1 and 4.6.2.2 and described as follows:

### Stage 1A

#### Areas 2-5

Stage 1A, shown in Figure 4.6.2.1, includes temporary widening to the median to provide room to shift traffic for future stages. During this Stage the existing travel lanes will be maintained in their current alignment throughout the corridor.

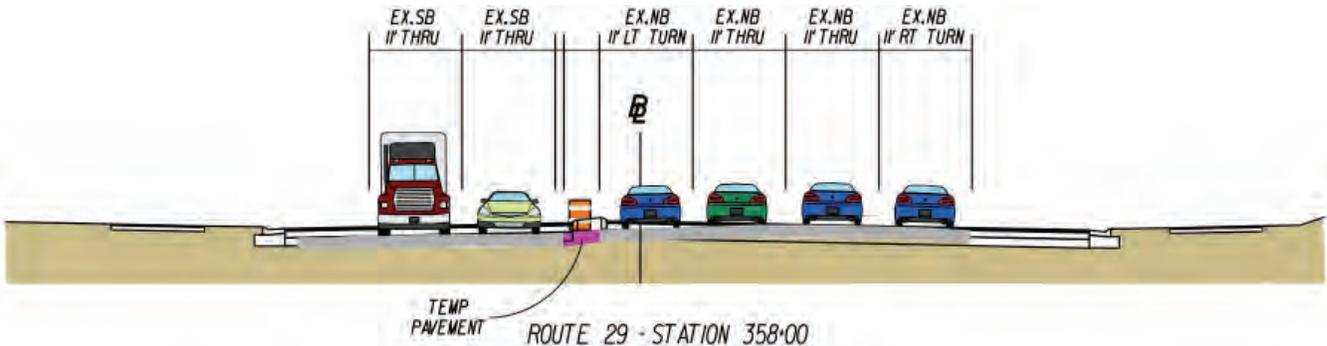


Figure 4.6.2.1 - Stage 1A Areas 2-5

With no right-of-way or utility constraints, this work will begin upon plan approval during off-peak lane closures. Because this work is to the existing median, no modifications to signals are necessary and all existing equipment will be maintained. Once complete, southbound traffic will be shifted onto this temporary work to facilitate Stage 1B construction.

### Stage 1B

#### Areas 1 & 2 and 5 & 6 Outside Widening

Stage 1B begins after the shifting of southbound traffic to the temporary widening in Stage 1A. All northbound traffic will be maintained in its current alignment in this Stage. No temporary signalization is required due to traffic shifts in this Stage.

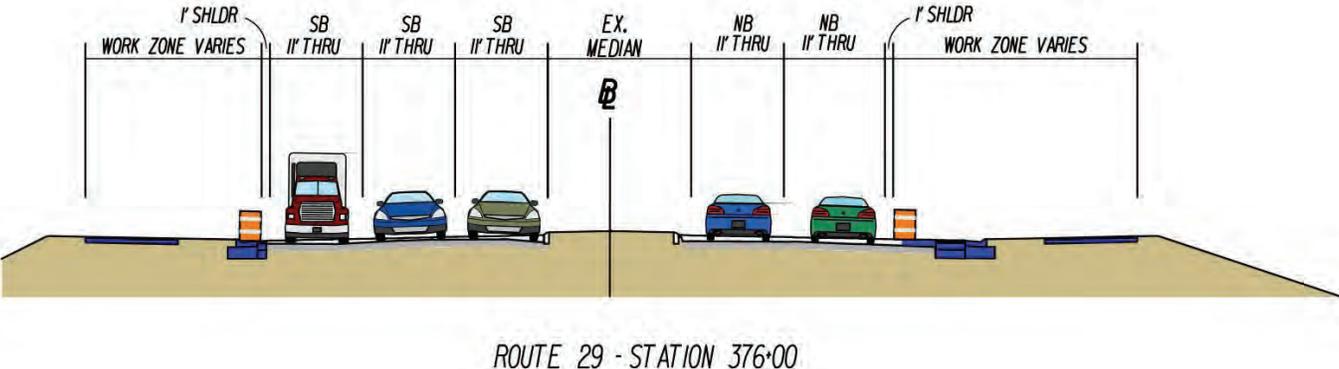


Figure 4.6.2.2 - Stage 1B Areas 1 & 2 and 5 & 6

## 4.6 Proposal Schedule

As shown in Figure 4.6.2.2, outside widening work will occur in Areas 1, 2, 5 and 6 in this Stage. The entirety of Areas 1 and 2 will have right-of-way acquired early by VDOT, which will allow for Dominion's Phase 1 overhead relocation to begin upon utility plan approval. Once the overhead lines are relocated, storm drainage, Noise Barrier D, and widening activities will be completed.

The right-of-way in Areas 5 and 6 will be acquired by our Team allowing for Dominion's Phase 2 overhead relocation to begin immediately following Phase 1 relocation discussed above. Following utility relocations, storm sewer, roadway widening, overhead signage, as well as the Stormwater Pond construction will be completed. In Area 6, Washington Gas relocations are required prior to construction of Retaining Wall E. This work is prioritized to allow our Team to construct the shared use path and deliver **Unique Milestone 2** - Area 6 Trail Connection by May 21, 2024 providing early beneficial use of pedestrian facilities between Summit Point and the Fairfax County Parkway.

Right-of-way constraints and required utility relocations limit our ability to work early along the Southbound lanes in Area 5. Our schedule assumes retaining wall demolition, roadway widening, and Noise Barrier G construction will occur following the completion of utility relocations. This approach allows for natural crew flow from Northbound widening construction to work in this area and limits the overall duration of impact on adjacent properties.

### **Stringfellow Road and Clifton Road**

There are short segments of construction along Stringfellow Road and Clifton Road which extend the existing left turn lanes onto Route 29. With traffic in the existing location and during off-peak lane closures, our Team will complete the demolition of the existing medians, storm sewer, and pavement section work required to complete these areas. A Team priority is to facilitate early operational improvements of this signal and our Team is committed to complete **Unique Milestone 1** by November 3, 2023.

### **Areas 2-5 Southbound Outside Widening**

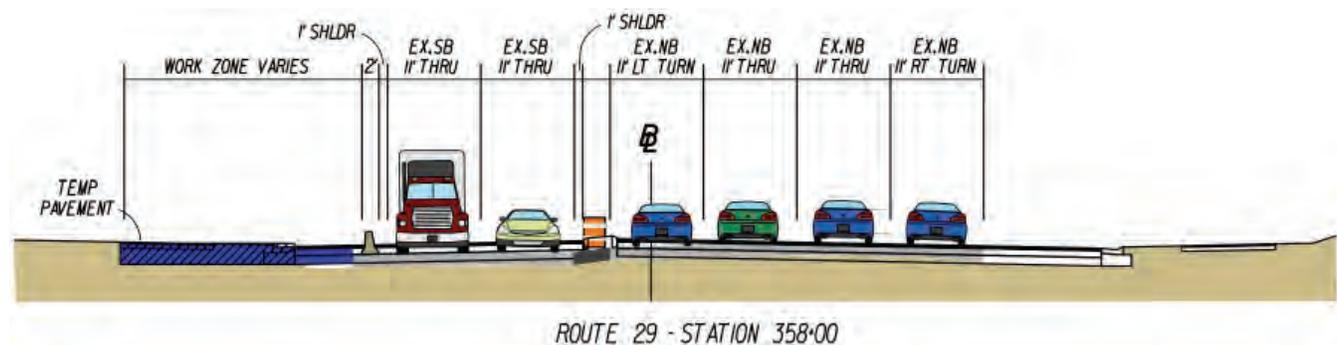


Figure 4.6.2.3 - Stage 1B Areas 2-5

As shown in Figure 4.6.2.3, with traffic shifted onto Stage 1A's temporary widening, barrier will be placed on the outside shoulder along the southbound lanes. The existing signals will remain throughout this Stage, which allows for the existing CCTV camera at the Stringfellow Road/Clifton Road intersection to be maintained.

Stage 1B focuses on constructing significant portions of the proposed southbound lanes. Stripping of topsoil and regular excavation will be prioritized in areas of future watermain and sanitary sewer relocation early to allow for these relocations to get underway.

The advanced right-of-way acquired by VDOT in Area 3 allows our Team to start immediately after plan approval. While Area 2 requires right-of-way to be acquired by our Team, significant portions of

## 4.6 Proposal Schedule

grading, watermain relocations, storm sewer, overhead utility adjustments, and other features of work can be completed within existing right-of-way. Working in these Areas early limits the amount of work required after right-of-way is acquired and therefore sets our Team up to open portions of the southbound lanes in Area 2 and 3 upon completion of Stage 2.

Area 4 includes the challenging triple 84" storm crossing to convey Willow Springs Branch across Route 29. Upon plan approval, utility relocations will be prioritized to allow for the temporary 16" watermain relocation required to install this culvert as well as remove the communication duct bank conflict with the proposed culvert. After utilities are relocated, out of traffic culvert construction will occur adjacent to the southbound lanes. A series of weekend detours utilizing Braddock Road will be utilized to install this crossing across active lanes of Route 29. This detour minimizes the overall lane closure requirements to construct this crossing under active traffic, and months of work can be minimized to three to four weekends. Concurrent to the culvert work, during regular week day shifts, southbound widening construction will occur. After completion of the culvert, and the start of fill placement, the proposed 24" watermain will be installed and phased demolition of the existing bridge will be completed. During this Stage, pedestrian traffic will be safely routed away from the work area via the temporary Willow Pond Trail detour to ensure pedestrian safety while still maintaining all access points through the corridor.

Area 4 also includes temporary pavement widening in the shared use path area to facilitate maintenance of traffic in future stages. After completion of the southbound widening in Areas 2, 3, and 4, southbound traffic will be shifted to the north on the newly constructed pavement to provide room for Stage 1C maintenance of traffic.

### Stage 1C

#### Areas 4 and 5 Northbound Widening

Stage 1C begins by shifting northbound traffic to the north into the area vacated by the southbound traffic shift at the end of Stage 1B in Areas 4 and 5, as shown in Figure 4.6.2.4. This opens up a work area along the outside of the northbound lanes for permanent construction in this Stage. Temporary signalization is provided at the Hampton Forest Way/Meadow Estates Drive intersection to accommodate the lane shifts in both the northbound and southbound direction.

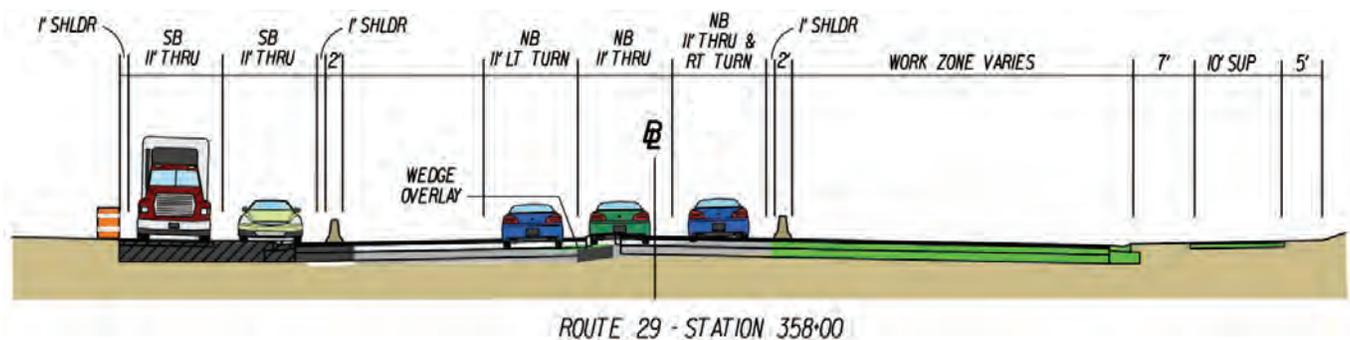


Figure 4.6.2.4 - Stage 1C Areas 4 & 5

With northbound traffic shifted to the north, room is created for demolition and reconstruction of the existing northbound pavement in Areas 4 and 5. Barrier will be placed at the right shoulder to allow storm sewer, grading, full depth pavement section and pedestrian facilities to be completed. At the completion of Stage 1C, northbound traffic will be shifted to the south, opening up the entirety of Stage 2 for construction in the median.

# 4.6 Proposal Schedule

## Stage 2 Areas 2-5

Stages 1B and 1C shifted traffic northbound and southbound to the outside to facilitate median construction in Stage 2. Signalization for this phase will be accommodated through a combination of temporary and proposed signal poles.

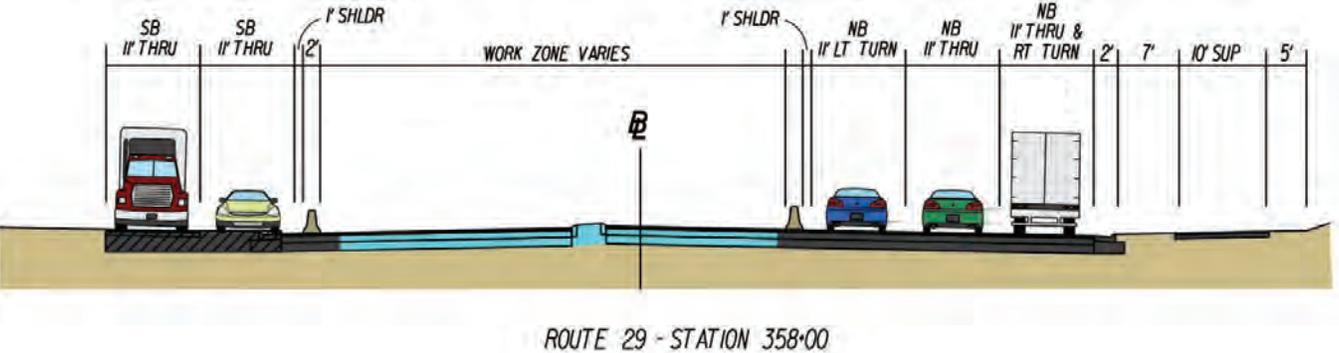


Figure 4.6.2.5 - Stage 2 Areas 2-5

With traffic shifted to the outside for both northbound and southbound lanes as shown Figure 4.6.2.5, Stage 2 will be constructed in the median behind barrier on both sides. Storm sewer, and the left lane in both the northbound and southbound directions will be completed as well as MS-1 and MS-2 medians. In Area 3 the MS-1 median will be left out to allow room for maintenance of traffic in Stage 3. At the east end of Area 5 where three southbound lanes are maintained, median construction will occur behind barrels in off-peak lane closures.

Our Team's early focus in this Stage will be in Areas 2 and 3. Once Area 2 and the portion of Area 3 approaching the Stringfellow Road/Clifton Road intersection are complete, three southbound lanes from Route 29 Station 330+00 to the western limits of the Project will be opened to the traveling public. Opening the third southbound lane East of the Stringfellow Road/Clifton Road intersection provides early operational benefits at this signal, relieving the worst bottleneck in the corridor during the afternoon rush. This **Unique Milestone 3** will be delivered by August 28, 2024.

At the completion of Stage 2, southbound traffic east of Station 330+00 will be shifted toward the median to provide room to demolish the temporary pavement in Area 4 and complete the shared use path. Northbound lanes will be shifted to the north in Areas 3 and 4 on the newly constructed left and center lanes.

## Stage 3 Areas 2-4

With northbound and southbound traffic shifted toward the median, the eastern portion of Area 2 and Areas 3 and 4, outside widening, service roads, and shared use paths can be completed in this Stage.

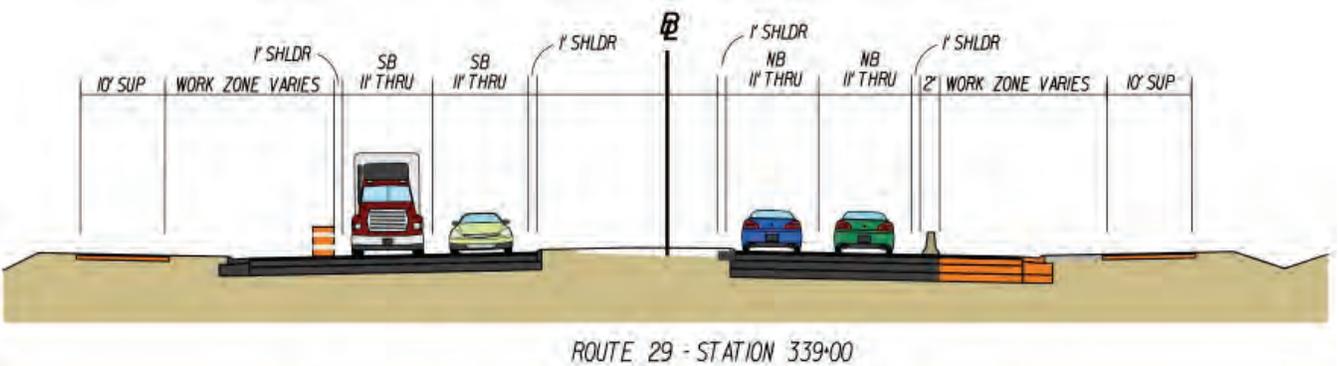


Figure 4.6.2.6 - Stage 3 Areas 2-4

## 4.6 Proposal Schedule

As shown in Figure 4.6.2.6, barrier will be placed on the outside of the northbound lanes. This allows for construction of storm sewer, grading, pavement section, and Service Roads 1 and 2. Along the southbound lanes we will demolish temporary pavement constructed in Stage 1B to allow completion of outside curb and gutter and shared use path. Once the northbound right lane is complete in Area 3, the remaining MS-1 not completed in Stage 2 will be constructed.

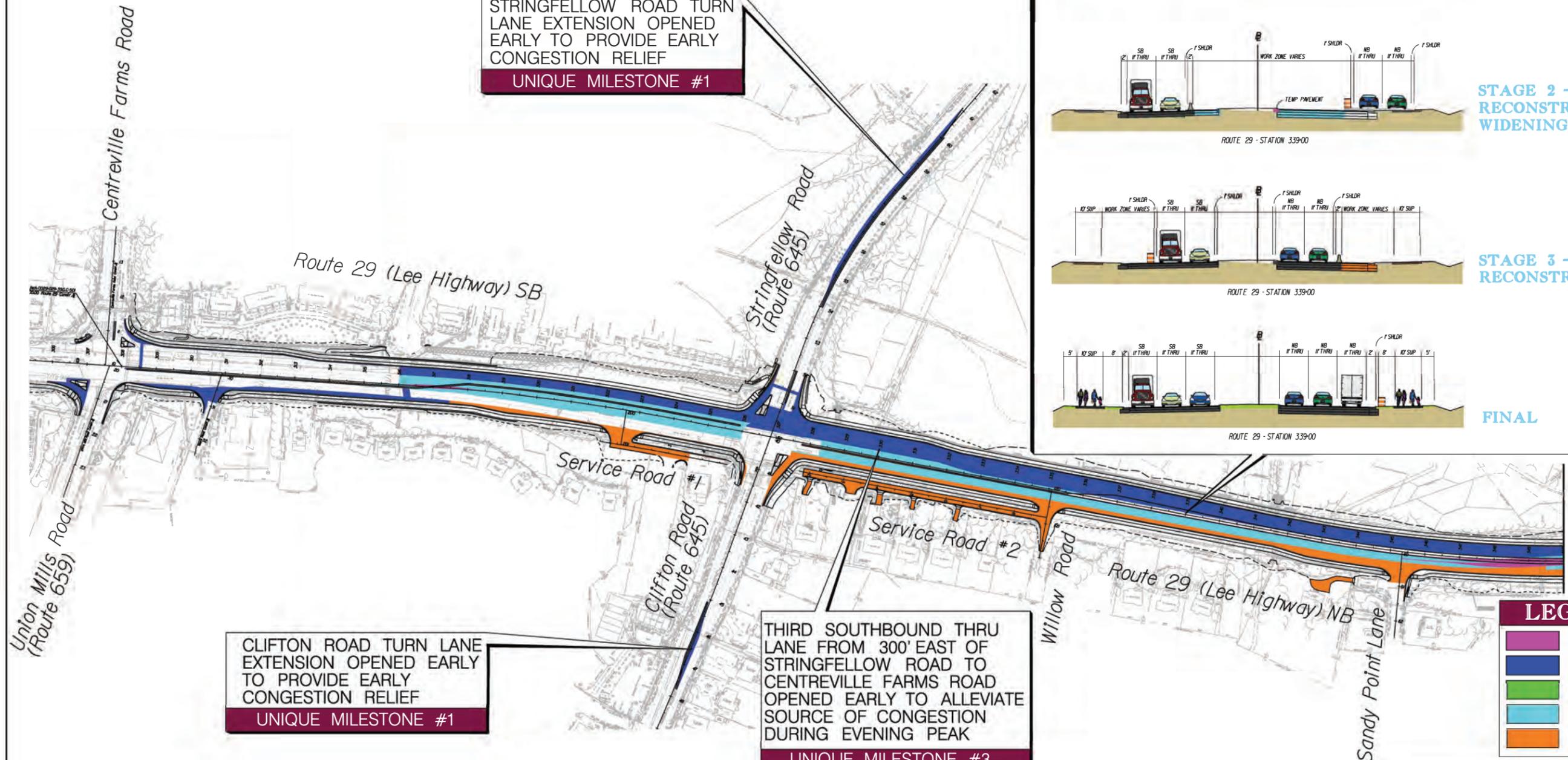
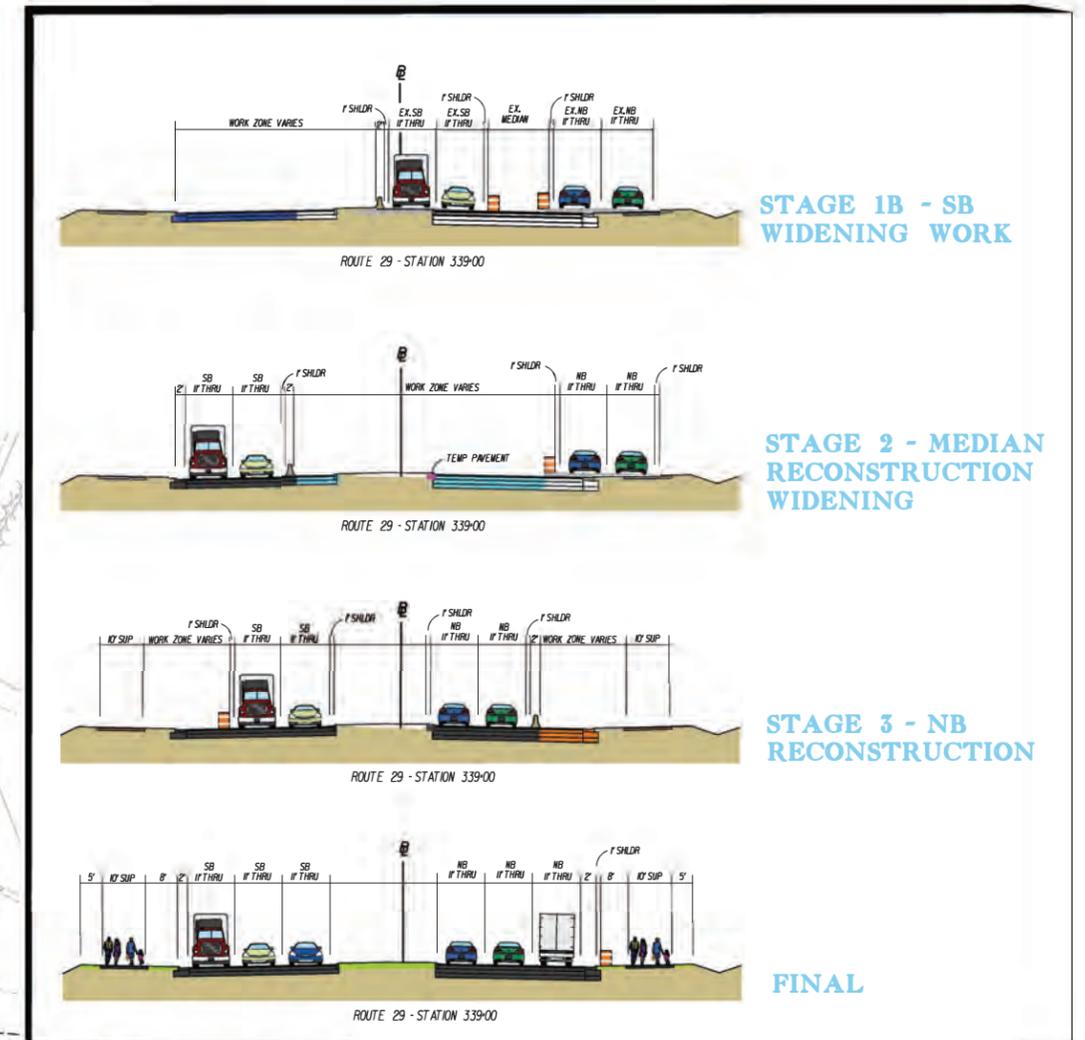
### Other Key Assumptions

- VDOT will review and approve Early Work packages as described.
- VDOT will acquire right-of-way and easements from 23 parcels by December 31, 2022.
- Environmental Permitting agencies will accept VDOT's avoidance and minimization efforts taken during the RFP phase as sufficient to process permits without delay.
- There are no hazardous materials, threatened or endangered species, or unforeseen environmental constraints, other than those in the RFP, that could delay the Schedule.
- Crews are based on 8-hour workday and 5-day workday calendar. A detailed description of the calendars is included in this narrative.
- Generally, the schedule has been built with work in certain areas of the Project starting when access is available (either via work availability, property rights, or utility access) and /or at the completion of a prior stage of work. We have provided some crew flow predecessor relationship in several locations throughout the schedule mainly where adjacent work is available and crew flow is logical as to not 'stack' too many work areas on top of each other.
- Utility companies will complete their work in accordance with the Project Schedule.
- There are no unforeseen utility conflicts that could impact the Project Schedule.
- No environmental noise permit is required for any area of the Project.
- Night-time work restrictions will not be imposed other than as described in the RFP.

# EXHIBIT 4.6.2.1

STATE	ROUTE	STATE	PROJECT	SHEET NO.
VA.	29		0029-029-350 RW-201 C-501	1

## EAST OF STRINGFELLOW RD./CLIFTON RD.



STRINGFELLOW ROAD TURN LANE EXTENSION OPENED EARLY TO PROVIDE EARLY CONGESTION RELIEF  
**UNIQUE MILESTONE #1**

CLIFTON ROAD TURN LANE EXTENSION OPENED EARLY TO PROVIDE EARLY CONGESTION RELIEF  
**UNIQUE MILESTONE #1**

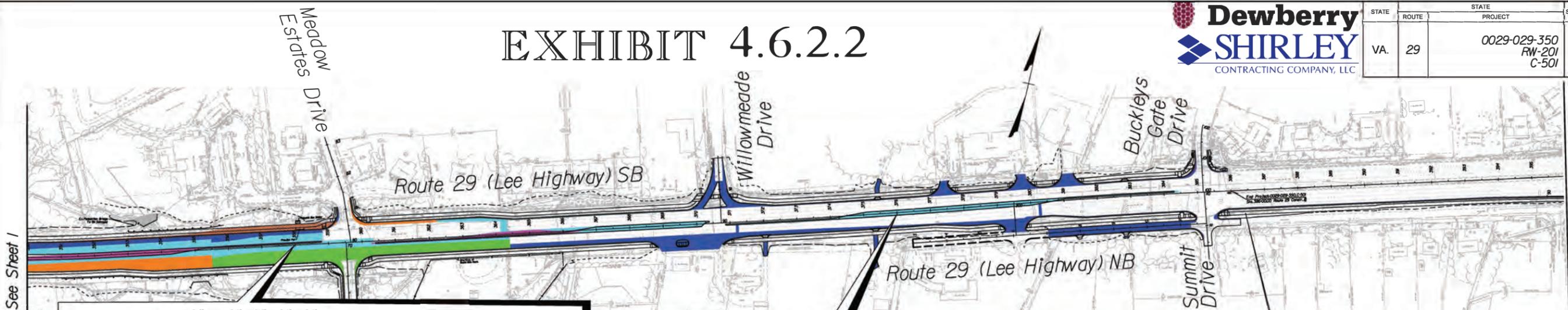
THIRD SOUTHBOUND THRU LANE FROM 300' EAST OF STRINGFELLOW ROAD TO CENTREVILLE FARMS ROAD OPENED EARLY TO ALLEVIATE SOURCE OF CONGESTION DURING EVENING PEAK  
**UNIQUE MILESTONE #3**

LEGEND	
<span style="display:inline-block; width:15px; height:10px; background-color:purple;"></span>	Denotes Stage 1A
<span style="display:inline-block; width:15px; height:10px; background-color:blue;"></span>	Denotes Stage 1B
<span style="display:inline-block; width:15px; height:10px; background-color:green;"></span>	Denotes Stage 1C
<span style="display:inline-block; width:15px; height:10px; background-color:cyan;"></span>	Denotes Stage 2
<span style="display:inline-block; width:15px; height:10px; background-color:orange;"></span>	Denotes Stage 3

Match Line - Sta. 350+00 - See Sheet 2

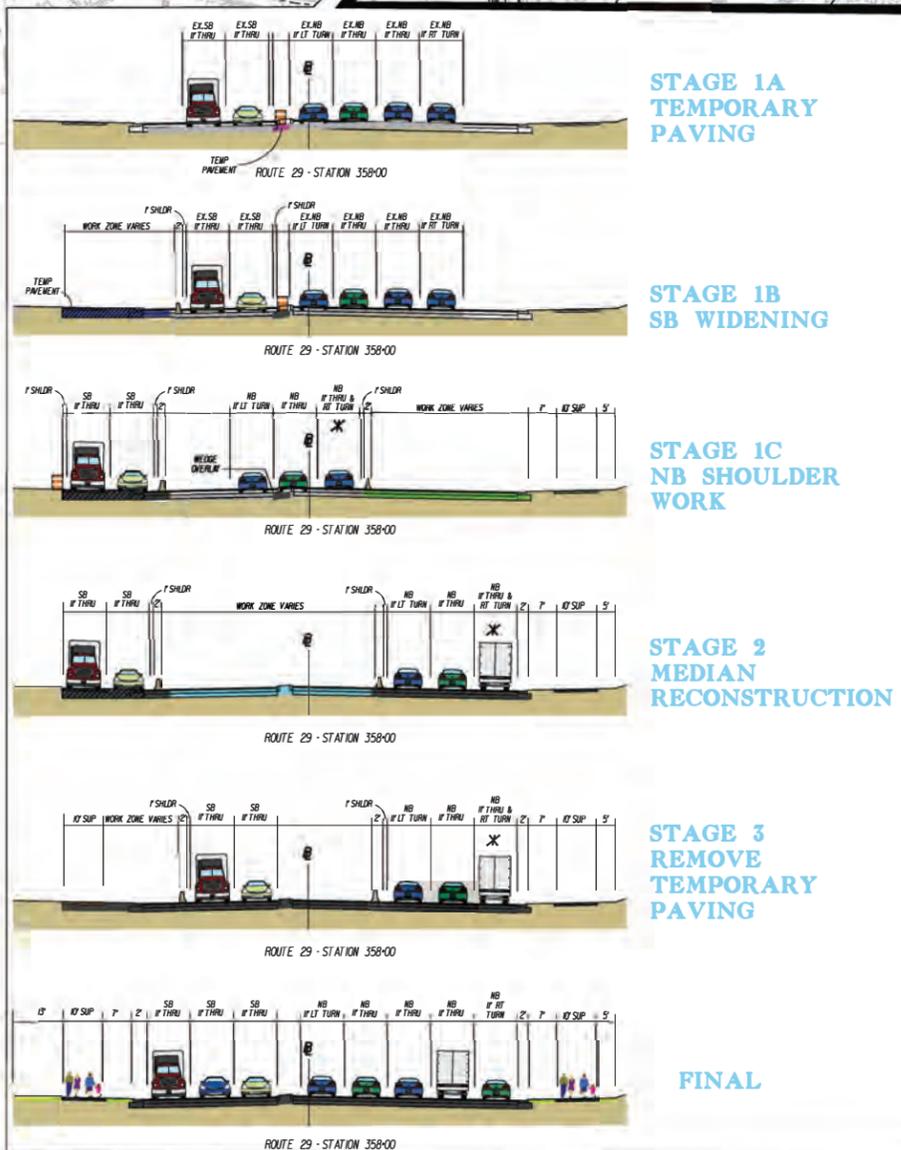
# EXHIBIT 4.6.2.2

STATE	ROUTE	STATE	PROJECT	SHEET NO.
VA.	29		0029-029-350 RW-201 C-501	2

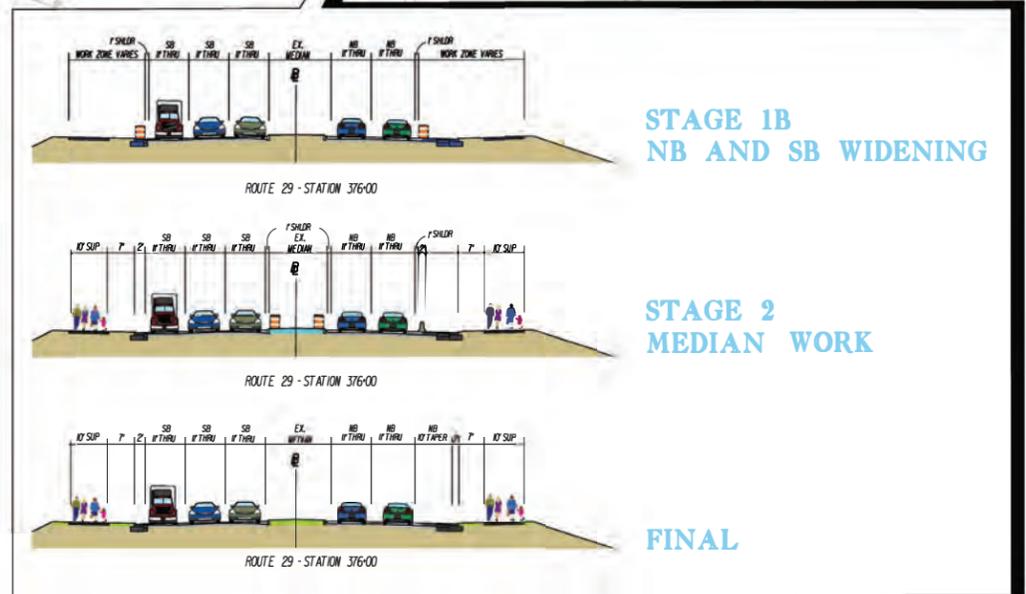


Match Line - Sta. 350+00 - See Sheet 1

Match Line - Sta. 396+00 - See Inset



WEST OF MEADOW ESTATES DR/HAMPTON FOREST WAY

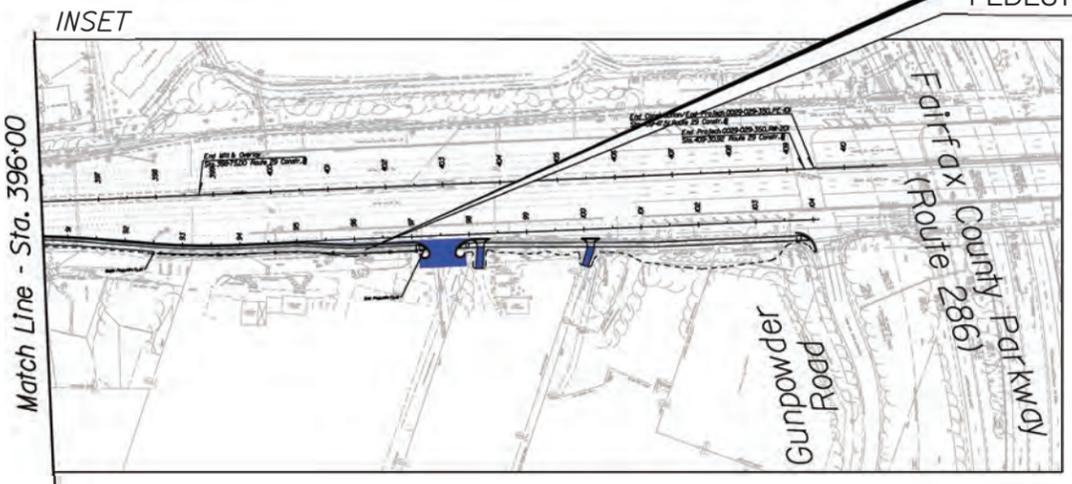


EAST OF MEADOW ESTATES DR/HAMPTON FOREST WAY

\* NOTE: EITHER COMBINED THRU / RIGHT TURN LANE OR DEDICATED RIGHT TURN LANE TO BE PROVIDED UTILIZING SUB-STAGING OF WORK, TO BE ASSESSED WITH TMP DEVELOPMENT DURING FINAL DESIGN

**UNIQUE MILESTONE #2**  
OPEN SHARED USE PATH FROM BUCKLEYS GATE DRIVE / SUMMIT DRIVE TO GUNPOWDER ROAD, PROVIDING EARLY SAFETY IMPROVEMENTS FOR PEDESTRIAN TRAFFIC.

