



VOLUME 1  
TECHNICAL PROPOSAL FOR  
**ALBEMARLE INTERSECTION BUNDLING**  
A DESIGN BUILD PROJECT

Contract ID# C00111814DB103



**FAULCONER**  
CONSTRUCTION COMPANY



April 23, 2019



## Section 4.1

# Letter of Submittal

# FAULCONER

CONSTRUCTION COMPANY

April 23, 2019

Mr. Bryan W. Stevenson, PE  
Alternative Project Delivery Division  
Virginia Department of Transportation  
1401 East Broad Street  
Richmond, Virginia 23219

**RE: Albemarle Intersection Bundling; Contract ID Number: C00111814DB103**

Dear Mr. Stevenson:

Faulconer Construction Company, Inc. (Faulconer) is pleased to submit the attached Technical Proposal for the above-mentioned Design-Build (D-B) project. Our team offers extensive road construction and design experience and have a solid reputation for completing complex projects innovatively, on-time and often ahead of schedule.

**4.1.1 Offeror's Full Legal Name:** Faulconer Construction Company, Inc., 2496 Old Ivy Road, Charlottesville, VA 22903

**4.1.2 Declaration of Intent:** It is Faulconer Construction Company's intent to enter into a contract for the Albemarle Intersection Bundling D-B projects upon award and in accordance with the terms outlined in the RFP and subsequent addenda.

**4.1.3 120-Day Declaration:** Pursuant to Part 1, Section 8.2, we declare that the Faulconer D-B Team will remain intact and in full force and effect for one hundred and twenty (120) days after the submittal of this Technical Proposal.

**4.1.4 Offeror's Point of Contact and 4.1.5 Principal Officer:**

#### 4.1.4 Point of Contact

**Edwin F. Stelter, LEED AP, DBIA**  
Faulconer Construction Company, Inc.  
2496 Old Ivy Road  
Charlottesville, VA 22903  
Phone: 434-295-0033 Fax: 434-295-0508  
Email: estelter@faulconerconstruction.com

#### 4.1.5 Principal Officer for the Offeror

**Jack W. Sanford, Jr.**  
Faulconer Construction Company, Inc.  
2496 Old Ivy Road  
Charlottesville, VA 22903  
Phone: 434-295-0033 Fax: 434-295-0508  
Email: jsanfordjr@faulconerconstruction.com

**4.1.6 Final Completion Date:** In accordance with RFP Section Part 1, Section 2.3.1, the Faulconer D-B Team proposes the final completion date of this project to be March 30, 2023.

**4.1.7 Unique Milestone Dates:** August 20, 2020 for UPC 111813-Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB) (prior to UVA Move-in Day); November 24, 2020 for UPC 109397 - Rio Mills Road (prior to Thanksgiving Holiday weekend) and Berkmar Drive Connector; and November 24, 2020 for UPC 111814 - I-64 Exit 124 Interchange Improvements (prior to Thanksgiving Holiday weekend).

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

**4.1.9 Certifications Regarding Debarment Forms:** Executed Certifications Regarding Debarment forms for both Faulconer Construction Company and all subconsultants are included in the Appendix.

**4.1.10 DBE Statement:** Faulconer Construction Company is committed to achieving a nine percent (9%) DBE participation goal for this project utilizing Virginia certified DBE companies.

We appreciate the opportunity to submit our Technical Proposal and look forward to working with VDOT on the Albemarle Intersection Bundling Design-Build project.

Respectfully Submitted,



Edwin F. Stelter, LEED AP, DBIA  
Vice President of Procurement



CLASS A • VIRGINIA CONTRACTORS LICENSE NO. 2701 003330A • NORTH CAROLINA CONTRACTORS LICENSE NO. 40648

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## Section 4.2

# Offeror's Qualifications

## 4.2 OFFEROR'S QUALIFICATIONS

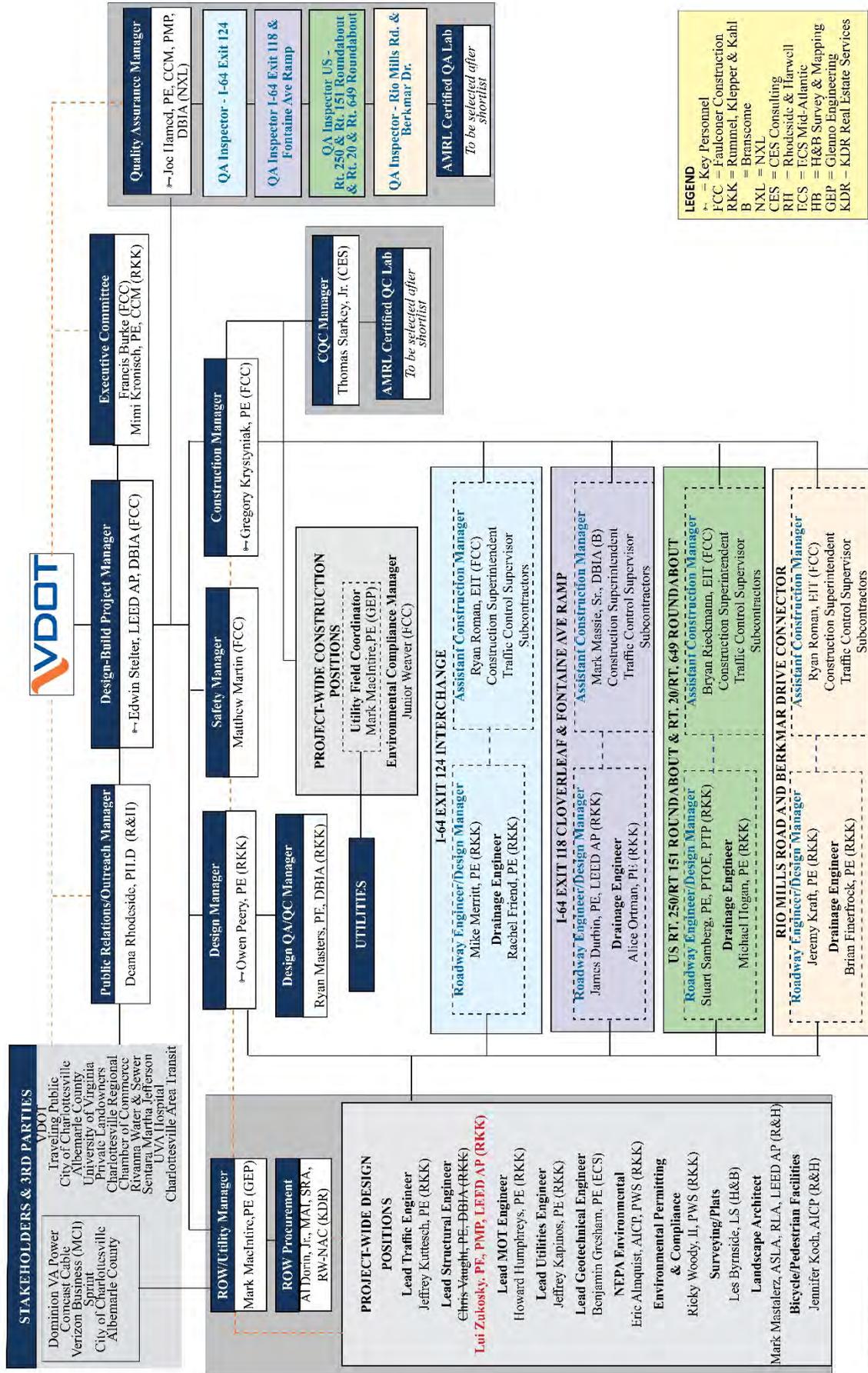
**4.2.1 Faulconer Construction Company, Inc. [FCC]** confirms the organizational chart and Key Personnel proposed in the SOQ remains true and accurate for the Faulconer D-B Team. This includes our organizational structure, Lead Contractor, Lead Designer, Key Personnel, and other individuals identified the SOQ with the exception of Chris Vaught, PE, RK&K's Lead Structural Engineer as part of our Project-Wide Design Staff (reporting directly to the DM). Mr. Vaught's departure has necessitated a change to the team, but he was not designated as one of our Key Personnel. The changes to the narrative and the organizational chart are noted in **red** text. In accordance with Section 4.2.1, we submitted this change to VDOT and received approval April 18, 2019.

**Lui Zukosky, PE, PMP, LEED AP** will serve in the role as Lead Structural Engineer offering his more than 19 years of structural design experience. He and our project wide team will work alongside Key Personnel to ensure consistency with detailing and plan development amongst the individual projects.

The Faulconer D-B Team has selected specific personnel with current assignments that will allow them to serve on this project in the capacity needed. The individuals identified on the Organizational Chart, both Key Individuals and non-Key Individuals, will serve on the Albemarle Bundling Intersection D-B project through completion of construction.

### 4.2.2 ORGANIZATION CHART

Under the leadership of **Edwin Stelter, LEED AP, DBIA**, our proposed Design-Build Project Manager (DBPM), the Faulconer D-B Team is structured to effectively manage and deliver the design and construction of this project. The D-B Team is organized to provide VDOT with a single-source point of contact, responsible for all design and construction activities. Our D-B Team organization has a straightforward chain of command, with individual tasks and functional responsibilities clearly identified. The organizational chart identifies key personnel and major functions to be performed for the successful management, design, and construction of the project. Though reporting relationships are rigid, the lines of communication within the Team will remain fluid and flexible to meet the requirements of each individual project task. To prevent unnecessary project delays, it may be prudent at times for other members within the D-B Team to communicate directly with their counterparts at VDOT. This will be directed and authorized in advance by Mr. Stelter and the VDOT Project Manager.



**LEGEND**

- Key Personnel
- FCC = Faulconer Construction
- RKK = Rummel, Klepper & Kahl
- B = Brenscome
- NXL = NXL
- CES = CES Consulting
- RIT = Rhodeside & Harwell
- ECS = ECS Mid-Atlantic
- HB = H&B Survey & Mapping
- GEP = Glenno Engineering
- KDR = KDR Real Estate Services



## Section 4.3

# Design Concept

### 4.3 DESIGN CONCEPT

The Faulconer D-B Team’s Design Concept for the Albemarle Intersection Bundle complies with the Technical Requirements with the addition of one Alternative Technical Concept (ATC); exceeds VDOT’s requirements; minimizes impacts to private property as well as cultural and natural resources; and reduces the need for future inspection and maintenance.

One of the most visible benefits of our design concepts is the ATC for UPC 111733, the Route 20 and Route 649 Roundabout, that has been approved by VDOT and is identified on Attachments 3.6.6 and 3.6.7, both of which can be found in the Appendix to this Technical Proposal. The ATC is detailed in Sections 4.3.1(a), 4.3.1(b), 4.3.1(c), 4.3.1(e), 4.3.1(f), 4.3.1(g) and 4.4.1 of this Technical Proposal. This ATC provides multiple benefits to VDOT and the end users and these benefits are summarized below:

- Shifting the roundabout to the south and lowering the grade of the roundabout accelerates construction time thereby impacting the traveling public less and improving safety by decreasing the amount of construction within the existing roadway;
- Reducing impacts to private property;
- Reducing impacts to historic properties;
- Reducing impacts to Virginia Outdoor Foundation property;
- Reducing maintenance costs by reducing the number of stormwater management ponds and the amount of drainage pipes used on the project thereby saving VDOT maintenance costs; and
- Eliminates impacts to Route 1494, which would have made the roadway much steeper and harder to access in inclement weather.

#### 4.3.1 CONCEPTUAL ROADWAY PLANS

The Faulconer D-B Team’s Conceptual Roadway plans are included in Volume II and meet or exceed all RFP requirements with the addition of one approved ATC. The design stays within the proposed right of way (ROW) limits shown in the RFP Conceptual Plans and does not include elements that require design exceptions or design waivers beyond what is listed in the RFP documents or approved by the ATC on UPC 111733. Our Team’s design reduced proposed ROW as shown in the Team’s Conceptual Plans. The Faulconer Team has identified the following design enhancements for this Project:

Project Location	Enhancement	Benefits
UPC 111814 Culpeper Creek	Added retaining wall to eliminate the fill slope impacts to the culvert outfall and stream.	<ul style="list-style-type: none"> <li>• Eliminates 50 LF of stream impacts.</li> <li>• Reduces maintenance costs of the additional box culvert and drainage structures.</li> </ul>
UPC 111814	Shifted Ramp B’s horizontal alignment to reduce excavation.	<ul style="list-style-type: none"> <li>• Reduces the amount of excess excavation hauled from the project site.</li> </ul>
UPC 111814	Shifted Eastbound Route 250 to avoid impacts to a high-pressure gas line.	<ul style="list-style-type: none"> <li>• Reduces schedule risk associated with utility relocations</li> </ul>
UPC 111814	Upgraded BPPS-3 to BPPS-1	<ul style="list-style-type: none"> <li>• Protects the overhanging portion of the existing bridge structure that is within 12 feet of the face of barrier.</li> </ul>

UPC 111727 SWM Basin	Designed SWM Basin with 4:1 slope to eliminate the need for guardrail.	<ul style="list-style-type: none"> <li>Eliminates guardrail as a clear zone hazard and maintenance costs.</li> <li>The 4:1 slope increase ease of access for maintenance.</li> </ul>
UPC 111727 Ramp A Side Slope	Graded the right-side slope to eliminate the need for guardrail.	<ul style="list-style-type: none"> <li>Eliminates guardrail as a clear zone hazard and maintenance costs.</li> </ul>
UPC 111727	Utilized a 10' wide paved shoulder along Northbound Route 29 where Technical Requirements allow 8'.	<ul style="list-style-type: none"> <li>Maintain consistent shoulder width along Northbound Route 29</li> </ul>
UPC 111813 Ramp A Side Slope	Graded left side slope at the SWM Basin to eliminate the need for guardrail.	<ul style="list-style-type: none"> <li>Eliminates guardrail as a clear zone hazard and maintenance costs.</li> </ul>
UPC 111730 SWM Facility	Design eliminates the need for a SWM Basin.	<ul style="list-style-type: none"> <li>Reduces SWM maintenance costs.</li> <li>Reduces Proposed R/W</li> </ul>
UPC 111730 Culvert	Reduced the Route 151 culvert length by utilizing barrier in lieu of guardrail.	<ul style="list-style-type: none"> <li>Reduces stream impacts.</li> <li>Reduces length of culvert to be maintained</li> </ul>
UPC 111730 Roundabout	Design reduces the roundabout inscribed circle diameter and adds outside truck aprons to accommodate the design vehicle.	<ul style="list-style-type: none"> <li>Reduces the project impacts and improves constructability which accelerates construction and minimizes impacts to the traveling public.</li> </ul>
UPC 111730 Roundabout	Reduced entry widths to 16' – 18' from RFP Conceptual plans	<ul style="list-style-type: none"> <li>Reduces the chance that two vehicles would enter at once or make a left turn, increasing safety.</li> </ul>
UPC 111730	Utilized curb cuts rather than inlets. Eliminates 12 inlets/structures and 574 LF of storm drain system.	<ul style="list-style-type: none"> <li>Reduces storm sewer maintenance and improves reliability.</li> </ul>
UPC 111733 Impacts	Eliminated direct impacts to the VOF property and Riggory historic property. Reduced impacts to three additional properties.	<ul style="list-style-type: none"> <li>Reduces total project direct impacts.</li> <li>Reduces risk to the project schedule.</li> <li>Lower profile reduces visual impacts to historic properties.</li> </ul>
UPC 111733 Impacts	Reduced construction impacts to residents along Route 1494.	<ul style="list-style-type: none"> <li>Enhanced safety by avoiding the need for an 11% grade along Route 1494.</li> </ul>
UPC 111733 Roundabout	Reduced entry widths to 16' – 18' from RFP Conceptual plans	<ul style="list-style-type: none"> <li>Reduces the chance that two vehicles would enter at once or make a left turn, increasing safety.</li> </ul>
UPC 111733 Drainage	Utilized curb cuts rather than inlets. Eliminates 20 inlets/structures and 1,128 LF of storm drain system.	<ul style="list-style-type: none"> <li>Reduces storm sewer maintenance and improves reliability.</li> </ul>
UPC 111733 SWM Facility	Reduced SWM basins from 2 in the RFP Conceptual plans to 1.	<ul style="list-style-type: none"> <li>Reduces SWM maintenance costs.</li> </ul>
UPC 111733 Geometry	Added right turn lane along northbound Route 20 to Route 1494.	<ul style="list-style-type: none"> <li>Increases safety by adding a pull off area for school buses.</li> </ul>

UPC 109397 SWM Facility	Utilized existing SWM maintenance access along Berkmar Drive for the proposed SWM facility.	<ul style="list-style-type: none"> <li>• Reduces project impacts and the need to maintain separate maintenance access.</li> </ul>
UPC 109397 Drainage	Eliminated the need for a ditch behind the 5' sidewalk.	<ul style="list-style-type: none"> <li>• Reduces project impacts.</li> <li>• Reduces Perm. Drainage and Temp. Construction easements.</li> </ul>
UPC 109397	Designed the SWM basin to avoid wetlands and reduce permanent drainage easement.	<ul style="list-style-type: none"> <li>• Reduces permanent drainage easement and wetland impacts.</li> </ul>

**(a) General Geometry including horizontal curve data and associated design speeds, the number and widths of lanes and shoulders**

The six project elements will meet or exceed the requirements of the Design Criteria provided within the RFP Project Documents. Horizontal alignment information and curve data information is listed in the Volume II – Design Concept, with design speeds and superelevation having been identified for each horizontal curve.

**UPC 111814 – I-64 Exit 124 Interchange Improvements**

Route 250 improvements will meet the requirements of a GS-5 Urban Principal Arterial facility west of I-64 and a GS-6 Urban Minor Arterial facility east of I-64, rolling terrain and a minimum design speed of 50 mph. The functional area of the interchange will meet a minimum design speed of 25 mph, to be consistent with the RFP designs. Route 250 outside the interchange area will incorporate a minimum lane width of 12', with minimum 4' left and 8' right paved shoulder widths. The interchange ramps will meet the requirements of the GS-R Interchange Ramp facility, with a minimum 16' width for a single lane ramp and a minimum 12' lane width for a 2-lane ramp, with minimum 4' left and 8' right paved shoulder widths. All other minor intersections will meet the appropriate design standards and speeds as listed in the RFP Project Documents.

**UPC 111727 – I-64 Exit 118 Partial Cloverleaf Modification**

Work on Route 29 will meet the requirements of a GS-5 Urban Principal Arterial facility, with rolling terrain and a minimum design speed of 60 MPH, incorporating two 12' left turn lanes with a minimum 4' left paved shoulder. The interchange ramp will meet the requirements of a GS-R Interchange Ramp facility that incorporates a minimum 16' width for a single lane ramp or a minimum 12' lane width for a 2-lane ramp, with minimum 4' left and 8' right paved shoulders. The design speed for the interchange ramp will meet a minimum design speed of 25 mph for the first curve from the intersection with US 29, then 30 mph for the remaining curves.

**UPC 111813 –Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB)**

The Fontaine Avenue interchange ramp will meet the requirements of a GS-R Interchange Ramp facility, with a minimum 30 mph design speed, that incorporates a minimum 12' lane width for the multilane ramp, with minimum 4' left and 8' right paved shoulder widths. Route 29 will meet the requirements of a GS-5 Urban Principal Arterial facility, with rolling terrain and a minimum design speed of 60 MPH, incorporating a minimum of 12' lanes with a minimum 4' left and 10' right paved shoulder. The Fontaine Avenue ramp gore geometry was modified from the RFP design to meet the policies and procedures in the VDOT Road Design Manual, Appendix C, Figure C-8-1 Ramp Gore for Exit Ramp and Table C-8-2 Minimum Length of Taper Beyond the Offset Nose. The nose offset on the ramp side of the gore was revised to match the left paved shoulder width of the ramp, reducing the taper length and the overall size of the physical gore.