**UNIQUE MILESTONE #2**  
OPEN SHARED USE PATH FROM BUCKLEYS GATE DRIVE / SUMMIT DRIVE TO GUNPOWDER ROAD, PROVIDING EARLY SAFETY IMPROVEMENTS FOR PEDESTRIAN TRAFFIC.

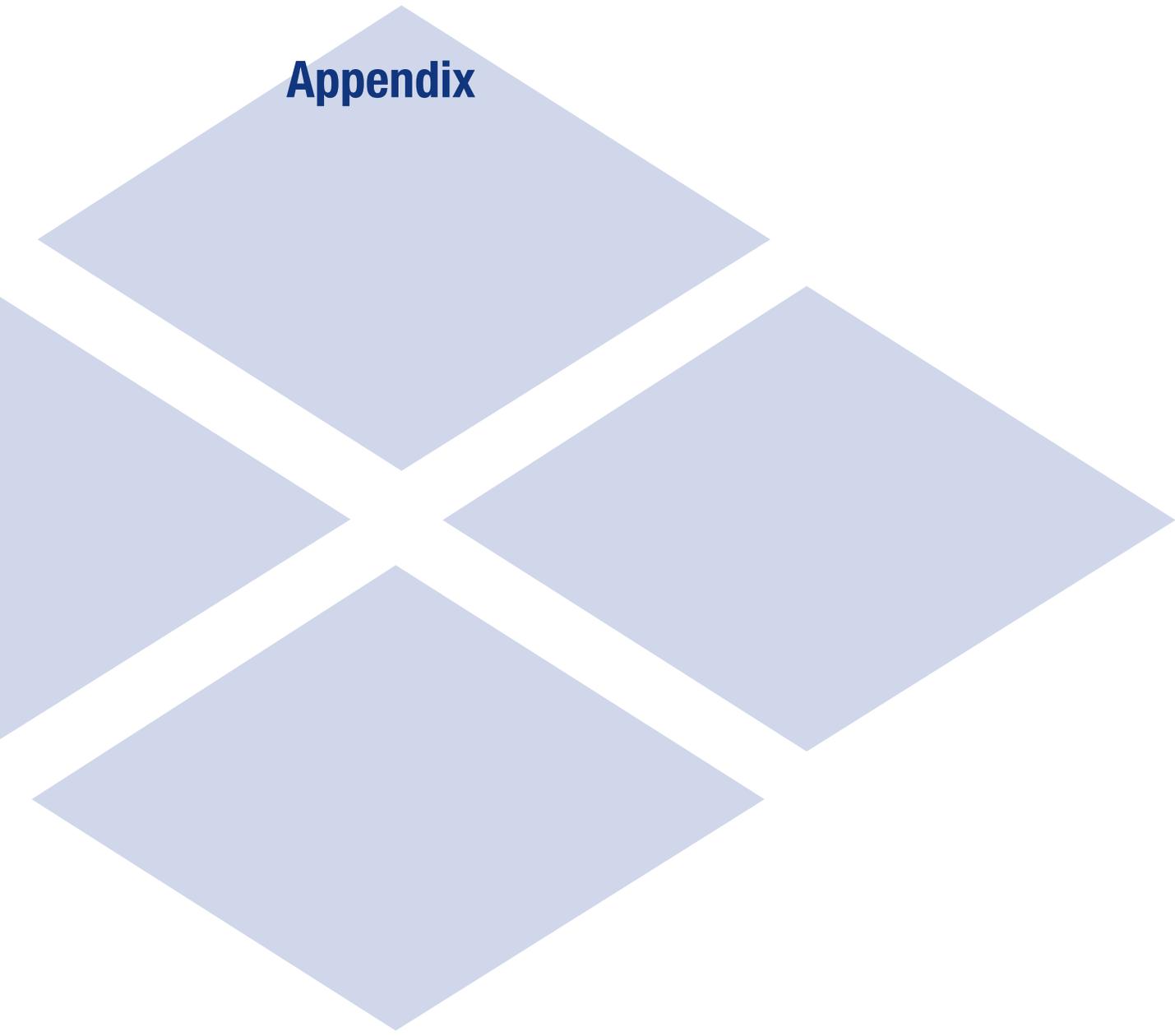


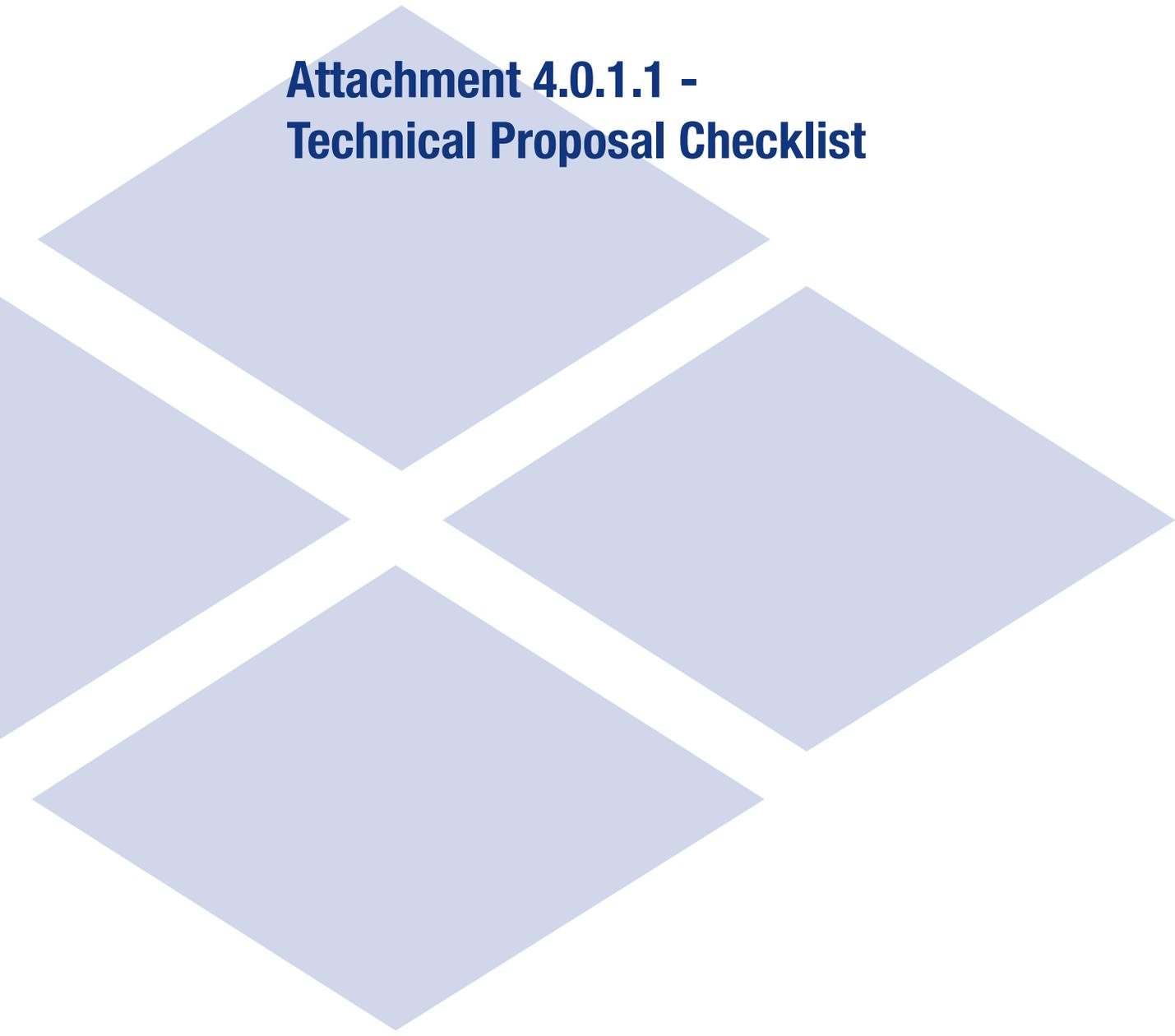
Match Line - Sta. 396+00

**LEGEND**

- Denotes Stage 1A
- Denotes Stage 1B
- Denotes Stage 1C
- Denotes Stage 2
- Denotes Stage 3

# Appendix





**Attachment 4.0.1.1 -  
Technical Proposal Checklist**

**ATTACHMENT 4.0.1.1**  
**Route 29 Widening Phase II**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Offerors shall furnish a copy of this Technical Proposal Checklist, with the page references added, with the Technical Proposal.

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Technical Proposal Checklist and Contents</b>	Attachment 4.0.1.1	Section 4.0.1.1	no	Appendix
<b>Acknowledgement of RFP, Revisions, and/or Addenda</b>	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Appendix
<b>Letter of Submittal</b>	NA	Sections 4.1		1
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	1
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	1
Authorized representative's original signature	NA	Section 4.1.1	yes	1
Declaration of intent	NA	Section 4.1.2	yes	1
120 day declaration	NA	Section 4.1.3	yes	1
Point of Contact information	NA	Section 4.1.4	yes	1
Principal Officer information	NA	Section 4.1.5	yes	1
Final Completion Date	NA	Section 4.1.6	yes	1
Any Unique Milestone dates introduced by the Offeror	NA	Section 4.1.7	yes	1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.8	no	Appendix
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.9	no	Appendix
Written statement of percent DBE participation	NA	Section 4.1.10	no	1

**ATTACHMENT 4.0.1.1**

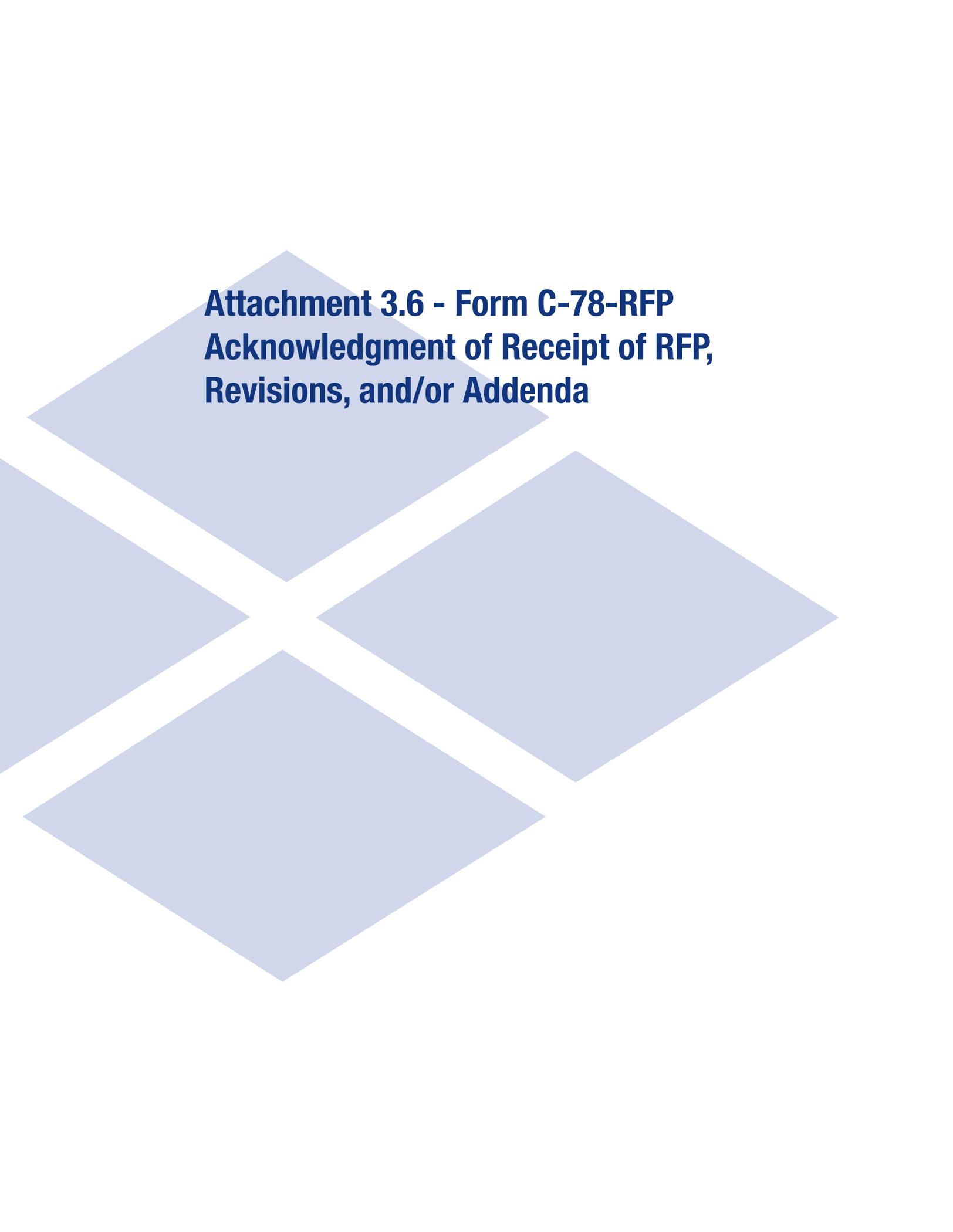
**Route 29 Widening Phase II**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
Confirmation on commercial and professional registration requirements	NA	Section 4.1.11	no	1
<b>Offeror's Qualifications</b>	NA	Section 4.2		2
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT	NA	Section 4.2.1	yes	2
Organizational chart with any updates since the SOQ submittal clearly identifying the changes	NA	Section 4.2.1	yes	3
Organizational chart shall identify the names of the individuals selected for the positions of Deputy Key Personnel (if applicable).	NA	Section 4.2.1	yes	3
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.1	yes	NA
<b>Design Concept</b>	NA	Section 4.3		5-17
Conceptual Roadway Plans and description	NA	Section 4.3	yes	7-17, 51-65
<b>Project Approach</b>	NA	Section 4.4		18-34
Environmental Management	NA	Section 4.4.1	yes	18-23
Utilities	NA	Section 4.4.2	yes	23-28

**ATTACHMENT 4.0.1.1**  
**Route 29 Widening Phase II**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
Geotechnical	NA	Section 4.4.3	yes	28-30
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	30-34
<b>Construction of Project</b>	NA	Section 4.5		35-50
Sequence of Construction	NA	Section 4.5.1	yes	35-41
Transportation Management Plan	NA	Section 4.5.2	yes	41-50
<b>Proposal Schedule</b>	NA	Section 4.6		
Proposal Schedule	NA	Section 4.6	no	Volume II
Proposal Schedule Narrative	NA	Section 4.6	no	NA
Proposal Schedule in electronic format	NA	Section 4.6	no	NA



**Attachment 3.6 - Form C-78-RFP  
Acknowledgment of Receipt of RFP,  
Revisions, and/or Addenda**

**ATTACHMENT 3.6**

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**

RFP NO. C00110329DB113

PROJECT NO.: 0029-029-350

**ACKNOWLEDGEMENT OF RFP, REVISION AND/OR ADDENDA**

Acknowledgement shall be made of receipt of the Request for Proposals (RFP) and/or any and all revisions and/or addenda pertaining to the above designated project which are issued by the Department prior to the Letter of Submittal submission date shown herein. Failure to include this acknowledgement in the Letter of Submittal may result in the rejection of your proposal.

By signing this Attachment 3.6, the Offeror acknowledges receipt of the RFP and/or following revisions and/or addenda to the RFP for the above designated project which were issued under cover letter(s) of the date(s) shown hereon:

1. Cover letter of RFP – November 16, 2021  
(Date)

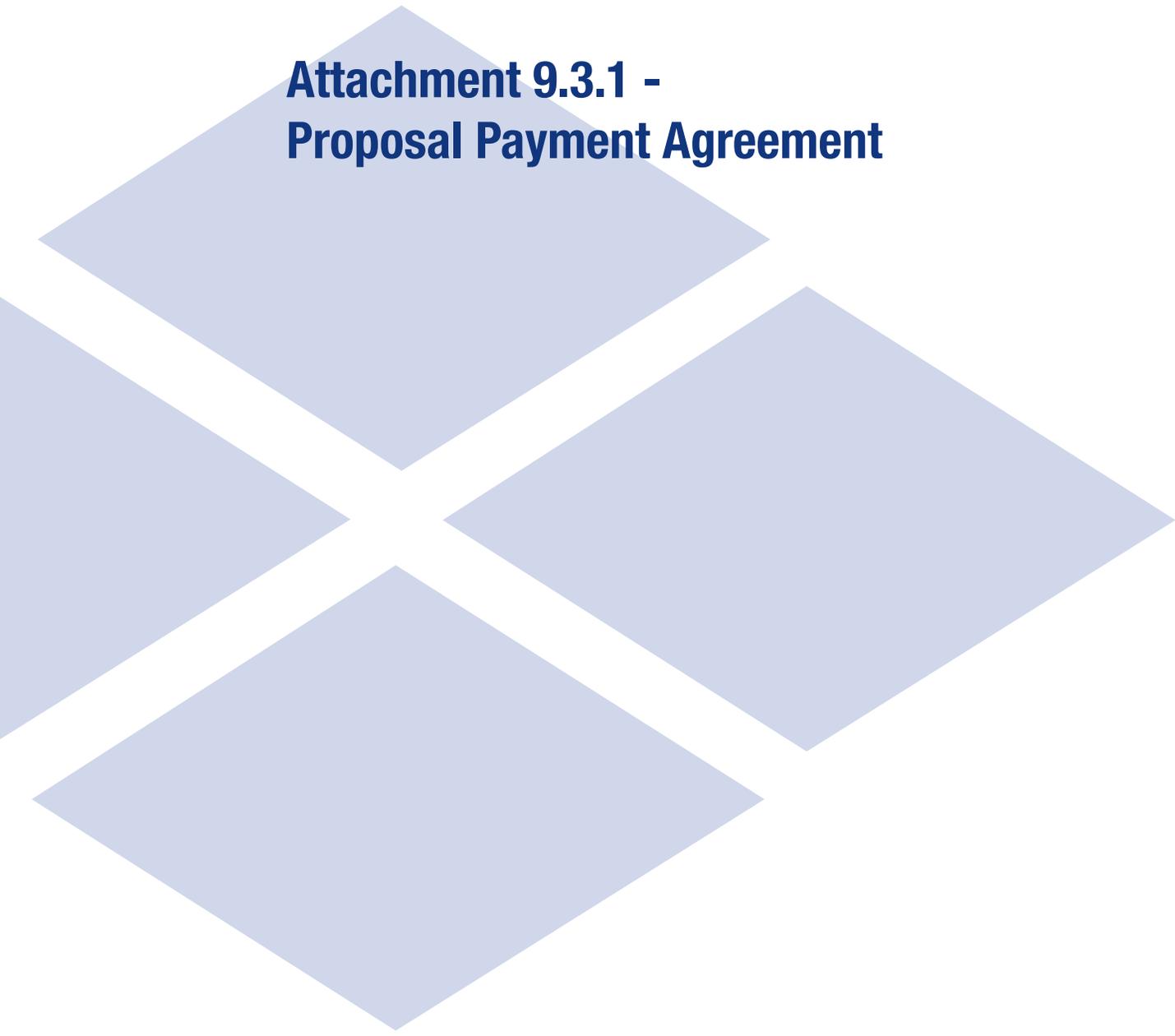
2. Cover letter of RFP Addendum No. 1 – February 14, 2022  
(Date)

3. Cover letter of RFP Addendum No. 2 – March 2, 2022

4. Cover letter of RFP Addendum No. 3 – March 4, 2022  
(Date)

  
\_\_\_\_\_  
SIGNATURE March 9, 2022  
DATE

Garry A. Palleschi Vice President  
PRINTED NAME TITLE



**Attachment 9.3.1 -  
Proposal Payment Agreement**

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**ATTACHMENT 9.3.1**  
**PROPOSAL PAYMENT AGREEMENT**

**THIS PROPOSAL PAYMENT AGREEMENT** (this “Agreement”) is made and entered into as of this \_\_\_\_ day of \_\_\_\_\_, 2022, by and between the Virginia Department of Transportation (“VDOT”), and Shirley Contracting Company, LLC (“Offeror”).

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s July 27, 2021 Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **Route 29 Widening Phase II, Project No. 0029-029-350, P101, R201, C501, D612** (“Project”), under a design-build contract with VDOT (“Design-Build Contract”); and

**WHEREAS**, as part of the procurement process for the Project, Offeror has already provided and/or furnished to VDOT, and may continue to provide and/or furnish to VDOT, certain intellectual property, materials, information and ideas, including, but not limited to, such matters that are: (a) conveyed verbally and in writing during proprietary meetings or interviews; and (b) contained in, related to or associated with Offeror’s proposal, including, but not limited to, written correspondence, designs, drawings, plans, exhibits, photographs, reports, printed material, tapes, electronic disks, or other graphic and visual aids (collectively “Offeror’s Intellectual Property”); and

**WHEREAS**, VDOT is willing to provide a payment to Offeror, subject to the express conditions stated in this Agreement, to obtain certain rights in Offeror’s Intellectual Property, provided that Offeror submits a proposal that VDOT determines to be responsive to the RFP (“Offeror’s Proposal”), and either (a) Offeror is not awarded the Design-Build Contract; or (b) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror; and

**WHEREAS**, Offeror wishes to receive the payment offered by VDOT, in exchange for granting VDOT the rights set forth in this Agreement.

**NOW, THEREFORE**, in consideration of the mutual covenants and agreements set forth in this Agreement and other good and valuable consideration, the receipt and adequacy of which are acknowledged by the parties, the parties agree as follows:

**1. VDOT's Rights in Offeror's Intellectual Property.** Offeror hereby conveys to VDOT all rights, title and interest, free and clear of all liens, claims and encumbrances, in Offeror's Intellectual Property, which includes, without restriction or limitation, the right of VDOT, and anyone contracting with VDOT, to incorporate any ideas or information from Offeror's Intellectual Property into: (a) the Design-Build Contract and the Project; (b) any other contract awarded in reference to the Project; or (c) any subsequent procurement by VDOT. In receiving all rights, title and interest in Offeror's Intellectual Property, VDOT is deemed to own all intellectual property rights, copyrights, patents, trade secrets, trademarks, and service marks in Offeror's Intellectual Property, and Offeror agrees that it shall, at the request of VDOT, execute all papers and perform all other acts that may be necessary to ensure that VDOT's rights, title and interest in Offeror's Intellectual Property are protected. The rights conferred herein to VDOT include, without limitation, VDOT's ability to use Offeror's Intellectual Property without the obligation to notify or seek permission from Offeror.

**2. Exclusions from Offeror's Intellectual Property.** Notwithstanding Section 1 above, it is understood and agreed that Offeror's Intellectual Property is not intended to include, and Offeror does not convey any rights to, the Escrow Proposal Documents submitted by Offeror in accordance with the RFP.

**3. Proposal Payment.** VDOT agrees to pay Offeror the lump sum amount of **Seventy five thousand and 00/100 Dollars (\$75,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

**4. Payment Due Date.** Subject to the conditions set forth in this Agreement, VDOT will make payment of the Proposal Payment to the Offeror within forty-five (45) days after the later of: (a) notice from VDOT that it has awarded the Design-Build Contract to another Offeror; or (b) notice from VDOT that the procurement for the Project has been cancelled and that there will be no Contract Award.

**5. Effective Date of this Agreement.** The rights and obligations of VDOT and Offeror under this Agreement, including VDOT's ownership rights in Offeror's Intellectual Property, vests upon the date that Offeror's Proposal is submitted to VDOT. Notwithstanding the above, if Offeror's Proposal is determined by VDOT, in its sole discretion, to be nonresponsive to the RFP, then Offeror is deemed to have waived its right to obtain the Proposal Payment, and VDOT shall have no obligations under this Agreement.

**6. Indemnity.** Subject to the limitation contained below, Offeror shall, at its own expense, indemnify, protect and hold harmless VDOT and its agents, directors, officers, employees, representatives and contractors from all claims, costs, expenses, liabilities, demands, or suits at law or equity (“Claims”) of, by or in favor of or awarded to any third party arising in whole or in part from: (a) the negligence or wilful misconduct of Offeror or any of its agents, officers, employees, representatives or subcontractors; or (b) breach of any of Offeror’s obligations under this Agreement, including its representation and warranty under Section 8 hereof. This indemnity shall not apply with respect to any Claims caused by or resulting from the sole negligence or wilful misconduct of VDOT, or its agents, directors, officers, employees, representatives or contractors.

**7. Assignment.** Offeror shall not assign this Agreement, without VDOT's prior written consent, which consent may be given or withheld in VDOT’s sole discretion. Any assignment of this Agreement without such consent shall be null and void.

**8. Authority to Enter into this Agreement.** By executing this Agreement, Offeror specifically represents and warrants that it has the authority to convey to VDOT all rights, title, and interest in Offeror’s Intellectual Property, including, but not limited to, those any rights that might have been vested in team members, subcontractors, consultants or anyone else who may have contributed to the development of Offeror’s Intellectual Property, free and clear of all liens, claims and encumbrances.

**9. Miscellaneous.**

a. Offeror and VDOT agree that Offeror, its team members, and their respective employees are not agents of VDOT as a result of this Agreement.

b. Any capitalized term used herein but not otherwise defined shall have the meanings set forth in the RFP.

c. This Agreement, together with the RFP, embodies the entire agreement of the parties with respect to the subject matter hereof. There are no promises, terms, conditions, or obligations other than those contained herein or in the RFP, and this Agreement shall supersede all previous communications, representations, or agreements, either verbal or written, between the parties hereto.

d. It is understood and agreed by the parties hereto that if any part, term, or provision of this Agreement is by the courts held to be illegal or in conflict with any law of the Commonwealth of Virginia, validity of the remaining portions or provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Agreement did not contain the particular part, term, or provisions to be invalid.

e. This Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Virginia.

**IN WITNESS WHEREOF**, this Agreement has been executed and delivered as of the day and year first above written.

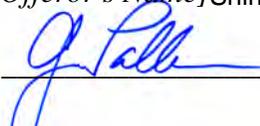
VIRGINIA DEPARTMENT OF TRANSPORTATION

By: \_\_\_\_\_

Name: \_\_\_\_\_

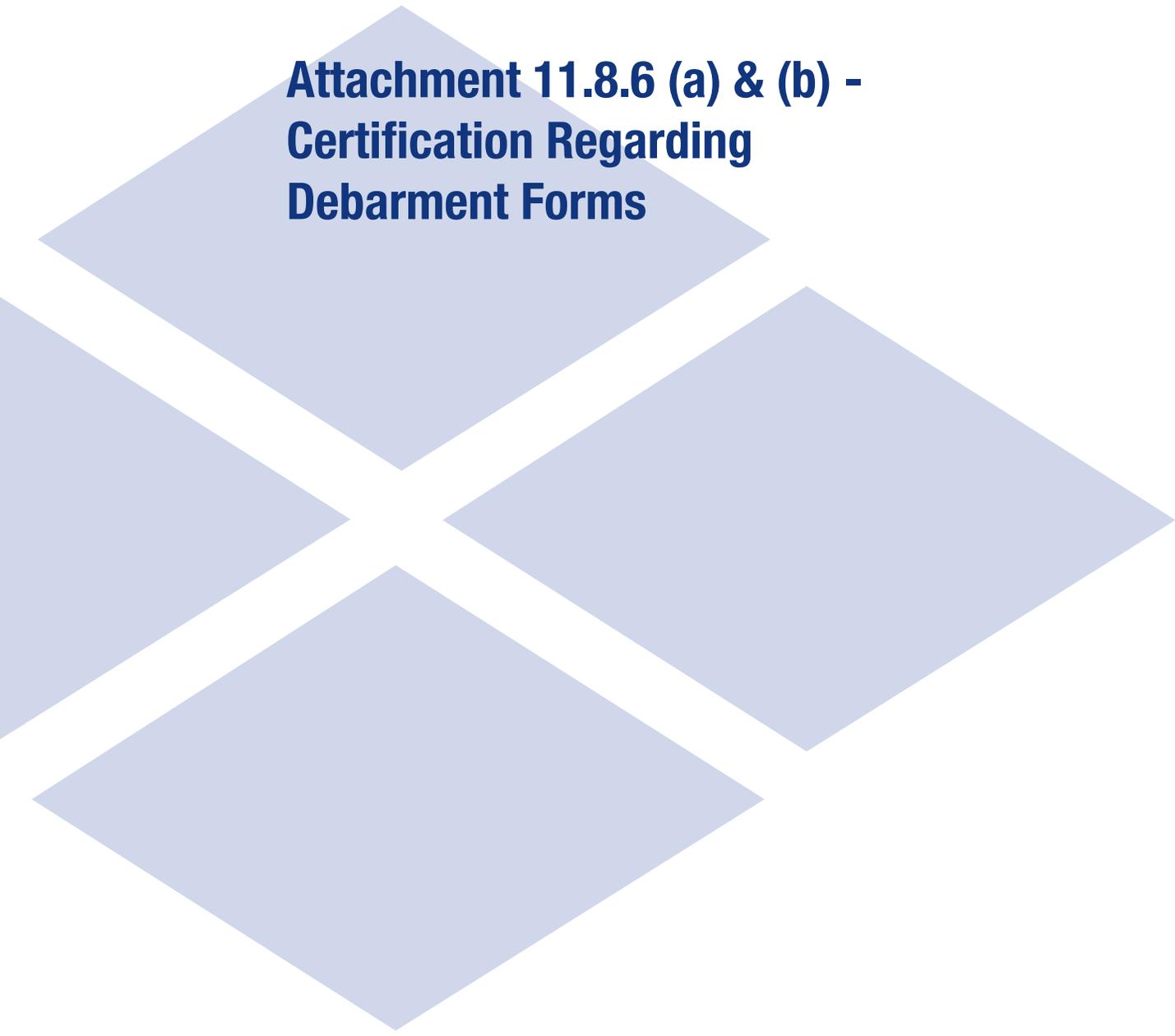
Title: \_\_\_\_\_

*[Insert Offeror's Name]* Shirley Contracting Company, LLC

By:  \_\_\_\_\_

Name: Garry A. Palleschi

Title: Vice President



**Attachment 11.8.6 (a) & (b) -  
Certification Regarding  
Debarment Forms**

**ATTACHMENT 11.8.6(a)**  
**CERTIFICATION REGARDING DEBARMENT**  
**PRIMARY COVERED TRANSACTIONS**

**Project No.: 0029-029-350, P101, R201, C501, D612**

1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency.

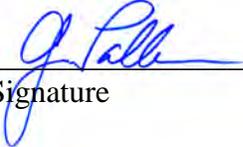
b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; and have not been convicted of any violations of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification, or destruction of records, making false statements, or receiving stolen property;

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph 1) b) of this certification; and

d) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.

2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	March 9, 2022	Vice President
Signature	Date	Title

Shirley Contracting Company, LLC  
Name of Firm



**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0029-029-350, P101, R201, C501, D612**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

 _____ Signature	<u>2/28/2022</u> _____ Date	<u>President</u> _____ Title
---	-----------------------------------	------------------------------------

CES CONSULTING LLC  
\_\_\_\_\_  
Name of Firm

**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0029-029-350, P101, R201, C501, D612**

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

	02/28/2022	President
Signature	Date	Title

American Geotechnical & Environmental Services, Inc.  
Name of Firm



**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0029-029-350, P101, R201, C501, D612**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

Tariq Hamid	02-28-2022	President
Signature 	Date	Title

Dulles Geotechnical and Material Testing Services, Inc  
Name of Firm

ATTACHMENT 11.8.6(b)  
CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS

**Project No.: 0029-029-350, P101, R201, C501, D612**

1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

<u>R Robert Ruske</u>	<u>3-1-22</u>	<u>Vice President</u>
Signature	Date	Title

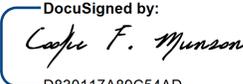
Key Title II, LLC  
Name of Firm

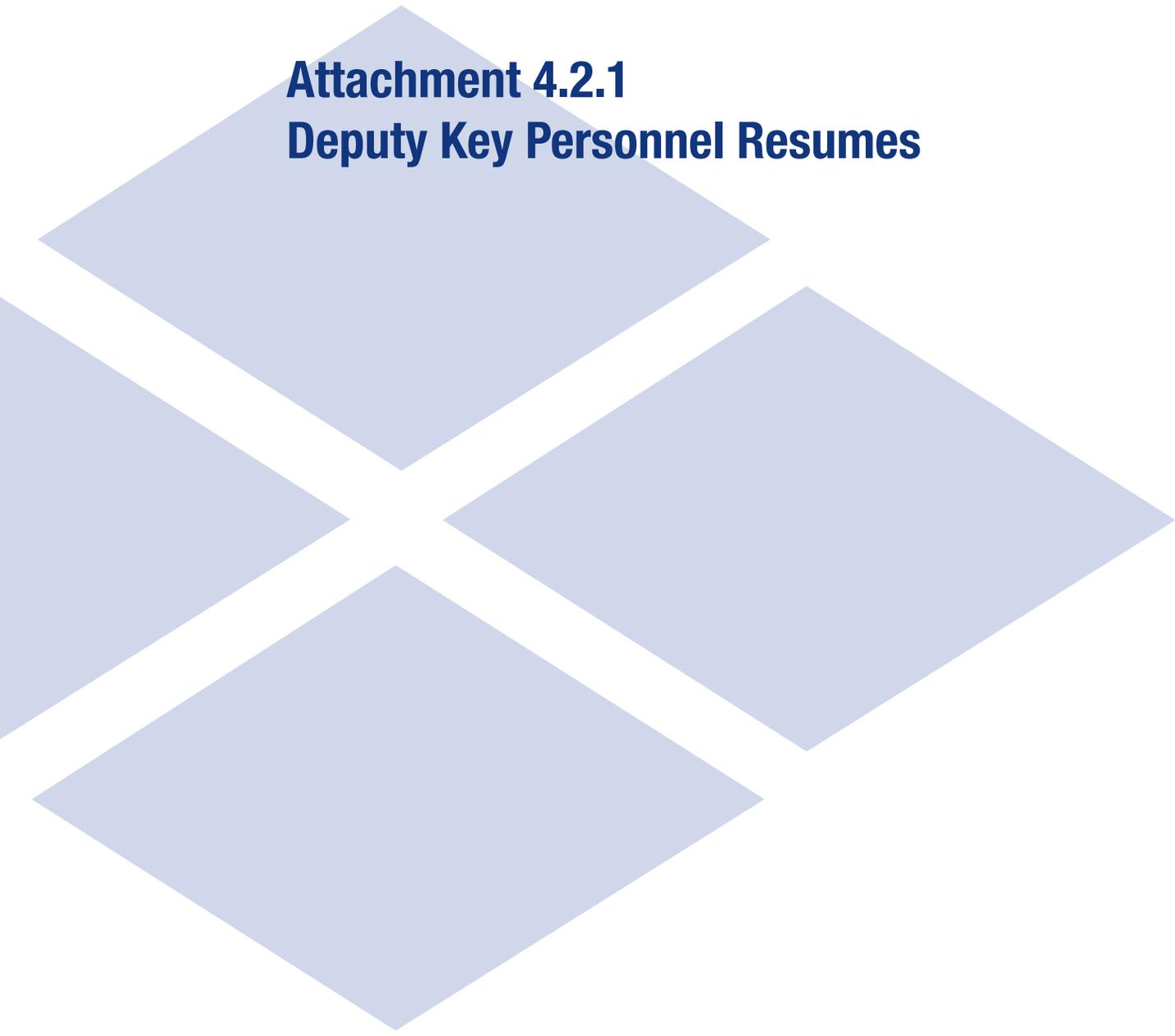
**ATTACHMENT 11.8.6(b)**  
**CERTIFICATION REGARDING DEBARMENT**  
**LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0029-029-350, P101, R201, C501, D612**

- 1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.
  
- 2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

The undersigned makes the foregoing statements to be filed with the proposal submitted on behalf of the Offeror for contracts to be let by the Commonwealth Transportation Board.

 <small>D830117A89C54AD...</small>	03-02-2022	Vice President, General Counsel & Secretary
Signature	Date	Title
Surveying And Mapping, LLC		
Name of Firm		



**Attachment 4.2.1**  
**Deputy Key Personnel Resumes**

## ATTACHMENT 4.2.1

### DEPUTY KEY PERSONNEL RESUME FORM

<b>Brief Resume of Key Personnel anticipated for the Project.</b>
a. Name & Title: <b>Gerald "Tripper" Henson, Senior Project Manager</b>
b. Project Assignment: <b>Design-Build Project Manager (DBPM)</b>
c. Name of the Firm with which you are employed at the time of submitting Technical Proposal: <b>Shirley Contracting Company, LLC</b>
d. Employment History: With this Firm <b>10</b> Years With Other Firms <b>0</b> Years Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below): <b>Shirley Contracting Company, LLC</b> <b>Senior Project Manager/Design-Build Project Manager - 2011 - Present</b> As Senior Project Manager/Design-Build Project Manager, Mr. Henson develops, coordinates, implements, and manages all components necessary to construct projects on time, within budget, and to the job specifications. He provides leadership and serves as the liaison between project team members, QA, QC, and design team to promote the interest of both the business and clients in all matters. He has a thorough knowledge of all major project issues and priorities. He manages manpower, equipment, materials, oversees quality control and the project budget, reviews daily shift costs for self-perform activities, and prepares and submits monthly job status reports. His other responsibilities include safety training and enforcement, equipment control and reporting, maintaining the overall project schedule, and developing and cultivating positive working relationships with counterparts at owner and subconsultant firms. <ul style="list-style-type: none"><li>• <b>Route 28 (Centreville Road) Widening Design-Build Project (\$56M)</b> 5/2020 to 7/2023 – Senior Project Manager/Design-Build Project Manager</li><li>• <b>Warrenton Southern Interchange Design Build Project (\$19M)</b> 3/2018 to 11/2020 – Senior Project Manager/Design-Build Project Manager</li><li>• <b>Catharpin Park Soccer Fields Project (\$4M)</b> 9/2019 to 9/2020 – Senior Project Manager</li><li>• <b>DC United Training Facility Project (\$4M)</b> 11/2019 to 5/2020 – Senior Project Manager</li><li>• <b>Route 7 and Route 659 Interchange Project (\$48M)</b> 9/2015 to 2/2019 - Project Manager</li><li>• <b>I-66/Route 29/Linton Hall Interchange Project (\$75M)</b> 7/2011 to 9/2015 - Assistant Project Manager</li><li>• <b>Fort Belvoir Main Post Infrastructure - Phase II Project (\$35M)</b> 6/2011 to 7/2011 - Project Engineer</li></ul>
e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization: <ul style="list-style-type: none"><li>• <b>Virginia Tech, Blacksburg, VA, BS Civil Engineering 2011</b></li></ul>
f. Active Registration: Year First Registered/ Discipline/VA Registration #: <ul style="list-style-type: none"><li>• <b>DCR Responsible Land Disturber (RLD) Certified (RLD19175)</b></li><li>• <b>VDOT Erosion and Sediment Control Certified Contractor (ESCCC - 5926C)</b></li></ul>
g. Document the extent and depth of your experience and qualifications relevant to the Project. <ol style="list-style-type: none"><li>1. <i>Note your role, responsibility, and specific job duties for each project, not those of the firm.</i></li><li>2. <i>Note whether experience is with current firm or with other firm.</i></li><li>3. <i>Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.</i></li></ol> <p><b>(List only three (3) relevant projects for which you have performed a similar function. On-call contracts with multiple task orders (on multiple projects) should not be listed as a single project.</b></p> <p><b>1. Route 28 (Centreville Road) Widening Design Build - Fairfax, Virginia</b> <b>Shirley Contracting Company, LLC, Senior Project Manager/Design-Build Project Manager (5/2020 – 7/2023)</b> <b>Role/Responsibility:</b> As Design Build Project Manager, Tripper is currently responsible for management of all design, construction, utility relocation, QA, QC, and permitting for the \$56.3 million project in Centreville, Virginia to create a grade-separated interchange for Route 15/17/29 Bypass and 15/17/29 Business and construction of five ramps on 15/17/29 Bypass. His duties as the Design-Build Project Manager include constructability reviews of the design development, coordination with right-of-way acquisitions and utility relocations, coordination with QA and QC staff, developing and updating the cost and resource loaded CPM schedule, conducting regular jobsite safety meetings, public notifications/awareness and ensuring compliance with the contract documents, specifications and standards. His daily tasks include coordination and scheduling of the work with his project team including material deliveries, rental equipment, trucks, Shirley's crews, subcontractors, lane closures, and communication with VDOT and consultant inspectors for scheduling the work. He is also responsible for quality control and quality assurance inspections, submission of shop drawings, RFI's, ROA's, RCA's, Traffic Control Plans, Girder Erection Plans, materials documentation, EEO documentation, and pay requests.</p>

## **2. Warrenton Southern Interchange Design-Build - Warrenton, Virginia**

**Shirley Contracting Company, LLC, Senior Project Manager/Design-Build Project Manager (3/2018 – 11/2020)**

**Role/Responsibility:** As Design Build Project Manager, Tripper was responsible for management of all construction operations for the \$19.5 million project in Warrenton, Virginia to create a grade-separated interchange for Route 15/17/29 Bypass and 15/17/29 Business and construction of five ramps on 15/17/29 Bypass. His duties as the Design-Build Project Manager included constructability reviews of the design development, coordination with right-of-way acquisitions and utility relocations, coordination with QA and QC staff, developing and updating the cost and resource loaded CPM schedule, conducting regular jobsite safety meetings, public notifications/awareness and ensuring compliance with the contract documents, specifications and standards. His daily tasks included coordination and scheduling of the work with his project team including material deliveries, rental equipment, trucks, Shirley's crews, subcontractors, lane closures, and communication with VDOT and consultant inspectors for scheduling the work. He was also responsible for quality control and quality assurance inspections, submission of shop drawings, RFI's, ROA's, RCA's, Traffic Control Plans, Girder Erection Plans, materials documentation, EEO documentation, and pay requests. The project scope included earthwork operations with approximately 122,000 CY of excavation, storm utility installation, signal removal, roadway lighting and signage, one new bridge, and landscaping.

## **3. Route 7 and Route 659 Interchange - Leesburg, Virginia**

**Shirley Contracting Company, LLC, Project Manager (9/2015 - 2/2019)**

**Role/Responsibility:** As Project Manager, Tripper was responsible for management of all construction operations for the \$48 million Locally-Administered VDOT Project in Leesburg to widen Route 659 to 4-lanes from Gloucester Parkway to Promenade Drive, create a grade-separated interchange for Route 7 and Route 659, construct 4 ramps on Route 7, and construct a Triple 8'x10' Box Culvert. His duties included developing and updating the Cost and Resource Loaded CPM schedule, conducting regular jobsite safety meetings, public notifications/awareness and ensuring compliance with the contract documents, specifications and standards. His daily tasks also include coordination and scheduling of the work with his project team including material deliveries, rental equipment, trucks, Shirley's crews, subcontractors and lane closures, communication with VDOT and consultant inspectors for scheduling the work and quality control and quality assurance inspections, submission of shop drawings, RFI's, ROA's, RCA's, Traffic Control Plans, Structural Steel Erection Plans, materials documentation, EEO documentation, pay requests as well as reconciliation of daily quantities. The scope includes construction and removal of several traffic detours; earthwork operations with approximately 390,000 CY of excavation and 655,000 CY of embankment; storm and water utility installation/ relocation; signal installation/modifications; roadway lighting, and signage; one new bridge, and box culvert. Tripper worked closely with Owner's representatives, design team, and inspection staff throughout construction to ensure all facets of the project were coordinated in a manner to not affect the overall completion of the project. This effort included a major resequencing of the project phasing to help overcome a utility impact outside of the scope of Shirley to minimize a schedule impact to the owner.

## ATTACHMENT 4.2.1

### DEPUTY KEY PERSONNEL RESUME FORM

<b>Brief Resume of Key Personnel anticipated for the Project.</b>
a. Name & Title: <b>Nicholas DeSantis, PE, Senior Project Manager</b>
b. Project Assignment: <b>Deputy Design Manager (DDM)</b>
c. Name of the Firm with which you are employed at the time of submitting Technical Proposal: <b>Dewberry Engineers Inc.</b>
d. Employment History: With this Firm <b>1</b> Years With Other Firms <b>11</b> Years Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):  <b>Dewberry Engineers Inc.; Senior Project Manager (2021-Present)</b> Responsible for design of design-build and design-bid-build projects, making coordination efforts to incorporate overall roadway design including structural, hydraulic, traffic engineering, and environmental permitting services. Involved with internal coordination with other design disciplines, design-build team meetings with construction staff, as well as regular meetings with clients/owners for each of the projects. Roadway design responsibilities include development of design waivers and exceptions, horizontal alignments, vertical profiles, superelevation transitions, cross sections, and roadway construction plans. <ul style="list-style-type: none"><li>▪ <b>495 Express Lanes Northern Extension (NEXT) Design-Build (\$600M)</b>, 11/2021 to 3/2022 – Senior Project Manager</li><li>▪ <b>Route 28 (Centreville Road) Widening Design-Build (\$57M)</b>, 11/2021 to 3/2022 – Senior Project Manager</li><li>▪ <b>Route 50 and Trailhead Drive Roundabout Design-Build (\$6M)</b>, 1/2022 to 3/2022 – Senior Project Manager</li></ul> <b>Whitman, Requardt and Associates, LLP; Senior Project Engineer/Lead Designer (2010-2021)</b> Responsible for leading design development and plan coordination on a variety of roadway construction projects for both VDOT and Fairfax County DOT. Project experience included major interstate and interchange design, roadway widening, pedestrian and bicycle facilities, park and ride commuter lot design, intersection improvements, environmental assessment concept development, and guardrail inspection. Primary responsibilities included coordination with clients, leading complex geometric design, staff development, managing related engineering disciplines and subconsultants, project documentation, drafting construction plans, and analyzing quantity takeoffs. Roadway design responsibilities included development of horizontal alignments, vertical profiles, superelevation transitions, maintenance of traffic plans, cross sections, erosion & sediment control plans, and roadway construction plans. <ul style="list-style-type: none"><li>▪ <b>Fairfax County Parkway Widening and Interchange at Popes Head Road (\$256M)</b>, 5/2017 to 10/2021 – Senior Project Engineer</li><li>▪ <b>Mount Vernon Memorial Highway Trail (\$10M)</b>, 8/2017 to 8/2021 - Senior Project Engineer</li><li>▪ <b>W&amp;OD Trail Overpass over Wiehle Avenue (\$13M)</b>, 6/2015 to 10/2021 – Senior Project Engineer</li><li>▪ <b>Scotts Run Trail (\$4M)</b>, 6/2014 to 12/2020 – Senior Project Engineer</li><li>▪ <b>I-66 at Route 28 Interchange/Corridor Improvements, Design-Build</b> 5/2012 to 2/2015 – Project Engineer</li><li>▪ <b>I-66 at Route 234 Park and Ride (\$6M)</b>, 7/2010 to 7/2013 – Design Engineer</li><li>▪ <b>I-66 Widening Design-Build (\$55M)</b>, 7/2010 to 5/2012 – Design Engineer</li></ul>
e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization: <b>University of Virginia, Charlottesville, VA / BS / 2010 / Civil and Environmental Engineering</b>
f. Active Registration: Year First Registered/ Discipline/VA Registration #: <b>Professional Engineer / 2015 / Civil Engineering / Virginia #0402 052922</b>
g. Document the extent and depth of your experience and qualifications relevant to the Project. <ol style="list-style-type: none"><li>1. <i>Note your role, responsibility, and specific job duties for each project, not those of the firm.</i></li><li>2. <i>Note whether experience is with current firm or with other firm.</i></li><li>3. <i>Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.</i></li></ol> <p><b>(List only three (3) relevant projects for which you have performed a similar function. On-call contracts with multiple task orders (on multiple projects) should not be listed as a single project.</b></p> <p><b>1. Fairfax County Parkway Widening and Interchange at Popes Head Road – Fairfax, VA Whitman, Requardt and Associates LLP., Senior Project Engineer (5/2017 – 10/2021)</b></p>

**Role/Responsibility:** Nick oversaw all design activities and led the design effort for the Project that includes 5.5 miles of the Fairfax County Parkway widening from four to six lanes north of Route 29 to Route 123, the interchange with Popes Head Road, and the future extension of Shirley Gate Road. His project responsibilities ranged from alternative analyses during preliminary design through the development of construction plans beyond the right-of-way stage. The major project design elements included roadway widening, innovative intersection solutions including roundabouts and a restricted crossing U-turn (RCUT), an Interchange Justification Report (IJR), stormwater management, and structural design coordination of modifications of existing and proposed bridges and retaining walls. Nick led extensive public involvement efforts during the preliminary design phase, including public information meetings, homeowner association meetings, and private homeowner meetings. Job duties included interdisciplinary coordination with design staff, meetings with various project stakeholders, development of cost estimates, design waivers and exceptions, horizontal and vertical alignments, and construction plan development. Nick worked closely with VDOT staff involving environmental permitting and noise analysis, utility design, and right-of-way acquisition. He also participated in bi-weekly coordination meetings with the VDOT project team and regularly presented discipline specific solutions for various project challenges.

## **2. Mount Vernon Memorial Highway Trail – Fairfax, VA**

**Whitman, Requardt and Associates LLP., Senior Project Engineer (8/2017 – 10/2021)**

**Role/Responsibility:** Nick oversaw the design and plan development of a 1.5-mile shared use path and intersection improvements along Mount Vernon Memorial Highway in Fairfax, Virginia. The alignment of the shared use path spans Dogue Creek, a tidal waterway and runs adjacent to George Washington's Grist Mill and within the Fairfax County Parkway Authority's (FCPA) Grist Mill Park. Nick's project responsibilities included the development of conceptual and final design including interdisciplinary coordination for the entirety of the design services for Fairfax County. Those roles included the coordination of traffic studies (signal modification, signing and pavement markings, and maintenance of traffic), pedestrian and bicycle facilities, structural design for the proposed bridge and retaining walls, hydrologic and hydraulic analysis, scour analysis, drainage and stormwater management, erosion and sediment control, environmental studies, and environmental permitting. The project also required stakeholder coordination with the Fairfax County Park Authority (FCPA), Fairfax County Public Schools (FCPS), and FHWA Eastern Federal Lands for the turn lane/intersection improvements plans for the Walker Gate entrance of Fort Belvoir. Nick expedited the design services to allow for completion of design within the compressed contract schedule, including coordination with VDOT to obtain a land use permit.

## **3. W&OD Trail Overpass over Wiehle Avenue – Fairfax, VA**

**Whitman, Requardt and Associates LLP., Senior Project Engineer (6/2015 – 10/2021)**

**Role/Responsibility:** Nick oversaw the design and plan development of the W&OD Trail Overpass of Wiehle Avenue in Fairfax, Virginia. The project included the grade separation of the W&OD Trail and Wiehle Avenue to eliminate the vehicle/bicycle/pedestrian conflicts at the existing at-grade crossing. Roadway widening and intersection improvements were also required along Wiehle Avenue for the implementation of bike lanes in accordance with the Fairfax County Comprehensive Plan. Nick's project responsibilities included the development of conceptual and final design including interdisciplinary coordination for the entirety of the design services for Fairfax County. Those responsibilities included roadway and bicycle/pedestrian facilities design, coordination of traffic signal modifications design, stormwater design and management, geotechnical and structures design, utility design and relocation, and public involvement. The Project also included extensive coordination with stakeholders including, Northern Virginia Regional Park Authority (NVRPA), VDOT, and utility companies. Nick attended various project coordination and comment review meetings to obtain buy-in from project stakeholders and facilitated the approval of a VDOT land use permit for this federally funded project.

## ATTACHMENT 4.2.1

### DEPUTY KEY PERSONNEL RESUME FORM

<b>Brief Resume of Key Personnel anticipated for the Project.</b>
a. Name & Title: <b>Sean Saksena, PE, Senior Project Manager/Design-Build Project Manager</b>
b. Project Assignment: <b>Deputy Quality Assurance Manager (DQAM)</b>
c. Name of the Firm with which you are employed at the time of submitting Technical Proposal.: <b>CES Consulting, LLC</b>
d. Employment History: With this Firm <u>1</u> Years With Other Firms <u>9</u> Years Please list chronologically (most recent first) your employment history, position, general responsibilities, and duration of employment for the last fifteen (15) years. (NOTE: If you have less than 15 years of employment history, please list the history for those years you have worked. Project specific experience shall be included in Section (g) below):  <b>CES Consulting, LLC</b> <b>Senior Project Manager/Design-Build Project Manager – 2/2021-Present</b> Sean manages construction of civil and transportation infrastructure including inspection, testing, and documenting construction operations to validate compliance with the QA/QC plans, contract documents, and state and federal regulations and to determine the acceptance of materials and workmanship incorporated into the project. He conducts constructability reviews, develops cost estimates; monitors schedules and budgets; prepares work orders; recommends and field engineers solutions to field issues; facilitates plan modifications; recommends contractor payments; conducts contract administration and supervises field personnel. <ul style="list-style-type: none"><li>• <b>Duke Street over I-395 Bridge Rehabilitation Project (\$15.4M)</b> 6/2021 to 11/2023 Construction Manager</li></ul> <b>Lane Construction Corporation</b> <b>Job Engineer – 8/2015-1/2021</b> Sean provided construction management and contractor QC management for vertical and horizontal construction ranging up to \$100M in construction value. He supervised field personnel and subconsultants; managed design modifications and recommended time- and cost-saving solutions to design and field issues; conducted constructability reviews; developed cost estimates; monitored budgets and schedules; conducted construction administration; coordinated with key stakeholders; and more. <ul style="list-style-type: none"><li>• <b>I-66 EB Widening Inside the Beltway Design-Build (\$86.7M)</b> 1/2018 to 2/2021 – Contractor QC Manager/Construction Manager</li><li>• <b>NAS Oceana 14L/32R Runway Reconstruction and Rehabilitation (\$100M)</b> 9/2015 to 3/2018 – Contractor QC Manager</li></ul> <b>Cement and Concrete Reference Laboratory</b> <b>Lab Inspector – 2/2012-8/2015</b> Sean conducted QA audits of 150 materials testing laboratories nationwide that were obtaining accreditation. He confirmed compliance with ASTM and AASHTO standard practices and design related to the testing of concrete, aggregate, and masonry units and cement. He proctored ACI strength and aggregate certifications  <b>Geo-Technology Associates</b> <b>Field Technician – 5/2011-2/2012</b> Sean conducted construction inspection and testing of vertical construction and civil infrastructure. <ul style="list-style-type: none"><li>• <b>Goose Creek Village (\$46M)</b> 5/2011 to 1/2012 – Construction Inspector</li><li>• <b>Discovery Center I (\$20M)</b> 11/2011 to 2 /2013 – Construction Inspector</li></ul>
e. Education: Name & Location of Institution(s)/Degree(s)/Year/Specialization: <b>John Hopkins University, Baltimore, MD / MS / 2014 / Environmental Planning and Management</b> <b>Virginia Tech, Blacksburg, VA / BS / 2011 / Civil and Environmental Engineering</b>
f. Active Registration: Year First Registered/ Discipline/VA Registration #: <b>2019 / Professional Engineer / VA #0402 055263</b>
g. Document the extent and depth of your experience and qualifications relevant to the Project. <ol style="list-style-type: none"><li>1. <i>Note your role, responsibility, and specific job duties for each project, not those of the firm.</i></li><li>2. <i>Note whether experience is with current firm or with other firm.</i></li><li>3. <i>Provide beginning and end dates for each project; projects older than fifteen (15) years will not be considered for evaluation.</i></li></ol> <b>(List only three (3) relevant projects for which you have performed a similar function. On-call contracts with multiple task orders (on multiple projects) should be listed as a single project.</b>

### **1. Duke Street over I-395 Bridge Rehabilitation Project- Alexandria, Virginia**

**CES Consulting, LLC, Construction Manager (6/2021-11/2023)**

**Role/Responsibility:** Sean is managing the rehabilitation of a functionally obsolete 5-span steel-girder bridge (305 feet long) founded on drilled piles and spread footings. The bridge carries more than 55,000 motorists each day over 12 lanes of I-395. To extend the life of the bridge and improve safety, rehabilitation involves replacing the bridge deck with a new concrete deck and steel-girders; replacing all bridge bearings; substructure repairs; replacing the WB sidewalk with a shared-use path and widening the EB sidewalk, while maintaining traffic. As the Construction Manager, Sean is overseeing the inspection, testing, and documenting of every bridge component and construction operations including superstructure replacement, substructure repairs, reinforcing steel installation, concrete placement, improvements to roadway approaches and sidewalk, and ESC installation and maintenance. He makes recommends regarding construction solutions and design issues. As an example, barrier service was not in the construction plans which posed constructability and safety issues. After discussions with the contractor, designer, and VDOT, Sean presented a cost-effective solution that provided barrier service for 2 piers in compliance with the specifications at no cost to VDOT or the contractor. In addition, Sean facilitates progress and utility coordination meetings; monitors schedule, budget, and MOT; prepares work orders and cost estimates; maintains the materials notebook and other project records; and addresses the needs and concerns of stakeholders.

### **2. I-66 EB Widening Inside the Beltway Design-Build–Fairfax and Arlington Counties, Virginia**

**Lane Construction Corporation–Contractor QC Manager/Construction Manager (1/2018 to 2/2021)**

**Role/Responsibility:** This Design-Build project involved widening 4 miles of I-66 EB, which included a new through lane, 9 bridge widenings; ramp modifications, 170,000 SF of Noise Barrier, ITS upgrades, and a new 675-foot-long, 6-span, steel-girder pedestrian bridge carrying the W&OD trail over Route 29. Sean managed contractor QC inspections of the project and managed design modifications and construction of the pedestrian bridge; material testing; and project records review. Sean coordinated and executed cost-effective solutions to numerous design and field issues throughout design and construction and saved more \$2M. After one year of work, the \$3.9M QA/QC budget was at risk of cost overruns and schedule delays posed additional impacts to the budget. Despite a 6-month extension of QA/QC services, Sean carefully managed personnel and testing to maintain the original budget while producing quality work. Sean reviewed the plans of the pedestrian bridge and recommended and coordinated cost-effective design modifications to accommodate site constraints and other constructability issues unique to the site. Construction of this high-profile bridge received much public scrutiny and posed many challenges including heavy active traffic, adjacent historical monuments, high voltage overhead power lines, and 1,000 feet of utility relocations. Sean continuously looked for ways to avoid risks and save time and money. For example, the plans called for micropiling to avoid conflict with overhead high voltage lines. Sean coordinated a one-week shutdown of the power lines with Dominion Energy, which allowed for the use more economical drilled piles. This design change resulted in a significant cost savings without impacting the schedule. During construction of the noise barrier walls, he recommended an economical solution to grade differentials using AeroAggregates, an ultra-lightweight foamed glass aggregate fill. This rendered the lateral forces on the sound wall panels negligible, which eliminated the need for plan revisions. To prevent a significant cost overrun related to a unique custom fence design, Sean proposed and facilitated a design modification that standardized the production process while meeting visual and structural requirements resulting in a significant cost savings. When an NCR was issued due to concerns that water intrusion had a negative impact on the structural integrity of the drilled-pile pier foundations, Sean ordered non-destructive testing, which showed the piles were of adequate integrity and did not require changes to the design.

### **3. NAS Oceana 14L/32R Runway Reconstruction and Rehabilitation Project – Virginia Beach, Virginia**

**Lane Construction Corporation – Contractor QC Manager (9/2015 to 3/2018)**

**Role/Responsibility:** This project involved the demolition and reconstruction of 9,000 LF of Naval Airbase Runway; construction of 5 electrical vault buildings, modernization of airfield lighting; roadway construction; and ESCs. Sean managed QC inspection and testing; evaluated field conditions; resolved discrepancies; and recommended economical solutions to field and design issues. Due to a shortage of available qualified airfield construction inspectors, Sean conducted the QC inspections and saved the owner \$400K. Subsurface exploration found unsuitable material throughout the runway. Sean suggested the use of undercuts and stone backfill for treatment. Sean went the extra mile to meet the owner's quality and budget goals. For example, a profilograph was required to quantify the flatness level of the runway. Rather than procuring a subconsultant, Sean acquired a profilograph and measured pavement deficiencies along 32+ miles of runway, saving the owner over \$30K. Sean also facilitated corrective measures to comply with airfield pavement specifications.

Response to Request for Proposals

# VOLUME II DESIGN CONCEPT ROUTE 29 WIDENING PHASE II

Fairfax County, Virginia

**State Project No.:** 0029-029-350, P101, R201, C501, D612

**Federal Project No.:** NHPP-5A01(917)

**Contract ID Number:** C00110329DB113

March 9, 2022



Submitted By:



In Association With:



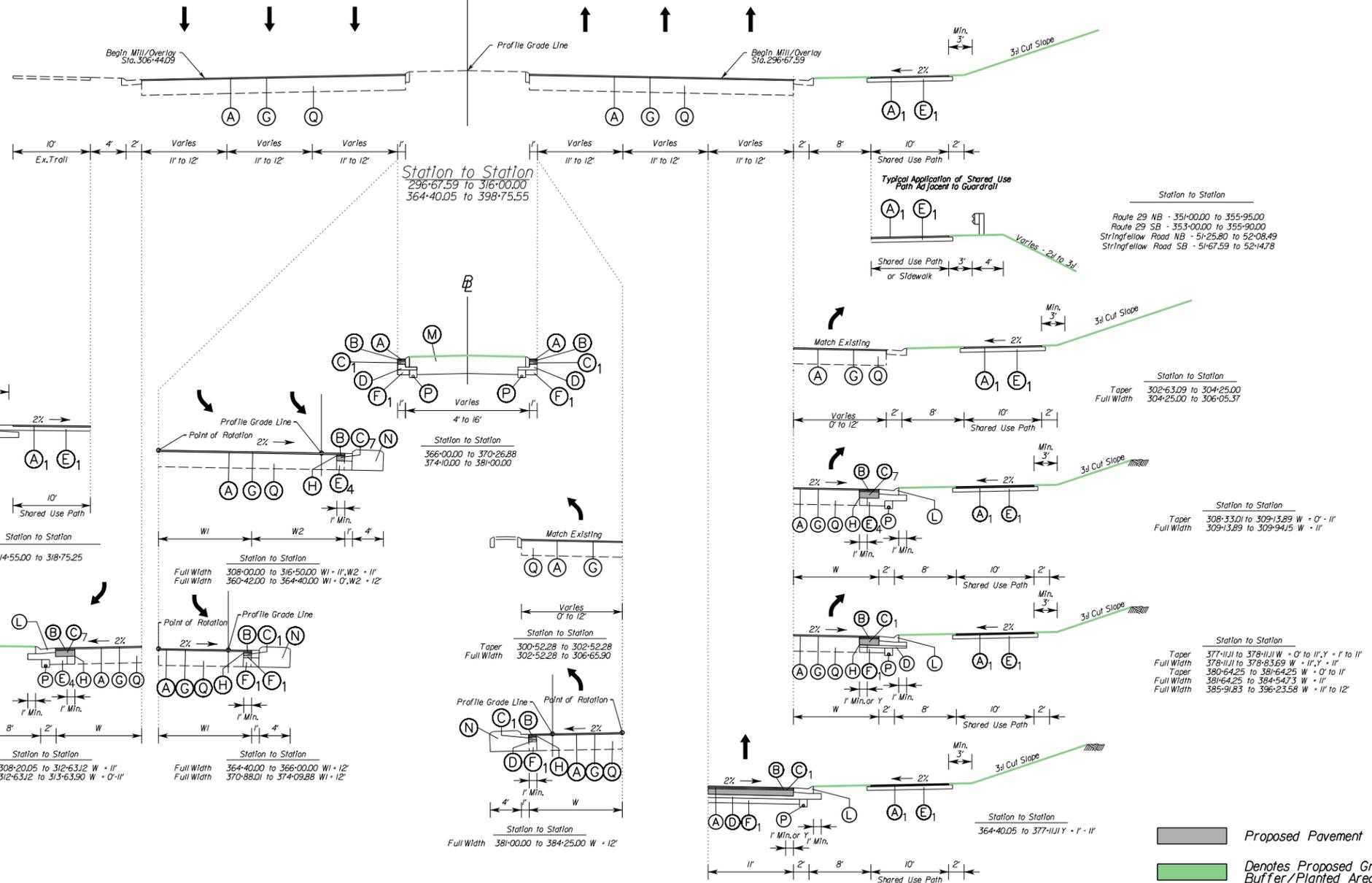
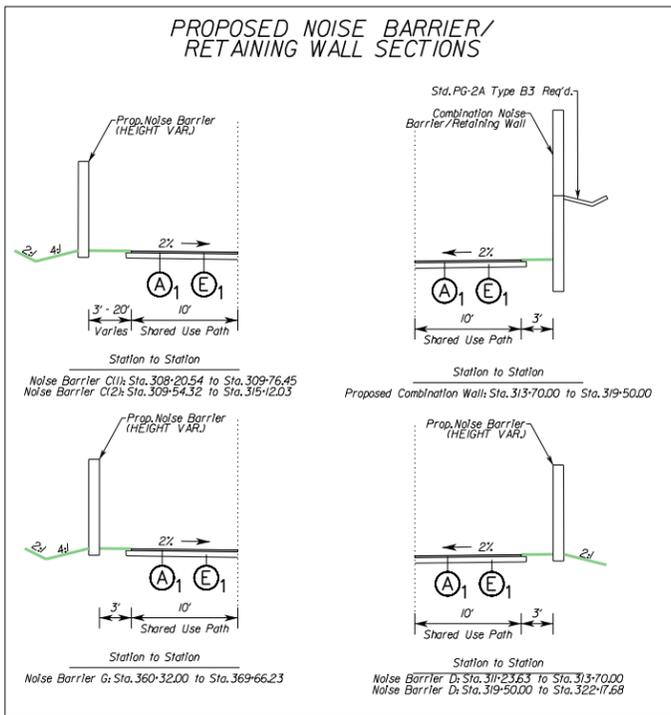
## 4.3.1 - Conceptual Roadway Plans

REVISED	STATE	COUNTY	PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	2A(1)

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

# TYPICAL SECTIONS

Route 29  
Urban Principal Arterial (GS-5)  
V = 45 MPH  
Constr.