**UPC 111730 – U.S. Route 250 and Route 151 Roundabout**

Routes 250 and 151 will meet the requirements of a GS-2 Rural Minor Arterial, with rolling terrain and a minimum 60 mph design speed, that incorporates minimum 12' lane and 8' paved shoulder widths. The

roundabout will have a single lane circulatory roadway with a minimum lane width of 20' and truck apron width of 15'.

#### **UPC 111733 – Route 20 and Route 649 Roundabout**

Route 20 improvements will meet the requirements of a GS-2 Rural Minor Arterial facility south of the existing intersection, with rolling terrain and a minimum 50 mph design speed, that incorporates a minimum 12' lane and 8' paved shoulders. Routes 20 and Route 649 north of the Route 649 intersection will meet the requirements of a GS-3 Rural Major Collector facility, with rolling terrain and a minimum 50 mph design speed, that incorporates minimum 12' lanes and 8' graded shoulders, with the pavement section extended 1' into the graded shoulder. The roundabout will have a single lane circulatory roadway with a minimum lane width of 20' and truck apron width of 15'.

#### **UPC 109397 – Rio Mills Road and Berkmar Drive Connector**

The reconstruction of the existing Rio Mills Road section will meet VDOT's GS-4 Rural Local Road requirements, with rolling terrain and a design ADT between 400 and 1,500 which incorporates minimum 10' lanes and 5' graded shoulders, with the pavement section extended 1' into the graded shoulder. The Rio Mills Road/Berkmar Drive connector segment will meet the requirements of a GS-8 Urban Local Road achieving a design speed of 30 mph, that incorporates minimum 11' travel and 4' bicycle lanes.

### **(b) Horizontal Alignments**

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Horizontal alignments for the projects are generally consistent with the alignments as depicted on the RFP Conceptual Plans with major deviations discussed below.

#### **UPC 111814 – I-64 Exit 124 Interchange Improvements**

All roadway horizontal alignments match the RFP Conceptual plan, with the exception of Ramp B. The horizontal alignment of Ramp B was shifted towards the I-64 WB lanes to reduce cut impacts to the large slope north of the ramp. This change reduces the amount of excavation hauled from the project. Additionally, the Faulconer D-B Team has identified an opportunity to shift Route 250 to avoid a high-pressure gas line that runs along the west side of Route 250. The modification involves narrowing the raised median between EB the and WB lanes while maintaining the correct horizontal design speed, baseline intersection angles, and vehicle turning movements. This design was reviewed with the owner and they agreed that the changes would allow the existing gas line to stay in service without relocation.

#### **UPC 111730 – U.S. Route 250 and Route 151 Roundabout**

The location of the roundabout was shifted to the north and the inscribed circle diameter was reduced from 150' to 130'. The reduced roundabout diameter with the outside truck aprons will accommodate a WB-67 vehicle. The roundabout shift and reduced size improve constructability of the project by shifting more of the roundabout and the Rte. 250 EB leg off the existing roadway.

#### **UPC 111733 – Route 20 and Route 649 Roundabout**

The horizontal alignments of Route 20 and Route 649 were redesigned as part of the major design modification incorporated as part of the approved ATC concept to shift the location of the roundabout and remove the Route 1494 leg from the intersection. The proposed design also maintains the improved sight distance that was achieved with the RFP Conceptual plan. The alignment of Route 20, south of the proposed roundabout, is roughly in the same location as the alignment depicted on the RFP conceptual plans, though the length has been shortened to accommodate moving the roundabout location to the southwest. The alignment of Route 20 north of the roundabout, is adjusted in a similar way, lengthening the alignment to accommodate the new roundabout location. The horizontal alignment of Route 649 is shifted southwest to tie into the new roundabout location. All roads maintain the same horizontal design speed as the RFP Conceptual Plan design.

Route 1494 will remain in the current location with no changes to the existing horizontal alignment which will require an access management waiver because the intersection spacing will be approximate 185' from the inscribed diameter of the ATC roundabout location which does not meet the minimum criteria of 440 ft. Along northbound Route 20, the ATC concept plan provides a 50' turn lane taper and 50' of tangent, replicating the existing condition, and providing an allowance for a school bus stop to pick up students which removes them directly from the shoulder of Route 20. By removing Route 1494 from the roundabout, The Faulconer Team's design eliminates the need to realign Route 1494. This realignment of Route 1494 reduces the ROW and construction impacts to the residents for which this facility serves as their only neighborhood access. It also reduces the overall construction time required and allows the existing Route 1494 roadway grade to be maintained instead of increasing the grade to as much as 11%.

The proposed roundabout design maintains the 130' inscribed diameter provided in the RFP and meets or exceeds the design speed through the intersection transition areas. Our design also matches the horizontal and vertical design speeds used on the RFP Conceptual plan. The proposed ATC design meets all stopping sight distance requirements including those for intersection, horizontal and vertical within the project limits.

**(c) Maximim Grade for all Segments and Connectors**

The vertical alignment for all roadways will be compliant with the Technical Requirements. The following table summarizes the maximum grade for all connections.

Project Location	Design Maximum Grade	Allowable Maximum Grades
<b>UPC 111814 – I-64 Exit 124</b>		
Route 250	4.5%	7%
Interchange Ramps (2 5mph Design Speed)	5.5%	6%
Interchange Ramps (35 mph Design Speed)	4.7%	7%
Hansens Mountain Road	4%	9%
North Hill/Inn Dr. (Route 1107)	2.5%	8%
<b>UPC 111727 – I-64 Exit 118</b>		
US 29	1.6%	6%
Interchange Ramp	4.5%	5%
<b>UPC 111813 – Fontaine Ave Ramp</b>		
US 29	3%	4%
Interchange Ramp	1%	7%
<b>UPC 111730 – Rte. 250/151 Roundabout</b>		
Route 250	4%	4%
Route 151	4%	4%
<b>UPC 111733 – Rte. 20/649 Roundabout</b>		

Route 20 (South)	4%	5%
Route 20 (North)	4%	7%
Route 649	5%	7%
Route 1494	9.3%	15%
<b>UPC 109397 – Rio Mills Rd./Berkmar Dr Connector</b>		
Rio Mills Rd. /Berkmar Dr. Connector	8%	15%
Existing Rio Mills Rd.	4.5%	10%

**(d) Typical Sections of the Roadway Segments to Include Ramps, Roundabouts and Retaining Walls**

Typical sections for the projects are shown in Volume II – Design Concept, and include sections for ramps, roundabouts, and retaining walls. Our proposed designs incorporate MC-4 Maintenance Pavement Under Guardrail to the hinge point, however, it is not shown on the plan view in this proposal due to scale. The proposed elements meet the RFP’s Technical Requirements. Variations from the RFP Conceptual Plans are discussed for the individual projects below.

**UPC 111814 – I-64 Exit 124 Interchange Improvements**

The Faulconer D-B Team’s proposal includes a concrete median within the interchange area to reduce VDOT’s maintenance needs between Eastbound and Westbound Route 250. We have verified that the proposed roadway and lane widths satisfy the turning movements listed in the Technical Requirements. The pavement cross slope on Route 250 will be verified and corrected to be between 1.5% and 2.5% in normal crown sections. This work will not reduce the vertical clearance below what is allowed in the RFP Technical Requirements.

Our design has added a retaining wall along Route 250 Eastbound near station 528+50 to prevent the fill slope from impacting a stream, eliminating stream impacts and the temporary construction easement from parcels 041 and 042. During the development of our designs, our Team discovered that the metal structure of the existing I-64 bridges is very close to the barrier pier protection which requires the RFP Conceptual Design’s proposed BPPS-3 to be upgraded to BPPS-1.

**UPC 111727 – I-64 Exit 118 Partial Cloverleaf Modification**

The RFP Technical requirements specify that the minimum paved shoulder width along Northbound Route 29 is 8 feet wide; however, the Faulconer Team elected to match the existing 10’ shoulder to maintain consistency along the corridor. Our design has modified the slope on the right side of the roadway to reduce the amount of guardrail that a vehicle could impact within the clear zone, improving safety and reducing maintenance.

**UPC 111813 –Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB)**

Our design has modified the left side slope to be traversable within the clear zone which eliminated the need for guardrail along the ramp, improving safety and reducing maintenance. Removing guardrail from the clear zone increases driver safety and the future maintenance cost of repairing it.

**UPC 111730 – U.S. Route 250 and Route 151 Roundabout**

The Faulconer D-B Team has reduced the roundabout entry widths, from a maximum width of 23 feet to a maximum of 18 feet and added concrete truck aprons to accommodate the turning movements of larger vehicles. This change makes the roundabout safer by reducing the possibility that two vehicles may queue side by side at

the entry. The fastest paths have been verified and agree with the applicable design parameters. The Route 151 typical section has been revised to utilize concrete barrier at the culvert crossing. This reduces the overall length of culvert to be maintained and stream impacts. We have reviewed the H&HA model to confirm that the water surface elevations meet RFP Requirements.

### **UPC 111733 – Route 20 and Route 649 Roundabout**

The Faulconer D-B Team has reduced the roundabout entry widths from a maximum width of 23 feet to a maximum of 18 feet and added concrete truck aprons to accommodate the turning movements of larger vehicles. This change makes the roundabout safer by reducing the possibility that two vehicles may queue side by side at the entry. The fastest paths have been verified and agree with the applicable design parameters.

### **UPC 109397 – Rio Mills Road and Berkmar Drive Connector**

The Rio Mills Road/Berkmar design has been modified to eliminate the ditch behind the sidewalk which reduces drainage impacts and eliminates a permanent drainage easement.

## **(e) Conceptual Hydraulic and Stormwater Management Design**

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**Storm Drainage:** Storm drainage will be designed to adequately convey runoff through the Project segments while optimizing the systems to facilitate construction, minimize impacts, and result in overall reduced maintenance efforts and costs. Existing drainage structures found to be hydraulically inadequate and/or structurally deficient and a functional element of the proposed drainage design will be replaced with hydraulically adequate structures.

A benefit of Our D-B Team's design is reducing hydraulic elements from the RFP plans by implementing proposed curb cuts within the roundabout areas. The curb cuts are located outside of truck apron areas, satisfy roadway spread requirements, and result in a simpler open channel system that requires less maintenance.

- UPC 111730: Removed 12 proposed drainage inlets/structures and approximately 574 linear feet of storm drain pipe.
- UPC 111733: Removed 20 proposed drainage inlets/structures and 1,128 linear feet of storm drain pipe.

**Stormwater Management Plan:** SWM for the Project is governed by the criteria outlined in Part IIB of the State stormwater regulations and the DEQ Runoff Reduction Method computations were used to determine the required phosphorous removal rate for compliance with the State Regulations. Because each Project is considered an individual segment when quantifying phosphorous removal requirements, 100% of the water quality treatment can be purchased from a nutrient credit bank. Therefore, our Team has identified a VDOT/DEQ approved nutrient bank within the watershed with enough available credits to satisfy 100% of the project phosphorous removal requirements. This approach allows each proposed stormwater basin to function as a small detention (dry) basin that will treat only water quantity. This will provide a number of significant project benefits, including:

- Reduction of the total number of proposed stormwater management basins from seven (7) to five (5).
- Smaller basin storage volumes and footprint areas compared to basins that would otherwise provide combined treatment of water quality and quantity.
- Avoidance of any special engineered soil mix or landscaping/plantings.
- Avoidance of small require water quality orifice's which easily become clogged and are a maintenance problem.

Additional stormwater benefits provided by our D-B Team include:

- Utilizing concrete weir outlet control structures as the primary spillway for the proposed detention basins for UPC 111733 and UPC 109397 provides facilities that are less prone to clogging when compared to riser structures.

- Locating the proposed detention basin on UPC 109397 to be adjacent to the existing VDOT bioretention basin allows both facilities to be accessed by the same existing stormwater management entrance. Fence will be provided to fully encompass both facilities.

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

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The Faulconer D-B Team's design limits of construction shown in the Volume II – Design Concept documents are within the existing/ proposed right-of-way limits as detailed in the RFP Conceptual plans. The D-B team has provided several design enhancements to reduce the project impacts and subsequent required Proposed Right-of-Way and Permanent Drainage and Temporary Construction easements as detailed below.

##### **UPC 111814 – I-64 Exit 124 Interchange Improvements**

At Exit 124 minor design adjustments have eliminate the need for the permanent drainage easement on parcel 40, for a reduction of 0.01 acres. Our design constructs a retaining wall along EB Route 250 which eliminates the temporary construction easement on parcels 041 and 042, for a reduction of 0.03 acres.

##### **UPC 111730 – U.S. Route 250 and Route 151 Roundabout**

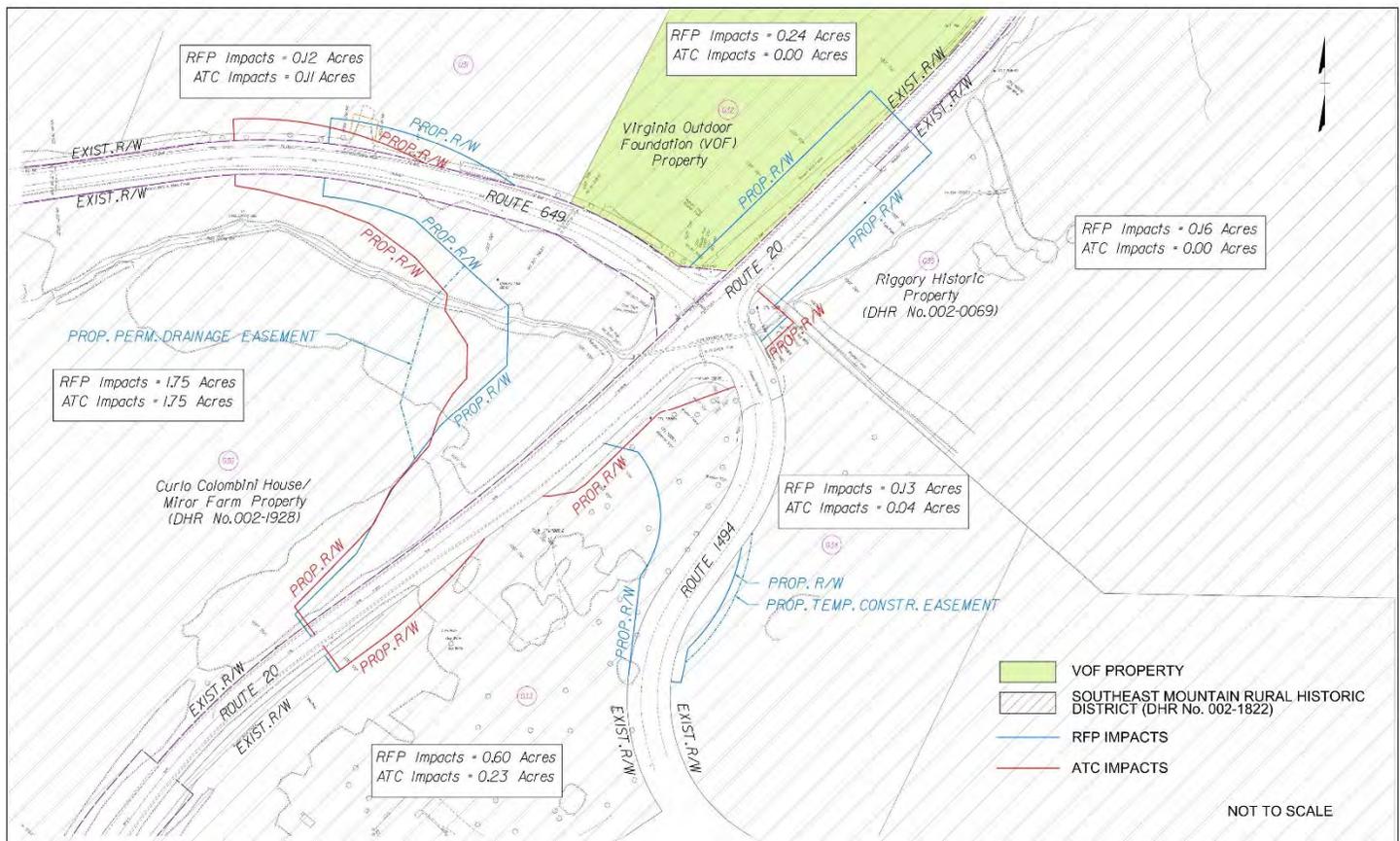
At the Route 250/Route 151 Roundabout the D-B team's stormwater management design eliminated the need for a SWM basin and the maintenance of traffic design reduced the length of culvert resulting in a Proposed R/W reduction of 0.37 acres.

##### **UPC 111733 – Route 20 and Route 649 Roundabout**

VDOT has approved our D-B Team's ATC which includes a major design modification to shift the Route 20/Route 649 Roundabout. That has allowed the Faulconer Team's design to reduce Proposed R/W by 0.87 acres. This reduced impacts to three parcels (031, 033, and 034) and eliminated takes from the Riggory historic property (parcel 035) and **eliminated all impacts to the Virginia Outdoor Foundation (VOF) property** (parcel 032). This is a huge benefit to the project because it avoids potential schedule delays to coordinate with the Foundation and to find replacement property.

The approved ATC modified the proposed Permanent Easement and R/W limits on parcel 030 but matches the overall area proposed in the RFP Conceptual Plan. Refer to *Figure 4.3.1-1* on the following page. This corresponds with the 1.75 acres of impact to the Curlo Colombini House/Minor Farm noted in the Virginia Department of Historic Resources Determination of Effect letter. Matching this area avoids the need for additional coordination with the DHR and a direct benefit to the project schedule.

Figure 4.3.1-1



### UPC 109397 – Rio Mills Road and Berkmar Drive Connector

The D-B team eliminated the ditch behind the sidewalk on the north side of the roadway, allowing the water from the slopes to sheet flow over the sidewalk and be captured by the curb inlets. This reduces the permanent drainage easement by 0.35 acres. Additionally, the SWM basin design avoids the wetlands and allows the permanent drainage easement shown in the RFP concept plans to be reduced by 0.11 acres.

#### (g) Proposed Utility Impacts

The Faulconer D-B Team has met with the utility companies that have facilities in the project area to confirm locations and discuss avoidance, protection and relocation strategies that will minimize impacts and accelerate the construction schedule. At the project locations, the D-B Team has implemented strategies to reduce utility impacts compared to the RFP Conceptual Plans, maximize benefits to users and increase third party acceptance.

**UPC 111814 – I-64 Exit 124 Interchange Improvements:** At Exit 124, there are over 25 potential utility conflicts that will need to be addressed. The design concept has prioritized avoiding impacts to the high-pressure gas main owned by the City which runs parallel to Route 250 on the west side. This prioritization will eliminate impacts to the gas line in favor of some impacts to the water main on the east side of Route 250 which FCC can self-perform, reducing schedule impacts and costs. Storm drainage has been adjusted at the north end of the project to eliminate a potential parallel impact to the sanitary sewer that runs from Glenorchy Drive to Hansens Mountain Road. Storm drain has been adjusted on the west side of Route 250 to avoid Lumos splice manholes which will reduce the cost and construction time for their relocations. The design has also been modified between the I-64 EB ramp and Comfort Inn entrance to allow Lumos and Dominion Power to relocate pole facilities along the existing alignment of the overhead utilities to eliminate the need for additional guy poles and slack for the

relocation. Century Link has four crossings of copper and fiber lines. We will coordinate the design, so they can reduce the number of lines and consolidate to just two crossings.