## LEGEND

- (A) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5D @ 175 lbs/sy Req'd.
- (A<sub>1</sub>) 2.0" Surface Course, Asphalt Concrete, Type SM-9.5A @ 240 lbs/sy Req'd.
- (A<sub>2</sub>) 4.0" Hydraulic Cement Concrete, Class A3
- (A<sub>3</sub>) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5A @ 175 lbs/sy Req'd.
- (B) 2.0" Intermediate Course, Asphalt Concrete, Type IM-19.0A @ 242 lbs/sy Req'd.
- (C) 3.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>1</sub>) 4.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>2</sub>) 5.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>3</sub>) 6.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>4</sub>) 6.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>5</sub>) 7.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>6</sub>) 9.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>7</sub>) 10.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>8</sub>) 10.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (D) 3" Asphalt Stabilized Open Graded Drainage Layer
- (E) 4" Aggr. Material, Type I, No. 21B Extend 4" Beyond Edge of Surface Material
- (E<sub>1</sub>) 6" Aggr. Material, Type I, No. 21B Extend 6" Beyond Edge of Surface Material
- (E<sub>2</sub>) 6" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (E<sub>3</sub>) 8" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (E<sub>4</sub>) 12" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (E<sub>5</sub>) 18" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (F) 8" Cement Treated Aggr. Extend 1' Behind Back Of Curb
- (F<sub>1</sub>) 12" Cement Treated Aggr. Extend 1' Behind Back Of Curb
- (G) Mill Exst. Pavement, 1.5"
- (H) Full Depth Sawcut
- (J) 6" Curb, S't.d. CG-2 Req'd.
- (K) 6" Curb and Gutter, S't.d. CG-6 Req'd.
- (L) 4" Curb and Gutter, S't.d. CG-7 Req'd.
- (M) Raised Grass Median Strip, S't.d. MS-2 CG-3 Style Req'd.
- (N) Raised Concrete Median Strip, S't.d. MS-1 CG-3 Style Req'd.
- (P) Pavement Edgedrain, S't.d. UD-4 Req'd.
- (Q) Variable Depth Buildup
- (R) Raised Concrete Median Strip, S't.d. MS-1A CG-2 Style Req'd.
- (S) Raised Concrete Median Strip, S't.d. MS-1 CG-2 Style Req'd.

Proposed Pavement  
Denotes Proposed Grass Median/Buffer/Planted Area

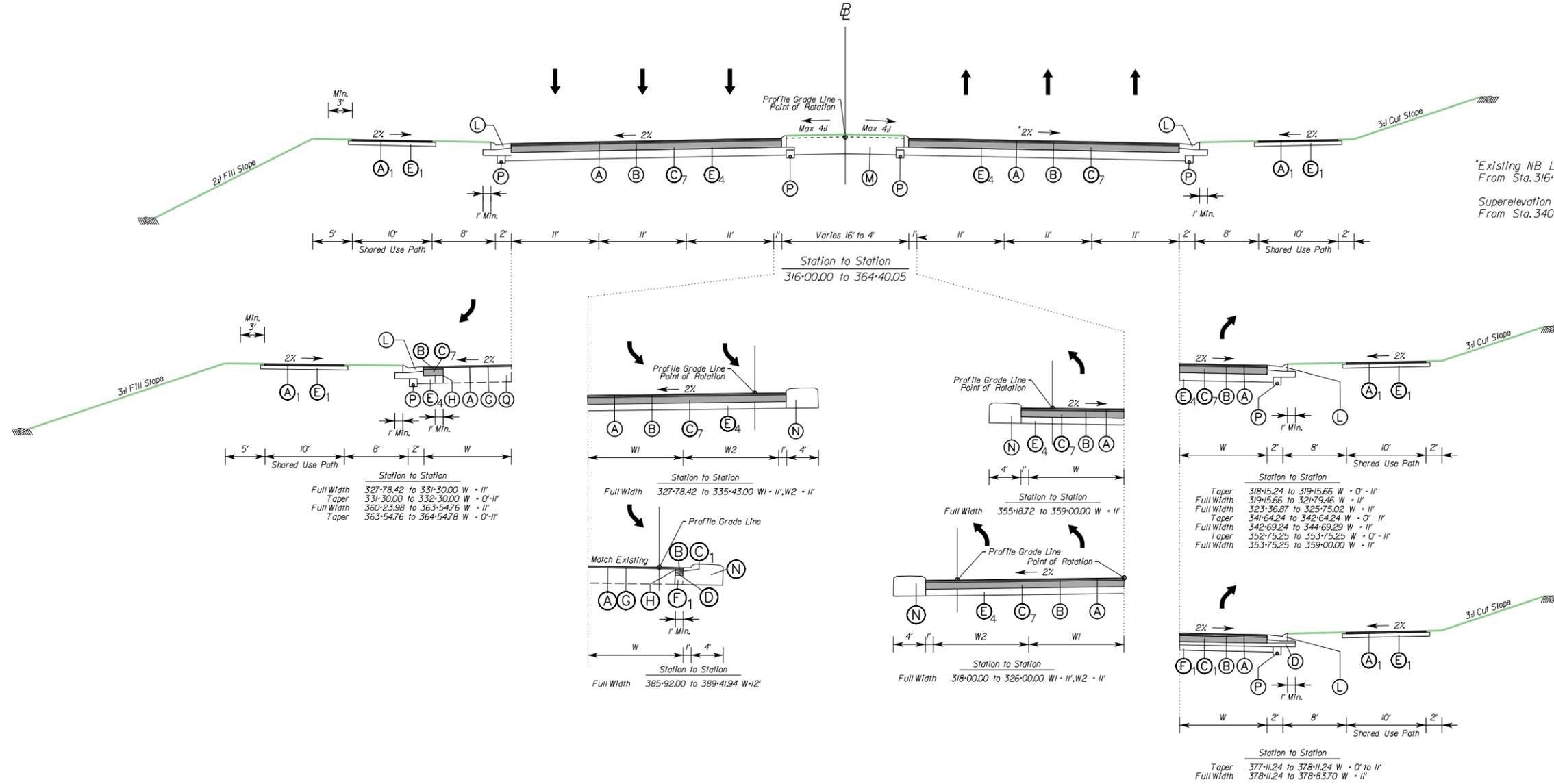
PROJECT	SHEET NO.
0029-029-350	2A(1)

# TYPICAL SECTIONS

REVISED	STATE	ROUTE	COUNTY	PROJECT	SHEET NO.
	VA.	29		0029-029-350 RW-201, C-501	2A(2)

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

Route 29  
Urban Principal Arterial (GS-5)  
V = 45 MPH  
Constr.



\*Existing NB Lanes To Be Reused From Sta.316+00.00 to Sta.328+30.00  
Superelevation and transition (E-2%) From Sta.340+85.09 to 353+84.67

Proposed Pavement  
Denotes Proposed Grass Median/ Buffer/Planted Area

## LEGEND

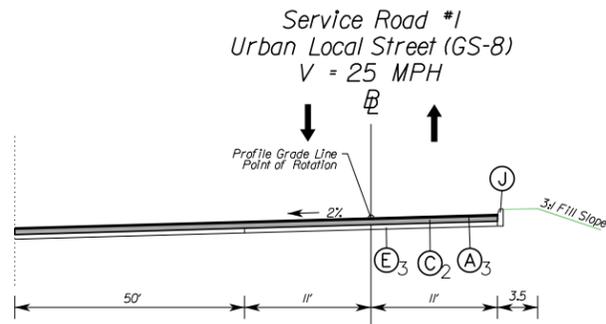
- (A) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5D @ 175 lbs/sy Req'd.
- (A<sub>1</sub>) 2.0" Surface Course, Asphalt Concrete, Type SM-9.5A @ 240 lbs/sy Req'd.
- (A<sub>2</sub>) 4.0" Hydraulic Cement Concrete, Class A3
- (A<sub>3</sub>) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5A @ 175 lbs/sy Req'd.
- (B) 2.0" Intermediate Course, Asphalt Concrete, Type IM-19.0A @ 242 lbs/sy Req'd.
- (C) 3.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>1</sub>) 4.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>2</sub>) 5.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>3</sub>) 6.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>4</sub>) 6.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>5</sub>) 7.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>6</sub>) 9.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>7</sub>) 10.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (C<sub>8</sub>) 10.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.
- (D) 3" Asphalt Stabilized Open Graded Drainage Layer
- (E) 4" Aggr. Material, Type I, No. 21B Extend 4" Beyond Edge of Surface Material
- (E<sub>1</sub>) 6" Aggr. Material, Type I, No. 21B Extend 6" Beyond Edge of Surface Material
- (E<sub>2</sub>) 6" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (E<sub>3</sub>) 8" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (E<sub>4</sub>) 12" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (E<sub>5</sub>) 18" Aggr. Material, Type I, No. 21B Extend 1' Behind Back Of Curb
- (F) 8" Cement Treated Aggr. Extend 1' Behind Back of Curb
- (F<sub>1</sub>) 12" Cement Treated Aggr. Extend 1' Behind Back of Curb
- (G) Mill Exst. Pavement, 1.5"
- (H) Full Depth Sawcut
- (J) 6" Curb, S'd. CG-2 Req'd.
- (K) 6" Curb and Gutter, S'd. CG-6 Req'd.
- (L) 4" Curb and Gutter, S'd. CG-7 Req'd.
- (M) Raised Grass Median Strip, S'd. MS-2 CG-3 Style Req'd.
- (N) Raised Concrete Median Strip, S'd. MS-1 CG-3 Style Req'd.
- (P) Pavement Edgedrain, S'd. UD-4 Req'd.
- (Q) Variable Depth Buildup
- (R) Raised Concrete Median Strip, S'd. MS-1A CG-2 Style Req'd.
- (S) Raised Concrete Median Strip, S'd. MS-1 CG-2 Style Req'd.



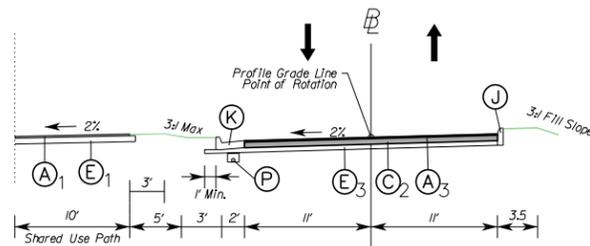
# TYPICAL SECTIONS

REVISED	STATE	COUNTY	PROJECT	SHEET NO.
	VA.	29	0029-029-350 RW-201,C-501	2A(4)

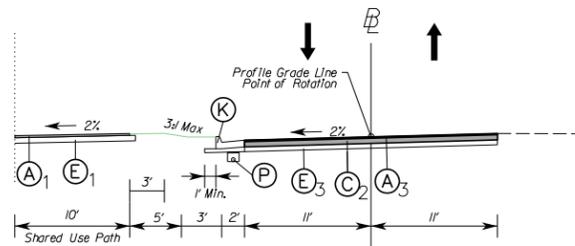
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



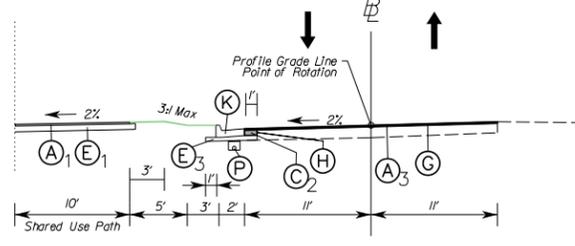
Station to Station  
1+31.92 to 1+95.57



Station to Station  
1+95.57 to 2+50.33



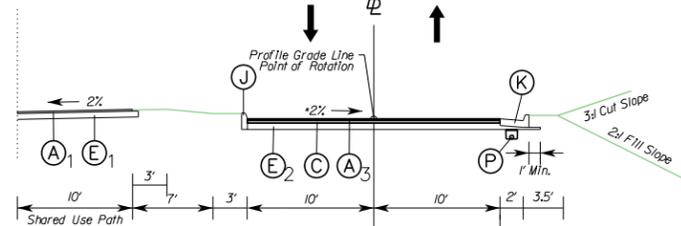
Station to Station  
2+50.33 to 3+60.00



Station to Station  
3+60.00 to 4+66.05

Route 29  
Constr.

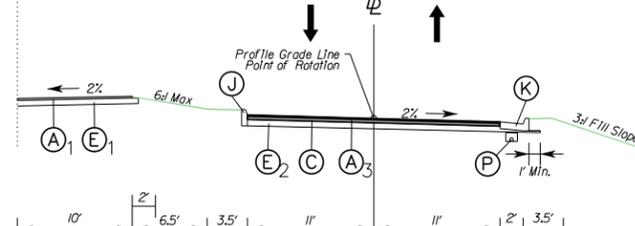
Service Road #2  
Urban Local Street (GS-8)  
V = 25 MPH



Station to Station  
1+82.50 to 8+58.36

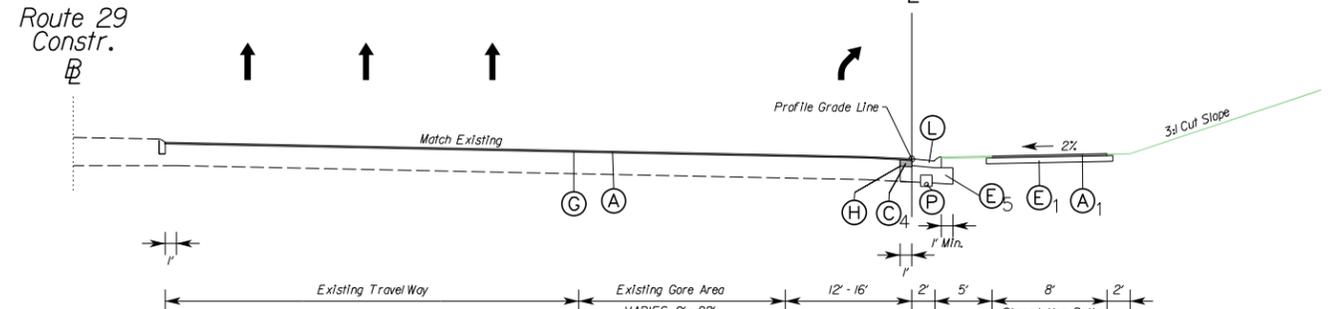
\*2% Reverse Crown From  
Sta. 5+60 to 8+62.67

Service Road #3  
Urban Local Street (GS-8)  
V = 25 MPH



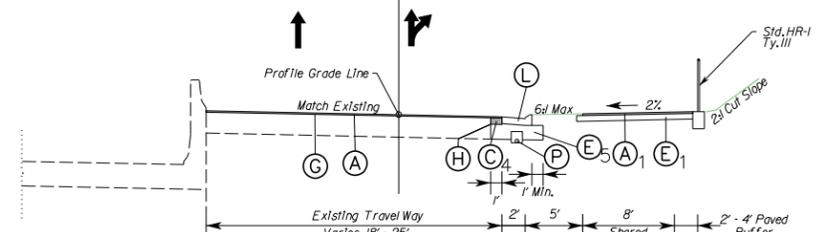
Station to Station  
7+04.16 to 11+37.12

Ramp A  
Interchange Ramp (GS-R)  
V = 45 MPH  
Constr.



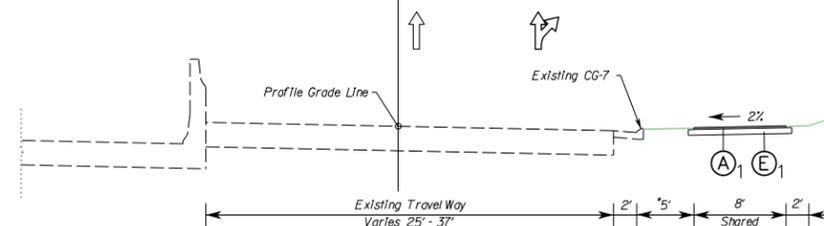
Station to Station  
90+00.00 to 95+00.00

Ramp A Constr.

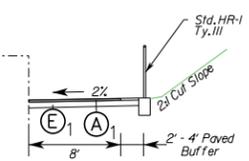


Station to Station  
95+00.00 to 98+35.00

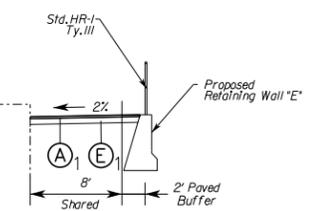
Ramp A Constr.



Station to Station  
98+35.00 to 104+04.69



Station to Station  
92+51.20 to 95+00.00



Station to Station  
96+13.53 to 97+07.53

Proposed Pavement  
Denotes Proposed Grass Median/  
Buffer/Planted Area

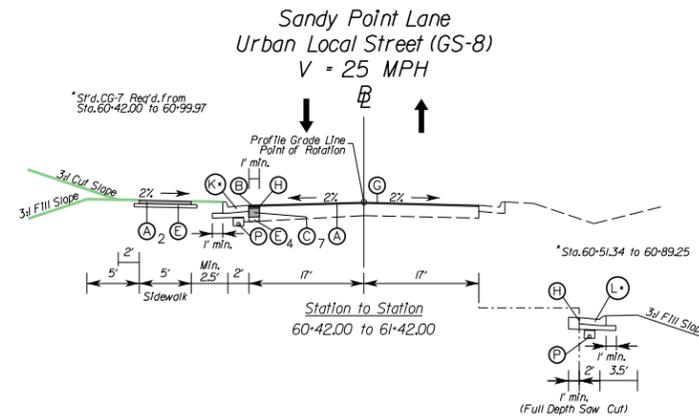
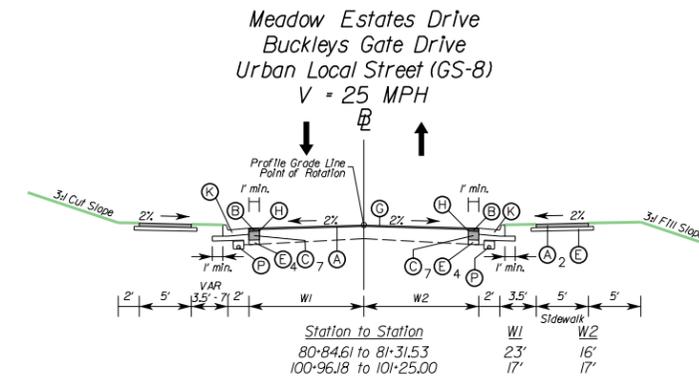
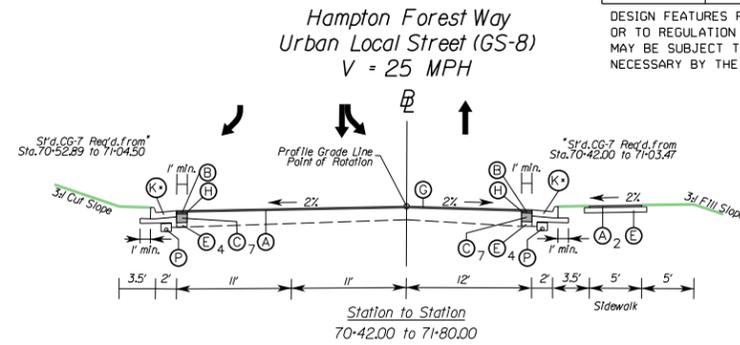
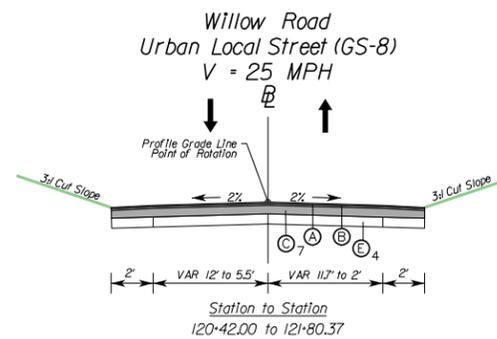
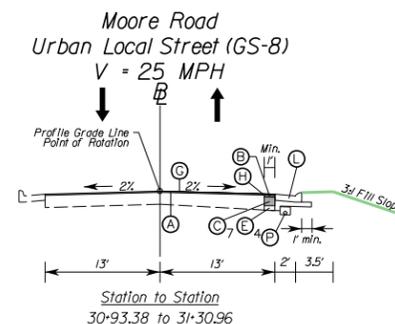
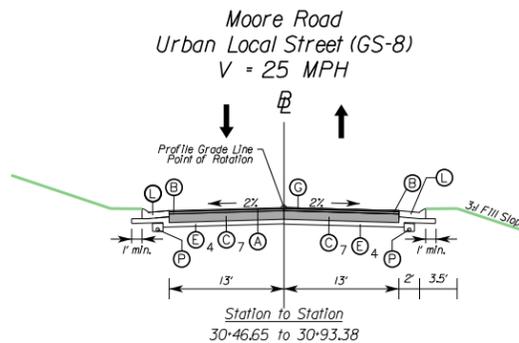
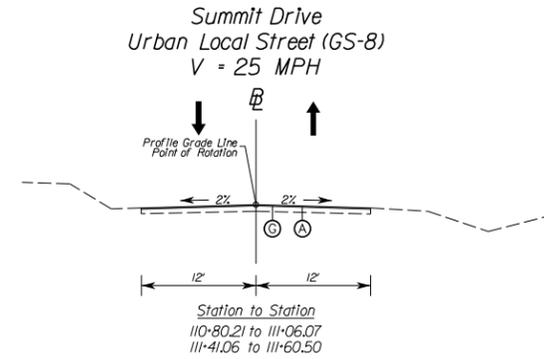
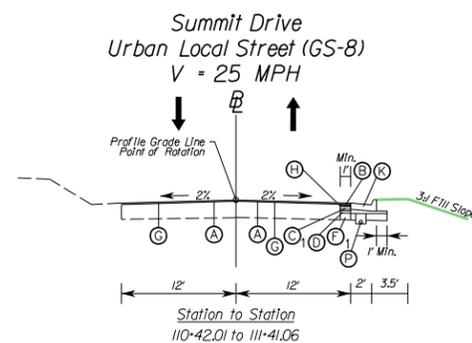
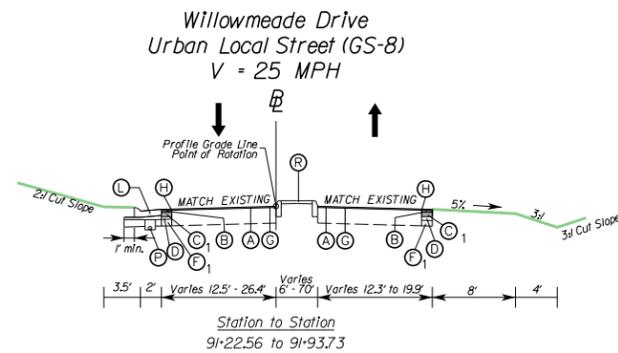
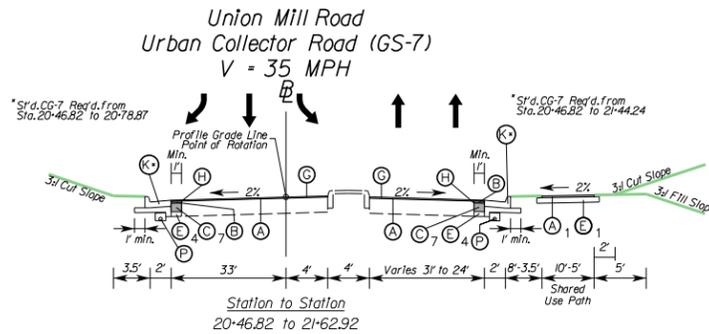
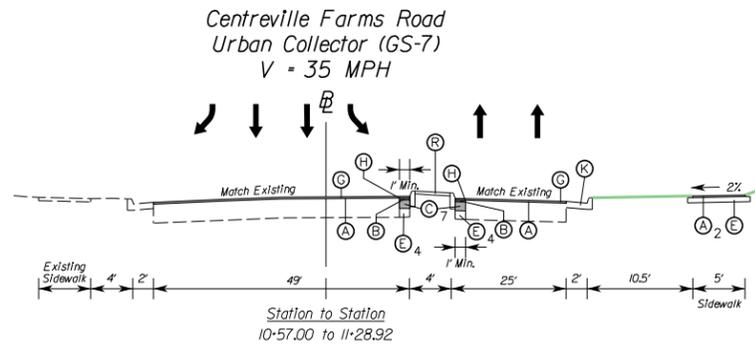
## LEGEND

- |   |   |  |  |
|---|---|--|--|
| (A) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5D @ 175 lbs/sy Req'd.               | (C <sub>4</sub> ) 6.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                    | (E <sub>3</sub> ) 8" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb  | (L) 4" Curb and Gutter, Std. CG-7 Req'd.                       |
| (A <sub>1</sub> ) 2.0" Surface Course, Asphalt Concrete, Type SM-9.5A @ 240 lbs/sy Req'd. | (C <sub>5</sub> ) 7.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                    | (E <sub>4</sub> ) 12" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb | (M) Raised Grass Median Strip, Std. MS-2 CG-3 Style Req'd.     |
| (A <sub>2</sub> ) 4.0" Hydraulic Cement Concrete, Class A3                                | (C <sub>6</sub> ) 9.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                    | (E <sub>5</sub> ) 18" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb | (N) Raised Concrete Median Strip, Std. MS-1 CG-3 Style Req'd.  |
| (A <sub>3</sub> ) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5A @ 175 lbs/sy Req'd. | (C <sub>7</sub> ) 10.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                   | (F) 8" Cement Treated Aggr. Extend 1' Behind Back Of Curb                          | (P) Pavement Edgedrain, Std. UD-4 Req'd.                       |
| (B) 2.0" Intermediate Course, Asphalt Concrete, Type IM-19.0A @ 242 lbs/sy Req'd.         | (C <sub>8</sub> ) 10.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                   | (F <sub>1</sub> ) 12" Cement Treated Aggr. Extend 1' Behind Back Of Curb           | (Q) Variable Depth Buildup                                     |
| (C) 3.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                              | (D) 3" Asphalt Stabilized Open Graded Drainage Layer  | (G) Mill Exst. Pavement, 1.5"  | (R) Raised Concrete Median Strip, Std. MS-1A CG-2 Style Req'd. |
| (C <sub>1</sub> ) 4.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                | (E) 4" Aggr. Material, Type I, No.21B Extend 4" Beyond Edge of Surface Material               | (H) Full Depth Sawcut  | (S) Raised Concrete Median Strip, Std. MS-1 CG-2 Style Req'd.  |
| (C <sub>2</sub> ) 5.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                | (E <sub>1</sub> ) 6" Aggr. Material, Type I, No.21B Extend 6" Beyond Edge of Surface Material | (J) 6" Curb, Std. CG-2 Req'd.  |  |
| (C <sub>3</sub> ) 6.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                | (E <sub>2</sub> ) 6" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb             | (K) 6" Curb and Gutter, Std. CG-6 Req'd.   |  |

# TYPICAL SECTIONS

REVISED	STATE	ROUTE	COUNTY	PROJECT	SHEET NO.
	VA.	29		0029-029-350 RW-201,C-501	2A(5)

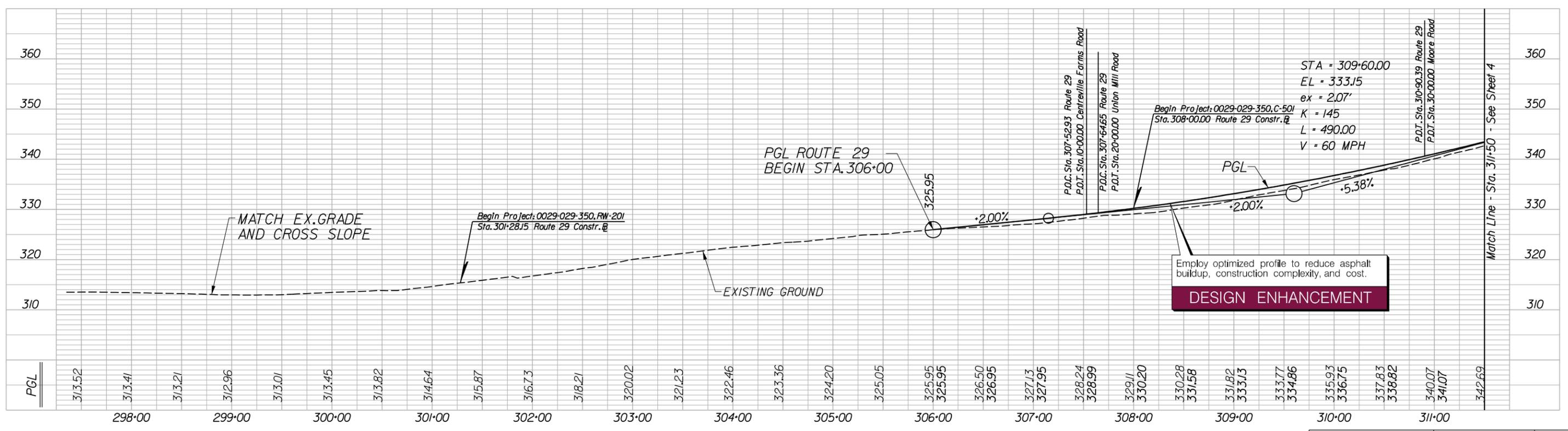
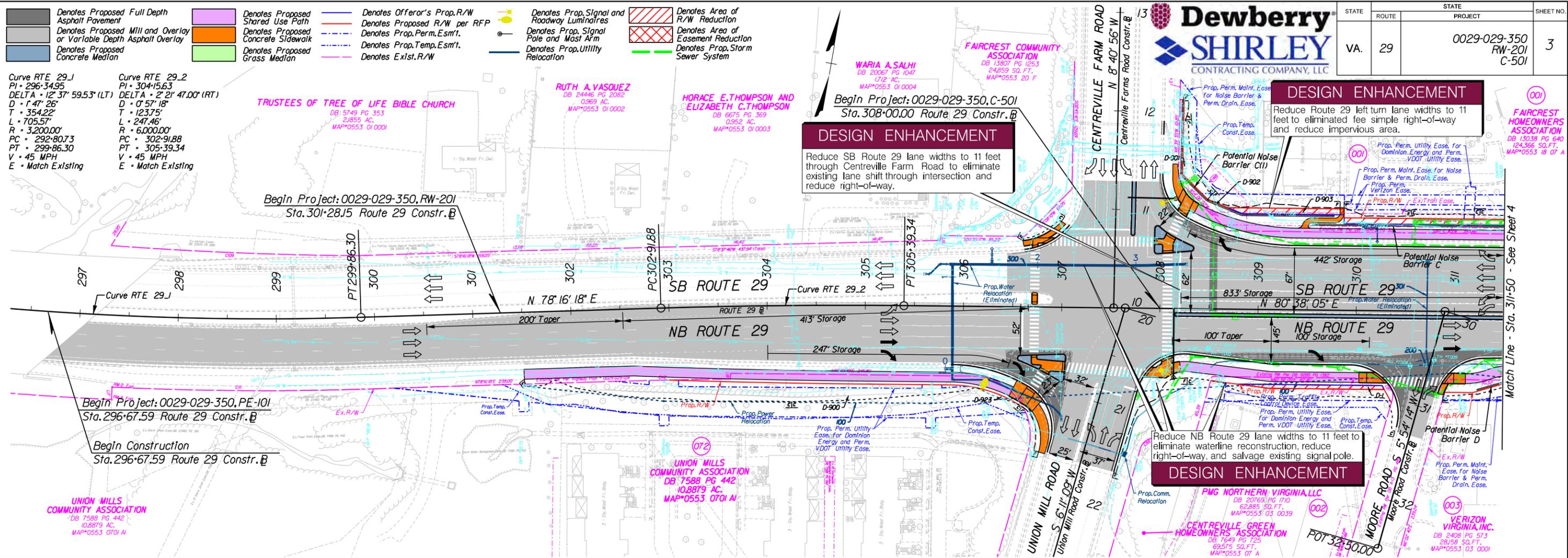
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