Utility Description	UPC Number	Conflict ID	Potential Conflict	Relocation/Mitigation Plan
<b>UPC 111814 – I-64 Exit 124 Interchange Improvements</b>				
Dominion - 300 ft. of UG power along N side of Rte. 250 from Rte. 1717 to ramp	111814	124-02	Parallel storm drain conflicts and in cut area	Power is for existing signal, relocate to support proposed signal as needed
Dominion - 400 ft. of UG power and a pole along N side of Rte. 250 from W of I-64 ramp to E of ramp	111814	124-03	Storm Drain Conflicts and in cut area	Relocate pole along OH alignment to avoid guys for other poles, relocate UG line to avoid storm drain and construction by crossing ramp potentially further N
Albemarle SA - 40 ft. of 16" water E side of Rte. 250 N of bridges	111814	124-07	Crossing storm drain	Test hole, confirm conflict, refine design to avoid, relocate along alignment if needed
Albemarle SA – 275 ft. of 16" water on E side of Rte. 250 in the interchange.	111814	124-27	Parallel to curb and gutter, storm drainage and	Test hole, confirm conflict, relocate as needed.
Albemarle SA - 900 ft. of 8" sanitary E side of Rte. 250 between Rte.1109 and Rte. 1717	111814	124-08	Parallel to storm drain	Refine design to avoid, test hole, confirm conflict, relocate if needed
Albemarle SA - 40 ft. of 16" water E side of Rte. 250 S of bridges	111814	124-09	Crossing storm drain	Test hole, confirm conflict, refine design to avoid, relocate along alignment if needed
Charlottesville Gas - 40 ft. of 6" gas W side of Rte. 250 at I-64 ramp N of bridges	111814	124-11	Crossing storm drain	Test hole, confirm conflict, refine design to avoid, relocate along alignment if needed
Charlottesville Gas - 40 ft. of 6" gas W side of Rte. 250 just N of bridges	111814	124-12	Crossing storm drain	Test hole, confirm conflict, refine design to avoid, relocate along alignment if needed
Charlottesville Gas - 40 ft. of 6" gas W side of Rte. 250 at I-64 ramp S of bridges	111814	124-13	Crossing storm drain	Test hole, confirm conflict, refine design to avoid, relocate along alignment if needed
Comcast - 400 ft. of UG CATV and transfer to OH on impacted Dominion pole along N side of Rte. 250 from W of I-64 ramp to E of I-64 ramp	111814	124-16	Storm Drain Conflicts and in cut area	Relocate UG line to avoid storm drain and construction by crossing ramp potentially further N and transfer to OH at relocated Dominion pole
Century Link - 900 ft. of underground copper along E side of Rte. 250 between Rte. 1109 and Rte. 1717	111814	124-18	Potential conflict with parallel storm	Confirm if conflict protect in place or relocate if needed E, may eliminate due to other relocations
Century Link - 1700 ft. of UG fiber along E side of Rte. 250 N of bridges	111814	124-19	Conflicts with parallel storm, crossings and cut ditch	Confirm if conflict protect in place or relocate as needed E

Century Link - 600 ft. of underground fiber along E side of Rte. 250 S of bridges to Rte. 1107	111814	124-20	Conflicts with parallel storm, crossings and cut ditch	Confirm conflicts, refine design to avoid, relocate in place if possible
Century Link - 40 ft. UG fiber W side of Rte. 250 at I-64 ramp N of bridges	111814	124-21	Crosses storm drain	Confirm conflict, refine design to avoid, relocate in place, if needed
Century Link - 40 ft. UG fiber W side of Rte. 250 S of I-64 ramp N of bridges	111814	124-22	Crosses storm drain	Confirm conflict, refine design to avoid, relocate in place, if needed
Verizon - 40 ft. UG copper W side of Rte. 250 at I-64 ramp N of bridges	111814	124-25	Crosses storm drain	Confirm conflict, will be able refine design to avoid, if needed
Century Link - 40 ft. UG fiber W side of Rte. 250 at I-64 ramp S of bridges	111814	124-23	Crosses storm drain	Confirm conflict, refine design to avoid, relocate in place if needed
Verizon - 40 ft. UG copper W side of Rte. 250 at I-64 ramp S of bridges	111814	124-24	Crosses storm drain	Confirm conflict, refine design to avoid, relocate in place if needed

**UPC 111727 – I-64 Exit 118 Partial Cloverleaf Modification:** At Exit 118 we have confirmed the only utilities in the project area are VDOT owned. As part of the design we will coordinate the installation of power and communication for the future signal required for the project.

Utility Description	UPC Number	Conflict ID	Potential Conflict	Relocation/Mitigation Plan
<b>UPC 111727 – I-64 Exit 118 Partial Cloverleaf Modification</b>				
Confirmed no conflicts, will have to coordinate power and communication for signals	111727	118-01	None	

**UPC 111813 –Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB):** At the Route 29 exit to Fontaine Avenue, test holes will be required for the Century Link underground cable crossing the ramp to determine if the design can be adjusted to avoid impacting the line. We have confirmed that we will not impact any other utilities in the project area. Additionally, coordinate the installation of new fiber optic facilities with MMI Atlantic LLC. Coordination before the installation of this line, including providing the D-B Team’s preliminary designs will allow MMI to install the new fiber optic line out of the way of the Fontaine Avenue Ramp improvements.

Utility Description	UPC Number	Conflict ID	Potential Conflict	Relocation/Mitigation Plan
<b>UPC 111813 –Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB)</b>				
Confirmed no conflicts.	111813	029-01	None	

**UPC 111730 – U.S. Route 250 and Route 151 Roundabout:** At the Route 250/Route 151 Roundabout, the design has been modified to reduce the footprint of the project impacts and the overall utility impacts. The Verizon has a pole line along the north side of the roadway as well as underground fiber optic cables that run parallel to the pole line and down Route 151. A key facility is the splice manhole in the roundabout area. The design has been adjusted to ensure the splice manhole is within the apron area of roundabout, so it can be easily adjusted and not require installation of a new splice manhole. This will save over 1000’ feet of relocation to go back to the nearest manhole to create a new splice. The Verizon pole at the east end of the project previously impacted by the RFP concept is a splice pole for Comcast. The proposed design no longer impacts that pole creating savings and schedule benefits for the project. In coordination with Verizon, Dominion and Comcast we plan to consolidate the utilities to a single new pole line on the south side of Route 250 that takes advantage of Dominions existing poles that will not be impacted.

Utility Description	UPC Number	Conflict ID	Potential Conflict	Relocation/Mitigation Plan
<b>UPC 111730 – U.S. Route 250 and Route 151 Roundabout</b>				
Dominion - 200 ft. of OH single phase power and a pole N side of Rte. 250 W of roundabout	111730	151-01	Pole inside cut limits	Relocate pole outside of cut limits and connect with existing pole on S side of Rte. 250
Dominion - single pole with OH three phase power SE of roundabout	111730	151-02	Pole located in curb-line	Relocate pole along existing E/W alignment to avoid guys and relocate existing line in place
Comcast - 500 ft. of OH CATV on Verizon poles along N side of Rte. 250	111730	151-03	Pole line in cut area and roundabout	Follow Verizon and relocate to existing Dominion pole line on S side of Rte. 250
Century Link - 1100 ft. of UG copper along N side of Rte. 250	111730	151-04	Communications line and manholes located in cut area and roundabout	Relocate outside of cut area
Lumos - 600 ft. of UG fiber extends S from N side of Rte. 250 along the E side of Rte. 151	111730	151-05	Fiber impacted by roundabout and box culvert	Relocate E side of Rte. 151 beyond box culvert
Lumos - 1300 ft. of OH fiber and copper on Verizon poles along N Side of Rte. 250	111730	151-06	Pole line in cut area and roundabout	Follow Verizon and relocate to existing Dominion pole line on S side of Rte. 250
Verizon - 1300 ft. of OH copper and fiber and 8 poles along N side Rte. 250	111730	151-07	Pole line in cut area and roundabout	From non-impacted pole cross Rte. 250 and relocate to existing Dominion pole line on S side of Rte. 250
Verizon - 600 ft. of UG fiber and copper extends S from N side of Rte. 250 along the E side of Rte. 151	111730	151-05	Lines impacted by roundabout and box culvert	Relocate E side of Rte. 151 beyond box culvert, refine design so splice manhole is within roundabout apron to avoid additional relocations
Century Link - 400 ft. of UG fiber extends S along the E side of Rte. 151	111730	151-08	Fiber impacted by roundabout and box culvert	Relocate E side of Rte. 151 beyond box culvert
Lumos - 1100 ft. of UG fiber along N side of Rte. 250	111730	151-09	Fiber and manholes located in cut area and roundabout	Relocate outside of cut area

**UPC 111733 – Route 20 and Route 649 Roundabout:** The approved ATC shifted the Route 20/Route 649 roundabout and almost eliminated all the utility impacts compared to the RFP concept. It eliminates approximately 500’ of impacts to AT&T underground facilities on the north side of Route 649 and most impacts to Century Link’s underground facilities on the south side of Route 649. The design concept eliminates all the impacts to Century Links underground facilities along Route 1494 and three pole impacts on the east side of Route 20. The revised concept will impact two Century Link poles, but they will be able to relocate on the same alignment as the overhead utilities and avoid the need for guy poles and slack caused by impacting the other poles.

Utility Description	UPC Number	Conflict ID	Potential Conflict	Relocation/Mitigation Plan
<b>UPC 111733 – Route 20 and Route 649 Roundabout</b>				
Century Link - 200 ft. of UG fiber and 3 poles with 200' of aerial copper & fiber along S side of Rte. 649 and across the proposed roundabout	111733	020-05	Impacted by Rte. 649 and proposed roundabout	Shifted roundabout south to avoid pole and aerial impacts, will try to avoid with pond design, UG impacts are reduced and will be shifted S of SWM pond if needed

**UPC 109397 – Rio Mills Road and Berkmar Drive Connector:** The Rio Mills/Berkmar Drive Connector design will protect the Dominion pole line on the west side of Rio Mills Road. The underground Comcast facility impacted by the cut slope will be relocated to the existing pole line to minimize construction time and cost. Century link will consolidate their facilities on the east side of Rio Mills Road into a single line as part of their relocation.

Utility Description	UPC Number	Conflict ID	Potential Conflict	Relocation/Mitigation Plan
<b>UPC 109397 – Rio Mills Road and Berkmar Drive Connector</b>				
Century Link - 300 ft. of UG copper on W side of Rte. 643	109397	643-04	Inside cut limits for roadside ditch	Relocate onto existing Dominion poles for 300 ft length
Comcast - 300 ft. of UG CATV along W side of Rte. 643	109397	643-05	Inside cut limits for roadside ditch	Relocate onto existing Dominion poles for 300 ft length
Lighttower - 300 ft. of UG fiber on E side of Rte. 643	109397	643-07	Inside cut limits for roadway	Relocate outside of cut limits

**(h) Proposed Signage for Exit 124 Interchange Improvements Element**

The proposed signage for the Exit 124 Interchange Improvements Element exceeds the requirements of the VDOT Traffic Engineering Design Manual, the 2009 Manual on Uniform Traffic Control Devices, and the 2011 Virginia Supplement to the MUTCD (latest revision). The proposed signage is intended to provide clear and consistent information to motorists, while reducing sign clutter. Appropriate regulatory signage, consistent with FHWA’s Diverging Diamond Informational Guide (August 2014), will be installed at both crossover intersections to reduce the potential for wrong-way movements through the interchange.

The proposed guide signage along Eastbound Route 250 includes a ground mounted sign to begin sorting traffic into the appropriate lanes for eastbound and westbound I-64, followed by an overhead arrow-by-lane sign to assist drivers with selecting the appropriate lane(s) for their destination, be it I-64 Westbound, US 250 Eastbound, or I-64 Eastbound. This sign will be supplemented by a second overhead sign upstream of the I-64 bridges over Route 250, confirming that both the left lane and center lane can be used toward Eastbound I-64. This design is an enhancement over the current sign layout at the nearby Zion's Crossroad interchange, and accounts for the heavy movement along Eastbound Route 250 leaving Charlottesville toward Eastbound I-64 and Richmond, by providing additional clear and positive guidance when compared to ground mounted signs.



In the westbound direction, the interchange approaches for turning movements are simpler and no option lane is present. Ground-mounted advance and exit direction signs are proposed, along with trailblazer assemblies at the gore. Again, due to the bridge structures, the exit direction signs are proposed upstream of the bridges to maximize their visibility. The proposed signage plan will support the safe and orderly movement of traffic through the proposed DDI.



## Section 4.4

# Project Approach

## 4.4 PROJECT APPROACH

### 4.4.1 Environmental Management

Environmental Management is a primary component of the Faulconer D-B Team’s approach to all projects. Each discipline lead is included in the project’s planning in the initial stages of the RFP through the project’s completion to ensure all involved are aware of project constraints, schedule limitations and to assure constructability. For the Albemarle Intersection Bundling D-B project, we have reviewed the current environmental commitments, determined anticipated regulatory clearances required, assessed the effects and impacts to the natural, cultural, biological, geological, recreational and conservation resources in the proximity of and within each project’s limits of disturbance.

Our Environmental Team developed project-specific listings of required environmental clearances and their commitments in the table below.

Table 4.4.1-1 Environmental Clearances

Environmental Clearance / Environmental Clearance Status	UPC 111814 – I-64 Exit 124 Interchange Improvements	UPC 111727 – I-64 Exit 118 Partial Cloverleaf Modification	UPC 111813 – Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB)	UPC 111730 – U.S. Route 250 and Route 151 Roundabout	UPC 111733 – Route 20 and Route 649 Roundabout	UPC 109397 – Rio Mills Road and Berkmar Drive Connector
<b>SERP</b>	N/A	N/A	N/A	N/A	N/A	PEI – 7/2018
<b>NEPA</b>	PCE – 9/2018	PCE – 7/2018	PCE – 7/2018	PCE – 8/2018	CE – 8/2018	N/A
<b>Section 4(f)</b>	No Use 4(f) Properties	No Use 4(f) Properties	No Use 4(f) Properties	4(f) De minimis – 1.29 acres	4(f) De minimis – 2.0 acres	N/A
<b>Section 6(f)</b>	N/A	N/A	N/A	N/A	N/A	N/A
<b>Cultural Resources</b>	No Effect – 8/2018	No Historic Properties	No Historic Properties	No Adverse Effect -8/2018	No Adverse Effect -8/2018 (VDHR Requires 60% plan review)	No Historic Properties
<b>Rare, Threatened and Endangered species</b>	4(d) Rule for Bats	No Adverse effect	4(d) Rule for Bats	4(d) Rule for Bats	4(d) Rule for Bats	4(d) Rule for Bats
<b>Water Quality Permits</b>	USACE NWP #23	No Permit Required	USACE NWP #23	USACE NWP #23	USACE NWP #23	No Permit Required
<b>Compensatory Mitigation (Ratios Applied)</b>	167 feet stream 0 square feet wetlands	No stream or wetland impacts	No stream or wetland impacts	57 feet stream 1,400 square feet wetlands	191 feet of stream 6,160 square feet wetlands	No stream or wetland impacts
<b>Virginia Stormwater Management General Permit (VSMP)</b>	Permit required	Permit required	Permit required	Permit required	Permit required	Permit required

<b>Hazardous Materials</b>	Excavation less than 30 feet – No Phase II	No additional HAZMAT investigation required	No additional HAZMAT investigation required	No additional HAZMAT investigation required	No additional HAZMAT investigation required	No additional HAZMAT investigation required
<b>Air Quality</b>	Determination that no significant impact air quality or contribute to a new violation	Exempt from regional and project level emission requirements	Determination that no significant impact air quality or contribute to a new violation	de minimus scope or expected impact	de minimus scope or expected impact	N/A
<b>Noise Mitigation</b>	Type III project – No Noise study/mitigation required	Type III project – No Noise study/mitigation required	Type III project – No Noise study/mitigation required	Type III project – No Noise study/mitigation required	Type III project – No Noise study/mitigation required	Not Required
<b>EQ103 Environmental Certification Submit Information</b>	9/2020	1/2020	1/2020	8/2020	12/2020	11/2019
<b>EQ200 – Document Re-Evaluation for PSE Authorization Submit Information</b>	3/2021	11/2019	11/2019	2/2020	6/2020	N/A
<b>EQ 201 – Right of Way Re-Evaluation Submit Information</b>	9/2020	No R/W Required	No R/W Required	2/2020	6/2020	N/A

These commitments are the basis for our Environmental Compliance Matrix (ECM). The ECM is an environmental management tool used throughout the project development process to ensure clearances and project commitments are recorded and compliance is documented and tracked from the issuance of the notice to proceed to construction close out. The ECM is a living document that organizes, retains, and documents compliance decisions made to comply with each regulatory agency’s authorizations and proves that our team’s design complies with VDOT’s RFP documents.

The D-B Team has analyzed the project-specific environmental commitments and communicated them to the team during the RFQ, ATC development, and RFP stages of this project’s response to ensure our team has incorporated them into the project plans, schedule and cost proposal. With this knowledge and individual project understanding, our D-B Team is staged to address any challenges that may arise as each project moves through final design and construction.

The D-B Team is experienced at identifying environmental risk management strategies, providing in-plan environmental constraints mapping, identifying coordination touch points, defining informational requirements for the acquisition of required environmental clearances and providing environmental compliance assistance while consistently evaluating our progress weighed against the project schedule and costs. We used this approach to efficiently deliver the King Street Improvements Design-Build project in the City of Roanoke, Virginia.

Our approach promotes multiple active discussions between environmental, design and construction staff ranging from simple over-the-shoulder reviews to formal milestone and pre-submittal reviews. This active participation

of our D-B Team members has proven invaluable to identifying and evaluating avoidance and minimization efforts, such as aligning pipe culverts with the existing stream’s configurations to minimize channel tie-in lengths as well as other strategies. Our partnership will carry over to our construction team where we can efficiently evaluate potential solutions and make appropriate field adjustments necessary to remain compliant with the environmental clearance commitments, such as monitoring the setup and implementation of stream diversions as part of our construction sequencing.

Table 4.4.1.2 Example Environmental Compliance Matrix

UPC: 111730 Route 250 and Route 151 Roundabout	Schedule Date	Complete Actual Date	Comments/ Clearance Status
<b>VDOT Environmental Documentation</b>			
EQ103 Environmental Certification/Commitments Checklist	10/2020		
EQ200 – DOCUMENT REEVALUATION FOR PSE AUTHORIZATION	4/2020		
EQ201 – Right of Way Re-Evaluation	4/2020		
<b>NEPA/SERP</b>			
Confirm Project Effect consistent determination	10/19		
<b>Cultural Resources</b>			
Confirm Project Effect consistent determination	11/19		
<b>Section 4(f) Resources</b>			
Confirm In plan <i>de minimis</i> Use Acres / consistent determination	10/19		
<b>Water Quality Permits and Compensatory Mitigation</b>			
Jurisdictional Determination	11/19		
Water Quality Permit Acquisition	8/2020		
Secure Wetland and Stream Compensation	9/2020		
Secure Virginia Stormwater Management General Permit	10/2020		
<b>Threatened and Endangered Species</b>			
RTE Database Re-Evaluation	11/19		
Section 7 consultation - consistent determination	11/19		
<b>Hazardous Materials</b>			
Confirm Project consistent with determination	11/19		
<b>Environmental Compliance</b>			
QA/QC performed on 30% plan	10/19		

QA/QC performed on 60% plans	12/19		
QA/QC performed on Final Plans	3/2020		
Project Permit Monthly Monitoring	10/2020		

Some signature actions our D-B Team will continue evaluating and reducing environmental risk during design and construction by performing quality assurance and quality control reviews of the project plans, requiring environmental team sign off points throughout the design, performing periodic regulatory monitoring of the project during construction, implementing incident management reporting procedures, training staff, keeping detailed records, and maintaining an open line of communication with regulatory agencies and VDOT.

The ECM promotes efficiency and effectiveness across our team by encouraging partnerships between design, construction, VDOT, and regulatory agency representatives. We dedicate resources to coordinate and communicate the environmental commitments across the project team which demonstrates that we are committed to deliver an environmentally compliant project. We also safeguard compliance by using consistent and appropriately experienced environmental staff throughout the procurement, design and construction phases.

Most of the environmental work will start at the notice to proceed. Using this date, we established projected end dates for each environmental clearance required.

To establish our schedule for securing and confirming environmental clearance, we considered the plan development process as compared to environmental resource information availability to inform the design plans with enough detail for grading, drainage, and temporary construction items to ensure environmental impacts are fully vetted as the design develops. For example: our approach for wetlands and streams expedites the incorporation of their locations into the project plans beginning at the notice to proceed which supports early discussions regarding avoidance, minimization and compensation for potential impacts.

We have identified each project’s schedule for environmental clearances and their respective schedule hold points. We will use the ECM to track permit/clearance acquisition and document the defined environmental coordination touch points at each stage of plan development. Once the specific project environmental clearances or coordination touch points are obtained, our team will record them in ECM with the appropriate supporting documentation. This will be provided to VDOT to assist in completing the EQ103, EQ200, and EQ201, saving VDOT time and effort.

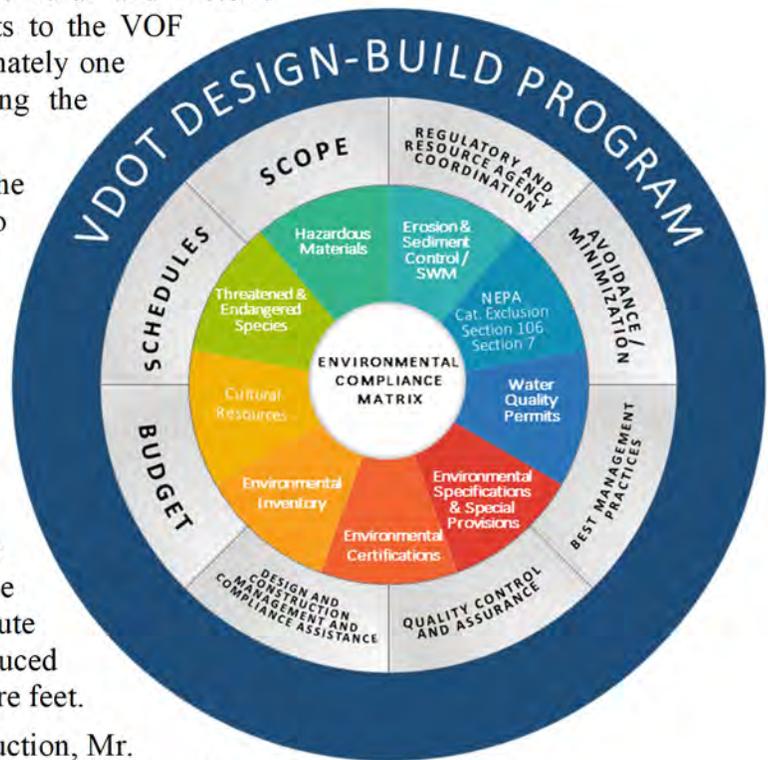
We are well versed in obtaining the Virginia Department of Environmental Quality (DEQ) Virginia Stormwater Management Program (VSMP) permit for all types of construction projects. We understand how to develop stormwater management plans, SWPPP documents, and erosion sediment control plans to support the planned construction activity and obtain VSMP coverage.

Our Environmental Lead, **Ricky Woody, PWS** will participate in the project meetings and perform constructability reviews considering logistical, economic and environmental constraints to confirm that environmental commitments are reflected in the project plans and being implemented during construction. These meetings and site reviews will occur concurrently with design staff and then the contractor, so any identified deficiencies can be discussed and appropriately corrected to reduce the environmental risk for each project.

This reduction of impacts and potential risk to the project are most notable in conjunction with the approved ATC we plan to implement on the Route 20/Route 649 Roundabout project and improves upon the concept shown on the RFP drawings by significantly reducing impacts, risk and potential delays. The ATC environmental permitting scenario qualifies for USACE Nationwide Permit #23 Approved Categorical Exclusion and does not require a VMRC permit. This reduces the permit acquisition time by 15 days and eliminates a VDEQVWP General Permit from the RFP approach. The ATC concept reduces right of way impacts by 0.87 acres within the Southwest Mountains Rural Historic District, including 0.16 acres of historic property impacts and it eliminates all 0.24 acres of impacts to the Virginia Outdoor Foundation property. In addition, the ATC demonstrates additional measures to reduce impacts to the historic district as required by the FHWA Section 4(f) de minimis

determination by reducing visual impacts to the rural and historic character of the area. The elimination of impacts to the VOF property and the eliminates a risk item of approximately one year, according to the letter from VOF outlining the anticipated time frame that might be expected.

Our D-B Team has the proven experience with the regulatory agencies to work collaboratively to achieve consensus on appropriate avoidance and minimization actions that will result in securing the required environmental clearances in accordance with the project schedule. This will reduce the risk associated with permit acquisition for each project. Our current design efforts have already reduced wetland and stream impacts below the RFP anticipated impacts on the Exit 124 Interchange Improvements the stream impacts were reduce by 50 feet; on the Fontaine Avenue Ramp the stream impacts were reduced by 50 feet; and on Route 250/Route 151 roundabout stream impacts were reduced by 39 feet and wetland impact reduced by 442 square feet.



During the project transition from design to construction, Mr. Woody, will work with the CM and the D-BPM to provide training for the Construction Team Leaders on the environmental resources which resources must be avoided and discuss the environmental permits/clearance requirements. The goal is to make sure our leaders are aware of environmental conditions, resources, and commitments to further reduce risk to VDOT and set the stage for the environmentally complaint delivery of each project. In addition, this training emphasizes the environmental team as a resource that is available to the field staff to answer questions and resolve environmental issues.

The D-B Team will continue to avoid and minimize impacts to environmental resources during construction by evaluating the locations of soil borrow/disposal areas, staging locations, and use of temporary/permanent easements areas and oversee the restoration of temporary impact areas. We are experienced at interpreting federal and state water quality regulations and providing environmental compliance assistance is extremely beneficial during construction to advocate the importance of regulatory compliance to inspectors and contractors.

At the completion of construction, environmental staff will perform a final site visit to document the final site conditions and prepare the permit close-out documentation for the regulatory agencies and VDOT.

#### 4.4.2 Utilities

The Faulconer D-B Team began early coordination during the RFP phase with each utility company present within each Project area. We will keep them involved early in the design phase, and throughout all phases of the Project. Having the utility companies involved early will help our D-B Team coordinate their crew availability, anticipated production, and areas of concern into our overall schedule and design. Once the project is underway, *Table 4.4.2-1* generally outlines steps and activities we will perform to manage the utility process and coordinate with each utility owner:

Table 4.4.2-1 Approach to Utility Coordination

Preliminary Utility Coordination and Conceptual Engineering	Obtain utility designations and verify utility mapping
	Conduct preliminary utility review meetings
	Coordinate test pit locations and review test pit information
	Identify location of utility easements
	Coordinate with utility companies on prior rights research
Plan Design, Conflict Avoidance and Impact Minimization	Provide feedback to design, permitting and right of way manager on potential conflicts
	Develop plans for conflict avoidance and impact minimization
	Review plans for avoidance or relocations with utility companies
	Coordinate needed utility easement with right of way manager
	Prepare UT-9 forms
Utility Field Inspection	Conduct UFI meetings with affected utility owners
	Obtain Utility Master Agreement and Buy America Certification or Letter of No Conflict from project area utilities
	Incorporate relocation information and update project schedule
	Request utility relocation Plan & Estimates
Utility Relocation Plan & Estimates and Agreements	Verify each utility's prior rights
	Finalize pro-rata share budgets and relocation schedules
	Obtain utility's relocation Plan & Estimates
	Review Plan & Estimates for VDOT Utility Manual compliance and submit to VDOT for approval
	Finalize Plan & Estimates and execute agreement
	Incorporate approved utility relocation plans into updated construction schedule
	Identify utility relocation activities on the critical path
Execute Utility Relocations	Begin utility relocations inside existing right of way
	Obtain needed right of way for utility relocations
	Proceed with utility relocations as needed right of way is acquired
	Take immediate action on unforeseen utility conflicts
	Maintain team approach to quickly resolve unforeseen conditions and field issues
	Assemble work completion certifications and inspection documentation
Close Out Utility Relocations	Obtain utility as-built plans
	Process quit claims to vacate existing utility easements

**Identify the utilities the Offeror believes to conflict with the design:** At this stage our D-B Team has identified multiple conflicts in the different Project Areas. *Table 4.4.2-2* is a summary of known utility conflicts in the Project areas and our potential solution for accommodating those utilities:

Table 4.4.2-2 Utility Conflicts and Relocation Strategy

Utility Description	UPC Number	Conflict ID	Protentional Conflict	Relocation/Mitigation Plan
<b>UPC 111814 – I-64 Exit 124 Interchange Improvements</b>				
Dominion - 100 ft. of UG power at Rte. 1109 entrance with Rte. 250	111814	124-01	Storm Drain Conflicts	Revised design to avoid
Albemarle SA - 40 ft. of 6" water at Rte. 1109 entrance	111814	124-05	Crossing storm drain	Revised design to avoid
Albemarle SA - 40 ft. of 6" water at Rte. 1109 entrance	111814	124-06	Crossing storm drain	Revised design to avoid
Albemarle SA - 100 ft. of 16" water E side of Rte. 250 S of I-64 ramp	111814	124-10	Parallel and crossing storm drain	Revised design to avoid
Charlottesville Gas - 40 ft. of 6" gas in median at Rte. 1107	111814	124-14	Crossing storm drain	Revised design to avoid
Charlottesville Gas – 175' of 6" gas line on west side of Rte. 250 in the interchange	111814	124-28	Parallel to BPPS.	Shifted Eastbound Rte. 250 to avoid conflict.
Lumos - 500 ft. of UG fiber on W side of Rte. 250 N of I-64 ramp	111814	124-15	Conflicts with parallel storm	Refine design to avoid or relocate to be E of storm drain
Verizon - 40 ft. UG copper W side of Rte. 250 S of I-64 ramp N of bridges	111814	124-26	Crosses storm drain	Revised design to avoid
<b>UPC 111813– Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB)</b>				
Century Link - 200 ft. of UG Copper on S side of Fontaine Ave.	111813	029-01	Impacted by SWM pond	SWM pond design revised to avoid
Rivanna WSA - Existing 18" Sanitary parallel to triple box culvert crossing under ramp	111813	029-02	Not impacted, but line is old	Protect from vibrations
Albemarle SA - Existing 10" waterline at end of ramp along Fontaine Ave.	111813	029-03	Not impacted, but line is old	Protect from vibrations
<b>UPC 111730 – U.S. Route 250 and Route 151 Roundabout</b>				
N/A				
<b>UPC 111733 – Route 20 and Route 649 Roundabout</b>				
ATT - 300 ft. UG Fiber along W side of Rte. 20 N of roundabout	111733	020-02	Within cut limits of RFP design	Revised design south to eliminate potential conflict

Utility Description	UPC Number	Conflict ID	Protentional Conflict	Relocation/Mitigation Plan
ATT - 200 ft. UG fiber along N side of Rte. 649 W of roundabout	111733	020-03	Within cut limits of RFP design	Revised design south to eliminate potential conflict
Century Link 450 ft. UG fiber and pole along Rte. 1494	111733	020-04	Impacted by Rte. 1494 reconstruction	Revised design to not impact Rte. 1494 to eliminate conflict
<b>UPC 109397 – Rio Mills Road and Berkmar Drive Connector</b>				
Dominion - 200 ft. of OH single phase power and 2 poles along W side of Rte. 643	109397	643-01	Pole within cut limits of roadside ditch	Revised design to avoid

Our D-B Team coordinated extensively with each discipline to develop a schedule and sequence of work for each utility relocation. This advanced schedule coordination has been developed through multiple discussions with each utility owner, and historical data developed from our experience with each owner on other projects. In coordination with the utility owners, we have used the upper range of their desirable schedule times for coordination and relocations along with additional cushion to incorporate contingency float into the schedule. Since our concepts can be phased, avoid several utility relocations, and the work is sequenced such that utilities are relocated in advance of the start of construction, we are able to schedule the project without any utilities on the Critical Path. This allows our D-B Team to phase construction efficiently, maximize the use of float and reduce the risk of delays to construction.

During construction, our D-B Team will maintain a detailed schedule for each utility relocation to determine if relocations are behind schedule or shift to or near the Critical Path. To avoid any delays due to utility relocations exceeding timeframes, our D-B Team will implement several strategies to successfully reduce schedule variability risk and keep utilities on schedule. These include:

- 1. Performing In-Place Relocations** – In areas where existing conduit and cable has slack, we will perform relocations in place and avoid the time and cost to place new conduit, cable or perform splicing. This is especially a beneficial where facilities need to be adjusted due to storm drain crossings.
- 2. Self-Performing Work** – In some areas where there are choices of which utilities are impacted, our D-B Team will show preference for utility relocations that can be self-performed if necessary. For example, impacting a water line would be preferential to impacting a gas line. Another example would be self-performing conduit installation to reduce the utility company’s responsibility. This provides flexibility and schedule control for our D-B Team.
- 3. Re-Use of Existing Facilities** – In some cases we have identified opportunities for an impacted utility to move from its existing pole line to another utility owner’s existing pole line. This reduces the schedule uncertainty for right of way acquisition and new pole construction. Also, the use of spare conduit by other buried utilities that are impacted eliminates the construction time variability risk.
- 4. Reduce or eliminate splicing** – There are limited numbers of experienced crews for splicing operations which can create significant variability in scheduling. To create more schedule certainty our utility coordination efforts have focused on identification of where splicing may be needed and prioritizing those relocations for avoidance to eliminate this possible uncertainty and potential for schedule slippage.

**Mitigation strategies to offset potential impacts of unidentified non-located utilities being discovered during construction:** Discovering utilities during construction that are not shown in the RFP or located during design can delay the Project schedule and add cost. Mitigation of this risk begins in the RFP phase and continues

during the design phase. During preparation of this Proposal, our D-B Team met with each utility owner, reviewed as-built records, and thoroughly reviewed the facilities visible in the field. As we move through the design phase, we will confirm the presence of utilities by completing detailed records research, field designations, and test pitting. This information will be integrated with the design to address any new utilities that are found. Concurrently, our coordination with the utility companies will continue in earnest and include updating them on design progress, and conversely providing the design team updates from the utility companies themselves. These efforts will result in avoidance and minimization through design, or a detailed utility relocation plan. The Team will also develop a Project-specific “Utility Strike Prevention Plan” that outlines the procedures to be followed during construction to establish clear lines of communication and authority, train workers about safety policies when working around utilities, describe plans for utility strike avoidance, and address steps to be taken should a strike occur.

Once construction begins, field markings by Miss Utility will be compared to known utilities identified during the design phase and included in the plans. Additional investigations will be completed as necessary to resolve any discrepancies. Prior to the start of any field construction activities, crews will perform additional test pitting in their work area to verify that there are no unforeseen conflicts with the proposed work. If, during construction, an unforeseen utility is encountered, the crew will immediately cease work, notify the Utility Coordination Manager, CM and DBPM, and stabilize the work area. The Utility Coordination Manager will determine the owner of the facility and contact their field representative to investigate whether the utility is still active or abandoned. Concurrently, after an initial assessment is made, the CM will determine whether to move the crew to a different location/activity, direct the crew to remain to assist the utility performing the relocation, repair, or to provide general support. Once the parties have determined what efforts are required to address the unforeseen utility, the Team will update the Project CPM and evaluate for delays. If delays are expected, there are several steps that can be taken to mitigate these delays. On previous projects, our D-B Team has successfully handled unforeseen utilities during construction by revising the design, adjusting the utility in place, assisting the utility with the relocation, performing a temporary relocation, and/or re-sequencing the work.

**Demonstrate the utility coordination, adjustments and relocations are well integrated into the Project sequencing as to minimize possibility of schedule delays:** In coordination with the utility owners, they desire to treat each of the six project areas as separate projects. This gives us greater flexibility with scheduling the overall utilities for the project by having fewer predecessors for utility activities. The Exit 118 Project area does not have utility relocations associated with it, so it is already clear for utilities. The Fontaine Avenue ramp, Rio Mills-Berkmar connector and the redesigned Route 20/649 roundabout have very minor communications relocations associated with them. As a result, four of the six project areas have no utility relocations that prevent major work to proceed within the project area. Relocation of the underground communication utilities on the east side of Route 151 are key predecessors to start work on the new box culvert. Relocation of the overhead and underground communications on the north side of Route 250 are key predecessors to starting work on Route 250 since they traverse the length of the project. Utilizing the existing Dominion poles south of Route 250 eliminates a major construction phase to install a new line of Verizon poles for the overhead utility relocations for Verizon and Comcast along the north side of Route 250. Our schedule includes construction of the pole line by Verizon in case an agreement cannot be made with the three utilities, although they have agreed to it in concept. Finally, at Exist 124 a key activity is getting test hole information to confirm where there are conflicts and then refining the design for avoidance after obtaining the test hole information, so we can minimize the relocations needed. Most relocations at Exit 124, including water and gas, are to accommodate storm drain installation. These spot relocations can be sequenced so storm drain work can follow closely behind the relocations as they proceed. Our schedule does not start storm drain work until these relocations are all complete. This creates additional float in the schedule to minimize the impact of possible delays. Century Link plans to consolidate their lines and reduce their footprint in the project area which will reduce the number of relocation activities for them.

The D-B Team has developed phasing for each of the utility relocations. This advance schedule coordination was the result of multiple discussions with each utility owner and historical data from our experience with these utilities on other projects. We have developed the following utility phasing strategies:

1. Early utility relocations will be communications relocations that can be done in place using available slack within the existing right of way. These will be concurrent with early MOT phases.
2. Next, relocations needed, that cannot be done in place, to open-up construction areas and for storm drain installation within the existing right of way will be prioritized and sequenced with the appropriate MOT phase.
3. Finally, relocations that need right of way or are associated with later stage tie-in areas will be phased to be completed as the right of way is obtained and to precede the later stage MOT phases.

The D-B Team has coordinated extensively to minimize utility relocation activities and integrate the needed activities into the schedule. The activities have been sequenced to introduce contingency float within the activities, used upper range recommendations from the utility owners and sequenced the work to keep utility relocation activities off the critical and near critical path. This strategy minimizes the possibility of schedule delays impacting the Team’s ability to complete the project on time.

#### 4.4.3 Geotechnical

The project is in the Blue Ridge Geologic Province of Virginia which presents a variety of challenging geotechnical conditions. The project corridor consists predominately of moisture sensitive, moderate to highly plastic, fine-grained soils, often containing mica. These soils exhibit elevated moistures within the upper strata, typically at/near existing subgrade elevations in many areas. There are also isolated areas of deeper highly plastic soils present in the region.

**Geotechnical Exploration Practices:** The D-B Team has thoroughly reviewed the VDOT-provided geotechnical documents including the Geotechnical Data Reports (GDRs) dated October 17, 2018 through November 5, 2018. The D-B will complete a supplemental geotechnical investigation and when combined with the available geotechnical data, the subsurface exploration will ultimately meet or exceed the minimum requirements presented in Chapter III of VDOT’s Manual of Instructions (MOI). The available geotechnical data and approximate coverage per MOI requirements is summarized in *Table 4.4.3-1*.