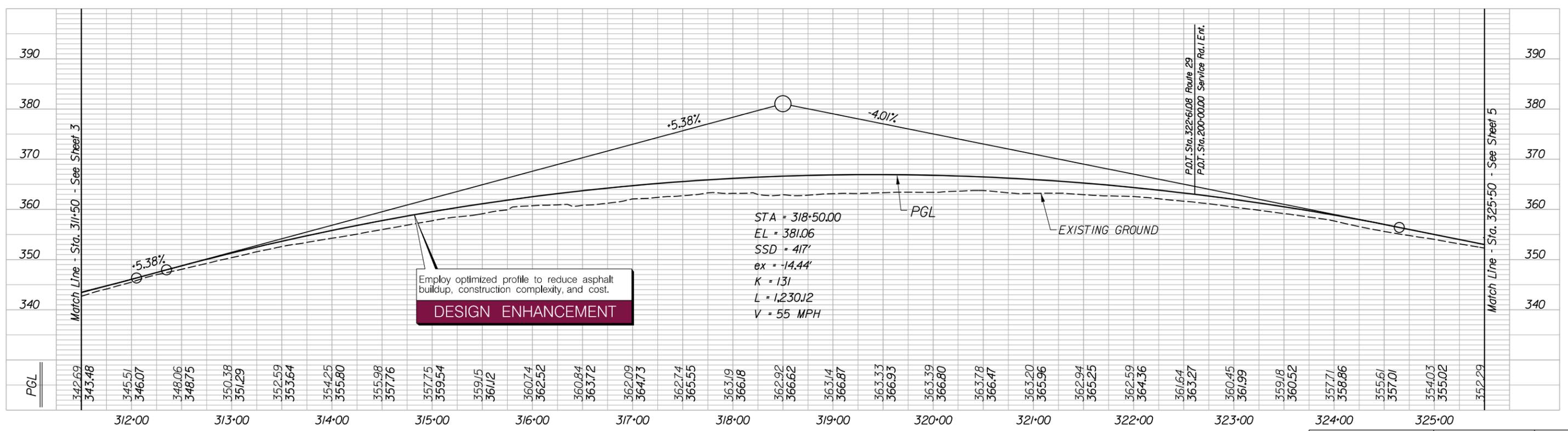
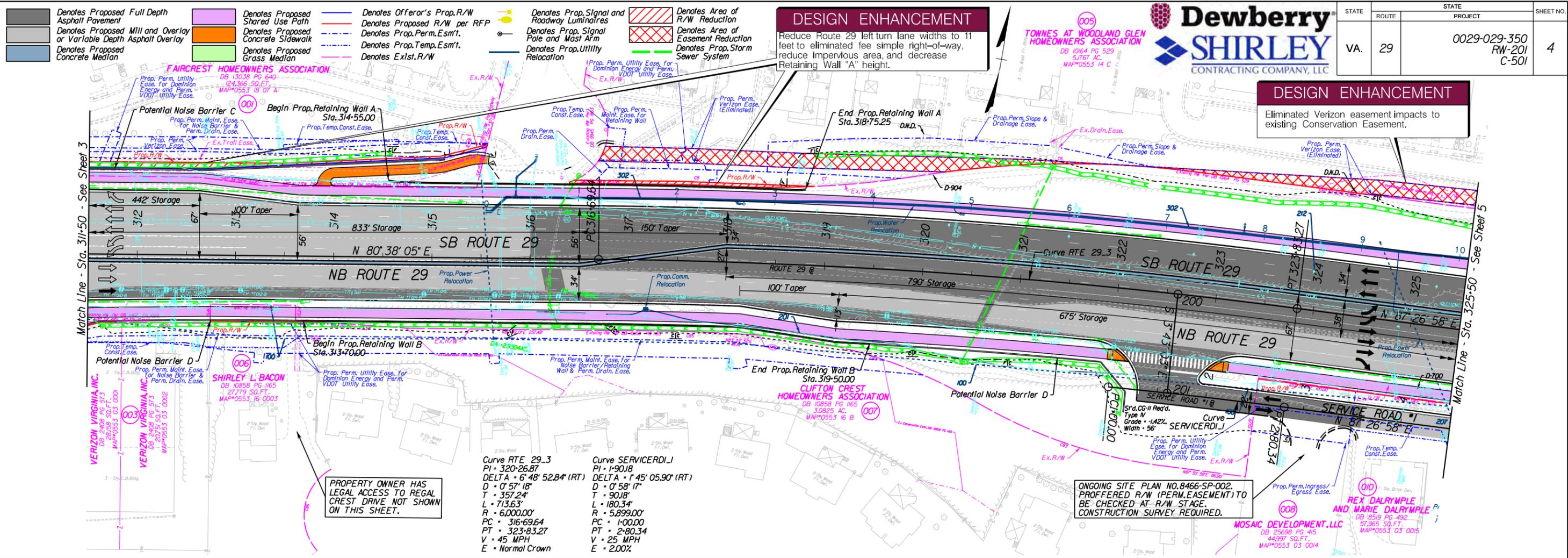


Proposed Pavement  
Denotes Proposed Grass Median/ Buffer/Planted Area

## LEGEND

- |   |   |  |  |
|---|---|--|--|
| (A) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5D @ 175 lbs/sy Req'd.               | (C <sub>4</sub> ) 6.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                    | (E <sub>3</sub> ) 8" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb  | (L) 4" Curb and Gutter, S't.d. CG-7 Req'd.                       |
| (A <sub>1</sub> ) 2.0" Surface Course, Asphalt Concrete, Type SM-9.5A @ 240 lbs/sy Req'd. | (C <sub>5</sub> ) 7.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                    | (E <sub>4</sub> ) 12" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb | (M) Raised Grass Median Strip, S't.d. MS-2 CG-3 Style Req'd.     |
| (A <sub>2</sub> ) 4.0" Hydraulic Cement Concrete, Class A3                                | (C <sub>6</sub> ) 9.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                    | (E <sub>5</sub> ) 18" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb | (N) Raised Concrete Median Strip, S't.d. MS-1 CG-3 Style Req'd.  |
| (A <sub>3</sub> ) 1.5" Surface Course, Asphalt Concrete, Type SM-9.5A @ 175 lbs/sy Req'd. | (C <sub>7</sub> ) 10.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                   | (F) 8" Cement Treated Aggr. Extend 1' Behind Back Of Curb                          | (P) Pavement Edgedrain, S't.d. UD-4 Req'd.                       |
| (B) 2.0" Intermediate Course, Asphalt Concrete, Type IM-19.0A @ 242 lbs/sy Req'd.         | (C <sub>8</sub> ) 10.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                   | (F <sub>1</sub> ) 12" Cement Treated Aggr. Extend 1' Behind Back Of Curb           | (Q) Variable Depth Buildup                                       |
| (C) 3.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                              | (D) 3" Asphalt Stabilized Open Graded Drainage Layer  | (G) Mill Exst. Pavement, 1.5"  | (R) Raised Concrete Median Strip, S't.d. MS-1A CG-2 Style Req'd. |
| (C <sub>1</sub> ) 4.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                | (E) 4" Aggr. Material, Type I, No.21B Extend 4" Beyond Edge of Surface Material               | (H) Full Depth Sawcut  | (S) Raised Concrete Median Strip, S't.d. MS-1 CG-2 Style Req'd.  |
| (C <sub>2</sub> ) 5.5" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                | (E <sub>1</sub> ) 6" Aggr. Material, Type I, No.21B Extend 6" Beyond Edge of Surface Material | (J) 6" Curb, S't.d. CG-2 Req'd.  |  |
| (C <sub>3</sub> ) 6.0" Base Course, Asphalt Concrete, Type BM-25.0A Req'd.                | (E <sub>2</sub> ) 6" Aggr. Material, Type I, No.21B Extend 1' Behind Back Of Curb             | (K) 6" Curb and Gutter, S't.d. CG-6 Req'd.   |  |

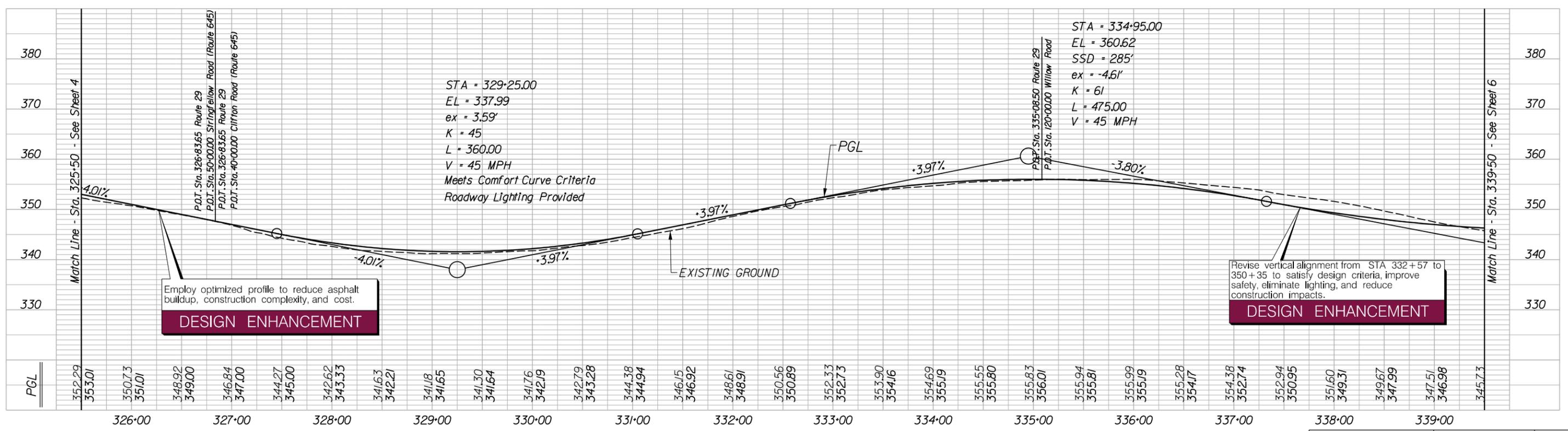
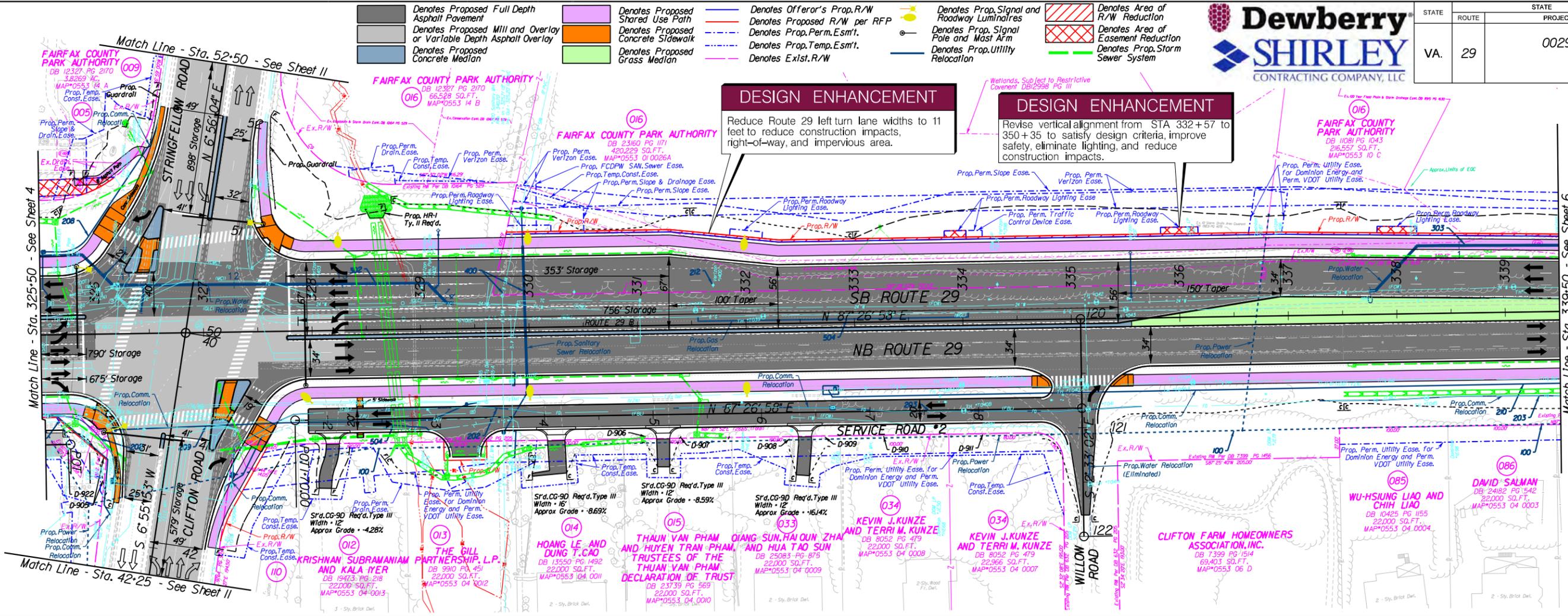


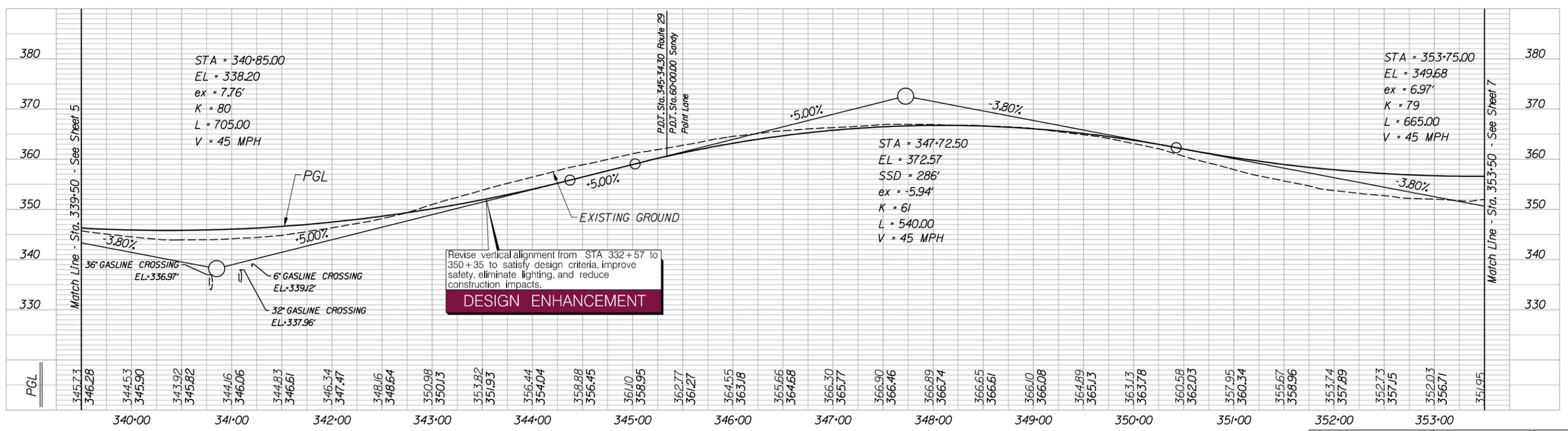
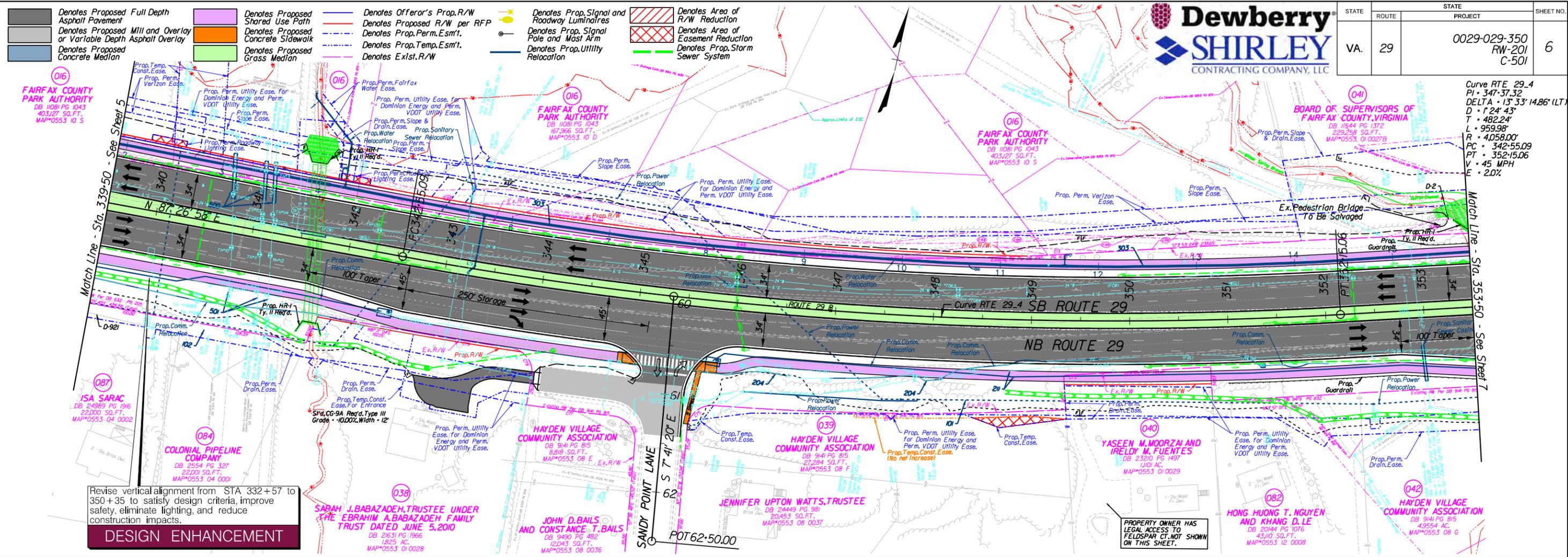


- Denotes Proposed Full Depth Asphalt Pavement
- Denotes Proposed Mill and Overlay or Variable Depth Asphalt Overlay
- Denotes Proposed Concrete Median
- Denotes Proposed Shared Use Path
- Denotes Proposed Concrete Sidewalk
- Denotes Proposed Grass Median
- Denotes Offeror's Prop. R/W
- Denotes Proposed R/W per RFP
- Denotes Prop. Perm. Esm't.
- Denotes Prop. Temp. Esm't.
- Denotes Exlst. R/W
- Denotes Prop. Signal and Roadway Luminaires
- Denotes Prop. Signal Pole and Mast Arm
- Denotes Prop. Utility Relocation
- Denotes Area of R/W Reduction
- Denotes Area of Easement Reduction
- Denotes Prop. Storm Sewer System

**DESIGN ENHANCEMENT**  
Reduce Route 29 left turn lane widths to 11 feet to reduce construction impacts, right-of-way, and impervious area.

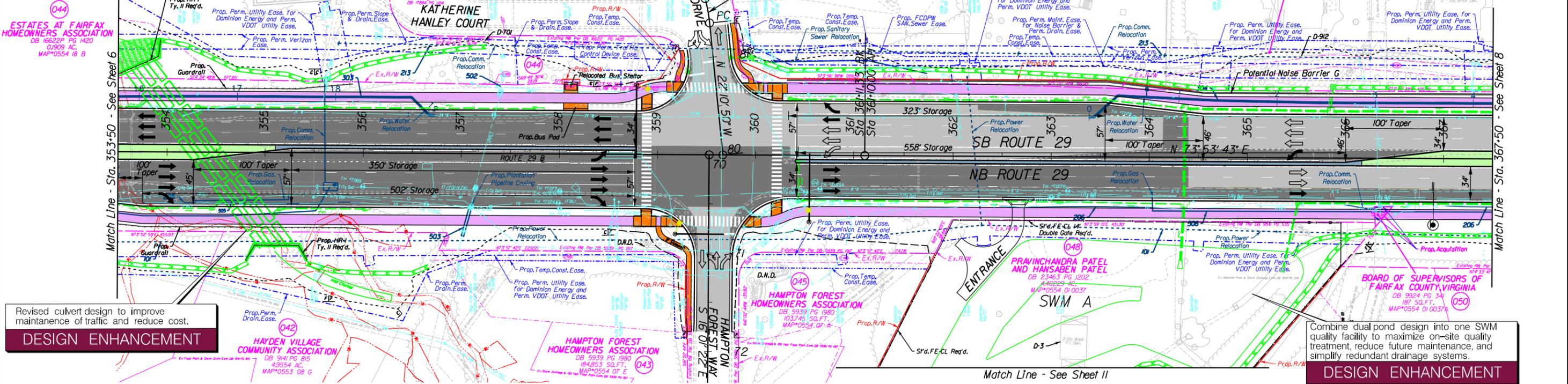
**DESIGN ENHANCEMENT**  
Revise vertical alignment from STA 332+57 to 350+35 to satisfy design criteria, improve safety, eliminate lighting, and reduce construction impacts.





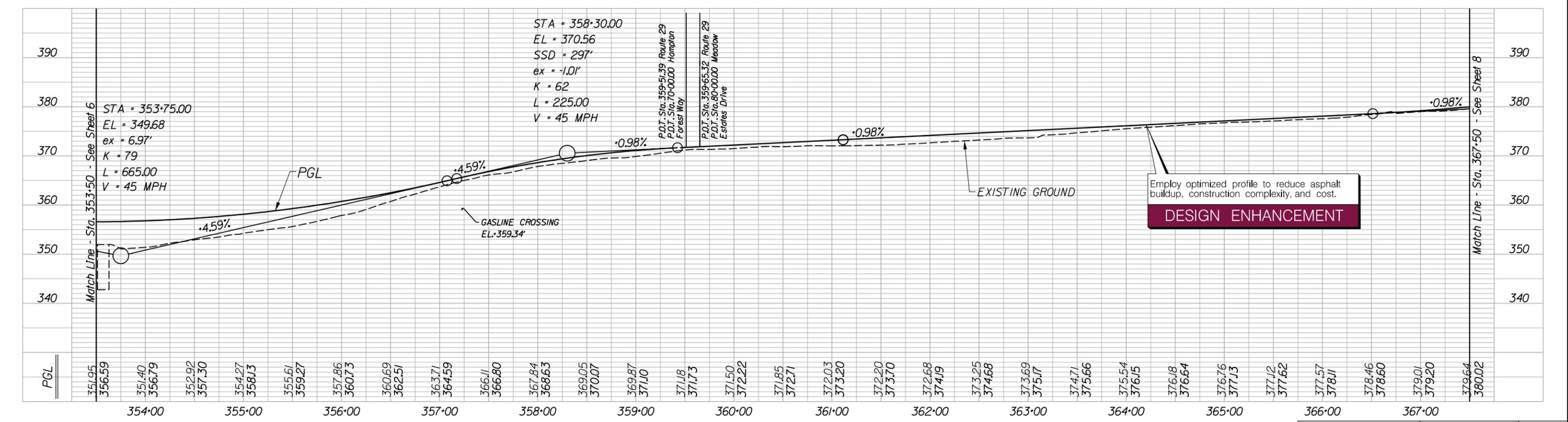
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- Denotes Prop.Signal Pole and Mast Arm
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- Denotes Area of R/W Reduction
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- Denotes Prop.Storm Sewer System

Curve MEADOW J  
PI = 81+47.48  
DELTA = 91° 19.64' (LT)  
D = 36' 57" 54"  
T = 12.59'  
L = 251.3'  
R = 155.00'  
PC = 81+34.89  
PT = 81+60.02  
V = 25 MPH  
E = Match Existing

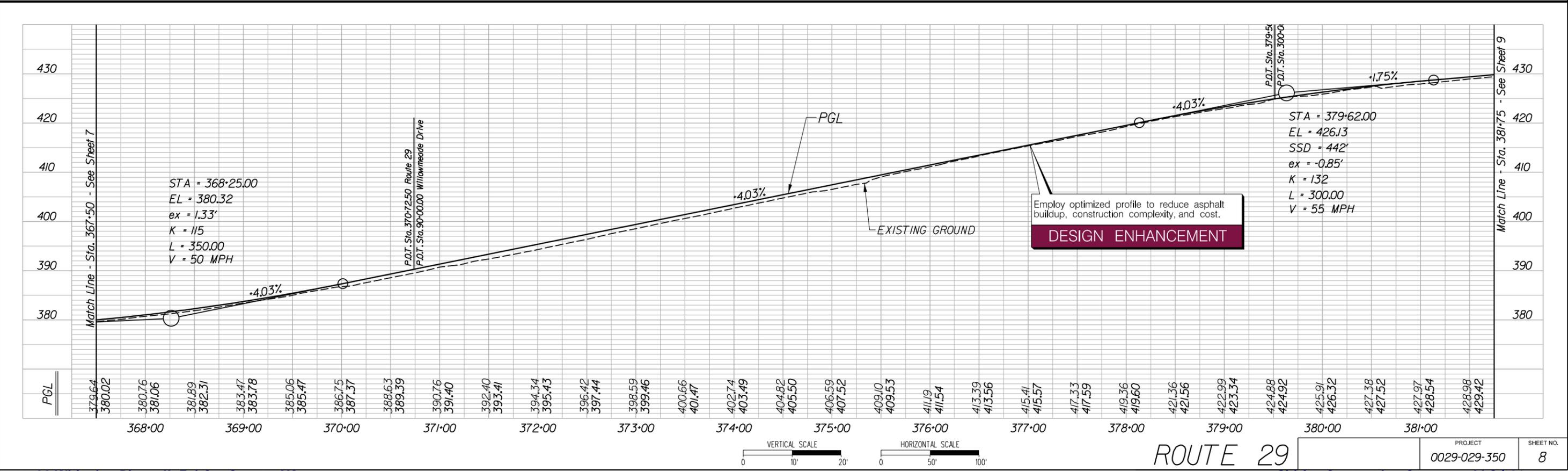
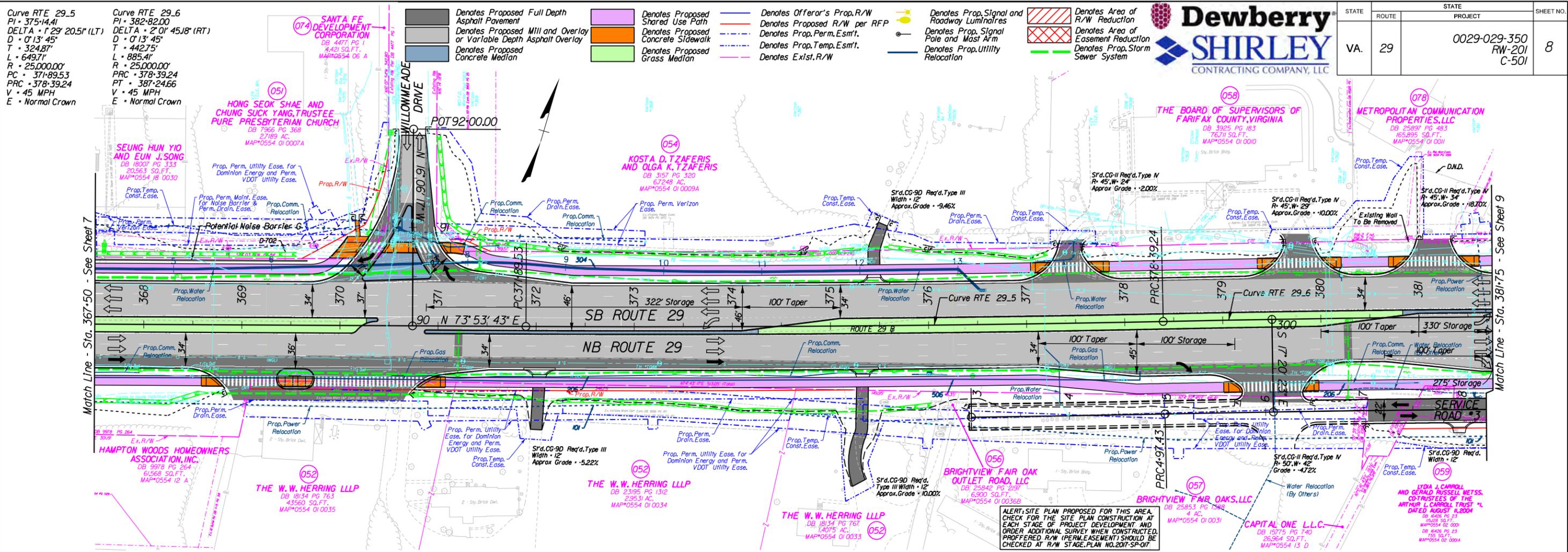


Revised culvert design to improve maintenance of traffic and reduce cost.  
**DESIGN ENHANCEMENT**

Combine dual pond design into one SWM quality facility to maximize on-site quality treatment, reduce future maintenance, and simplify redundant drainage systems.  
**DESIGN ENHANCEMENT**



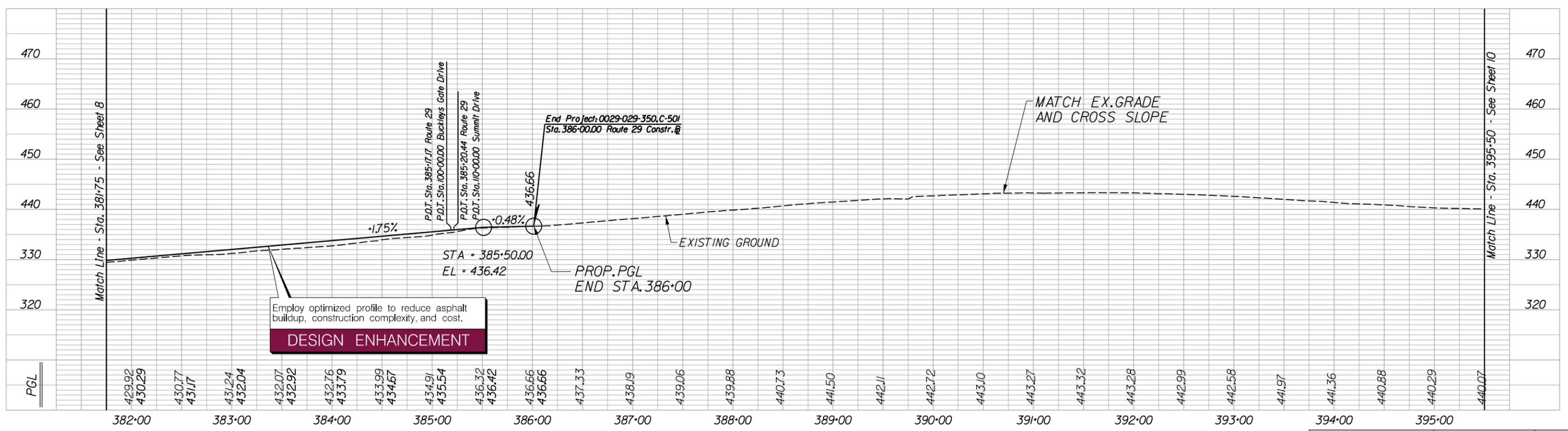
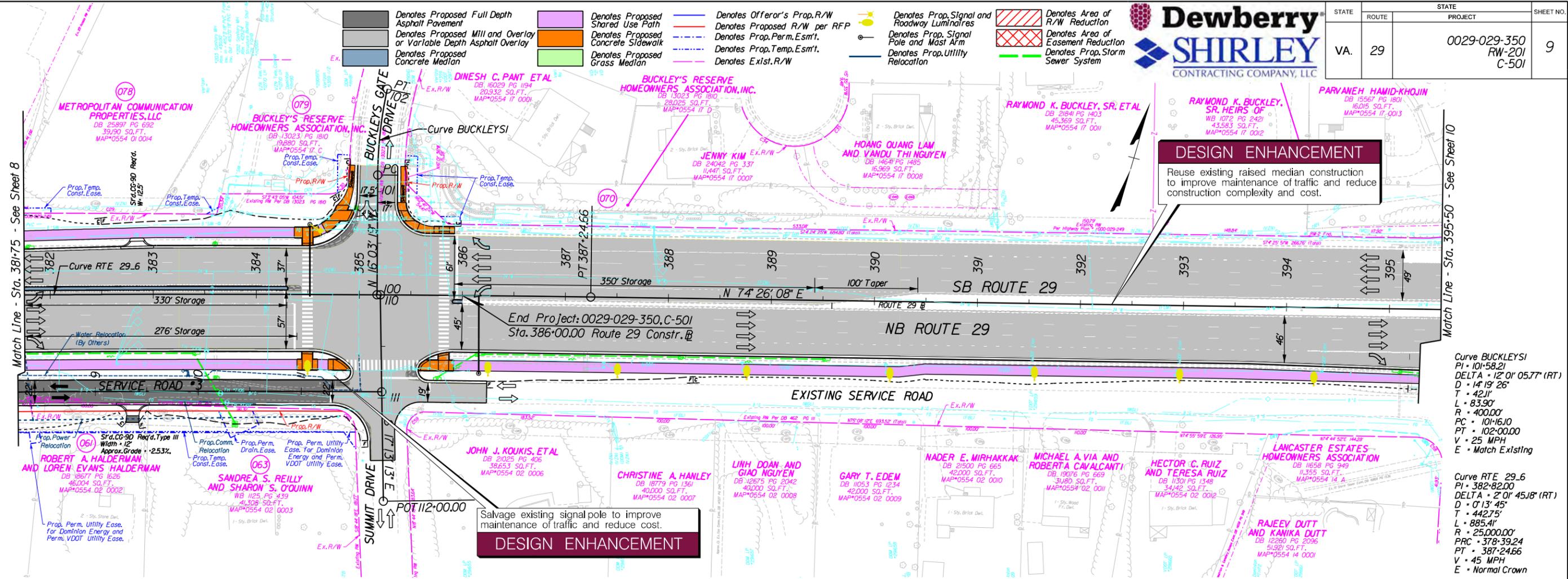
Employ optimized profile to reduce asphalt buildup, construction complexity, and cost.  
**DESIGN ENHANCEMENT**

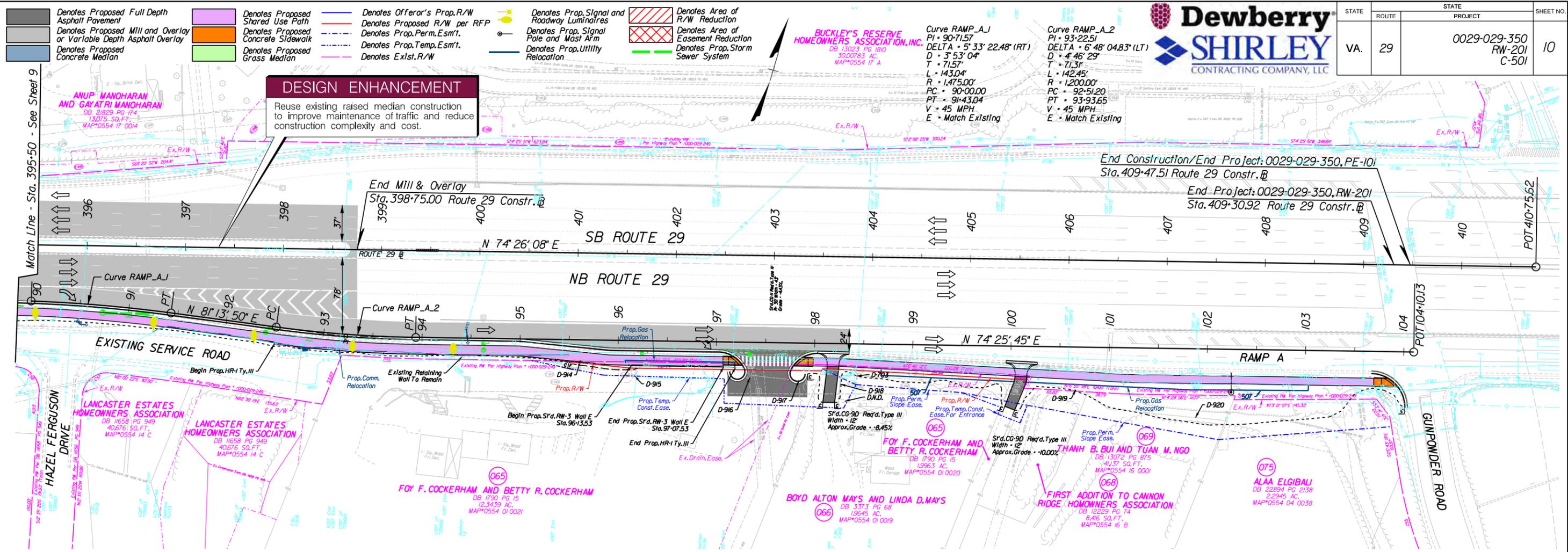


STATE	ROUTE	PROJECT	SHEET NO.
VA.	29	0029-029-350 RW-201 C-501	9

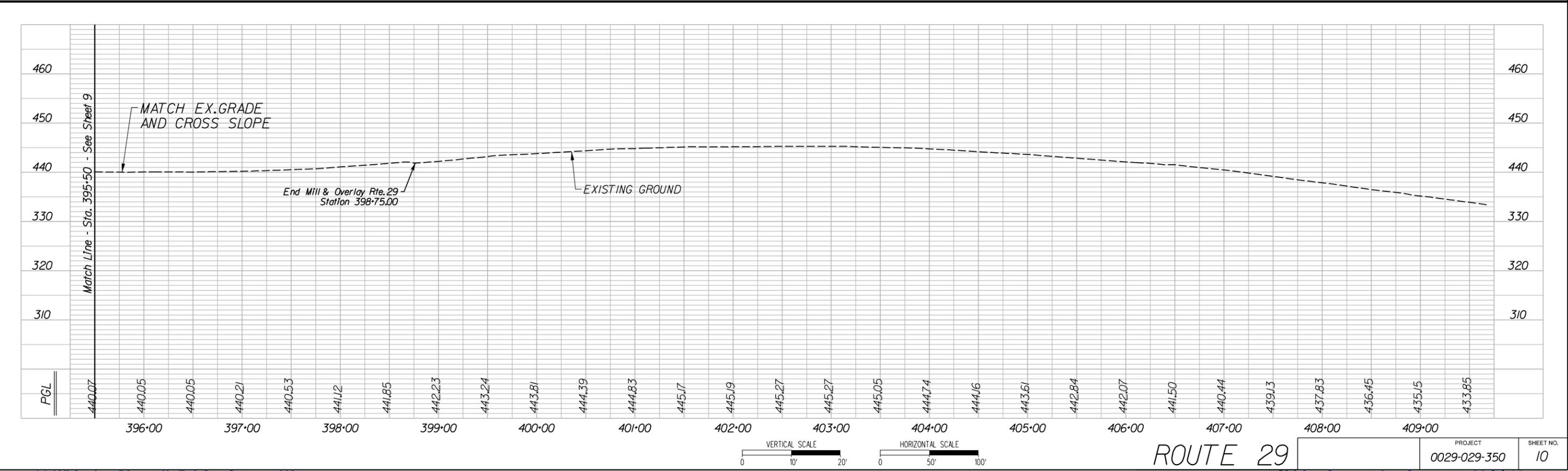


- Denotes Proposed Full Depth Asphalt Pavement
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- Denotes Proposed Concrete Sidewalk
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- Denotes Exist.R/W
- Denotes Prop.Signal and Roadway Luminaires
- Denotes Prop.Signal Pole and Mast Arm
- Denotes Prop.Utility Relocation
- Denotes Area of R/W Reduction
- Denotes Area of Easement Reduction
- Denotes Prop.Storm Sewer System





STATE	ROUTE	PROJECT	SHEET NO.
VA.	29	0029-029-350 RW-201 C-501	10



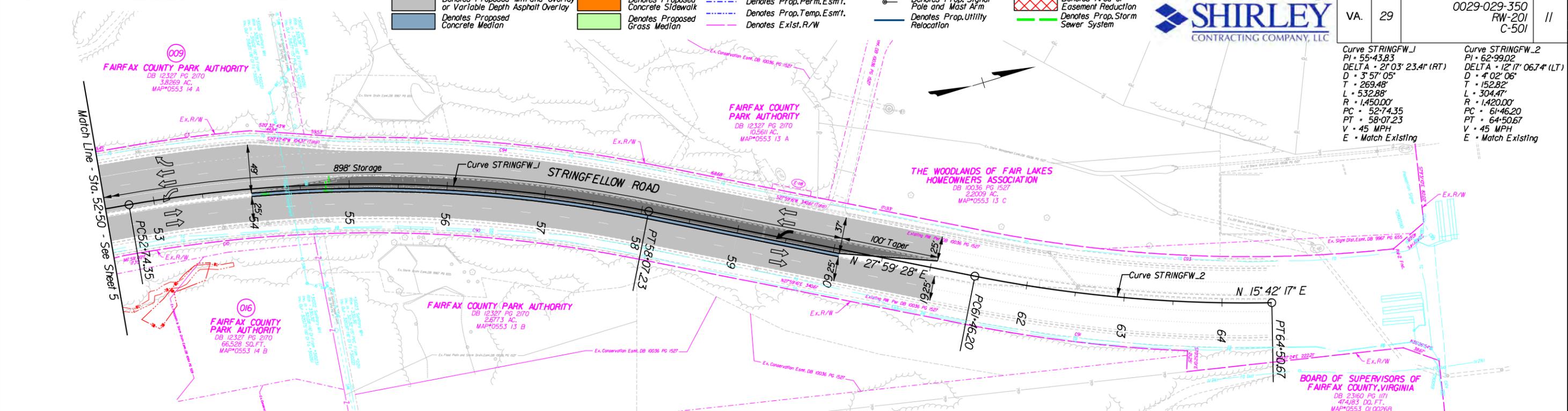
# STRINGFELLOW ROAD

- Denotes Proposed Full Depth Asphalt Pavement
- Denotes Proposed Mill and Overlay or Variable Depth Asphalt Overlay
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- Denotes Area of R/W Reduction
- Denotes Area of Easement Reduction
- Denotes Prop. Storm Sewer System

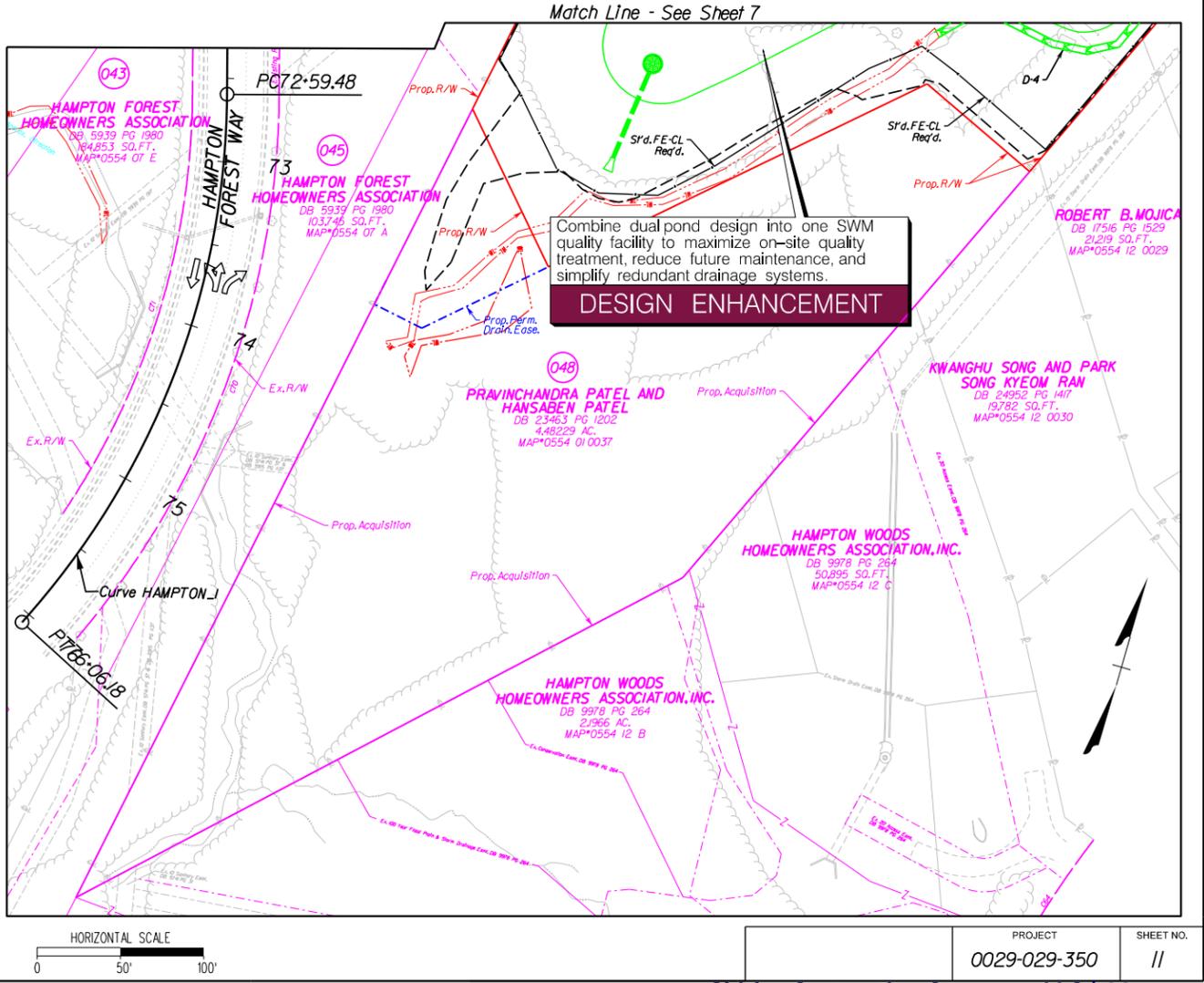
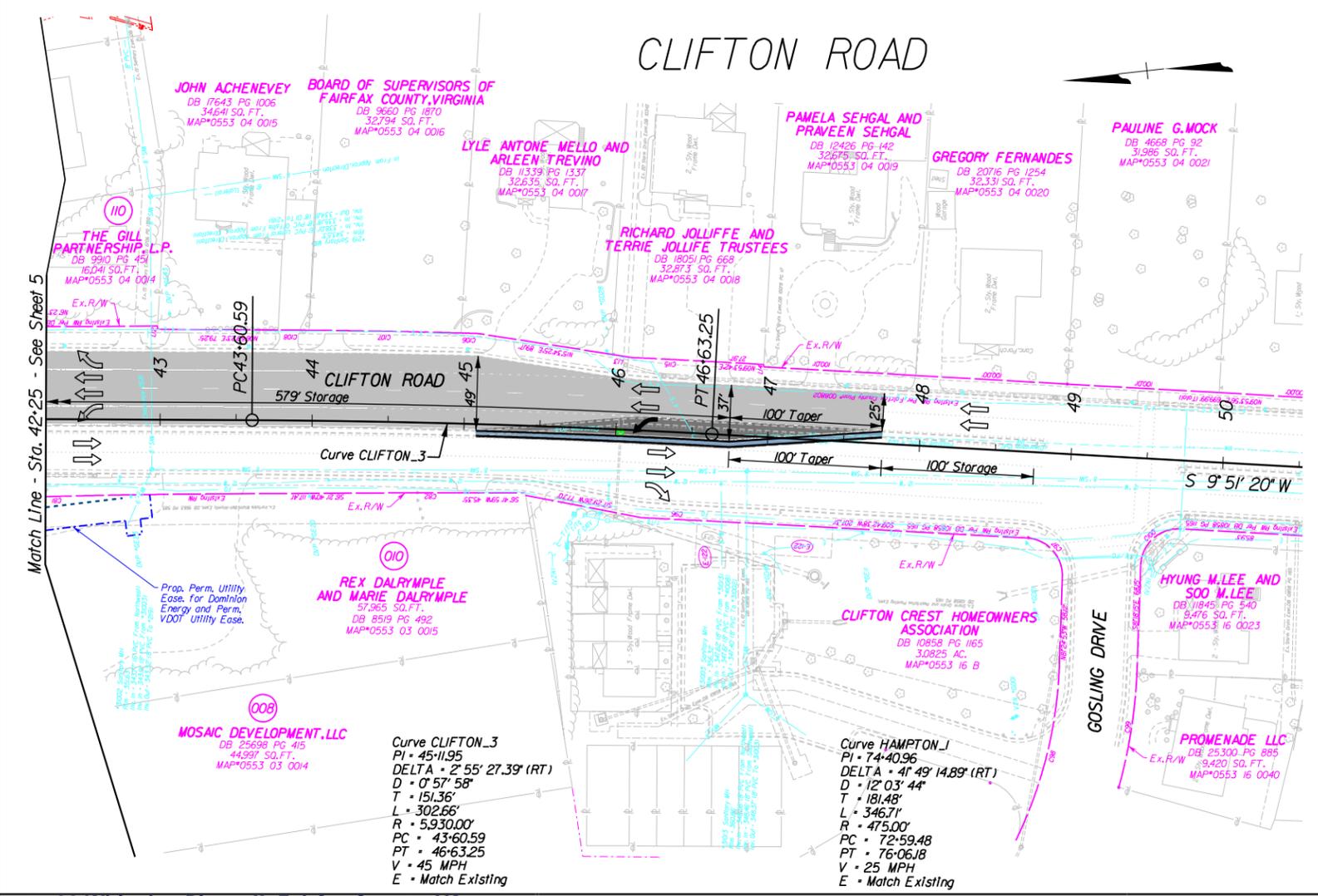


STATE	ROUTE	PROJECT	SHEET NO.
VA.	29	0029-029-350 RW-201 C-501	11

Curve STRINGFELLOW_1 PI = 55+43.83 DELTA = 2° 03' 23.4" (RT) D = 3' 57' 05" T = 269.48' L = 532.88' R = 1,450.00' PC = 52+74.35 PT = 58+07.23 V = 45 MPH E = Match Existing	Curve STRINGFELLOW_2 PI = 62+99.02 DELTA = 12° 17' 06.74" (LT) D = 4' 02' 06" T = 152.82' L = 304.47' R = 1,420.00' PC = 61+46.20 PT = 64+50.67 V = 45 MPH E = Match Existing
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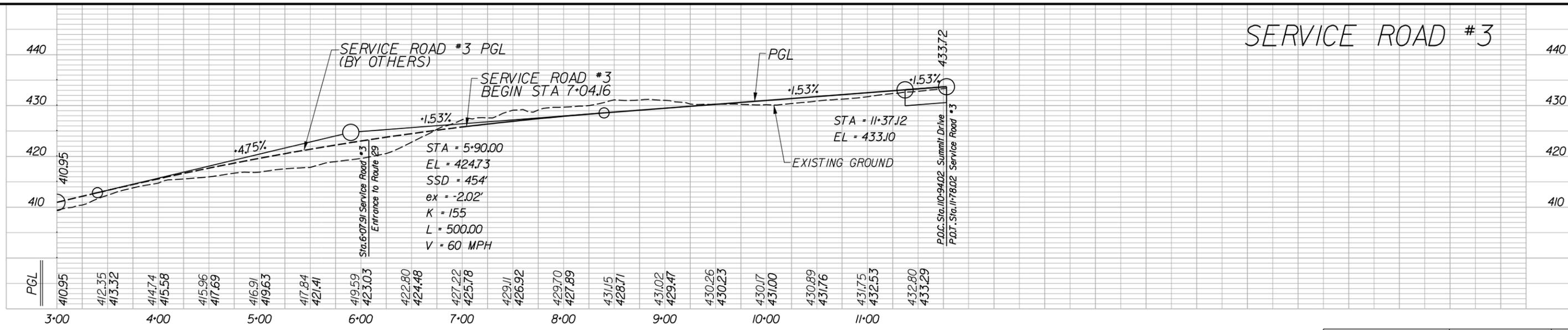
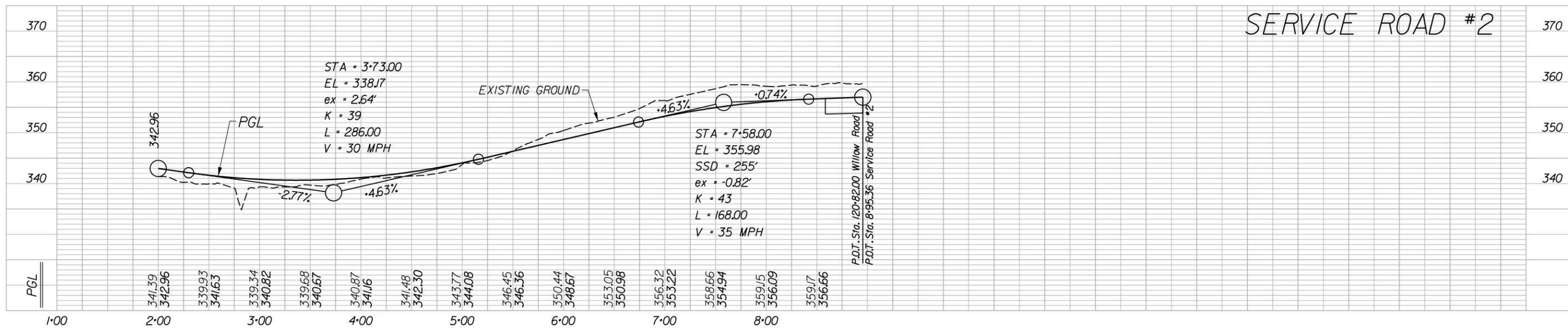
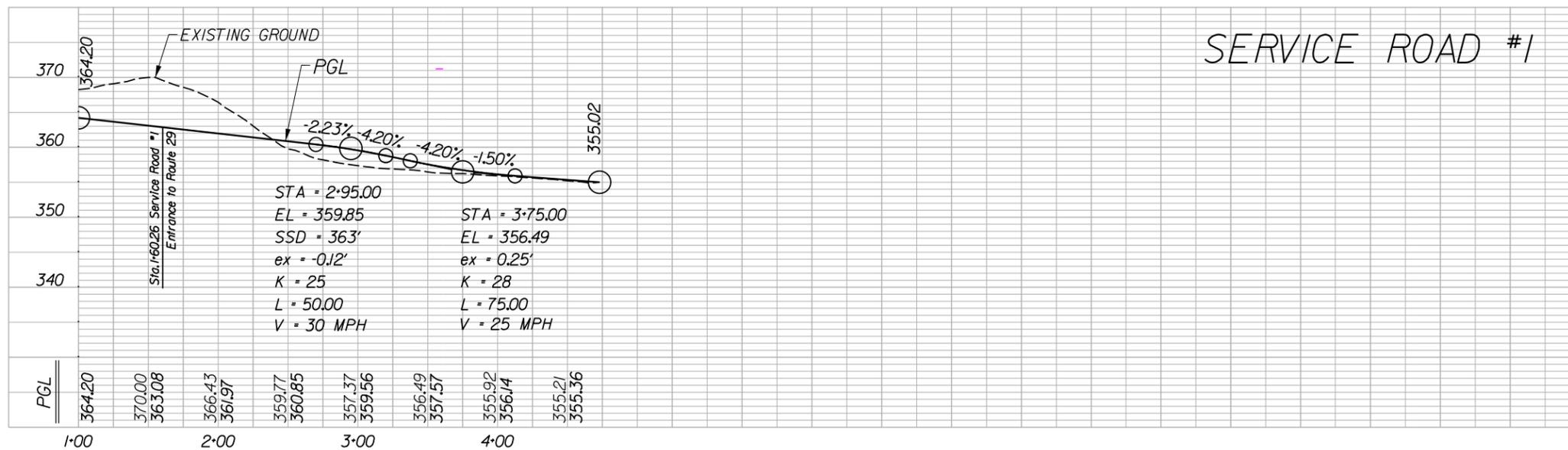
# CLIFTON ROAD



Combine dual pond design into one SWM quality facility to maximize on-site quality treatment, reduce future maintenance, and simplify redundant drainage systems.

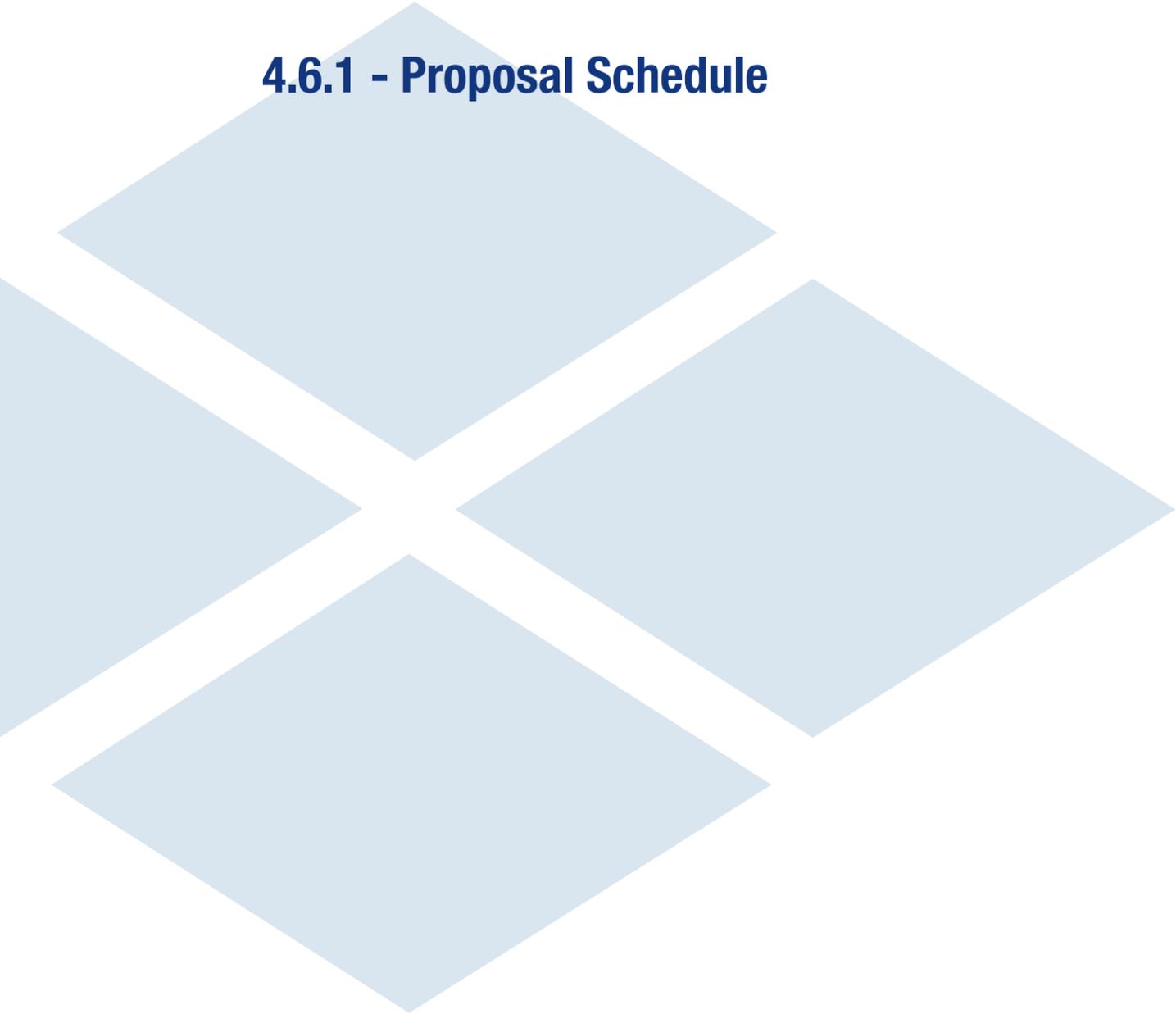
**DESIGN ENHANCEMENT**

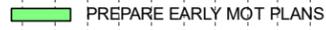
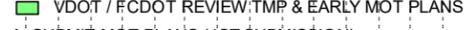
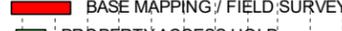
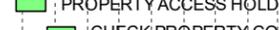
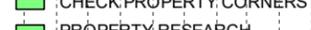
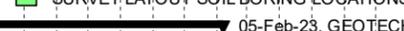
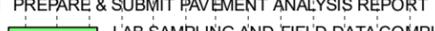
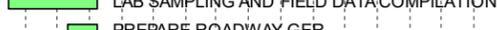




## SERVICE ROADS

## 4.6.1 - Proposal Schedule



Activity ID	Activity Name	Original Duration	Start	Finish	2022												2023												2024												2025												2026																							
					M	J	Jul	A	S	Oct	N	D	J	F	M	Apr	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D																
<b>ROUTE 29 WIDENING PHASE II - C00110329DB113</b>					29-Apr																																																																							
<b>SCHEDULE MILESTONES</b>					29-Apr																																																																							
A000000-1000	NOTICE OF INTENT TO AWARD (04/21/2022)	0	21-Apr-22	29-Apr-26	NOTICE OF INTENT TO AWARD (04/21/2022)																																																																							
A000000-1010	CTB AWARD	0	18-May-22		◆ CTB AWARD																																																																							
A000000-1020	DESIGN-BUILD CONTRACT EXECUTION	0	15-Jun-22		◆ DESIGN-BUILD CONTRACT EXECUTION																																																																							
A000000-1050	SCOPE VALIDATION PERIOD (120 DAYS)	120	17-Jun-22	14-Oct-22	 SCOPE VALIDATION PERIOD (120 DAYS)																																																																							
A000000-1040	NOTICE TO PROCEED (06/17/2022)	0	17-Jun-22*		◆ NOTICE TO PROCEED (06/17/2022)																																																																							
A000000-1250	UNIQUE MILESTONE 1 - CLIFTON ROAD/STRINGFELLOW ROAD TURN LANE E	0		03-Nov-23	◆ UNIQUE MILESTONE 1 - CLIFTON ROAD/STRINGFELLOW ROAD TURN LANE EXTENTION																																																																							
A000000-1220	UNIQUE MILESTONE 2 - AREA 6 TRAIL CONNECTION	0		21-May-24	◆ UNIQUE MILESTONE 2 - AREA 6 TRAIL CONNECTION																																																																							
A000000-1240	UNIQUE MILESTONE 3- THIRD LANE SB STRINGFELLOW- WEST	0		28-Aug-24	◆ UNIQUE MILESTONE 3- THIRD LANE SB STRINGFELLOW- WEST																																																																							
A000000-1180	PUNCH LIST INSPECTION	5	24-Mar-26	31-Mar-26	PUNCH LIST																																																																							
A000000-1210	ADDRESS PUNCH LIST	25	24-Mar-26	29-Apr-26	ADDRESS LIST																																																																							
A000000-1160	EARLY COMPLETION DATE- FINAL COMPLETION	0		29-Apr-26*	◆ EARLY																																																																							
<b>CONSTRUCTION KEY DATES</b>					08-May-25, CONSTRUCTION KEY DATES																																																																							
A000000-1260	SWITCH TRAFFIC TO STAGE 1B CONFIGURATION	0	07-Sep-23		◆ SWITCH TRAFFIC TO STAGE 1B CONFIGURATION																																																																							
A000000-1270	SWITCH TRAFFIC TO STAGE 1C CONFIGURATION	0	28-Jun-24		◆ SWITCH TRAFFIC TO STAGE 1C CONFIGURATION																																																																							
A000000-1300	SWITCH TRAFFIC TO STAGE 2 CONFIGURATION IN AREA 2 & 3	0	24-Jul-24		◆ SWITCH TRAFFIC TO STAGE 2 CONFIGURATION IN AREA 2 & 3																																																																							
A000000-1280	SWITCH TRAFFIC TO STAGE 2 CONFIGURATION IN AREA 4 & 5	0	24-Sep-24		◆ SWITCH TRAFFIC TO STAGE 2 CONFIGURATION IN AREA 4 & 5																																																																							
A000000-1290	SWITCH TRAFFIC TO STAGE 3 CONFIGURATION	0	08-May-25		◆ SWITCH TRAFFIC TO STAGE 3 CONFIGURATION																																																																							
<b>DESIGN PHASE</b>					02-May-23, DESIGN PHASE																																																																							
<b>PRELIMINARY DESIGN</b>					05-Feb-23, PRELIMINARY DESIGN																																																																							
<b>EARLY DESIGN / MOT</b>					20-Dec-22, EARLY DESIGN / MOT																																																																							
BA10000-1000	PREPARE EARLY MOT PLANS	40	20-Jun-22	15-Aug-22	 PREPARE EARLY MOT PLANS																																																																							
BA10000-1010	PREPARE TRANSPORTATION MANAGEMENT PLAN (TMP)	20	16-Aug-22	13-Sep-22	 PREPARE TRANSPORTATION MANAGEMENT PLAN (TMP)																																																																							
BA10000-1020	DESIGN QA/QC MOT PLANS	5	14-Sep-22	20-Sep-22	 DESIGN QA/QC MOT PLANS																																																																							
BA10000-1030	VDOT / FCDOT REVIEW TMP & EARLY MOT PLANS	21	21-Sep-22	11-Oct-22	 VDOT / FCDOT REVIEW TMP & EARLY MOT PLANS																																																																							
BA10000-1040	SUBMIT MOT PLANS (1ST SUBMISSION)	0	21-Sep-22		◆ SUBMIT MOT PLANS (1ST SUBMISSION)																																																																							
BA10000-1050	INCORPORATE VDOT / FCDOT COMMENTS TO MOT PLANS	20	12-Oct-22	08-Nov-22	 INCORPORATE VDOT / FCDOT COMMENTS TO MOT PLANS																																																																							
BA10000-1060	DESIGN QA/QC MOT PLANS (2ND SUBMISSION)	5	09-Nov-22	15-Nov-22	 DESIGN QA/QC MOT PLANS (2ND SUBMISSION)																																																																							
BA10000-1070	VDOT / FCDOT REVIEW TMP & EARLY MOT PLANS (2ND SUBMISSION)	21	16-Nov-22	06-Dec-22	 VDOT / FCDOT REVIEW TMP & EARLY MOT PLANS (2ND SUBMISSION)																																																																							
BA10000-1080	SUBMIT MOT PLANS (2ND SUBMISSION)	0	16-Nov-22		◆ SUBMIT MOT PLANS (2ND SUBMISSION)																																																																							
BA10000-1090	FINAL COMMENT RESOLUTION - EARLY MOT PLANS	10	07-Dec-22	20-Dec-22	 FINAL COMMENT RESOLUTION - EARLY MOT PLANS																																																																							
BA10000-1100	RFC - EARLY START / MOT PLANS ISSUED FOR CONSTRUCTION	0		20-Dec-22	◆ RFC - EARLY START / MOT PLANS ISSUED FOR CONSTRUCTION																																																																							
<b>DESIGN QA/QC PLAN</b>					13-Jul-22, DESIGN QA/QC PLAN																																																																							
BA20000-1000	PREPARE/SUBMIT DESIGN QA/QC PLAN	3	17-Jun-22	21-Jun-22	 PREPARE/SUBMIT DESIGN QA/QC PLAN																																																																							
BA20000-1010	PRESENT DESIGN QA/QC PLAN / KICK OFF MEETING	1	22-Jun-22	22-Jun-22	 PRESENT DESIGN QA/QC PLAN / KICK OFF MEETING																																																																							
BA20000-1020	VDOT / FCDOT COUNTY REVIEW DESIGN QA/QC PLAN	21	23-Jun-22	13-Jul-22	 VDOT / FCDOT COUNTY REVIEW DESIGN QA/QC PLAN																																																																							
BA20000-1030	QA/QC PLAN APPROVED	0		13-Jul-22	◆ QA/QC PLAN APPROVED																																																																							
<b>SURVEYS</b>					19-Aug-22, SURVEYS																																																																							
BA30000-1000	SET CONTROL AND PANEL POINTS	10	17-Jun-22	30-Jun-22	 SET CONTROL AND PANEL POINTS																																																																							
BA30000-1010	DISTRIBUTE ACCESS LETTERS	5	17-Jun-22	23-Jun-22	 DISTRIBUTE ACCESS LETTERS																																																																							
BA30000-1020	BASE MAPPING / FIELD SURVEY	40	20-Jun-22	15-Aug-22	 BASE MAPPING / FIELD SURVEY																																																																							
BA30000-1030	PROPERTY ACCESS HOLD	30	24-Jun-22	23-Jul-22	 PROPERTY ACCESS HOLD																																																																							
BA30000-1040	CHECK PROPERTY CORNERS	20	25-Jul-22	19-Aug-22	 CHECK PROPERTY CORNERS																																																																							
BA30000-1050	PROPERTY RESEARCH	20	25-Jul-22	19-Aug-22	 PROPERTY RESEARCH																																																																							
BA30000-1060	SURVEY LAYOUT SOIL BORING LOCATIONS	15	25-Jul-22	12-Aug-22	 SURVEY LAYOUT SOIL BORING LOCATIONS																																																																							
<b>GEOTECHNICAL INVESTIGATION REPORTS</b>					05-Feb-23, GEOTECHNICAL INVESTIGATION REPORTS																																																																							
BA40000-1000	PREPARE ROADWAY SOIL BORING LOCATION PLAN	10	17-Jun-22	30-Jun-22	 PREPARE ROADWAY SOIL BORING LOCATION PLAN																																																																							
BA40000-1010	PERFORM PAVEMENT ANALYSIS	20	01-Jul-22	29-Jul-22	 PERFORM PAVEMENT ANALYSIS																																																																							
BA40000-1020	ROADWAY GEOTECHNICAL FIELD INVESTIGATION	30	25-Jul-22	02-Sep-22	 ROADWAY GEOTECHNICAL FIELD INVESTIGATION																																																																							
BA40000-1030	PREPARE & SUBMIT PAVEMENT ANALYSIS REPORT	5	01-Aug-22	05-Aug-22	 PREPARE & SUBMIT PAVEMENT ANALYSIS REPORT																																																																							
BA40000-1040	LAB SAMPLING AND FIELD DATA COMPILATION	60	15-Aug-22	07-Nov-22	 LAB SAMPLING AND FIELD DATA COMPILATION																																																																							
BA40000-1050	PREPARE ROADWAY GER	20	11-Oct-22	07-Nov-22	 PREPARE ROADWAY GER																																																																							
BA40000-1060	SUBMIT ROADWAY GER	0	08-Nov-22		◆ SUBMIT ROADWAY GER																																																																							
BA40000-1070	VDOT / FCDOT REVIEW FINAL GEOTECHNICAL (90 DAY REVIEW FOR D/B PRO)	90	08-Nov-22	05-Feb-23	 VDOT / FCDOT REVIEW FINAL GEOTECHNICAL (90 DAY REVIEW FOR D/B PROJECTS)																																																																							
<b>UTILITY DESIGNATION AND TEST PITS ( BORE HOLES)</b>					04-Oct-22, UTILITY DESIGNATION AND TEST PITS ( BORE HOLES)																																																																							
BA50000-1000	UTILITY DESIGNATIONS	30	25-Jul-22	02-Sep-22	 UTILITY DESIGNATIONS																																																																							