TABLE 4.4.3-1 SUMMARY OF AVAILABLE GEOTECHNICAL DATA				
UPC	Project	No. Borings in GDR	Required No. Borings	Current MOI Boring Coverage
109397	Rio Mills	2	12	17%
111727	Exit 118	9	16	56%
111730	250 & 151	10	19	53%
111733	Rt 20 Roundabout	10	18	55%
111813	Fontaine Ave	8	15	53%
111814	Exit 124	33	65	51%

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*The Geotechnical Exploration Program will be Tailored to Address the Real Geotechnical Issues Relative to the Proposed Design.*

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The geotechnical exploration program will be tailored to address the real geotechnical issues relative to the proposed design, with emphasis on near-surface subgrade soil suitability, stability of existing and proposed slopes, moisture-sensitivity of existing soils, and geotechnical construction considerations. All additional exploration, investigation, and testing will be performed in support of the required final design level geotechnical engineering report

(GER). The supplemental field exploration effort will be conducted in sequence utilizing one to two drill rigs to complete the supplemental borings utilizing the same resources rather than drilling each project concurrently. Sampling and testing of in-situ soils will be focused on delineating the extent of highly plastic, excessively wet, and low CBR or Mr value soils at the proposed subgrade elevation. Laboratory testing will begin as soon as samples are returned to our lab rather than waiting for the completion of the supplemental borings.

Shelby tube sampling will also be conducted so that direct shear, triaxial shear, and consolidation testing can be performed on undisturbed samples. The shear strength and consolidation test results will be used to develop the engineering parameters for each soil stratum. The sampling and testing will be scheduled to expedite obtaining the parameters that are critical in confirming our preliminary evaluations of settlement rates and magnitudes, supporting the global stability analyses, and slope and retaining wall designs.

**Geotechnical Design and Analysis Practices:** Geotechnical design and analyses will begin as supplemental borings and laboratory test data is available. The analyses will be conducted simultaneously for the six projects; however, each project will receive a separate geotechnical engineering report. The design and analyses of the geotechnical features will be in accordance with AASHTO LRFD Bridge Design, VDOT's MOI, and the requirements set forth in the RFP and Special Provisions. Laboratory testing and the subsequent selection of accurate engineering parameters will aid in refining the geotechnical analyses that have been conducted by the D-B Team to date. The key risk factors that have been identified for evaluation are the delineation of unsuitable soils, global stability of existing and planned slopes and retaining walls, and construction considerations with respect to moisture sensitive soils.

**Construction Methods:** To ensure that the GER recommendations are accurately and properly implemented during construction, the D-B Team will have members of the geotechnical design team intimately involved during construction. This approach emphasizes the need to accurately delineate areas of unsuitable soils, generate the most effective and efficient plan to remediate the areas of unsuitable soils, and to ultimately ensure the plan is implemented and documented during the construction phase. The success of this approach is based on the importance our D-B Team places on communication between the geotechnical engineer, construction staff, and the QC inspectors. The geotechnical representatives are on-site during the critical earthwork operations to observe and document the remediation procedures and recommend further mitigation techniques as necessary.

**Geotechnical Risks and Challenges:** The geotechnical risks have been identified and evaluated based on the existing Project information provided by VDOT, our understanding of the Project's geologic setting, and the D-B Team's experience in the area. *Table 4.4.3-2* presents the identified geotechnical risks and potential impacts on the construction duration, costs, quality, and long-term serviceability of the Project. The mitigation strategies our D-B Team will implement will provide and deliver a high-quality project with an expedited timeframe.

**TABLE 4.4.3-2 GEOTECHNICAL RISKS AND MITIGATION STRATEGIES**

Risk Description	Potential Impact	Mitigation/Strategy
<b>Unsuitable Subgrade Soils</b>	Schedule MOT/Public Safety Earthwork Quantities QA/QC Needs	<ul style="list-style-type: none"> <li>• Confirm and delineate accurate lateral and depth extents of the unsuitable soil in the areas already identified using the available subsurface information.</li> <li>• Finalize Soils Remediation Plan prior to construction.</li> <li>• Ensure schedule impacts are accounted for in the CPM schedule.</li> </ul>
<b>External/Global Stability of Slopes</b>	Schedule Right-of-Way Project Quality Long-term Serviceability	<ul style="list-style-type: none"> <li>• Collect adequate undisturbed samples and run the appropriate laboratory tests to identify accurate shear strength parameters in problematic soils.</li> <li>• Use these parameters to refine the preliminary analyses already completed by the D-B Team and modify the slope design as necessary to meet or exceed the minimum stability factors of safety.</li> </ul>
<b>Moisture- Sensitive Soils</b>	Schedule Project Quality Long-term Serviceability QA/QC Needs	<ul style="list-style-type: none"> <li>• Confirm areas of moisture-sensitive soils identified with the available subsurface information and supplemental investigation.</li> <li>• Denote the locations of these soils on the final Project Plans.</li> <li>• Implement specific methods at each location to protect these soils from the elements once exposed.</li> <li>• Schedule earthwork operations to limit the exposure of the moisture sensitive soils</li> </ul>

**Geotechnical Risk Matrix:** Based on the available geotechnical data, the D-B Team has reviewed to date, we have developed *Table 4.4.3-3*, which contains a matrix of the identified risk, risk level, and associated individual project.

**TABLE 4.4.3-3 GEOTECHNICAL RISK MATRIX BY PROJECT NAME/UPC**

UPC	Project	Potentially Unsuitable Subgrade Soils	Global Stability	Moisture- Sensitive Soils
109397	Rio Mills	H	L	H
111727	Exit 118	M	L	M
111730	250 & 151	M	H	H
111733	Rt 20 Roundabout	M	L	M
111813	Fontaine Ave	L	L	L
111814	Exit 124	H	H	H

**L=Minimal Risk, M=Medium Risk, H=High Risk to be accounted for in design**

**Unsuitable Subgrade Soils:** Based on review of the provided GDRs the D-B Team created an unsuitable soils matrix to identify station ranges of potential unsuitable soils that could be encountered during construction. The D-B evaluated the upper 3 to 5 feet of subgrade soils for each project and used four major criteria for identification of potential unsuitable soils including SPT N-values, USCS classification, natural moisture content, and CBR/Mr values as described in *Table 4.4.3-4*.

TABLE 4.4.3-4 POTENTIAL UNSUITABLE SOIL CRITERIA		
Description	Criteria	Potential Treatment/Application Alternative
Loose or Soft Soils	SPT N-values $\leq$ 4 bpf	<ul style="list-style-type: none"> <li>Densification</li> <li>Undercut and Replacement</li> <li>Geotextiles</li> </ul>
Highly Plastic or Organic Soils	USCS Classification (CH, MH, OH, and OL)	<ul style="list-style-type: none"> <li>Undercut and Replacement</li> <li>In-situ Admixtures</li> </ul>
Excess Moisture	MC $\geq$ 130% of Optimum MC	<ul style="list-style-type: none"> <li>Scarification/Drying</li> <li>Blending with On-site Dry soils</li> <li>In-situ Admixtures or Replacement</li> </ul>
Low CBR/M <sub>r</sub> Values	CBR/M <sub>r</sub> below minimum value for pavement design	<ul style="list-style-type: none"> <li>In-situ Admixture</li> <li>Undercut and Replacement</li> </ul>

Table 4.4.3-5 Excerpt of Potentially Unsuitable Soils

Boring No.	Estimated Stationing	Boring Elevation	Subgrade Elev.	Diff. in El. - Cut Req'd + Fill Req'd	From Station	To Station	CBR/ M <sub>r</sub>	Optimum Moisture Content %	Subsurface Conditions				Undercut Depth (ft)	Notes
									Sample Depth Ranges (ft)	SPT N - Values	USCS Soil Types	Natural Moisture Content %		
<i>UPC 111730 - US 250 and Route 151 Roundabout</i>														
<b>Route 250</b>														
18BI-101A	105+50	851.5	851.9	0.4	103+75	106-25	-	-	0.0-2.0	19	MII	17.4	-	No remediation anticipated. MII soils appear to be stable, exhibit low swell, and not wet
									2.0-4.0	10	SM	16.7		
18BH-102	107+00	858.0	847.7	-10.3	106+25	107+50	-	-	8.0-10.0	10	SM	26.7	-	
									13.0-15.0	10	SM	20.9		
18BI-103	108+00	845.5	844.7	-0.9	107+50	108+88	-	-	2.0-4.0	15	SC	15.6	-	
									4.0-6.0	19	SM	8.3		
18BI-105	109+75	840.0	842.2	2.2	108-88	201+50	13,130	10.9	0.0-2.0	13	SC	13.1	-	
									2.0-4.0	7	SC	16.6		
18BH-106	203+00	833.5	833.0	-0.5	201+50	205+77	-	-	2.0-4.0	14	ML	16.5	-	
									4.0-6.0	11	ML	16.0		
<b>Route 151</b>														
18BH-109	302+25	856.5	856.4	-0.1	301-60	303-25	-	-	2.0-4.0	14	MII	26.9	-	No remediation anticipated. MH soils appear to be stable, exhibit low swell, and not wet
									4.0-6.0	14	MH	25.1		
18BH-108	304+25	851.5	850.1	-1.4	303+25	304+88	-	-	2.0-4.0	19	MII	29.9	-	No remediation anticipated. MH soils appear to be stable, exhibit low swell, and not wet
									4.0-6.0	10	MH	28.6		
18BI-110	305+50	836.0	845.7	9.7	304+88	307+45	-	-	0.0-2.0	38	ML	22.4	-	
									2.0-4.0	20	ML	15.8		

The Faulconer D-B Team has used the project information provided by VDOT to evaluate the proposed subgrade soils and develop a matrix delineating station ranges where unsuitable soils are likely present. Large areas of the near surface soils contain micaceous elastic silts (MH) that are unsuitable as pavement subgrades. In addition, many of the near surface soils exhibit high natural moisture contents (in-situ moisture content over 30% of the optimum moisture content). Through a process of assigning tributary areas between the provided GDR borings, the D-B Team has identified areas of potentially unsuitable soils and have highlighted them on the preliminary Project Plans.

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*Through a process of assigning tributary areas between the provided GDR borings, the D-B Team has identified areas of potentially unsuitable soils and have highlighted them on the preliminary Project Plans.*

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*Collectively the GE, CM and MOT Coordinator will develop an Unsuitable Soils Remediation Plan that considers constructability, safety, schedule, and cost*

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Following the design level geotechnical investigation, locations where unsuitable soils are anticipated to be encountered will be delineated on the project drawings (both area and depth) and discussed with the CM and MOT Coordinator. Collectively the GE, CM and MOT Coordinator will develop an Unsuitable Soils Remediation Plan that considers constructability, safety, schedule, and cost. The final unsuitable soils plan will be shared with the RCE and QAM to ensure its compliance with the project requirements and will show the extents of unsuitable

soils, the cause for unsuitability, and availability of multiple viable subgrade treatment options provide to provide maximum construction flexibility.

The key to successfully implementing this process on past projects has been identifying potentially problematic areas prior to the design phase geotechnical exploration and planning the exploration to aid in gaining a better understanding of these areas. By doing so, the Soils Remediation Plan can be established during the design phase so problematic areas are accurately delineated on the final Project Plans in both surface area and in depth. The treatment methods are then accounted for in the construction schedule. The overall goal of the Soils Remediation Plan will be to minimize the amount of material being hauled onsite and offsite while still maintaining the Project quality and schedule.

Based on the D-B Team's evaluation using the currently available geotechnical information it is estimated that approximately 50-60% of the combined planned subgrade footprint for all six projects could be impacted by potentially unsuitable soils. We have used this evaluation to mitigate the risk by preparing estimated quantities and locations of unsuitable soils to account for this in the preliminary construction schedule.

The D-B Team will further mitigate the impacts of this risk by increasing the supplemental boring frequency beyond the minimum requirements of the MOI in the areas identified as containing potentially unsuitable soil. This will help provide a refined and accurate delineation of unsuitable soils for the final Project Plans and help to create a Soils Remediation Plan to include haul-off, treatment types/locations, and identify possible borrow sources. The goal of this plan will be to utilize onsite soils to the extent possible and using lime and cement admixtures, as needed. These techniques have been shown to dry wet soils, reduce the plasticity, and increase the strength of the stabilized soil matrix, thus reducing the amount of undercut and haul-off of unsuitable soil. Using four to six percent lime treatment by volume works well with highly plastic and moderate to excessively wet soils sampled through the Project corridor. During the final design phase, we will conduct a laboratory testing program to optimize the percent of lime and/or cement to increase the quality and effectiveness of the remediation techniques. In addition, the use of geotextiles with limited depth undercuts will be considered depending on the site-specific subgrade conditions encountered during the supplemental geotechnical investigation. We will also evaluate and identify locations of onsite borrow sources to reduce the need for imported fill and limit the impacts dump trucks will have on the local traffic and public safety.

**Global Stability of Slopes:** The available geotechnical data indicates thick layers of highly plastic, fine-grained soils should be anticipated within the proposed slopes for UPC 111730 and 111814 and could pose a significant risk to global stability of the slopes. To mitigate the potential schedule, quality, and long-term performance risks associated with these soils, our D-B Team has completed preliminary global stability analyses for the slopes. This risk will be further mitigated in the final design phase by collecting adequate Shelby tube samples in the fine-grained soil strata at the locations within the slopes. These samples will be carefully transported to a laboratory to conduct direct shear and triaxial shear testing. The shear strength results will be used to refine the engineering analyses and subsequently confirm or modify the slope angles such that global stability is satisfied both in the short-term and long-term based on minimum requirements specified in Chapter III of the MOI.

**Moisture-Sensitive Soils:** As previously discussed, there are large areas for several projects where shallow, moisture sensitive, moderate to highly plastic, fine-grained soils are present. Many of these areas will require remediation because the soils are unsuitable for pavement subgrade; however, there will likely be areas of lean clay (CL) and silt (ML) that although moisture sensitive, can be suitable as subgrade material. If these soils are exposed to precipitation and allowed to become excessively wet, the time it will take to scarify and dry them to workable moisture contents can have an impact on the duration of construction activities. Our D-B Team has identified and delineated these areas in addition to the potential unsuitable subgrade soils. Mitigation techniques include diverting water away from these construction areas and rolling/sealing sensitive soils that are exposed prior to an imminent rainfall. The supplemental geotechnical investigation will help refine the preliminary identified areas to denote them on the final Project Plans.

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

The entire Faulconer D-B Team shares a common goal of designing and constructing a high-quality project – a project of which all stakeholders will be proud. NXL Construction Services Inc., [NXL] a company founded on the principle of providing excellence in everything they do, will provide independent Quality Assurance in accordance with the Department’s Minimum Requirements for Quality Assurance and Quality Control on Design-Build and P3 Projects July 2018 (the 2018 Requirements).

NXL and Faulconer have a proven track record together, having successfully teamed on two other high-profile D-B projects. NXL provided quality assurance services on the I-81 Corridor Safety Improvements D-B project in Montgomery County and is currently providing QA on the Route 220 Corridor Safety Improvements D-B Project in Botetourt County – both projects are VDOT D-B projects, and **Mr. Joe Hamed, PE**, our proposed QAM, was also the QAM on both projects.

Mr. Ed Stelter, as the D-B Project Manager, holds ultimate responsibility for the overall quality of the project design and construction delivered to VDOT. He will assign staff and resources as needed to meet or exceed the requirements of the QA/QC Plan and the contract provisions.

As the D-B Construction Manager, the ultimate responsibility for providing quality in all aspects of construction lies with Mr. Gregory Krystyniak. He will manage QC activities for all constructed work, and will be supported by a QC Manager, managing field QC inspectors and whose sole job on the project is to perform construction QC inspections. Greg and each QC Manager will ensure that all design criteria and construction requirements are being met and will identify any nonconforming work or work practices that could adversely impact project quality. They will ensure that inspections occur daily for all work zones to ensure compliance with the Virginia Work Area Protection Manual, and for all erosion and siltation controls, whether rain falls or not, to ensure that environmental compliance is maintained at all times. The QC and QA managers will provide additional oversight regarding maintenance of traffic and environmental items as an added step in ensuring compliance in these two critical project aspects.

Joe Hamed has successfully filled the QAM role on five VDOT D-B projects. Also, during his tenure with the Department, he served as an Area Construction Engineer on a wide variety of projects. He insists that all standards for design and construction be met or exceeded. Mr. Hamed will report directly to Mr. Stelter.

Mr. Hamed's staff will consist of one Lead QA Inspector for each of the six elements that make up the project and an Office Engineer/Inspector. The Lead QA inspectors will be present during all construction activities assuring that the work and the QC activities meet all required standards. The Lead QA Inspectors will hold VDOT certifications for all materials that they will test, for nuclear safety, and as a VDEQ ESC inspector. The Lead QA Inspectors will report directly to the QAM, and they will be supplemented with other QA Inspectors when required by schedule or work load.

The Records Manager/Inspector will fill a dual role. His or her primary duty is to compile the project quality records including a separate materials book for each of the six project elements as required by the RFP. This person will also assist the Lead QA Inspectors on an as-needed basis during periods of increased work activity and will hold the same certifications as the Lead QA Inspectors described above.

Mr. Thomas Starkey, Jr. of CES Consulting will be the Quality Control Manager (CQC). He brings 19 years of experience to the D-B Team and will coordinate QC testing, inspection, and the QC Laboratory.

The D-B Team will assemble and execute a QA/QC plan in accordance with the 2018 Requirements and the applicable contract requirements. The plan will describe in detail the processes that the D-B team will institute to ensure that all aspects of the project's design and construction meet Department or other applicable standards. The QA/QC Plan is a living document with revisions occurring throughout the life of the project. Preparatory Inspection Meetings (PIMs) minutes and other applicable documentation will be appended to this document.

The QAM will lead weekly QA/QC meetings. These meetings will be attended by Lead QA Inspectors, Superintendents, QC Inspectors, Department Representatives, and others team members as appropriate.

Hold Points and Witness Points will be listed in the QA/QC Plan and in the CPM schedule. PIMs, which are very important Hold Points, will be led by the QAM and held within two weeks of the start of an activity. PIM minutes will be prepared within two days of the meeting and appended to the QA/QC Plan. PIM attendees will include the Construction Manager, Quality Control Manger, QA and QC Inspectors, Department Representatives, foremen, and subcontractors. Hold Points, Witness Points, and PIMs are element specific.

The materials approval process applies to all materials incorporated into the project. The approved C-25 will show the method of acceptance for manufactured materials with the method ranging from an approved list to a unique DBT number for materials not tested by the Department. The Records Manger/Inspector will compile a separate materials notebook for each of the six project elements as required by the RFP and the Materials Manual of Instructions. The materials note book will be available for the Department's review throughout the life of the project.

Offsite borrow material will be laboratory tested by QA and QC to determine its fitness for intended use.

QA and QC will contract separate and independent testing laboratories with both labs certified by the AASHTO Accreditation Program. QC Laboratory services will be provided by ECS Mid-Atlantic LLC out of their Charlottesville office. QA services will be provided by Froehling & Robertson, Inc. out of their Crozet office. Both firms bring excellent reputations along with required AASHTO certifications.

The QAM will develop element specific testing plans showing the quantity of work and number of tests required, before the work commences.

Testing and inspection will be documented using forms to the maximum extent possible. Test results, inspection forms, and daily work reports will be uploaded to the designated team site on the following day. The Lead QA Inspector will assure that all required testing and inspection is performed with the required frequency as required by the 2018 Requirements and the approved testing plan. In the event of a failing test, the QC Inspector will notify the foreman and the Lead QA Inspector; the failing test is then documented along with the passing results following the corrective work.

Erosion and Sediment Control (E&S) inspection will be carried out by the Lead QA Inspectors on the designated days and documented on Form C-107. The completed form will be immediately distributed to the CM,

superintendents, and the Department Representatives. The Lead QA Inspectors will monitor the progress of corrective actions and document the completion date.

A QA Auditing and Non-Conformance Recovery Plan (AR Plan) will be incorporated into the QA/QC Plan. The AR Plan will detail the process for documenting and correcting non-conformities. At a minimum the process will include the QAM, the CM, the Engineer of Record, and the Department Representative. Corrected non-conformities must be Department approved prior to acceptance.

The D-B Team will upload all project documentation to an online location using the file structure designated by the contract provisions. In fact, Faulconer and NXL are already successfully using this file structure on the Route 220 Corridor Safety Improvement Project, regularly uploading project documentation to a designated location on Outside VDOT. The Faulconer D-B Team will assign one or more Document Control Specialists to provide oversight of the Document Control System that includes documents from all project disciplines.

Daily Work Reports, Test Reports and Inspection Forms will be uploaded daily. Other documents such as the Materials Notebook, Form C-107's, and Nonconformance Reports will be uploaded on an appropriate schedule. Prior to completing each monthly Application for Payment, the D-B Team will assure that all required documentation is properly uploaded. A Work Package is not deemed complete until all documentation is in place and all related issues and NCR's have been fully resolved.

### **Critical QA/QC Element – Box Culvert Construction for Rt. 151**

The box culvert carrying Stockton Creek beneath Route 151 will be replaced as part of this project. The related QA/QC procedures are critical to assure that all aspects of the construction meet or exceed the project requirements. As stated above, the entire Faulconer D-B Team maintains a commitment to construct a quality product of which all stakeholders will be proud.

As the QAM, Joe Hamed and his team will lead the QA/QC efforts on the box culvert construction. Several preliminary requirements must be completed or confirmed before construction activities commence:

- Approved for construction plans must be issued and available
- Shop drawings must be prepared, approved by the Engineer of Record, and approved by the Department
- All required permits must be approved and in place
- Form C-25 must be completed for all materials, approved by the QAM, and forwarded to the Department to allow inspection of the precast box culvert units that are presently anticipated
- Hold Points and Witness Points
- A Preparatory Inspection Meeting (PIM) will be held within two weeks of the commencement of construction

At a minimum, attendees at the PIM will include QA/QC personnel, Department representatives, superintendents and supervisors directly involved in the work, subcontractors, and suppliers. During the PIM, all preliminary items listed above receive a status review to assure all are properly in place. The plans, specifications, shop drawings, and applicable special provisions will be reviewed. All parties are encouraged to ask questions and engage in dialogue that has proven an effective means for all parties to gain a greater understanding of the unique aspects of this undertaking. The QAM will provide a testing plan and review the testing frequencies from the 2018 Requirements. Meeting minutes for the PIM will be distributed within two business days.

Safety is paramount on every Faulconer project. The QA/QC Team is yet another set of eyes to look for any potentially unsafe situation. Every member of the team, including QA/QC, has the authority and the responsibility to stop work if an unsafe condition is anticipated.

**Critical Construction Element:** With over 9,000 vehicles per day on Route 151, traffic control is a key element during construction of the box culvert. We anticipate a phased construction approach with traffic switched first to the west side of the roadway, and; after constructing the east end of the box culvert, traffic will be switched to the east to allow completion of the box culvert. This plan will require only limited flagging operations primarily during traffic switches, minimizing disturbances to traffic. QA/QC personnel will coordinate with construction

personnel to ensure that the elements of the plan are correctly in place, including lane widths, pavement markings/markers, guardrail, barrier, attenuators, and signage. The Work Zone Safety Checklist will be completed daily, and any deficiencies will be noted and immediately reported to the appropriate supervisor for correction. Night time inspections will be completed weekly.

Erosion and sediment control are a very crucial element of the box culvert construction with the anticipation of adjacent wetlands, working adjacent to a live stream, coffer dams, and water diversions. It is imperative that the stream diversions are in strict conformity to the plans and any permit requirements. All E&S controls must be in place as shown on the E&S plans. Key E&S components that are anticipated will likely include silt fence, diversion ditches, sediment ponds, and construction entrances; continuous maintenance of these items is crucial for optimum performance. The Lead QA Inspector will complete Form C-107 on the designated days, provide immediate notification of any deficiencies, and assure corrective measures are completed on time.

The Stormwater Pollution Prevention Plan (SWPPP) is a living document that must be regularly updated. The Lead QA Inspector will audit the SWPPP on a weekly basis to assure that the SWPPP is accurate and up to date.

The limits of disturbance and adjacent wetland areas must be clearly delineated and protected. QA/QC personnel will monitor these areas to assure effective protective measures are always in place.

When excavation for the box culvert commences, it is anticipated that a portion of this material will be unsuitable for embankment and therefore will be wasted. QA will assure that all wasted material is placed in a preapproved waste area and that approved E&S controls are maintained. The waste area will also be subject to the C-107 inspections.

The box culvert must be founded on solid material as required by the project documents. The QA/QC team will assure that the project geotechnical engineer approves the box culvert foundation excavation and bedding as recommended by the preliminary geotechnical report. Alignment and grade will be double checked to insure conformity.

As construction of the box proceeds, QA/QC inspectors will review the work, making sure that all plan and shop drawing details are constructed in conformity; and that all required testing and inspection is completed, documented, and uploaded to the project records within 24 hours. Inspection documentation will rely on forms to the extent possible. During backfilling operations, QA/QC will monitor the operation for the correct material and provide soil testing as required by the approved testing plan and the 2018 Requirements.

When issues arise, they will be resolved at the lowest appropriate level. If an issue is resolved on the same day that it arose, it will normally be noted in the inspector's Daily Work Report. Issues that linger will be listed on the Issue Log. The Issue Log along with any NCR's will be maintained on the project portal and available for all to review. When the box culvert is nearing completion, the Issue Log items will roll into a final punch list. "Punch out" inspections are normally performed by QA, QC, and Department personnel.

QA will assure that, before a Work Package is submitted as complete on the monthly pay application; that item is complete including related documentation and that all related NCR's or Issue Log Items have been fully resolved.

If a change to or clarification of the drawings or specifications is required, QA will assure that the Engineer of Record is consulted and provides approval of the change or clarification. This is normally accomplished thru the RFI process. Changes must be Department approved and will require a plan revision. A set of as-built drawings will be maintained and provided to the Department.

### **Design Quality Assurance / Quality Control (QA/QC)**

As Lead Designer for the project, RK&K will manage the design QA/QC for the entire design team. All RK&K employees are given a copy of RK&K's Quality Assurance / Quality Control procedures on their first day of work and sign a "Commitment to Quality" form acknowledging that they have read, understand and affirm their personal commitment to the quality policy as detailed in that plan.

For the Albemarle Intersection Bundling D-B project, RK&K will develop a specific Design Quality Control Plan. This plan will be developed to be an extension to RK&K's quality control procedures that are already in place. RK&K's Design Manager for this project is **Mr. Owen Peery, PE** and the Design Quality Manger (DQM) is **Mr. Ryan Masters, PE**. Working under the direction of Mr. Peery, will be a Discipline Leader in each discipline area and for each subconsultant on the project. It is the task of each discipline leader to ensure and certify that proper QA/QC procedures have been implemented before any deliverable is submitted. These reviews are then verified by Mr. Peery to ensure that the proper procedures are being followed and periodic audits of the process will be performed by Mr. Masters.

For each submittal, the Discipline Leader will appoint a Discipline Checker, who will be an individual other than the person or people that originated the design. After the work has been checked and corrected as necessary, the discipline leader will perform an interdisciplinary check, as appropriate, to ensure quality, completeness and constructability of the product with respect to other disciplines of work and will be audited by Mr. Masters at a minimum rate of 10%. The primary basis of these reviews and checks will be all applicable VDOT checklists.

The plan will consist, but not be limited to the following components:

- Plan details
- Design calculations
- Cross checking of work from other disciplines within the Design-Build Team
- Environmental compliance
- Subconsultant design packages
- Constructability reviews by the Construction Team

A key element that we believe attributes to RK&K's success in delivering quality plans on a fast-paced D-B projects are weekly design discipline meetings. Our Design Teams will schedule weekly meetings that provide an opportunity for design disciplines and construction staff to coordinate and ensure that working groups include the appropriate staff. Those working groups are an integral part of the design process. This is also when the design engineers coordinate with other activities and disciplines to verify that the entire Faulconer D-B Team stays on track and ahead of potential issues and requirements, like meeting with stakeholders or special reviews.

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*RK&K's Proven Successful  
Design of High-Quality  
Design-Build Projects in  
Albemarle County*

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RK&K has proven their ability to effectively deliver high quality design plans using this process on the Route 29 Solutions, Rio Road GSI D-B Project in Albemarle County. That project included countless hardscape and paving details that were critical to the successful construction of that intersection project. The RK&K Design Team knows how these elements get built and how to design them to achieve VDOT acceptance and work with the contractor's desired methods of construction. RK&K's Design QA/QC Plan facilitated rapid VDOT reviews and approval on that project and it helped to accelerate VDOT's commitment to review plans in nine days to an average of five days. That is an average four-day, 50%, reduction in VDOT's submittal review effort. The Faulconer D-B Team will bring the same dedication to the Albemarle Intersection Bundling D-B Project and minimize VDOT's QA/QC effort.

We subscribe to the belief that the best time to begin QC activities is not the week before a plan submission but throughout the design process. As discussed above, RK&K's quality control procedures are well established and required on all projects that we design so this is second nature to our staff and not something we do only on design-build projects. This helps us identify any issues prior to submission and allows plenty of time to address them properly before the larger submittal reviews. Once the design is finalized and deemed ready for submittal by the Discipline Lead, it is submitted to independent QC Engineer(s). We utilize checkers with a level of expertise equal to the discipline leaders. This new set of "experienced eyes" will review the design for compliance with the design criteria, customized checklists, and design standards, such as compliance with the design principles in the NCHRP Report 672. The comments from this review are returned to the design engineer and

Roadway Lead for consideration. After the comments, have been addressed, the plans are backchecked/verified by the QC Engineer and the process is repeated if necessary. Once the submission package has been through the check process, it is distributed to all discipline leaders and the Construction Manager for an inter-disciplinary review. The results of that review are addressed by the Discipline Lead and the plans go through a final review by Faulconer to verify constructability and conformance with the contract requirements. Throughout the entire QC process, the comments, responses and check certifications are documented and saved. The Design Quality Manager is responsible for auditing that the quality control check process is being followed.

Following the final review by Faulconer, the discipline leader will certify to the DM that all QA/QC efforts are in accordance with the required procedures and transmits the certification to the DM for acceptance. At that time, the design package is signed and sealed by the lead engineer, a Professional Engineer registered in the Commonwealth of Virginia, and it is submitted to VDOT for approval using the Project's document management system. VDOT reviews the design and submits any comments to the Faulconer D-B Team. If VDOT has any comments, the Team will address them and resubmit the design for VDOT approval. After that, the approved plans are given an "Approved for Construction" stamp and are ready for use by the construction staff. We know what VDOT expects to see for each submittal and are committed to providing it to minimize the amount of time their reviewers spend reviewing to approve the plans.

**Critical Design Element:** A critical design element on these projects will be the layout and grading of curbs, medians, aprons, and pavement transitions on the I-64 Exit 124 Interchange, the Route 250 / Route 151 Roundabout and the Route 20 / Route 649 Roundabout. This includes ensuring that not only are they designed to meet the applicable contract requirements, but that their details are conveyed properly in the design package so that the field staff can construct each element right the first time. In most cases, these features are constructed under traffic or directly adjacent to traffic which makes it difficult to notice an error prior to shifting traffic to the subsequent stage of construction. When the field staff pave to the face of curb, an error on a vertical spot elevation could result in unacceptable grade deviations as well as standing rainwater.

The overall design details of the diverging diamond interchange (DDI) and roundabouts control how the traveling public negotiate the intersections and ultimately the safety of the overall area. DDIs and roundabouts include pavement transitions, curb offsets, and other details meant to control speeds and channelize vehicles safely through the intersection. Mistakes matter even if they are identified during construction, because correcting an element impacts the project schedule, prolongs exposure, and is an additional safety risk to the traveling public.

The design of each of these elements starts with the initial layout, verifying the design speeds, sight distance, potential for vehicular path overlap, fastest path differential through the roundabouts, overall pavement surface drainage, and much more. Our approach to QA/QC will make certain that the plan is successful because it is established around the principle of creating a partnership between the D-B Team's designers, field staff, QC inspectors/testers, and QA staff. This combined approach along with strong internal communication will ensure that all potential challenges are investigated, reviewed, and vetted from different viewpoints to identify and plan for circumstances before construction begins.

The process starts before design begins with our experienced team developing a summary of the design criteria and checklists customized for each project. It is our practice to staff design teams with personnel that have experience on D-B projects, but also direct experience on unique design elements such as a DDI. For example, the Roadway Leader for Exit 124 is **Mike Merritt**, PE, who was the DM for Union Cross Road Widening, one of North Carolina's first DDI projects. His knowledge and experience will help ensure design success and will be invaluable in customizing the QA/QC plan.



## Section 4.5

# Construction of the Project

## 4.5 CONSTRUCTION OF THE PROJECT

The Albemarle Intersection Bundling D-B project is atypical compared with traditional D-B projects, in that it combines six separate and unique project elements into one D-B contract. The Faulconer D-B Team's approach to this project involves organizing a team that will execute through highly-skilled personnel with exceptional technical knowledge and expertise, utilizing state of the art equipment to deliver the project safely, quickly and efficiently.

### 4.5.1 SEQUENCE OF CONSTRUCTION PROJECT ELEMENTS ENTIRE PROJECT

All six Project Elements, I-64 Exit 124 Interchange Improvements, I-64 Exit 118 Partial Cloverleaf Modification, Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass, U.S. Route 250 and Route 151 Roundabout, Route 20 and Route 649 Roundabout, and Rio Mills Road and Berkmar Drive Connection, have their own unique issues that must be addressed individually to be successful. However, the delivery of the entire bundle will require concurrent design and construction operations managed through a tightly coordinated scheduling effort to optimize efficiencies and resources to ensure the final completion date is met. Our D-b Team's collaborative approach in the development of our Technical Proposal focused on problem-solving critical features or challenges within each element. This Team has the means and methods necessary to accomplish our goals of executing our work safely and efficiently while meeting or exceeding all environmental and quality metrics, and especially the minimization of disruption to the traveling public. Our goal is to mitigate and eliminate delays in construction and impacts to the traveling public, while maintaining a safe work area.

#### Element Construction Sequence Overview

Three elements of the project (I-64 Exit 118, Fontaine Ramp, and Rio Mills Extension) require minimal efforts to obtain Right-of-Way, easements, and/or utility relocations, with more straightforward designs, and therefore our plan is to start construction on all three of these Elements concurrently. Due to the close proximity, I-64 Exit 118 and the Fontaine Drive Ramp will be constructed as if they are one Element. One superintendent will oversee multiple crews and subcontractor forces while the work is executed concurrently on these two elements. For clarification purposes and in accordance with 2.14.2, one (1) dedicated Lead QA Inspector will be assigned to each project element regardless of the construction approach. At roughly the same time, another superintendent and their crew will proceed with the work on Rio Mills through to completion.

As the Rio Mills Element nears completion, that field team will transition to and proceed with construction for the element at Route 151 / Route 250. That field team will be supplemented with additional personnel in order to support the installation of the box culvert. Upon completion of I-64 Exit 118 and Fontaine, that field team will be as necessary reassigned as necessary to the Route 151 / 250 element to help finish construction. Upon this element's completion, three will have been completed, with one in progress, and two in design.

Nearing the approval of the Route 20 / Route 649 Element construction documents, a field team will mobilize and prepare for construction once plans are approved. Work for the Route 20 / Route 649 and Route 151 / Route 250 Elements will proceed continuously through to completion.

Nearing completion of Route 20 / Route 649 and Route 151 / Route 250, those field teams, supplemented with additional personnel, will transition to and start setting up the work zone with initial MOT signage and initial erosion and sediment control measures on the I-64 Exit 124 Element. Once the Route 151 / Route 250 Element is completed, that field team will further supplement the crews already on Exit 124. Crew operations will be scheduled and coordinated between day and night operations to meet the requirements of section 2.10.3 (lane and roadway closures).

#### Construction Approach for Each Element

##### I-64 Exit 124 Interchange Improvements (Exit 124)

This project element will be executed/sequenced in four phases to minimize impacts to traffic and to maximize safety going through the work areas. Special thought was given to implementing the shift to the new traffic patterns through the interchange as early as possible. In this new configuration, there is excess lane capacity

before completely opening all lanes to traffic and operating speeds are reduced through the transitions at the signals and ramps. It is after this operational change that the new Bridge Pier Protection System (BPPS) and remaining outer curb and drainage work will be completed. This will greatly improve safety and eliminate the need to use temporary concrete barrier service, which is in and of itself is a fixed object hazard to traffic. Given the location of this element and the volume of traffic running through the work zone, there will be close coordination and planning with VDOT Operations and Residency personnel to include regular required use of the Lane Closure Asset Management (LCAM) System.

Work will be sequenced to ensure that there are no simultaneous open work zones adjacent to any traffic lanes.

Where feasible, construction entrances will be placed along Route 250. This will minimize the heavy truck traffic needing to access the interstate ramps and mainline and the risk associated with mixing vehicle speeds within the influence area of an interchange.

Some excavated material will be relocated just east of the interchange between Route 250 and the frontage road to the hotel. However, the majority of the excavated material will need to be hauled off this project element.

Activities requiring significant cycling of truck traffic and any storm water system work required to be placed under existing traffic lanes, will typically be performed at night with as necessary approved lane closures. Some inlet and manhole structures will need to be temporarily capped until after the new traffic pattern is established.

After relocation of dry utilities and mobilization, construction signage and perimeter E&S, Phase One work will focus on: performing construction activities to include the placement of new pavement outside of traffic (topped off during this phase at the Intermediate level) and the majority of the new closed drainage system to include the new trunk line. The new box culvert between the hotel service road and Route 250 westbound shall be installed concurrently with the new storm water pond grading. These construction activities will include mass grading operations, first for the new stormwater management pond followed by the new left and right turn sections for all four ramps starting with ramp B. The majority of new curb and gutter will be installed as well to include the new curb along the ramps and for the mainline median between the signals.

Phase Two will be focused on performing the mill and overlay along Route 250 between the I-64 Ramp Terminals and the installation of the new traffic signals infrastructure and signage needed in advance of switching to the new traffic pattern. The majority if not all the conduit will be directionally drilled. At the end of Phase Two, traffic will be flipped to the new configuration. Traffic will be kept in two lanes in each direction. Most of the new signalization will be active to allow for the traffic shift, but some of the new equipment will not be able to be placed until after the traffic switch is completed due to its proposed location in existing travel lanes. Use of a mix of new permanent equipment and trailer mounted signals will be utilized until all remaining signal equipment can be installed.

Phase Three work will consist of the relocation of the ACSA 16" water line, installation of the Bridge Pier Protection Systems along both directions of Route 250, removal of the existing traffic signal components, remaining drainage, curb and gutter and mill and overlay operations along the I-64 Ramps, the gas line will remain on its existing alignment.

Phase Four work will consist of activities along both approaches of Route 250 to the interchange and will consist of mill and overlay operations, the installation of drainage along Route 1107, any remaining signage required along Route 250 and the application of the surface course.

### **I-64 Exit 118 Partial Cloverleaf Modification (Exit 118)**

Most of the work on this Project Element will be executed in the summer time when traffic volumes are seasonally lower on the roadway network. As stated in the construction sequence overview, it will be run concurrently with the Fontaine Avenue Ramp project. Given the location of this project, there will be close coordination and planning with VDOT Operations and Residency personnel to include regular required use of the LCAMs system.

It will be planned in two phases. Each phase is centered on the ramp and the median work areas respectfully and are being sequenced to maximize the safety of the public driving through the project area with the first phase of work consisting of construction on the east side of Route 29 north. This part of the element needs to be constructed first while there is a much lower volume of traffic usage on the ramp.