ROUTE 29 WIDENING PHASE II - C00110329DB113			4.6.1 PROPOSAL SCHEDULE												09- Mar-22																						
Activity ID	Activity Name	Original Duration	Start	Finish	2022				2023				2024				2025				2026																
					M	J	Jul	A	S	Oct	N	D	J	F	M	Apr	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J
<b>STAGE 1A - LAND DISTURBANCE PERMIT</b>					07-Mar-23, STAGE 1A - LAND DISTURBANCE PERMIT																																
CC00000-1000	LD-445 FORMS- WITH 2ND SUBMISSION EARLY MOT PLANS	8	16-Nov-22	29-Nov-22	LD-445 FORMS- WITH 2ND SUBMISSION EARLY MOT PLANS																																
CC00000-1010	AGENCY REVIEW - STAGE 1A LD-445 FORMS	90	30-Nov-22	27-Feb-23	AGENCY REVIEW - STAGE 1A LD-445 FORMS																																
CC00000-1070	COMPLETE STAGE 1A SWPPP (LD-455E) CERTIFICATIONS	5	28-Feb-23	07-Mar-23	COMPLETE STAGE 1A SWPPP (LD-455E) CERTIFICATIONS																																
CC00000-1080	APPROVED STAGE 1A -LAND DISTURBANCE PERMIT APPLICATION AND SWPPP	0		07-Mar-23	APPROVED STAGE 1A -LAND DISTURBANCE PERMIT APPLICATION AND SWPPP FOR MOT PLAN APPROVAL																																
<b>PROJECT WIDE LAND DISTURBANCE PERMIT</b>					08-May-23, PROJECT WIDE LAND DISTURBANCE PERMIT																																
CC00000-1020	LD-445 FORMS - TO BE SUBMITTED WITH 60% PLANS	10	17-Jan-23	31-Jan-23	LD-445 FORMS - TO BE SUBMITTED WITH 60% PLANS																																
CC00000-1030	COMPLETE SWPPP (LD-455E) CERTIFICATIONS	5	31-Jan-23	07-Feb-23	COMPLETE SWPPP (LD-455E) CERTIFICATIONS																																
CC00000-1040	REQUEST PERMIT COVERAGE (APPLICATION COMPLETE - HOLD POINT)	0	31-Jan-23		REQUEST PERMIT COVERAGE (APPLICATION COMPLETE - HOLD POINT)																																
CC00000-1050	APPROVED LAND DISTURBANCE PERMIT APPLICATION AND SWPPP PROJECT	0	07-Feb-23		APPROVED LAND DISTURBANCE PERMIT APPLICATION AND SWPPP PROJECT WIDE																																
CC00000-1060	VDOT SECURE PERMIT COVERAGE AND RELEASE WORK (HOLD POINT)	90	07-Feb-23	08-May-23	VDOT SECURE PERMIT COVERAGE AND RELEASE WORK (HOLD POINT)																																
<b>NOISE ANALYSIS</b>					03-Jan-23, NOISE ANALYSIS																																
CD00000-1000	CONFIRM NOISE STUDY COMPLETED BY VDOT	30	16-Aug-22	27-Sep-22	CONFIRM NOISE STUDY COMPLETED BY VDOT																																
CD00000-1010	PERMIT NOISE ANALYSIS - MODELING ACTIVITIES	20	28-Sep-22	25-Oct-22	PERMIT NOISE ANALYSIS - MODELING ACTIVITIES																																
CD00000-1020	OPTIMIZATION OF NOISE WALL ANALYSIS	9	26-Oct-22	07-Nov-22	OPTIMIZATION OF NOISE WALL ANALYSIS																																
CD00000-1030	VDOT REVIEW & COMMENT ON NOISE REPORT	21	08-Nov-22	28-Nov-22	VDOT REVIEW & COMMENT ON NOISE REPORT																																
CD00000-1040	SUBMIT NOISE REPORT	0	08-Nov-22		SUBMIT NOISE REPORT																																
CD00000-1050	COMMENT RESPONSE /RE-SUBMIT NOISE REPORT	10	29-Nov-22	12-Dec-22	COMMENT RESPONSE /RE-SUBMIT NOISE REPORT																																
CD00000-1060	VDOT REVIEW 2ND SUBMISSION NOISE REPORT	21	13-Dec-22	02-Jan-23	VDOT REVIEW 2ND SUBMISSION NOISE REPORT																																
CD00000-1070	RE-SUBMIT NOISE REPORT	0	13-Dec-22		RE-SUBMIT NOISE REPORT																																
CD00000-1080	NOISE REPORT APPROVED	0		02-Jan-23	NOISE REPORT APPROVED																																
CD00000-1090	NOISE WALL APPROVED FOR CONSTRUCTION	0		03-Jan-23	NOISE WALL APPROVED FOR CONSTRUCTION																																
<b>PUBLIC INVOLVEMENT</b>					24-Mar-26, PUBLIC INVOLVEMENT																																
D000000-1000	PREPARE AND SUBMIT EMERGENCY CONTACT LIST	7	24-Jul-22	30-Jul-22	PREPARE AND SUBMIT EMERGENCY CONTACT LIST																																
D000000-1020	MEET WITH DISTRICT PUBLIC AFFAIRS TO DISCUSS PUBLIC INVOLVEMENT	15	01-Aug-22	19-Aug-22	MEET WITH DISTRICT PUBLIC AFFAIRS TO DISCUSS PUBLIC INVOLVEMENT																																
D000000-1130	PUBLIC INVOLVEMENT - ONGOING COORDINATION	922	01-Aug-22	24-Mar-26	PUBLIC INVOLVEMENT - ONGOING COORDINATION																																
D000000-1030	DESIGN PUBLIC INFORMATION MEETING #1- EARLY COORDINATION	0	27-Dec-22		DESIGN PUBLIC INFORMATION MEETING #1- EARLY COORDINATION																																
D000000-1040	PUBLIC INFORMATION MEETING #2 - START OF CONSTRUCTION	0	20-Jun-23		PUBLIC INFORMATION MEETING #2 - START OF CONSTRUCTION																																
<b>RIGHT OF WAY ACQUISITIONS/ EASEMENTS</b>					05-Feb-24, RIGHT OF WAY ACQUISITIONS/ EASEMENTS																																
<b>PROJECT SPECIFIC ACQUISITION AND RELOCATION PLAN</b>					06-Feb-23, PROJECT SPECIFIC ACQUISITION AND RELOCATION PLAN																																
EA00000-1000	PREPARE AND SUBMIT R/W ACQUISITION AND RELOCATION PLAN	20	22-Nov-22	11-Dec-22	PREPARE AND SUBMIT R/W ACQUISITION AND RELOCATION PLAN																																
EA00000-1010	VDOT R/A ACQUISITION AND RELOCATION PLAN	21	12-Dec-22	01-Jan-23	VDOT R/A ACQUISITION AND RELOCATION PLAN																																
EA00000-1030	COMMENT RESPONSE/RE-SUBMIT ACQUISITION PLAN	10	03-Jan-23	16-Jan-23	COMMENT RESPONSE/RE-SUBMIT ACQUISITION PLAN																																
EA00000-1040	VDOT REVIEW/APPROVE 2ND SUBMISSION ACQUISITION PLAN	21	17-Jan-23	06-Feb-23	VDOT REVIEW/APPROVE 2ND SUBMISSION ACQUISITION PLAN																																
<b>ROW/EASEMENT ADQUISITIONS</b>					05-Feb-24, ROW/EASEMENT ADQUISITIONS																																
EA00000-1020	VDOT - ROW PARCELS ACQUIRED	0	31-Dec-22*		VDOT - ROW PARCELS ACQUIRED																																
<b>PRIORITY 1 ROW ACQUISITION</b>					08-Nov-23, PRIORITY 1 ROW ACQUISITION																																
EB00000-1000	R/W PRIORITY 1 - COMPLETE APPRAISAL	40	01-Nov-22	29-Dec-22	R/W PRIORITY 1 - COMPLETE APPRAISAL																																
EB00000-1010	R/W PRIORITY 1 - COMPLETE 60 YR TITLE EXAM	20	01-Nov-22	30-Nov-22	R/W PRIORITY 1 - COMPLETE 60 YR TITLE EXAM																																
EB00000-1020	R/W PRIORITY 1 - REVIEW APPRAISER COMPLETES REVIEW	8	30-Dec-22	11-Jan-23	R/W PRIORITY 1 - REVIEW APPRAISER COMPLETES REVIEW																																
EB00000-1030	R/W PRIORITY 1 - SUBMIT APPRAISAL TO VDOT (RUMS)	2	12-Jan-23	13-Jan-23	R/W PRIORITY 1 - SUBMIT APPRAISAL TO VDOT (RUMS)																																
EB00000-1040	R/W PRIORITY 1 - VDOT APPROVES APPRAISAL	21	14-Jan-23	03-Feb-23	R/W PRIORITY 1 - VDOT APPROVES APPRAISAL																																
EB00000-1050	R/W PRIORITY 1 - PREPARE OFFER PACKAGE	5	16-Jan-23	20-Jan-23	R/W PRIORITY 1 - PREPARE OFFER PACKAGE																																
EB00000-1060	R/W PRIORITY 1 - NEGOTIATOR MAKE INITIAL CONTACT / PRESENT OFFER	10	06-Feb-23	17-Feb-23	R/W PRIORITY 1 - NEGOTIATOR MAKE INITIAL CONTACT / PRESENT OFFER																																
EB00000-1070	R/W PRIORITY 1 - NEGOTIATIONS	60	21-Feb-23	15-May-23	R/W PRIORITY 1 - NEGOTIATIONS																																
EB00000-1080	R/W PRIORITY 1- OBTAIN SIGNED OPTION	5	16-May-23	22-May-23	R/W PRIORITY 1- OBTAIN SIGNED OPTION																																
EB00000-1090	R/W PRIORITY 1- PREPARE CERTIFICATE PACKAGE	5	16-May-23	22-May-23	R/W PRIORITY 1- PREPARE CERTIFICATE PACKAGE																																
EB00000-1100	R/W PRIORITY 1- SEND NOTICE OF FILING CERTIF. TO PROPERTY OWNER	3	16-May-23	18-May-23	R/W PRIORITY 1- SEND NOTICE OF FILING CERTIF. TO PROPERTY OWNER																																
EB00000-1110	R/W PRIORITY 1- PROPERTY ACCESS FOR CONSTRUCTION - IF BY OPTION	0		22-May-23	R/W PRIORITY 1- PROPERTY ACCESS FOR CONSTRUCTION - IF BY OPTION																																
EB00000-1120	R/W PRIORITY 1- OPTION / SETTLEMENT DOCS SUBMITTED TO VDOT	5	23-May-23	30-May-23	R/W PRIORITY 1- OPTION / SETTLEMENT DOCS SUBMITTED TO VDOT																																
EB00000-1130	R/W PRIORITY 1- VDOT REVIEWS / ISSUES CERTIFICATE & CHECK	40	23-May-23	01-Jul-23	R/W PRIORITY 1- VDOT REVIEWS / ISSUES CERTIFICATE & CHECK																																
EB00000-1140	R/W PRIORITY 1- SUBMIT CERTIFICATE PACKAGE TO VDOT	0	23-May-23		R/W PRIORITY 1- SUBMIT CERTIFICATE PACKAGE TO VDOT																																
EB00000-1150	R/W PRIORITY 1- VDOT REVIEWS SETTLEMENT DOCUMENTS	30	31-May-23	29-Jun-23	R/W PRIORITY 1- VDOT REVIEWS SETTLEMENT DOCUMENTS																																
EB00000-1160	R/W PRIORITY 1- SETTLEMENT DOCUMENTS TO SETTLEMENT ATTORNEY	0		29-Jun-23	R/W PRIORITY 1- SETTLEMENT DOCUMENTS TO SETTLEMENT ATTORNEY																																
EB00000-1170	R/W PRIORITY 1- OBTAIN RELEASE OF LIENS IF REQUIRED	60	30-Jun-23	25-Sep-23	R/W PRIORITY 1- OBTAIN RELEASE OF LIENS IF REQUIRED																																
EB00000-1180	R/W PRIORITY 1- DESIGN BUILDER FILES CERTIFICATE @ COURT HOUSE	2	03-Jul-23	05-Jul-23	R/W PRIORITY 1- DESIGN BUILDER FILES CERTIFICATE @ COURT HOUSE																																
EB00000-1190	R/W PRIORITY 1- PROPERTY ACCESS FOR CONSTRUCTION & UTILITIES - IF B	0		05-Jul-23	R/W PRIORITY 1- PROPERTY ACCESS FOR CONSTRUCTION & UTILITIES - IF BY CERTIFICATE																																
EB00000-1200	R/W PRIORITY 1- NOTICE TO VDOT THAT ALL LIENS ARE CLEARED	1	26-Sep-23	26-Sep-23	R/W PRIORITY 1- NOTICE TO VDOT THAT ALL LIENS ARE CLEARED																																

█ Remaining Level of Effort   
█ Critical Remaining Work   
▬ Summary  
█ Remaining Work   
◆ Milestone











Activity ID	Activity Name	Original Duration	Start	Finish	2022												2023												2024												2025												2026														
					M	J	Jul	A	S	Oct	N	D	J	F	M	Apr	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D							
GC00000-1890	12" DIP W/M "A" STA 0+04 TO 0+27 (305+50 TO 306+00 SB LHS)	3	19-Dec-23	22-Dec-23																									█ 12" DIP W/M "A" STA 0+04 TO 0+27 (305+50 TO 306+00 SB LHS)																																						
GC00000-1920	12" DIP W/M "B" STA 0+04 TO 1+31 (305+80 TO 307+00 NB RHS)	3	22-Dec-23	28-Dec-23																									█ 12" DIP W/M "B" STA 0+04 TO 1+31 (305+80 TO 307+00 NB RHS)																																						
<b>AREA 2- STA 307+00 TO 326+00</b>					222	07-Sep-23	23-Jul-24																									▶ 23-Jul-24, AREA 2- STA 307+00 TO 326+00																																			
<b>AREA 2- NB</b>					205	02-Oct-23	23-Jul-24																									▶ 23-Jul-24, AREA 2- NB																																			
GC00000-1540	INSTALL CONSTRUCTION SIGNAGE AREA 2-NB	5	02-Oct-23	10-Oct-23																									█ INSTALL CONSTRUCTION SIGNAGE AREA 2-NB																																						
GC00000-1580	CLEARING AND GRUBBING STA 307+00 TO 326+00 RHS	5	10-Oct-23	17-Oct-23																									█ CLEARING AND GRUBBING STA 307+00 TO 326+00 RHS																																						
GC00000-1610	E&S CONTROLS STA 307+00 TO 326+00 LHS	3	17-Oct-23	20-Oct-23																									█ E&S CONTROLS STA 307+00 TO 326+00 LHS																																						
GC00000-1630	SAWCUT EXISTING ROADWAY STA 307+00 TO 326+00 RHS	3	20-Oct-23	25-Oct-23																									█ SAWCUT EXISTING ROADWAY STA 307+00 TO 326+00 RHS																																						
GC00000-1660	DEMO EXISTING CURB AND ASPHALT STA 307+00 TO 326+00 RHS	10	25-Oct-23	10-Nov-23																									█ DEMO EXISTING CURB AND ASPHALT STA 307+00 TO 326+00 RHS																																						
GC00000-1840	CUT/FILL STA 307+00 TO 326+00 RHS	20	05-Dec-23	08-Jan-24																									█ CUT/FILL STA 307+00 TO 326+00 RHS																																						
GC00000-2000	INSTALL STORM SEWER STA 307+00 TO 326+00 RHS	18	09-Jan-24	05-Feb-24																									█ INSTALL STORM SEWER STA 307+00 TO 326+00 RHS																																						
GC00000-2240	FINE GRADE ROADWAY STA 307+00 TO 326+00 RHS	5	06-Feb-24	13-Feb-24																									█ FINE GRADE ROADWAY STA 307+00 TO 326+00 RHS																																						
GC00000-2290	INSTALL UD STA 307+00 TO 326+00 RHS	5	15-Feb-24	23-Feb-24																									█ INSTALL UD STA 307+00 TO 326+00 RHS																																						
GC00000-2320	PLACE 21B STONE STA 307+00 TO 326+00 RHS	5	26-Feb-24	04-Mar-24																									█ PLACE 21B STONE STA 307+00 TO 326+00 RHS																																						
GC00000-2360	INSTALL CG 307+00 TO 326+00 RHS	5	05-Mar-24	12-Mar-24																									█ INSTALL CG 307+00 TO 326+00 RHS																																						
GC00000-2430	BACKUP CURB STA 307+00 TO 326+00 RHS	5	13-Mar-24	19-Mar-24																									█ BACKUP CURB STA 307+00 TO 326+00 RHS																																						
GC00000-2520	PLACE ASPHALT STA 307+00 TO 326+00 RHS	4	20-Mar-24	25-Mar-24																									█ PLACE ASPHALT STA 307+00 TO 326+00 RHS																																						
GC00000-3260	CUT/GRADE/21B/CONCRETE SIDEWALK STA 307+00 TO 326+00 RHS	8	05-Jul-24	16-Jul-24																									█ CUT/GRADE/21B/CONCRETE SIDEWALK STA 307+00 TO 326+00 RHS																																						
GC00000-3340	RESPREAD TOPSOIL STA 307+00 TO 326+00 RHS	5	17-Jul-24	23-Jul-24																									█ RESPREAD TOPSOIL STA 307+00 TO 326+00 RHS																																						
<b>AREA 2- NB- NOISE BARRIER WALL "D"</b>					60	08-Apr-24	03-Jul-24																									▶ 03-Jul-24, AREA 2- NB- NOISE BARRIER WALL "D"																																			
GC00000-26	CONSTRUCT NOISE BARRIER (COMBO) WALL "D" FOUNDATIONS STA 311+00 TO 322+00 RHS	20	08-Apr-24	06-May-24																									█ CONSTRUCT NOISE BARRIER (COMBO) WALL "D" FOUNDATIONS STA 311+00 TO 322+00 RHS																																						
GC00000-29	CONSTRUCT NOISE BARRIER (COMBO) WALL "D" POSTS STA 311+00 TO 322+00 RHS	20	07-May-24	05-Jun-24																									█ CONSTRUCT NOISE BARRIER (COMBO) WALL "D" POSTS STA 311+00 TO 322+00 RHS																																						
GC00000-31	CONSTRUCT NOISE BARRIER (COMBO) WALL "D" PANELS STA 311+00 TO 322+00 RHS	20	06-Jun-24	03-Jul-24																									█ CONSTRUCT NOISE BARRIER (COMBO) WALL "D" PANELS STA 311+00 TO 322+00 RHS																																						
<b>AREA 2- SB</b>					189	07-Sep-23	05-Jun-24																									▶ 05-Jun-24, AREA 2- SB																																			
GC00000-1450	CLEARING AND GRUBBING STA 307+00 TO 326+00 LHS	5	20-Sep-23	27-Sep-23																									█ CLEARING AND GRUBBING STA 307+00 TO 326+00 LHS																																						
GC00000-1500	E&S CONTROLS STA 307+00 TO 326+00 LHS	3	27-Sep-23	02-Oct-23																									█ E&S CONTROLS STA 307+00 TO 326+00 LHS																																						
GC00000-1520	STRIP TOPSOIL STA 307+00 TO 326+00 LHS	2	02-Oct-23	05-Oct-23																									█ STRIP TOPSOIL STA 307+00 TO 326+00 LHS																																						
GC00000-1560	SAWCUT/DEMO EXISTING ROADWAY STA 307+00 TO 326+00 LHS	3	09-Oct-23	12-Oct-23																									█ SAWCUT/DEMO EXISTING ROADWAY STA 307+00 TO 326+00 LHS																																						
GC00000-1650	CUT/FILL STA 307+00 TO 326+00 LHS	20	24-Oct-23	27-Nov-23																									█ CUT/FILL STA 307+00 TO 326+00 LHS																																						
GC00000-1780	INSTALL STORM SEWER STA 307+00 TO 326+00 LHS	20	28-Nov-23	28-Dec-23																									█ INSTALL STORM SEWER STA 307+00 TO 326+00 LHS																																						
GC00000-2670	FINE GRADE ROADWAY STA 307+00 TO 326+00 LHS	3	15-Apr-24	17-Apr-24																									█ FINE GRADE ROADWAY STA 307+00 TO 326+00 LHS																																						
GC00000-2740	INSTALL UD STA 307+00 TO 326+00 LHS	5	18-Apr-24	24-Apr-24																									█ INSTALL UD STA 307+00 TO 326+00 LHS																																						
GC00000-2810	PLACE 21B STONE STA 307+00 TO 326+00 LHS	3	25-Apr-24	29-Apr-24																									█ PLACE 21B STONE STA 307+00 TO 326+00 LHS																																						
GC00000-2880	INSTALL CG STA 307+00 TO 326+00 LHS	5	30-Apr-24	07-May-24																									█ INSTALL CG STA 307+00 TO 326+00 LHS																																						
GC00000-2960	BACKUP CURB STA 307+00 TO 326+00 LHS	3	09-May-24	13-May-24																									█ BACKUP CURB STA 307+00 TO 326+00 LHS																																						
GC00000-2990	PLACE ASPHALT STA 307+00 TO 326+00 LHS	6	14-May-24	21-May-24																									█ PLACE ASPHALT STA 307+00 TO 326+00 LHS																																						
GC00000-3040	CUT/GRADE/21B/ASPHALT TRAIL STA 307+00 TO 326+00 LHS	5	22-May-24	29-May-24																									█ CUT/GRADE/21B/ASPHALT TRAIL STA 307+00 TO 326+00 LHS																																						
GC00000-3090	RESPREAD TOPSOIL STA 307+00 TO 326+00 LHS	5	30-May-24	05-Jun-24																									█ RESPREAD TOPSOIL STA 307+00 TO 326+00 LHS																																						
<b>AREA 2- SB WATERMAIN</b>					32	08-Feb-24	01-Apr-24																									▶ 01-Apr-24, AREA 2- SB WATERMAIN																																			
GC00000-22	24" DIP W/M "B" STA 0+26 TO 14+86 (315+00 TO 326+00 SB LHS) SECTION 1	18	08-Feb-24	12-Mar-24																									█ 24" DIP W/M "B" STA 0+26 TO 14+86 (315+00 TO 326+00 SB LHS) SECTION 1																																						
GC00000-24	12" DIP W/M "C" STA 0+00 TO 0+46 (315+75 SB LHS)	3	12-Mar-24	15-Mar-24																									█ 12" DIP W/M "C" STA 0+00 TO 0+46 (315+75 SB LHS)																																						
GC00000-24	8" DIP W/M "A" STA 0+00 TO 1+16 (310+75 NB/SB LATERAL)	8	15-Mar-24	27-Mar-24																									█ 8" DIP W/M "A" STA 0+00 TO 1+16 (310+75 NB/SB LATERAL)																																						
GC00000-26	8" DIP W/M "B" STA 0+00 TO 0+28 (326+00 SB LHS)	3	27-Mar-24	01-Apr-24																									█ 8" DIP W/M "B" STA 0+00 TO 0+28 (326+00 SB LHS)																																						
<b>AREA 2-SB- NOISE BARRIER WALL "C1"</b>					45	07-Sep-23	14-Nov-23																									▶ 14-Nov-23, AREA 2-SB- NOISE BARRIER WALL "C1"																																			
GC00000-13	CLEARING AND GRUBBING OUTSIDE ROW	5	07-Sep-23	14-Sep-23																									█ CLEARING AND GRUBBING OUTSIDE ROW																																						
GC00000-13	CONSTRUCT NOISE BARRIER WALL "C" (C1) FOUNDATIONS STA 308+00 TO 309+75 LHS	20	14-Sep-23	13-Oct-23																									█ CONSTRUCT NOISE BARRIER WALL "C" (C1) FOUNDATIONS STA 308+00 TO 309+75 LHS																																						
GC00000-15	CONSTRUCT NOISE BARRIER WALL "C" (C1) POSTS STA 308+00 TO 309+75 LHS	10	13-Oct-23	27-Oct-23																									█ CONSTRUCT NOISE BARRIER WALL "C" (C1) POSTS STA 308+00 TO 309+75 LHS																																						
GC00000-16	CONSTRUCT NOISE BARRIER WALL "C" (C1) PANELS STA 308+00 TO 309+75 LHS	10	27-Oct-23	14-Nov-23																									█ CONSTRUCT NOISE BARRIER WALL "C" (C1) PANELS STA 308+00 TO 309+75 LHS																																						
<b>AREA 2-SB- NOISE BARRIER WALL "C2"</b>					80	28-Nov-23	05-Apr-24																									▶ 05-Apr-24, AREA 2-SB- NOISE BARRIER WALL "C2"																																			
GC00000-17	CONSTRUCT NOISE BARRIER WALL "C" (C2) FOUNDATIONS STA 309+50 TO 312+25 LHS	20	28-Nov-23	28-Dec-23																									█ CONSTRUCT NOISE BARRIER WALL "C" (C2) FOUNDATIONS STA 309+50 TO 312+25 LHS																																						
GC00000-19	CONSTRUCT NOISE BARRIER WALL "C" (C2) POSTS STA 309+50 TO 312+25 LHS	10	29-Dec-23	16-Jan-24																									█ CONSTRUCT NOISE BARRIER WALL "C" (C2) POSTS STA 309+50 TO 312+25 LHS																																						
GC00000-20	CONSTRUCT NOISE BARRIER WALL "C" (C2) PANELS STA 309+50 TO 312+25 LHS	10	18-Jan-24	31-Jan-24																									█ CONSTRUCT NOISE BARRIER WALL "C" (C2) PANELS STA 309+50 TO 312+25 LHS																																						
GC00000-21	CONSTRUCT NOISE BARRIER WALL "C" (C2) FOUNDATIONS STA 312+25 TO 315+00 LHS	20	01-Feb-24	07-Mar-24																									█ CONSTRUCT NOISE BARRIER WALL "C" (C2) FOUNDATIONS STA 312+25 TO 315+00 LHS																																						
GC00000-24	CONSTRUCT NOISE BARRIER WALL "C" (C2) POSTS STA 312+25 TO 315+00 LHS	10	08-Mar-24	21-Mar-24																									█ CONSTRUCT NOISE BARRIER WALL "C" (C2) POSTS STA 312+25 TO 315+00 LHS																																						
GC00000-25	CONSTRUCT NOISE BARRIER WALL "C" (C2) PANELS STA 312+25 TO 315+00 LHS	10	22-Mar-24	05-Apr-24																									█ CONSTRUCT NOISE BARRIER WALL "C" (C2) PANELS STA 312+25 TO 315+00 LHS																																						
<b>AREA 2- SB- MSE WALL "A"</b>					48	19-Dec-23	11-Mar-24																									▶ 11-Mar-24, AREA 2- SB- MSE WALL "A"																																			
GC00000-19	CONSTRUCT MSE WALL "A" EXCAVATION STA 314+50 TO 319+00 LHS	5	19-Dec-23	27-Dec-23																									█ CONSTRUCT MSE WALL "A" EXCAVATION STA 314+50 TO 319+00 LHS																																						
GC00000-19	CONSTRUCT MSE WALL "A" PANELS STA 314+50 TO 319+00 LHS	20	27-Dec-23	30-Jan-24																									█ CONSTRUCT MSE WALL "A" PANELS STA 314+50 TO 319+00 LHS																																						
GC00000-19	CONSTRUCT MSE WALL "A" BACKFILL STA 314+50 TO 319+00 LHS	20	02-Jan-24	02-Feb-24																									█ CONSTRUCT MSE WALL "A" BACKFILL STA 314+50 TO 319+00 LHS																																						

█ Remaining Level of Effort   
 █ Critical Remaining Work   
 ▶ Summary  
█ Remaining Work   
 ◆ Milestone