Phase One work will consist of the storm water management facility, jack and bore of culvert and storm water piping, ramp alterations and any paved shoulder work necessary to shift traffic prior to initiation of Phase Two. A construction entrance will be installed connecting to the Route 29 northbound shoulder where the maintenance entrance will be located to avoid having heavy truck traffic accessing the entrance ramp, a location where drivers are more inclined to be focused on accelerating to mainline speeds and the expectation of limited access vehicle operations. Paving operations of both new and mill and overlay pavement and the demolition of pavement and the removal of guardrail will complete Phase One before the transition to Phase Two work

In Phase Two, northbound Route 29 traffic will first need to be shifted east to the existing paved shoulder to allow for the use of temporary concrete barrier to be placed while the new median barrier, accompanying closed drainage system, the new dual left turn lanes and new barrier rail are built in the median. Power and communication for the new signal are sequenced early in the second phase, but they are not required until late in the phase. This additional float provides mitigation for any potential delays associated with the utility work.

Next, construction in Phase Two will consist of the median work, signal installation and run in and signage. Once those facilities are in place, traffic will be shifted onto the new left turn lanes. Subsequent to shifting traffic onto the new median left turn lanes, activities to properly close the existing eastbound loop ramp and paving operations will be performed.

### **Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB) (Fontaine)**

This project will be executed in the summer time when traffic volumes are seasonally lower on the roadway network and will be completed by August 21, 2020 prior to the start of the UVA school year. As stated in the construction sequence overview, it will be run concurrently with the I-64 Exit 118 project element. It will be sequenced in two phases. They are being sequenced to maximize the safety of the public driving through the project area. The proposed work has been sequenced to not be dependent on additional right of way or utility relocations. This mitigates the potential for delay associated with these activities. Given the location of this project, there will be close coordination and planning with VDOT Operations and Residency personnel to include regular required use of the LCAMs system. Additionally, close coordination with the University of Virginia and University of Virginia Medical Services will be part of our outreach effort so they are aware of our schedule, operations and any traffic pattern changes.

Each phase is focused on the work needing to be performed on each side of the ramp. This plan will not have work ongoing simultaneously on both sides of the ramp traffic.

Phase One will be located in the ramp gore area, along the west (left) side of the ramp and adjacent to Fontaine Avenue just to the east of the Route 29 bridge over Fontaine. If possible, two construction entrances will be installed to minimize construction vehicle use of the limited access deceleration ramp from Route 29 north. One entrance will be located in the ultimate location of the storm water maintenance entrance. The second construction entrance will be located off Fontaine Avenue. Sections of guardrail will be removed and replaced with temporary barrier.

Both the proposed cross-culverts will be open cut at night when traffic volumes are low. Given the width of the existing ramp, the expected duration and nature of the work (shallow installation, smaller diameter pipes), traffic will be maintained with no planned stoppages or closures of the ramp.

As necessary, ramp traffic shall be temporarily shifted to the east side of the ramp and shoulder.

Phase Two work will consist of work to be completed on the east side of the roadway. This will consist of shoulder and pavement widening, new curb and gutter and minor ditch grading to the new drop inlet. Mill and overlay operations with pavement striping will complete this phase.

## U.S. Route 250 and Route 151 Roundabout (250/151)

For this element, we broke the project into two primary areas of work; one focused on Route 151 and the second on Route 250. Our sequence of construction has been developed to simplify the maintenance of traffic by constructing the 151 leg with box culvert first (in itself a substantial construction activity) before proceeding with work on the roundabout and Route 250. Each area is broken out into two phases of effort for a total of four phases for the project.

The Route 151 leg of our work area contains one of the single most challenging and significant features in the entire Bundle. Taking into account environmental, geotechnical, MOT, safety, rigging, fabrication, staging, delivery, QA, and QC information, constraints, and concerns, the box culvert replacement requires that a well-planned sequence of operations be walked through so that execution is flawless.

Phase One will begin by shifting Route 151 traffic as far west as possible, while maintaining proper clear zones, clearances and lane widths. Once the Route 151 traffic has been shifted, Stockton Creek's stream flow will be diverted into the northern cell of the existing box culvert. We will then proceed to demolish the eastern side of the existing south cell of the box culvert and prepare for and install precast sections of the southeast quadrant of the new box culverts. The construction is sequenced so the dry utilities that need to be relocated at the outfall of the existing culvert will be relocated well before the start of construction. These relocations are scheduled to be completed prior to installation of the new cells, but additional float is available all the way to the end of demolition of the existing box culvert. Our sequencing has built in mitigation if there are delays.

Once installed, we will then divert Stockton Creek flow into the remaining portion of the south cell of the existing box culvert and the newly installed cell of the new box culvert. This will allow for the demolition of the eastern portion of the north cell of the existing box culvert and to proceed with the installation of the northeast quadrant of the new box culverts. Once the eastern "half" of the new culvert is in place, we will construct the permanent barrier with the headwall and place fill as necessary in order to construct temporary lanes over the new box culvert sections.

Phase Two will focus on installing the west side of the new box culverts. With proper clear zones and temporary lane widths in place, we will be able to shift Route 151 traffic to the east off the existing box culvert so that the remaining demolition can proceed and installation of the southernmost barrel of the new box culvert.

Once this cell is complete, Stockton Creek will be diverted into the fully constructed southernmost cell. Demolition of the remaining existing box culvert and the installation of the remainder of the new western "half" of the new box culverts will then proceed. Once the inlet headwall is completed and the area stabilized, all of the new box culvert cells will be opened to Stockton Creek. The remaining portion of Phase Two work will consist of constructing the new southbound Route 151 travel lane, the remainder of the splitter island, all remaining Route 151 approach work and placing traffic onto permanent lanes. Constructing the remainder of new Route 151 pavement.

Work effort will shift to the Route 250 portion of the element. Phase Three will consist of construction operations along the north side of existing 250 outside of traffic. We have coordinated with the dry utilities on the north side of Route 250 to relocate their lines to the existing Dominion pole line on the south side. This sequencing eliminates a construction activity for the utilities to install a new pole line, reducing the chance for delay. Activities to include grading, drainage and a new cross culvert under Route 250 shall be completed prior to constructing new pavement between stations 200+65.00 and 201+10.50.

After placing of new pavement, Milling and Overlay of existing pavement in the vicinity of the proposed roundabout and along Route 250 to the west of the circle will occur.

Phase Four of the project will focus on getting the new traffic pattern established and completion of the east side of the roundabout and approaches. Using drums, traffic will be placed in the roundabout configuration.

Activities related to placing the remaining new pavement along Route 250 (East) alignment will be completed. New pavement and mill and overlay of existing pavement along Route 250 east of the roundabout will follow.

## Route 20 and Route 649 Roundabout (20/649)

This element will consist of three phases. The majority of the work will be performed outside of traffic in Phase One. Our ATC concept has eliminated most of the utility impacts in this project element, significantly reducing the potential for delay. Phase One work will consist of the majority of the roundabout to include the concrete truck apron. At the end of Phase one, the new traffic pattern will be introduced.

As our proposed ATC greatly improves constructability with less than one foot of grade increase, Phase Two of the element will consist of mill and overlay operations along Route 20 to raise the grade of Route 20 for northbound traffic. The remaining truck apron will be constructed first, then followed by the remaining curb and gutter along the east side of the project. In addition, the storm water basin will be constructed along with new ditch line on the north side of Route 649.

Phase Three will consist of mill and overlay operations for existing pavement along Route 1494, and the north leg of Route 20.

## Rio Mills Road Extension

This element will consist of two phases. Phase One will include the majority of the construction activities as the element is along new alignment. Grading operations will begin with the storm water basin, to assist in E&S control. Grading of the roadway, installation of the closed drainage system and curb and gutter will follow. Paving operations up to the intermediate level will complete Phase One. Phase Two will consist of activities located at the tie-in of the new road. The phase will finish with paving of the surface course along the entire length of the improvements.

### 4.5.2 Transportation Management Plan (TMP)

The Faulconer D-B Team's approach to the TMP focuses on safety and expedited Project delivery. The experience brought to this Project by this Team is exceptional, with both the lead contractor and lead engineer having extensive D-B experience and success throughout Virginia. Faulconer's success on the Route 220 Widening project is notable given the short duration, tight work areas, and limited ability to detour traffic. RK&K brings experience in the Culpeper District with successes on both VDOT's Route 29 Solutions, and as part of the bid-build oversight team for the City of Charlottesville on the Route 250 Bypass / McIntire Interchange project. Many elements of this project pose similar challenges to those past successes and many of the proven strategies implemented on those projects will be implemented in our plan for all elements of the Albemarle Intersection Bundle.

The following summarizes the goals of the TMP:

- Maintains traffic along all roadways, while minimizing temporary lane closures utilizing an efficient SOC plan
- Provides for maintaining turning movements along the corridors during all stages of construction in accordance with the RFP, Part 2, Section 2.10.1
- Safe access throughout the project elements for Fire and Rescue vehicles for response and access to UVA and Sentara Hospitals.
- Safe ingress and egress will be provided to accommodate bus stops along the corridors
- A SOC that considers the following:
  - An emphasis on construction efforts at the I-64 Exit 124 interchange, Route 151/Route 250 intersection, and Route 20 / Route 649 intersection.
  - Minimizes roadway lane closures
  - Understands the daily usage patterns of these facilities to minimize impacts to the traveling public of all modes, and avoids triggering any impacts associated with RFP, Part 2, Section 2.10.4

- Investigates the crash history of the existing corridor and addresses safety concerns as part of the Project's construction activities.
- A commitment by the Faulconer D-B Team to provide extensive public outreach and utilize a wide range of public outreach tools, such as social media, PCMS signs, and an “**Orange Cones. No Phones**” campaign
- Contains a robust and prepared Incident Management Plan to simplify and streamline the process in the event of an incident within the work zone
- A TMP & SOC that includes public involvement from the stakeholders to ensure voices are heard, and information is disseminated to the public through all means, including email listservs of large generators such as hospitals, or the UVA Campus
- Utilizing our Team's existing relationships with UVA and the City of Charlottesville to maintain consistent contact and communication to address access to important generators within the area

The figures on the following pages describe the major components of the construction activities for each element, anticipated TMP features depicted by representative typical sections, and key public safety and mitigation measures to be implemented throughout this Project. The Faulconer D-B Team's TMP addresses safety for all stakeholders to include: motor vehicles, pedestrians, bicyclists, property owners, utility owners, transit operators/users, and construction workers. The TMP plan is being developed in accordance with VDOT's IIM-241/TE-351 for the appropriate type and category of project as defined in the RFP, Part 2, Section 2.10.

### **Lane or Ramp Closures**

The Faulconer D-B Team acknowledges that lane closures are only allowed at the sole discretion of VDOT when necessary to ensure the safety of the traveling public and when no practical alternative exists in accordance with Part 2, Section 2.10.3. The Team will work closely with VDOT and throughout the public involvement process to ensure that all proposed lane closures are necessary, address public concerns, and enhance public safety. The D-B will utilize practical alternatives to lane closures where feasible. All temporary lane closures will follow the Lane and Road Closure Restrictions outlined in the RFP Part 2, Section 2.10.3.

### **Construction Activities**

The proposed construction activities for each project element will be designed in accordance with the Work Area Protection Manual (WAPM) and Typical Traffic Control (TTC) details as follows:

#### **I-64 Exit 124 Interchange Improvements (Exit 124)**

##### ***Phase 1:***

- Construct new pavement outside of existing pavement along Route 250 and I-64 Ramps
- Construct new pavement which will serve as the left and right-turns for the Diverging Diamond ramps in the future
- Install median curb along Route 250

##### ***Phase 2:***

- Perform Mill and Overlay along Route 250 between the I-64 Ramp Terminals
- Install Drainage inlets and pipes along Route 250 between the I-64 Ramp Terminals
- Install New Traffic Signals

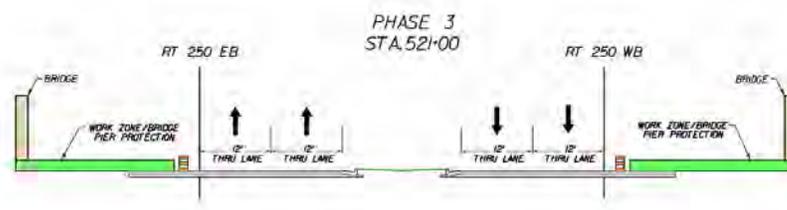
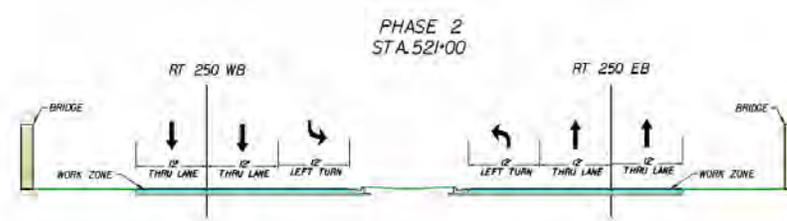
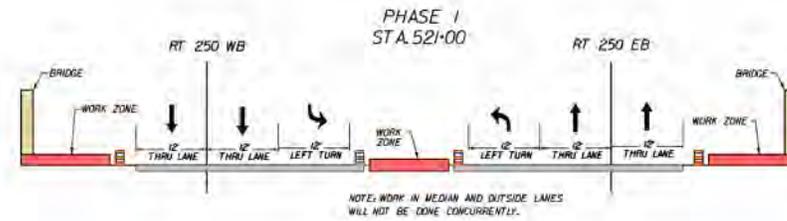
##### ***Phase 3:***

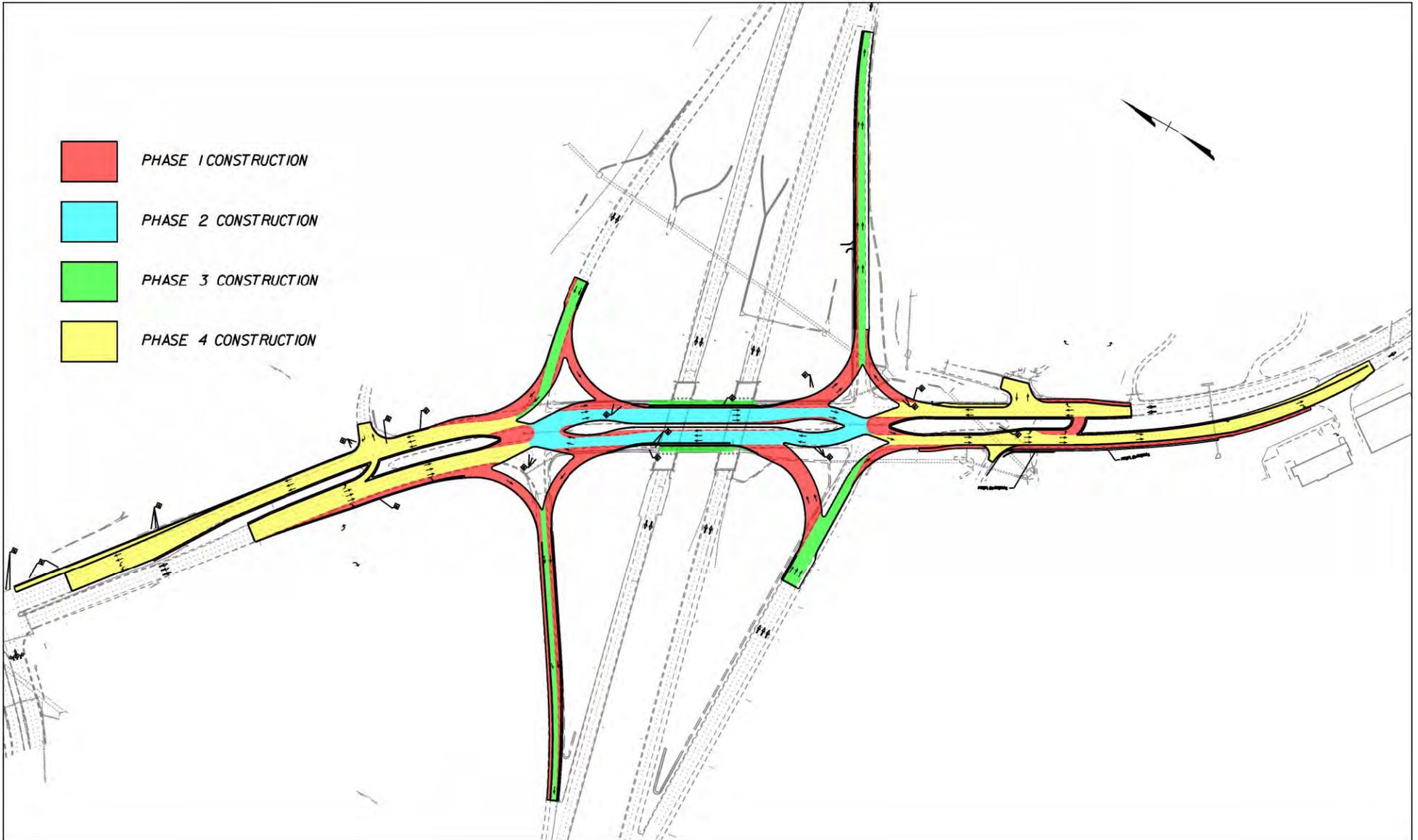
- Prior to this phase of construction, switch traffic into the Diverging Diamond configuration
- Install Bridge Pier Protection System along both directions of Route 250
- Perform Mill and Overlay along the I-64 Ramps

- Finalize New Traffic Signal Installation and remove Existing Traffic Signals

**Phase 4:**

- Perform Mill and Overlay along Route 250 West of I-64
- Perform Mill and Overlay along Route 250 East of I-64
- Install drainage along Route 1107
- Install overhead signs along Route 250
- Apply Surface Course





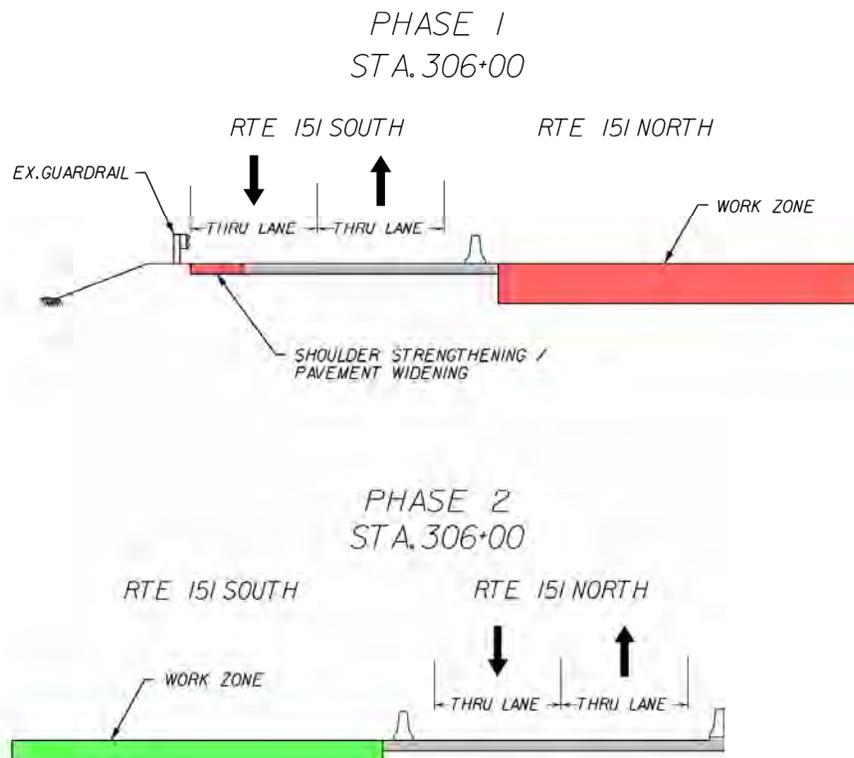
## U.S. Route 250 and Route 151 Roundabout (250/151)