Activity ID	Activity Name	Original Duration	Start	Finish	2022												2023												2024												2025												2026																																																		
					M	J	Jul	A	S	Oct	N	D	J	F	M	Apr	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D																																											
GC00000-22	MOMENT SLAB AND HAND RAIL	20	02-Feb-24	11-Mar-24																																																	MOMENT SLAB AND HAND RAIL																																																		
<b>AREA 3 - STA 326+00 TO 346+00</b>					174	07-Sep-23	14-May-24																																																	14-May-24, AREA 3 - STA 326+00 TO 346+00																																															
<b>AREA 3A - SB - STA 326+00 TO 332+00</b>					76	07-Sep-23	27-Dec-23																																																	27-Dec-23, AREA 3A - SB - STA 326+00 TO 332+00																																															
GC00000-1320	INSTALL CONSTRUCTION SIGNAGE AREA 3A	1	07-Sep-23	08-Sep-23																																																	INSTALL CONSTRUCTION SIGNAGE AREA 3A																																																		
GC00000-1360	CLEARING AND GRUBBING STA 326+00 TO 332+00 LHS	5	08-Sep-23	15-Sep-23																																																	CLEARING AND GRUBBING STA 326+00 TO 332+00 LHS																																																		
GC00000-1410	24" DIP W/M "B" STA 0+26 TO 14+86 (326+00 TO 329+25 SB LHS) SECTION 2	10	15-Sep-23	29-Sep-23																																																	24" DIP W/M "B" STA 0+26 TO 14+86 (326+00 TO 329+25 SB LHS) SECTION 2																																																		
GC00000-1420	E&S CONTROLS STA 326+00 TO 332+00 LHS	3	15-Sep-23	20-Sep-23																																																	E&S CONTROLS STA 326+00 TO 332+00 LHS																																																		
GC00000-1470	SAWCUT/DEMO EXISTING ROADWAY STA 326+00 TO 332+00 LHS	2	20-Sep-23	22-Sep-23																																																	SAWCUT/DEMO EXISTING ROADWAY STA 326+00 TO 332+00 LHS																																																		
GC00000-1480	CUT/FILL STA 326+00 TO 332+00 LHS	10	22-Sep-23	09-Oct-23																																																	CUT/FILL STA 326+00 TO 332+00 LHS																																																		
GC00000-1570	SANITARY SEWER RELOCATION STA 313+00	20	09-Oct-23	07-Nov-23																																																	SANITARY SEWER RELOCATION STA 313+00																																																		
GC00000-1710	INSTALL STORM SEWER STA 326+00 TO 332+00 LHS	10	07-Nov-23	27-Nov-23																																																	INSTALL STORM SEWER STA 326+00 TO 332+00 LHS																																																		
GC00000-1770	FINE GRADE ROADWAY STA 326+00 TO 332+00 LHS	3	27-Nov-23	30-Nov-23																																																	FINE GRADE ROADWAY STA 326+00 TO 332+00 LHS																																																		
GC00000-1820	INSTALL UD STA 326+00 TO 332+00 LHS	2	30-Nov-23	04-Dec-23																																																	INSTALL UD STA 326+00 TO 332+00 LHS																																																		
GC00000-1830	PLACE 21B STONE STA 326+00 TO 332+00 LHS	2	04-Dec-23	07-Dec-23																																																	PLACE 21B STONE STA 326+00 TO 332+00 LHS																																																		
GC00000-1850	INSTALL CG STA 326+00 TO 332+00 LHS	1	07-Dec-23	08-Dec-23																																																	INSTALL CG STA 326+00 TO 332+00 LHS																																																		
GC00000-1860	BACKUP CURB STA 326+00 TO 332+00 LHS	2	08-Dec-23	12-Dec-23																																																	BACKUP CURB STA 326+00 TO 332+00 LHS																																																		
GC00000-1870	PLACE ASPHALT STA 326+00 TO 332+00 LHS	2	12-Dec-23	14-Dec-23																																																	PLACE ASPHALT STA 326+00 TO 332+00 LHS																																																		
GC00000-1880	CUT/GRADE/21B/ASPHALT TRAIL STA 326+00 TO 332+00 LHS	5	14-Dec-23	21-Dec-23																																																	CUT/GRADE/21B/ASPHALT TRAIL STA 326+00 TO 332+00 LHS																																																		
GC00000-1910	RESPREAD TOPSOIL STA 326+00 TO 332+00 LHS	3	21-Dec-23	27-Dec-23																																																	RESPREAD TOPSOIL STA 326+00 TO 332+00 LHS																																																		
<b>AREA 3B - SB - STA 332+00 TO 346+00</b>					174	07-Sep-23	14-May-24																																																	14-May-24, AREA 3B - SB - STA 332+00 TO 346+00																																															
GC00000-1330	INSTALL CONSTRUCTION SIGNAGE AREA 3B	1	07-Sep-23	08-Sep-23																																																	INSTALL CONSTRUCTION SIGNAGE AREA 3B																																																		
GC00000-1350	CLEARING AND GRUBBING STA 332+00 TO 346+00 LHS	5	08-Sep-23	15-Sep-23																																																	CLEARING AND GRUBBING STA 332+00 TO 346+00 LHS																																																		
GC00000-1400	E&S CONTROLS STA 326+00 TO 332+00 LHS	3	15-Sep-23	20-Sep-23																																																	E&S CONTROLS STA 326+00 TO 332+00 LHS																																																		
GC00000-2020	SAWCUT/DEMO EXISTING ROADWAY STA 326+00 TO 332+00 LHS	2	18-Jan-24	19-Jan-24																																																	SAWCUT/DEMO EXISTING ROADWAY STA 326+00 TO 332+00 LHS																																																		
GC00000-2060	CUT/FILL STA 326+00 TO 332+00 LHS	5	22-Jan-24	26-Jan-24																																																	CUT/FILL STA 326+00 TO 332+00 LHS																																																		
GC00000-2250	INSTALL STORM SEWER STA 326+00 TO 332+00 LHS	15	06-Feb-24	04-Mar-24																																																	INSTALL STORM SEWER STA 326+00 TO 332+00 LHS																																																		
GC00000-2680	FINE GRADE ROADWAY STA 326+00 TO 332+00 LHS	3	15-Apr-24	17-Apr-24																																																	FINE GRADE ROADWAY STA 326+00 TO 332+00 LHS																																																		
GC00000-2750	INSTALL UD STA 326+00 TO 332+00 LHS	2	18-Apr-24	19-Apr-24																																																	INSTALL UD STA 326+00 TO 332+00 LHS																																																		
GC00000-2760	PLACE 21B STONE STA 326+00 TO 332+00 LHS	2	22-Apr-24	23-Apr-24																																																	PLACE 21B STONE STA 326+00 TO 332+00 LHS																																																		
GC00000-2790	INSTALL CG STA 326+00 TO 332+00 LHS	1	24-Apr-24	24-Apr-24																																																	INSTALL CG STA 326+00 TO 332+00 LHS																																																		
GC00000-2820	BACKUP CURB STA 326+00 TO 332+00 LHS	2	25-Apr-24	26-Apr-24																																																	BACKUP CURB STA 326+00 TO 332+00 LHS																																																		
GC00000-2840	PLACE ASPHALT STA 326+00 TO 332+00 LHS	2	29-Apr-24	30-Apr-24																																																	PLACE ASPHALT STA 326+00 TO 332+00 LHS																																																		
GC00000-2900	CUT/GRADE/21B/ASPHALT TRAIL STA 326+00 TO 332+00 LHS	5	02-May-24	09-May-24																																																	CUT/GRADE/21B/ASPHALT TRAIL STA 326+00 TO 332+00 LHS																																																		
GC00000-2970	RESPREAD TOPSOIL STA 326+00 TO 332+00 LHS	3	10-May-24	14-May-24																																																	RESPREAD TOPSOIL STA 326+00 TO 332+00 LHS																																																		
<b>AREA 3-SB- WATERMAIN</b>					25	28-Dec-23	08-Feb-24																																																	08-Feb-24, AREA 3-SB- WATERMAIN																																															
GC00000-19	24" DIP W/M "C" STA 0+15 TO 18+98 (337+75 TO 346+75 SB LHS) SECTION 1	15	28-Dec-23	24-Jan-24																																																	24" DIP W/M "C" STA 0+15 TO 18+98 (337+75 TO 346+75 SB LHS) SECTION 1																																																		
GC00000-20	12" DIP W/M "D" STA 0+00 TO 0+20 (326+50 SB LHS)	3	24-Jan-24	29-Jan-24																																																	12" DIP W/M "D" STA 0+00 TO 0+20 (326+50 SB LHS)																																																		
GC00000-21	12" DIP W/M "E" STA 0+00 TO 1+05 (342+00 SB LHS)	4	29-Jan-24	02-Feb-24																																																	12" DIP W/M "E" STA 0+00 TO 1+05 (342+00 SB LHS)																																																		
GC00000-21	12" DIP W/M "F" STA 0+00 TO 0+62 (343+25 LATERAL SB)	3	02-Feb-24	08-Feb-24																																																	12" DIP W/M "F" STA 0+00 TO 0+62 (343+25 LATERAL SB)																																																		
<b>AREA 4 -SB- STA 346+00 TO 360+00</b>					218	07-Sep-23	17-Jul-24																																																	17-Jul-24, AREA 4 -SB- STA 346+00 TO 360+00																																															
GC00000-2330	SAWCUT/DEMO EXISTING ROADWAY STA 346+00 TO 360+00 LHS	5	26-Feb-24	04-Mar-24																																																	SAWCUT/DEMO EXISTING ROADWAY STA 346+00 TO 360+00 LHS																																																		
GC00000-2390	SALVAGE EXISTING PEDESTRIAN BRIDGE (D-2)	5	05-Mar-24	12-Mar-24																																																	SALVAGE EXISTING PEDESTRIAN BRIDGE (D-2)																																																		
GC00000-2460	CUT/FILL STA 346+00 TO 360+00 LHS	15	15-Mar-24	05-Apr-24																																																	CUT/FILL STA 346+00 TO 360+00 LHS																																																		
GC00000-2950	INSTALL STORM SEWER STA 346+00 TO 360+00 LHS	5	07-May-24	14-May-24																																																	INSTALL STORM SEWER STA 346+00 TO 360+00 LHS																																																		
GC00000-3020	FINE GRADE ROADWAY STA 346+00 TO 360+00 LHS	5	15-May-24	21-May-24																																																	FINE GRADE ROADWAY STA 346+00 TO 360+00 LHS																																																		
GC00000-3060	INSTALL UD STA 346+00 TO 360+00 LHS	5	22-May-24	29-May-24																																																	INSTALL UD STA 346+00 TO 360+00 LHS																																																		
GC00000-3100	PLACE 21B STONE STA 346+00 TO 360+00 LHS	5	30-May-24	05-Jun-24																																																	PLACE 21B STONE STA 346+00 TO 360+00 LHS																																																		
GC00000-3130	INSTALL CG STA 346+00 TO 360+00 LHS	3	06-Jun-24	10-Jun-24																																																	INSTALL CG STA 346+00 TO 360+00 LHS																																																		
GC00000-3140	BACKUP CG STA 346+00 TO 360+00 LHS	3	11-Jun-24	13-Jun-24																																																	BACKUP CG STA 346+00 TO 360+00 LHS																																																		
GC00000-3170	INSTALL UD STA 346+00 TO 360+00 RHS	2	14-Jun-24	17-Jun-24																																																	INSTALL UD STA 346+00 TO 360+00 RHS																																																		
GC00000-3180	INSTALL MS-2 STA 346+00 TO 360+00 RHS	3	18-Jun-24	20-Jun-24																																																	INSTALL MS-2 STA 346+00 TO 360+00 RHS																																																		
GC00000-3200	PLACE ASPHALT STA 346+00 TO 360+00	5	21-Jun-24	27-Jun-24																																																	PLACE ASPHALT STA 346+00 TO 360+00																																																		
GC00000-3220	INSTALL MS-1 STA 346+00 TO 360+00 RHS	2	28-Jun-24	01-Jul-24																																																	INSTALL MS-1 STA 346+00 TO 360+00 RHS																																																		
GC00000-3240	BACKFILL MS-2 MEDIAN STA 346+00 TO 360+00 RHS	2	02-Jul-24	03-Jul-24																																																	BACKFILL MS-2 MEDIAN STA 346+00 TO 360+00 RHS																																																		
GC00000-3270	RESPREAD TOPSOIL STA 346+00 TO 360+00 RHS/LHS	2	05-Jul-24	08-Jul-24																																																	RESPREAD TOPSOIL STA 346+00 TO 360+00 RHS/LHS																																																		
GC00000-3300	CUT/GRADE/21B/ASPHALT TRAIL STA 346+00 TO 360+00 LHS	5	09-Jul-24	15-Jul-24																																																	CUT/GRADE/21B/ASPHALT TRAIL STA 346+00 TO 360+00 LHS																																																		
GC00000-3330	INSTALL GUARDRAIL STA 346+00 TO 360+00 LHS	2	16-Jul-24	17-Jul-24																																																	INSTALL GUARDRAIL STA 346+00 TO 360+00 LHS																																																		
<b>D-612 CULVERT CROSSING</b>					117	07-Sep-23	25-Feb-24																																																	25-Feb-24, D-612 CULVERT CROSSING																																															

█ Remaining Level of Effort   
 █ Critical Remaining Work   
  Summary  
█ Remaining Work   
 ◆ Milestone









Activity ID	Activity Name	Original Duration	Start	Finish	2022							2023							2024							2025							2026																						
					M	J	Jul	A	S	Oct	N	D	J	F	M	Apr	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul	A	S	Oct	N	D	J	F	M	A	M	J	Jul
<b>AREA 3B- SB- STA 332+00 TO 346+00</b>					51	24-Jul-24	03-Oct-24	03-Oct-24, AREA 3B- SB- STA 332+00 TO 346+00																																															
GC00000-33	SAWCUT/DEMO EXISTING ROADWAY STA 332+00 TO 346+00 RHS	5	24-Jul-24	30-Jul-24	SAWCUT/DEMO EXISTING ROADWAY STA 332+00 TO 346+00 RHS																																																		
GC00000-35	CUT/FILL STA 332+00 TO 346+00 RHS	10	31-Jul-24	13-Aug-24	CUT/FILL STA 332+00 TO 346+00 RHS																																																		
GC00000-36	INSTALL STORM SEWER STA 332+00 TO 346+00 RHS	10	14-Aug-24	27-Aug-24	INSTALL STORM SEWER STA 332+00 TO 346+00 RHS																																																		
GC00000-37	FINE GRADE ROADWAY STA 332+00 TO 346+00 RHS	3	28-Aug-24	30-Aug-24	FINE GRADE ROADWAY STA 332+00 TO 346+00 RHS																																																		
GC00000-38	INSTALL UD STA 332+00 TO 346+00 RHS	3	03-Sep-24	05-Sep-24	INSTALL UD STA 332+00 TO 346+00 RHS																																																		
GC00000-38	PLACE 21B STONE STA 332+00 TO 332+00 RHS	3	06-Sep-24	10-Sep-24	PLACE 21B STONE STA 332+00 TO 332+00 RHS																																																		
GC00000-39	INSTALL MS-1 STA 327+75 TO 335+50 RHS (MEDIAN)	3	11-Sep-24	13-Sep-24	INSTALL MS-1 STA 327+75 TO 335+50 RHS (MEDIAN)																																																		
GC00000-39	INSTALL MS-2 STA 335+50 TO 346+00 RHS (MEDIAN)	4	16-Sep-24	19-Sep-24	INSTALL MS-2 STA 335+50 TO 346+00 RHS (MEDIAN)																																																		
GC00000-40	INSTALL MS-2 STA 335+50 TO 346+00 RHS (MEDIAN)	2	20-Sep-24	23-Sep-24	INSTALL MS-2 STA 335+50 TO 346+00 RHS (MEDIAN)																																																		
GC00000-40	PLACE ASPHALT STA 326+00 TO 346+00 RHS	4	24-Sep-24	27-Sep-24	PLACE ASPHALT STA 326+00 TO 346+00 RHS																																																		
GC00000-41	RESPREAD TOPSOIL STA 335+50 TO 346+00 RHS	3	30-Sep-24	03-Oct-24	RESPREAD TOPSOIL STA 335+50 TO 346+00 RHS																																																		
<b>AREA 3 - NB</b>					54	24-Jul-24	08-Oct-24	08-Oct-24, AREA 3 - NB																																															
GC00000-3370	DEMO/REMOVE EXIST GUARDRAIL STA 332+00 TO 346+00 LHS (MEDIAN)	2	24-Jul-24	25-Jul-24	DEMO/REMOVE EXIST GUARDRAIL STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-3460	SAWCUT/DEMO EXISTING ROADWAY STA 332+00 TO 346+00 LHS (MEDIAN)	5	26-Jul-24	01-Aug-24	SAWCUT/DEMO EXISTING ROADWAY STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-3530	CUT/FILL STA 332+00 TO 346+00 LHS (MEDIAN)	8	02-Aug-24	13-Aug-24	CUT/FILL STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-3610	INSTALL STORM SEWER STA 332+00 TO 346+00 LHS (MEDIAN)	15	14-Aug-24	04-Sep-24	INSTALL STORM SEWER STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-3870	FINE GRADE ROADWAY STA 332+00 TO 346+00 LHS (MEDIAN)	5	05-Sep-24	11-Sep-24	FINE GRADE ROADWAY STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-3950	PLACE 21B STONE STA 332+00 TO 346+00 LHS (MEDIAN)	5	12-Sep-24	18-Sep-24	PLACE 21B STONE STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-4000	PLACE ASPHALT STA 332+00 TO 346+00 LHS (MEDIAN)	3	19-Sep-24	23-Sep-24	PLACE ASPHALT STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-4040	INSTALL MS-1 STA 332+75 TO 335+50 LHS (MEDIAN)	3	24-Sep-24	26-Sep-24	INSTALL MS-1 STA 332+75 TO 335+50 LHS (MEDIAN)																																																		
GC00000-4080	INSTALL MS-2 STA 332+00 TO 346+00 LHS (MEDIAN)	5	27-Sep-24	04-Oct-24	INSTALL MS-2 STA 332+00 TO 346+00 LHS (MEDIAN)																																																		
GC00000-4130	BACKUP CURB STA 335+50 TO 346+00 LHS (MEDIAN)	2	07-Oct-24	08-Oct-24	BACKUP CURB STA 335+50 TO 346+00 LHS (MEDIAN)																																																		
<b>AREA 4 - STA 346+00 TO 360+00</b>					158	24-Sep-24	08-May-25	08-May-25, AREA 4 - STA 346+00 TO 360+00																																															
<b>AREA 4 -NB</b>					35	24-Sep-24	11-Nov-24	11-Nov-24, AREA 4 -NB																																															
GC00000-4070	INSTALL CONSTRUCTION SIGNAGE- AREA 4	3	24-Sep-24	26-Sep-24	INSTALL CONSTRUCTION SIGNAGE- AREA 4																																																		
GC00000-4090	SET TEMPORARY CONCRETE BARRIER/ MOT DEVICES-AREA 4	3	27-Sep-24	01-Oct-24	SET TEMPORARY CONCRETE BARRIER/ MOT DEVICES-AREA 4																																																		
GC00000-4120	SAWCUT/DEMO EXISTING ROADWAY STA 351+50 TO 360+00 LHS	3	03-Oct-24	07-Oct-24	SAWCUT/DEMO EXISTING ROADWAY STA 351+50 TO 360+00 LHS																																																		
GC00000-4140	CUT/FILL STA 351+50 TO 360+00 LHS	5	08-Oct-24	14-Oct-24	CUT/FILL STA 351+50 TO 360+00 LHS																																																		
GC00000-4190	INSTALL STORM SEWER STA 351+50 TO 360+00 LHS	2	15-Oct-24	16-Oct-24	INSTALL STORM SEWER STA 351+50 TO 360+00 LHS																																																		
GC00000-4220	FINE GRADE ROADWAY STA 351+50 TO 360+00 LHS	3	17-Oct-24	21-Oct-24	FINE GRADE ROADWAY STA 351+50 TO 360+00 LHS																																																		
GC00000-4240	PLACE 21B STONE STA 351+50 TO 360+00 LHS	2	22-Oct-24	23-Oct-24	PLACE 21B STONE STA 351+50 TO 360+00 LHS																																																		
GC00000-4280	INSTALL MS-2 STA 351+50 TO 355+00 LHS (MEDIAN)	4	24-Oct-24	29-Oct-24	INSTALL MS-2 STA 351+50 TO 355+00 LHS (MEDIAN)																																																		
GC00000-4320	BACKFILL MS-2 STA 351+50 TO 355+00 LHS (MEDIAN)	2	30-Oct-24	31-Oct-24	BACKFILL MS-2 STA 351+50 TO 355+00 LHS (MEDIAN)																																																		
GC00000-4360	BACKFILL MS-2 STA 351+50 TO 355+00 LHS (MEDIAN)	3	01-Nov-24	05-Nov-24	BACKFILL MS-2 STA 351+50 TO 355+00 LHS (MEDIAN)																																																		
GC00000-4390	RESPREAD TOPSOIL STA 351+50 TO 355+00 LHS (MEDIAN)	3	07-Nov-24	11-Nov-24	RESPREAD TOPSOIL STA 351+50 TO 355+00 LHS (MEDIAN)																																																		
<b>AREA 4 -SB</b>					158	24-Sep-24	08-May-25	08-May-25, AREA 4 -SB																																															
GC00000-4060	SAWCUT/DEMO EXISTING ROADWAY STA 346+00 TO 360+00 LHS	5	24-Sep-24	30-Sep-24	SAWCUT/DEMO EXISTING ROADWAY STA 346+00 TO 360+00 LHS																																																		
GC00000-4110	CUT/FILL STA 346+00 TO 360+00 LHS	15	01-Oct-24	22-Oct-24	CUT/FILL STA 346+00 TO 360+00 LHS																																																		
GC00000-4260	INSTALL STORM SEWER STA 346+00 TO 360+00 LHS	5	23-Oct-24	29-Oct-24	INSTALL STORM SEWER STA 346+00 TO 360+00 LHS																																																		
GC00000-4330	FINE GRADE ROADWAY STA 346+00 TO 360+00 LHS	5	30-Oct-24	05-Nov-24	FINE GRADE ROADWAY STA 346+00 TO 360+00 LHS																																																		
GC00000-4400	INSTALL UD STA STA 346+00 TO 360+00 LHS	5	07-Nov-24	14-Nov-24	INSTALL UD STA STA 346+00 TO 360+00 LHS																																																		
GC00000-4430	PLACE 21B STONE STA 346+00 TO 360+00 LHS	5	15-Nov-24	21-Nov-24	PLACE 21B STONE STA 346+00 TO 360+00 LHS																																																		
GC00000-4460	INSTALL CG STA 346+00 TO 360+00 LHS	3	22-Nov-24	26-Nov-24	INSTALL CG STA 346+00 TO 360+00 LHS																																																		
GC00000-4470	BACKUP CG STA 346+00 TO 360+00 LHS	3	27-Nov-24	03-Dec-24	BACKUP CG STA 346+00 TO 360+00 LHS																																																		
GC00000-4490	INSTALL UD STA 346+00 TO 360+00 RHS (MEDIAN)	2	05-Dec-24	06-Dec-24	INSTALL UD STA 346+00 TO 360+00 RHS (MEDIAN)																																																		
GC00000-4510	INSTALL MS-2 STA 346+00 TO 360+00 RHS (MEDIAN)	3	09-Dec-24	12-Dec-24	INSTALL MS-2 STA 346+00 TO 360+00 RHS (MEDIAN)																																																		
GC00000-4520	PLACE ASPHALT STA 346+00 TO 360+00	5	13-Dec-24	20-Mar-25	PLACE ASPHALT STA 346+00 TO 360+00																																																		
GC00000-4570	INSTALL MS-1 STA 346+00 TO 360+00 RHS (MEDIAN)	2	20-Mar-25	24-Mar-25	INSTALL MS-1 STA 346+00 TO 360+00 RHS (MEDIAN)																																																		
GC00000-4580	BACKFILL MS-2 MEDIAN STA 346+00 TO 360+00 RHS (MEDIAN)	2	24-Mar-25	26-Mar-25	BACKFILL MS-2 MEDIAN STA 346+00 TO 360+00 RHS (MEDIAN)																																																		
GC00000-4590	RESPREAD TOPSOIL STA 346+00 TO 360+00 RHS/LHS	2	26-Mar-25	28-Mar-25	RESPREAD TOPSOIL STA 346+00 TO 360+00 RHS/LHS																																																		
GC00000-4610	CUT/GRADE/21B/ASPHALT TRAIL STA 346+00 TO 360+00 LHS	5	28-Mar-25	07-Apr-25	CUT/GRADE/21B/ASPHALT TRAIL STA 346+00 TO 360+00 LHS																																																		
GC00000-4630	INSTALL GUARDRAIL STA 346+00 TO 360+00 LHS	2	07-Apr-25	09-Apr-25	INSTALL GUARDRAIL STA 346+00 TO 360+00 LHS																																																		
GC00000-4640	DEMO/ REMOVE TEMPORARY WIDENING STA 346+00 TO 360+00	10	09-Apr-25	23-Apr-25	DEMO/ REMOVE TEMPORARY WIDENING STA 346+00 TO 360+00																																																		
GC00000-4650	FINISH CURB & TRAIL FROM TEMP WIDENING AREA	10	23-Apr-25	08-May-25	FINISH CURB & TRAIL FROM TEMP WIDENING AREA																																																		
<b>AREA 5 - STA 360+00 TO 385+00</b>					136	24-Sep-24	08-Apr-25	08-Apr-25, AREA 5 - STA 360+00 TO 385+00																																															
<b>AREA 5 - NB</b>					38	24-Sep-24	14-Nov-24	14-Nov-24, AREA 5 - NB																																															
GC00000-4030	SAWCUT/DEMO EXISTING ROADWAY/MEDIAN STA 360+00 TO 385+00 LHS	10	24-Sep-24	08-Oct-24	SAWCUT/DEMO EXISTING ROADWAY/MEDIAN STA 360+00 TO 385+00 LHS																																																		

█ Remaining Level of Effort   
 █ Critical Remaining Work   
  Summary  
█ Remaining Work   
 ◆ Milestone







ROUTE 29 WIDENING PHASE II - C00110329DB113			4.6.1 PROPOSAL SCHEDULE- CRITICAL PATH		09- Mar-22																																																		
Activity ID	Activity Name	Original Duration	Start	Finish	2022							2023							2024							2025							2026																						
					M	Jun	Jul	A	S	Oct	N	D	Jan	F	M	Apr	M	Jun	Jul	A	S	Oct	N	D	Jan	F	M	Apr	M	Jun	Jul	Aug	S	Oct	N	D	Jan	F	Mar	Apr	M	Jun	Jul	A	S	Oct	N	D	Jan	F	Mar	Apr	M	Jun	Jul
<b>ROUTE 29 WIDENING PHASE II - C00110329DB113</b>			1018	21-Apr-22	29-Apr-26																																																		
<b>SCHEDULE MILESTONES</b>			1018	21-Apr-22	29-Apr-26																																																		
A000000-1000	NOTICE OF INTENT TO AWARD (04/21/2022)	0	21-Apr-22		NOTICE OF INTENT TO AWARD (04/21/2022)																																																		
A000000-1010	CTB AWARD	0	18-May-22		◆ CTB AWARD																																																		
A000000-1020	DESIGN-BUILD CONTRACT EXECUTION	0	15-Jun-22		◆ DESIGN-BUILD CONTRACT EXECUTION																																																		
A000000-1040	NOTICE TO PROCEED (06/17/2022)	0	17-Jun-22*		◆ NOTICE TO PROCEED (06/17/2022)																																																		
A000000-1180	PUNCH LIST INSPECTION	5	24-Mar-26	31-Mar-26																																																			
A000000-1210	ADDRESS PUNCH LIST	25	24-Mar-26	29-Apr-26																																																			
A000000-1160	EARLY COMPLETION DATE- FINAL COMPLETION	0		29-Apr-26*																																																			
<b>CONSTRUCTION KEY DATES</b>			218	28-Jun-24	08-May-25																																																		
A000000-1270	SWITCH TRAFFIC TO STAGE 1C CONFIGURATION	0	28-Jun-24		◆ SWITCH TRAFFIC TO STAGE 1C CONFIGURATION																																																		
A000000-1290	SWITCH TRAFFIC TO STAGE 3 CONFIGURATION	0	08-May-25		◆ SWITCH TRAFFIC TO STAGE 3 CONFIGURATION																																																		
<b>DESIGN PHASE</b>			90	20-Jun-22	25-Oct-22																																																		
<b>PRELIMINARY DESIGN</b>			40	20-Jun-22	15-Aug-22																																																		
<b>SURVEYS</b>			40	20-Jun-22	15-Aug-22																																																		
BA30000-1020	BASE MAPPING / FIELD SURVEY	40	20-Jun-22	15-Aug-22	25-Oct-22, DESIGN PHASE																																																		
<b>FINAL DESIGN</b>			50	16-Aug-22	25-Oct-22																																																		
<b>ROADWAY DESIGN</b>			50	16-Aug-22	25-Oct-22																																																		
BB20000-1000	SET HORIZONTAL AND VERTICAL GEOMETRY	20	16-Aug-22	13-Sep-22	15-Aug-22, PRELIMINARY DESIGN																																																		
BB20000-1020	ROADWAY DRAINAGE DESIGN	30	14-Sep-22	25-Oct-22	15-Aug-22, SURVEYS																																																		
<b>UTILITY RELOCATION</b>			349	26-Oct-22	14-Mar-24																																																		
F000000-1020	PRELIMINARY UTILITY CONFLICT INVESTIGATIONS	20	26-Oct-22	22-Nov-22	25-Oct-22, FINAL DESIGN																																																		
F000000-1030	PREPARE PRELIMINARY UTILITY STATUS REPORT	10	23-Nov-22	08-Dec-22	25-Oct-22, ROADWAY DESIGN																																																		
F000000-1050	VDOT REVIEW PRELIMINARY UTILITY STATUS REPORT	21	09-Dec-22	29-Dec-22	25-Oct-22, ROADWAY DESIGN																																																		
F000000-1040	SUBMIT PRELIMINARY UTILITY STATUS REPORT	0	09-Dec-22		◆ SET HORIZONTAL AND VERTICAL GEOMETRY																																																		
<b>VERIZON</b>			305	30-Dec-22	14-Mar-24																																																		
FG00000-1240	HOLD UFI MEETING WITH VERIZON	1	30-Dec-22	30-Dec-22	◆ ROADWAY DRAINAGE DESIGN																																																		
FG00000-1250	PREPARE RED-LINE/CONCEPTUAL RELOCATION DESIGN VERIZON	30	03-Jan-23	13-Feb-23	14-Mar-24, UTILITY RELOCATION																																																		
FG00000-1260	VERIZON SUBMITS PE ESTIMATE	30	14-Feb-23	28-Mar-23	14-Mar-24, VERIZON																																																		
FG00000-1270	REVIEW/APPROVE PE ESTIMATE	5	29-Mar-23	04-Apr-23	HOLD UFI MEETING WITH VERIZON																																																		
FG00000-1280	VERIZON COMPLETES UTILITY DESIGN	40	05-Apr-23	31-May-23	PREPARE RED-LINE/CONCEPTUAL RELOCATION DESIGN VERIZON																																																		
FG00000-1290	APPROVE UTILITY DESIGN	5	01-Jun-23	07-Jun-23	VERIZON SUBMITS PE ESTIMATE																																																		
FG00000-1300	VERIZON PERFORM RELOCATIONS AREA 3 NB-FROM STA. 333+00 TO 342+00	60	08-Jun-23	31-Aug-23	REVIEW/APPROVE PE ESTIMATE																																																		
FG00000-1310	VERIZON PERFORM RELOCATIONS AREA 4 NB-FROM STA. 345+50 TO 355+50	60	01-Sep-23	04-Dec-23	VERIZON COMPLETES UTILITY DESIGN																																																		
FG00000-1320	VERIZON PERFORM RELOCATIONS AREA 4 SB & 5 SB- FROM STA. 355+50 TO 373+00	60	05-Dec-23	14-Mar-24	APPROVE UTILITY DESIGN																																																		
<b>CONSTRUCTION</b>			512	15-Mar-24	24-Mar-26																																																		
<b>CONSTRUCTION</b>			512	15-Mar-24	24-Mar-26																																																		
<b>STAGE 1B</b>			74	15-Mar-24	27-Jun-24																																																		
<b>AREA 4 -SB- STA 346+00 TO 360+00</b>			74	15-Mar-24	27-Jun-24																																																		
GC00000-2460	CUT/FILL STA 346+00 to 360+00 LHS	15	15-Mar-24	05-Apr-24	27-Jun-24, STAGE 1B																																																		
GC00000-2950	INSTALL STORM SEWER STA 346+00 to 360+00 LHS	5	07-May-24	14-May-24	27-Jun-24, AREA 4 -SB- STA 346+00 TO 360+00																																																		
GC00000-3020	FINE GRADE ROADWAY STA 346+00 to 360+00 LHS	5	15-May-24	21-May-24	CUT/FILL STA 346+00 to 360+00 LHS																																																		
GC00000-3060	INSTALL UD STA 346+00 to 360+00 LHS	5	22-May-24	29-May-24	INSTALL STORM SEWER STA 346+00 to 360+00 LHS																																																		
GC00000-3100	PLACE 21B STONE STA 346+00 to 360+00 LHS	5	30-May-24	05-Jun-24	FINE GRADE ROADWAY STA 346+00 to 360+00 LHS																																																		
GC00000-3130	INSTALL CG STA 346+00 to 360+00 LHS	3	06-Jun-24	10-Jun-24	INSTALL UD STA 346+00 to 360+00 LHS																																																		
GC00000-3140	BACKUP CG STA 346+00 to 360+00 LHS	3	11-Jun-24	13-Jun-24	PLACE 21B STONE STA 346+00 to 360+00 LHS																																																		
GC00000-3170	INSTALL UD STA 346+00 to 360+00 RHS	2	14-Jun-24	17-Jun-24	INSTALL CG STA 346+00 to 360+00 LHS																																																		
GC00000-3180	INSTALL MS-2 STA 346+00 to 360+00 RHS	3	18-Jun-24	20-Jun-24	BACKUP CG STA 346+00 to 360+00 LHS																																																		
GC00000-3200	PLACE ASPHALT STA 346+00 to 360+00	5	21-Jun-24	27-Jun-24	INSTALL UD STA 346+00 to 360+00 RHS																																																		
<b>WATERMAIN</b>			20	08-Apr-24	06-May-24																																																		
GC00000-2630	24" DIP W/M "C" STA 0+15 TO 18+98 (346+75 TO 356+75 SB LHS) SECTION 2	20	08-Apr-24	06-May-24	INSTALL MS-2 STA 346+00 to 360+00 RHS																																																		
<b>STAGE 1C</b>			60	28-Jun-24	23-Sep-24																																																		
<b>AREA 4- NB- STA 346+00 TO 360+00</b>			60	28-Jun-24	23-Sep-24																																																		
GC00000-3210	CLEARING AND GRUBBING STA 351+50 TO 360+00 RHS	5	28-Jun-24	05-Jul-24	PLACE ASPHALT STA 346+00 to 360+00																																																		
GC00000-3280	E&S CONTROLS STA 351+50 TO 360+00 RHS	3	08-Jul-24	10-Jul-24	06-May-24, WATERMAIN																																																		
GC00000-3310	SAWCUT/DEMO EXISTING ROADWAY STA 351+50 TO 360+00 RHS	4	11-Jul-24	16-Jul-24	23-Sep-24, STAGE 1C																																																		
GC00000-3350	CUT/FILL STA 351+50 TO 360+00 RHS	13	17-Jul-24	02-Aug-24	23-Sep-24, AREA 4- NB- STA 346+00 TO 360+00																																																		
GC00000-3560	CONSTRUCT TEMPORARY WIDENING STA 351+50 TO 360+00 RHS	5	05-Aug-24	09-Aug-24	CLEARING AND GRUBBING STA 351+50 TO 360+00 RHS																																																		
GC00000-3600	CONSTRUCT TEMPORARY CROSSOVER FROM STA. 346+50 TO 351+50 LHS	5	12-Aug-24	16-Aug-24	E&S CONTROLS STA 351+50 TO 360+00 RHS																																																		

█ Remaining Level of Effort   
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