### Phase 1:

- Strengthen existing western shoulder along Route 151
- Shift traffic along Route 151 along existing pavement and strengthened shoulder to western side of facility
- Construct the eastern 2/3 of the box culvert, building the southern two barrels first, followed by the northern two barrels to allow for drainage confluence during construction
- Construct new Route 151 pavement to the east of existing pavement

### Phase 2:

- Shift Route 151 onto pavement completed in Phase 1
- Construct the western 1/3 of the box culvert, building the southern two barrels first, followed by the northern two barrels to allow for drainage confluence during construction
- Construct remainder of new Route 151 pavement



### Phase 3:

- Construct new pavement outside of existing along Route 250 (West) alignment, Roundabout, and Route 250 (East) between stations 200+65.00 and 201+10.50
- Mill and Overlay existing pavement in the vicinity of the proposed roundabout and along Route 250 to the west of the circle

### Phase 4:

- Using drums, place traffic in the roundabout configuration
- Construct remaining new pavement along Route 250 (East) alignment

- Mill and Overlay existing pavement along Route 250 east of the roundabout



### Route 20 and Route 649 Roundabout (20/649)

#### *Phase 1:*

- Construct new pavement outside of existing pavement

#### *Phase 2:*

- Mill and overlay existing pavement along Route 649
- Mill and overlay existing pavement along Route 20

#### *Phase 3:*

- Mill and overlay existing pavement along Route 1494, and tie into Route 20



### I-64 Exit 118 Partial Cloverleaf Modification (Exit 118)

#### Phase 1:

- Install new pavement outside of existing along Route 29 Northbound to I-64 Eastbound Ramp

#### Phase 2:

- Maintaining a single lane, perform mill and overlay operations along Route 29 Northbound to I-64 Eastbound Ramp
- Install Drainage along median of Route 29

#### Phase 3:

- Install new pavement along Route 29 Southbound
- Install new traffic signal

#### Phase 4:

- Close existing Route 29 Southbound to I-64 Eastbound ramp
- Shift traffic to new pattern
- Perform Mill and Overlay along Route 29 Southbound
- Perform Mill and Overlay along I-64 Eastbound and install tubular markers

### Fontaine Avenue Ramp Improvements at U.S. Route 29 Bypass (NB) (Fontaine)

#### Phase 1:

- Install Outside Shoulder Pavement
- Mill and Overlay Pavement along ramp right side

**Phase 2:**

- Install new Gore Pavement
- Mill and Overlay Pavement along ramp left side

**Rio Mills Road Extension**

**Phase 1:**

- Construct new pavement along proposed alignment of Rio Mills Road

**Phase 2:**

- Tie into existing Rio Mills Road
- Tie into existing Berkmar Drive

**Time of Day Restriction**

The D-B Team will adhere to the RFP section 2.10.3 Lane and Road Closure Restrictions. The Team also acknowledges that lane user fees will be assessed if all lanes are not restored to traffic by the time required in the approved request for temporary lane closures along Route 250 in the vicinity of the I-64 Exit 124 Interchange Improvements. The Team's SOC has been developed to minimize disruptions to the travelway for each roadway during construction.

**Flagging Operations**

The D-B Team anticipates minimal flagging operations will be utilized during construction. Uniformed flagging operations will be necessary during installation of traffic signals. Wherever utilized within the construction work zones, and alternate routes are not available, flagmen will be provided for the safety of the traveling public.

**Minimum Lane Widths**

In accordance with the RFP requirements in section 2.10, the D-B Team will utilize appropriate minimum travel lanes on all roadways affected by the work zone or traffic control devices. Where the travel lanes are adjacent to channelizing devices (Group 2 or Temporary Concrete Barrier Service) a two-foot minimum offset to the barrier will be maintained throughout the Project. Where Group 2 devices are utilized, a minimum 5' area (independent of usable shoulders) will be utilized for the placement of channelizing devices. Additionally, where usable shoulders are present an 8-foot shoulder will be provided as stipulated in the RFP Section 2.10.

**Work Zone Speed Reductions**

The Faulconer D-B Team will design the TMP to meet the posted speed for each roadway. All elements of the TMP and specifically all temporary alignments, temporary lane closures, and temporary lane shifts will meet the requirements as specified in the Virginia Work Area Protection Manual for the full posted speed limit.

**Incident Management Plan**

The importance of these project elements with respect to mobility, commerce, and public safety are crucial to the entire Charlottesville region. Our Team – modeled after our efforts on the Route 29 Solutions project – will have an Incident Management Plan (IMP) in place for any conceivable occurrence with alternatives available to our Team in response to any type of incident. The IMP will be developed with input and coordination from VDOT, Albemarle County, local EMS, state police and stakeholders. Our Team will meet with VDOT and stakeholders to review the Plan prior to implementation.

IMP detour routes will be coordinated with VDOT, Albemarle County, and other local jurisdictions as necessary and will include the potential detour routes described above and/or other routes in the area, depending on the

severity, location, and length of time required. With any detour route that is being utilized, a WZTIA along with potential adjustments to signal timing, the use of flaggers and/or police officers will be implemented. The IMP will, at a minimum, include:

Full-time (24/7) point(s) of contact within the Project Team

Emergency detour routes with necessary signage and traffic control devices in place and at the ready

A responsibility matrix and checklists for agencies, stakeholders, and the Project Team

Coordination with First Responders, Sentara and UVA Hospitals, and stakeholders

Access at all times for fire and rescue

Contact lists for stakeholders and response personnel

Other requirements and equipment as specified in RFP Part 2

Incidents could vary in severity by length of time and lack of warning. Incidents could include natural disasters, snow or floods, traffic accidents, special events, and other occurrences. We propose different levels of response based on the length of time and severity of the event. Our response to these events will be as follows:

- A limited incident is one which will take fifteen minutes or less to return to normal operations. In this type of event, primarily due to a minor accident or a planned event, response by local response teams would be expected with support, as necessary, by our Team. This will be classified as a short-term event.
- An incident which will impact traffic between 15 and 60 minutes but with no required roadway closures or detours will be considered a minor event. Our D-B Team will respond with traffic control devices, coordinate with VDOT and signal timing adjustments to clear traffic, and will support local response teams as necessary. Contact lists will be utilized as necessary and close coordination with first responders and other primary stakeholders will be implemented.
- An incident which will take greater than 60 minutes to clear will be considered a major incident. In this case, detour routes will be implemented as necessary and traffic control devices, signal adjustments and other operational support will be implemented as described in the response to minor incidents, above. In the case of major incidents, contact lists will be fully utilized to notify impacted stakeholders, first responders, local hospitals and other critical facilities.

In all the above incidents, close coordination with VDOT Northwest Region Operations (NWRO) will be maintained. This tiered system will provide an appropriate and efficient response should an incident occur. During the design stage, our Team will identify potential detour routes, analyze them in the WZTIA, and identify the need for adjustments or modifications along those routes before construction begins.

## Public Safety

Safety is the highest priority for the Faulconer D-B Team. The TMP plan will utilize regular inspections of the work zones to ensure that all devices and measures are functioning and installed properly according to the approved TMP plan. The Team will perform additional inspections to ensure adequate sight distance is provided where channelizing devices are placed near intersections and along the inside of curves. The Team will inform the traveling public, stakeholders, and interested persons through a public outreach program to provide advanced notification of changes to the traffic patterns or pedestrian movements in and around the construction zones.

Where existing street lighting is impacted by construction, the first activity will be to provide temporary lighting or install new lighting to replace the impacted lights. This will ensure that visibility is maintained at night for the duration of the Project.

Where travel lanes are shifted, temporary pavement markings will be supplemented with temporary raised pavement markers for an enhanced visibility within the construction zone.

A 2' offset to channelizing devices will be utilized while providing a minimum 5' area to accommodate channelizing devices adjacent to the travel lane. The D-B Team will utilize a 6:1 sloped wedge adjacent to the

shoulder to address drop-offs within the clear zone to provide enhanced safety for vehicular traffic and facilitate easier bus access where required. Where bifurcation between EB and WB travel lanes makes a 6:1 wedge impractical, the Team will follow the hierarchy for Clear Zone and Drop-Off Requirements outlined in the VWAPM Appendix A.

The Project's IMP, as it relates to public safety, is a key component to the success of the Project. Maintaining safety of the traveling public and construction crews alike is of utmost importance to the D-B Team. An IMP that is clear, concise, and comprehensive to anticipate potential incidents will prepare the D-B Team to quickly respond and mitigate the impact to traffic and restore full traffic operations for first-responders to access the site and clear the incident. The D-B Team will employ a "tool box" of techniques to ensure traffic operations are restored which consists of the following key components:

Contact list for notifications protocols including a single point of contact for critical stakeholders, local officials, and emergency management personnel;

- Pre-planned messages for PCMS boards at defined locations that convey pertinent information to reduce impact on the travel public and improve their ability to navigate the work zones;
- Pre-planned detour routes for first-responders;
- Stand-by equipment (i.e. "pink" VWAPM signs for emergency use) will be available; and on-site, existing equipment (i.e. PCMS, drums) will be re-used for full mobilization and implementation by dedicated crews trained for incident management;
- Training for construction Team members and continued training on-site as the Project's TMP plan is modified during the construction of the Project.

The D-B Team will implement a variety of additional mitigation measures to increase visibility, warn of potential congestion, and delineate the construction work zone. These measures include:

- Awareness "ORANGE CONES. NO PHONES" campaign
- Additional Warning Signs
- Temporary pavement markings supplemented with Temporary Raised Pavement Markers
- PCMS signs for Congestion Ahead, New Traffic Patterns, and Temporary Shut Downs (i.e. signals, overhead signs, bridge beams)
- Temporary Street lights where existing lighting is impacted





## Section 4.6

# Proposal Schedule

## 4.6 PROPOSAL SCHEDULE

### 4.6.1 Proposal Schedule

The Faulconer D-B Team's Preliminary Proposal Schedule is provided at the end of the Proposal Schedule Narrative.

### 4.6.2 Proposal Schedule Narrative

The Faulconer D-B has provided a Preliminary Schedule and Schedule Narrative illustrating our plan to successfully execute all phases of the design-build process for each Project Element while meeting the overall Project's final completion date of March 30, 2023. The narrative provides our overall plan to accomplish the Work, including the overall sequencing, a description and explanation of the Critical Path, proposed means and methods, and other key assumptions on which our Preliminary Schedule is based.

#### Project Milestones:

- Notice of Intent to Award 05/28/2019
- Design-Build Contract Execution 07/19/2019
- Notice to Proceed 07/22/2019
- Scope Validation Complete 11/18/2019
- Start of Construction 05/18/2020
- Fontaine Ramp Completion\* 08/20/2020
- Rio Mills Extension Completion\* 11/24/2020
- I-64 Exit 118 Completion\* 11/24/2020
- Final Completion 03/30/2023

*\*Unique Project Milestone*

#### Unique Project Milestones

Our D-B Team proposes the following Unique Milestone dates as enhancements to the project. These dates are considered contractual completion dates and are subject to appropriate levels of liquidated damages.

Fontaine Ramp: We are committing to a completion date of 08/20/2020 which allows for full and beneficial use of the Element prior to UVA move-in which occurs on 08/21/2020 – 08/24/2020.

Rio Mills Extension and I-64 Exit 118: We anticipate competing the Rio Mills Extension Element on 09/23/2020 and the I-64 Exit 118 Element on 10/21/20. Although some delays related to utilities and other factors have been built into our schedule, we have chosen to add additional calendar days of float to account for unanticipated risks and delays. As a result, we are committing to full and beneficial use of the Elements by 11/24/20 in order to mitigate any impacts to the public prior to the 2020 Thanksgiving holiday.

#### Work Breakdown Structure (WBS)

The WBS has been broken down to major phases and components of the Project and by Project Element. Within each Project Element, the WBS is broken down further into the type of work such as Environmental, Geotechnical, Incidental Survey, Stages of Design, ROW Acquisition, Utility Relocation, and Construction. The WBS areas have been developed through a collaborative effort between all team members, taking into account permitting, design, acquisition, and construction approaches and efforts. Levels 1 and 2 of the WBS breaks down as follows:

##### **Level 1:**

*Project Milestones*

*Management/Administrative*

*Public Involvement/Public Outreach*

*Project Element (UPC # - Element Name)*

**Level 2:**

*Environmental* – Includes the necessary environmental permit activities for that Project Element.

*Geotechnical* – Includes geotechnical exploration, testing, and reports.

*Incidental Survey* – Includes gathering and updating any necessary survey and property information.

*30% Design* – Includes preliminary design cycle for engineering, plan development, QA/QC reviews, VDOT/FHWA reviews and approvals.

*60% Design* - Includes detailed design cycle for engineering, plan development, QA/QC reviews, VDOT/FHWA reviews and approvals.

*Right of Way Acquisition* - includes the acquisition of ROW and easements, including title searches, appraisals, appraisal reviews, offers, negotiations, and settlement as required.

*Final Design* - Includes final design cycle for engineering, plan development, QA/QC reviews, VDOT/FHWA reviews and approvals.

*Utility Relocations* – Includes activities for UFI meetings, UT-9’s, preliminary engineering estimates, utility relocation design, P&E estimates, utility design approvals, and utility relocations.

*Construction* – Comprises all components of construction including but not limited to: QA/QC, MOT, clearing/demo, erosion and sediment controls, grading, drainage, signalization, AND lighting.

**Calendars**

The following calendars are used in the schedule and include the following.

- “Standard” – Based on five working days per week including holiday restrictions. Used for administrative and design related activities not impacted by weather.
- “5 Day w/Weather CHARLOTTEVILLE” – Based on five working days per week including holiday restrictions and anticipated weather delays. Used for construction activities.
- “5 Day Asphalt” – Based on five working days per week including holiday restrictions, anticipated weather delays with non-working days during colder months. Used for paving and pavement marking activities.
- “7 Day Workweek” – Based on a seven days per week and is used for review periods.
- “TOYR1” – Based on a five working days per week including holiday restrictions, anticipated weather delays, and Time of Year Restrictions. Used for construction activities that involve work in and around areas where T&E species may be present or affected.
- “TOYR2” – Based on a five working days per week including holiday restrictions, anticipated weather delays, and Time of Year Restrictions. Used for construction activities that involve work in and around areas where T&E species may be present or affected.

**Overall Sequencing**

The Project’s overall sequencing will follow our project approach and construction of the project sequencing as described and illustrated in Sections 4.3, 4.4 and 4.5 of Volume 1 of our RFP response. To emphasize, our team has committed the resources so that permitting, design, QA/QC, and construction activities can proceed concurrently on multiple elements.

**Design**

The design of this Project includes preliminary (30%, semifinal (60%) and final design packages for each of the Project Elements. Our schedule is based on delivering the design packages that need no right of way and minimal permitting first. Those packages are the I-64 Exit 118 and Fontaine Drive Ramp projects. This will allow us to begin construction on those projects while right of way and utilities are being cleared at other project locations. Our schedule includes internal QC reviews prior to the submission any report or plan design package and provides

review times for VDOT. Stakeholder information meetings after VDOT review of preliminary designs is also accounted for should they be warranted. Activities are included for the geotechnical investigations, reports and a 60-day period for VDOT review of the geotechnical report prior to submission of final plans that are dependent on the geotechnical recommendations.

### **Environmental/Permitting**

Our D-B Team has established schedules for environmental studies and the acquisition of the water quality permits with milestone dates. These milestone dates are established as environmental hold points in the Project Schedule to ensure that any regulatory issues that may arise are dealt with prior to construction. Our Environmental Lead will participate in team meetings to report the status of the environmental milestones and ensure the environmental commitments are incorporated into the design. Our Team will use an Environmental Compliance Matrix to track the project's environmental commitments and establish detailed construction schedule that considers many variables such as a required permit water quality monitoring, phased erosion and sediment controls and stormwater management implementation.

The Project Schedule also includes activities related to the preparation, submission and approval of the individual permits, agency coordination, and environmental commitment implementation. These activities will be reviewed and tracked to minimize the possibility of delays to the Project due to environmental concerns.

### **ROW Acquisition**

The Faulconer D-B Team will evaluate the proposed ROW and easements as shown on the plans. ROW plans will then be submitted for approval. As much preparatory work as possible will be performed prior ROW Authorization so that initial offers can be made immediately following VDOT approval. Emphasis will be placed on parcels requiring utility easements and utility relocations to facilitate those activities before roadway construction begins. Row will conclude either with closing of the property or condemnation in order to maintain schedule.

### **Utility Relocation**

Utility coordination will continue based on the information obtained during the development of this Technical Proposal. After NTP and development of UT-9s (based on preliminary design), a utility Field Investigation (UFI) will be held. Each utility company will be supplied with the preliminary plans and a UT-9 of their facilities. The UT-9 will show our understanding of cost responsibility (prior rights) based on available ROW information shown on the plans. The utility companies will be given the opportunity to produce documentation that may change our assessment of prior rights. After which, pro-rates will be established for the Project. Every effort will be made to avoid or minimize utility impacts. However, for those utilities that cannot be avoided, relocation plans will be requested, reviewed and approved prior to relocation.

### **Construction**

As represented in 4.5, our construction sequence starts with the three Elements of the Project (I-64 Exit 118, Fontaine Ramp, and Rio Mills Extension) that require the least efforts to obtain Right-of-Way, easements, and/or utility relocation. With these Elements having more straightforward designs, our plan is to start construction on all three of these Elements concurrently. Due to the close proximity, I-64 Exit 118 and Fontaine Ramp will be constructed as if they are one Element. While the work on Rio Mills will proceed as its own stand-alone Element. In accordance with 2.14.2, one (1) dedicated Lead QA Inspector will be assigned to each Project element regardless of the construction approach or sequencing.

The I-64 Exit 118 and Fontaine Ramp Elements will proceed concurrently and continuously until turned over for VDOT's full and beneficial use. Our anticipated completion date for Fontaine Ramp is 08/20/2020 and I-64 Exit 118 is 10/21/2020.

As the Rio Mills Extension Element construction winds down, field resources will start to transition to and proceed with construction of the Route 151 / Route 250 Roundabout Element. Once the Rio Mills Extension is

completed, the remainder of the field resources will move to the Route 151 / Route 250 Roundabout Element. They will be further supplemented with additional personnel and equipment resources in order to facilitate the installation of the box culvert.

With three Elements completed, I-64 Exit 118, Fontaine Ramp, and Rio Mills Extension, and one underway, Route 151 / Route 250 Roundabout, we will begin planning for the construction of the Route 20 / Route 649 Element. Once construction commences on the Route 20 / Route 649 Element, both Elements will proceed concurrently and continuously until turned over for VDOT's full and beneficial use. Our anticipated completion date for Route 20 / Route 649 Element is 06/23/2021 and Route 151 / Route 250 Roundabout is 10/07/2021.

Nearing completion of Route 20 / Route 649, that field team, supplemented with additional personnel, will transition to and start setting up the work zone with initial MOT signage and initial erosion and sediment control measures on the I-64 Exit 124 Element. Once complete, the field resources from Route 151 / Route 250 Element will further supplement the crews already on Exit 124. Crew operations will be scheduled and coordinated between day and night operations to meet the requirements of section 2.10.3 (lane and roadway closures).

### Critical Path

In accordance with VDOT Specifications, critical path is defined as the Longest Path. The Longest Path, as represented in our Proposal Schedule, includes the following activities in order of progression from Notice to Proceed (NTP) on 07/22/2019 through Final Completion on 03/30/23:

- 00-00-0200 Notice to Proceed
- 02-30-0100 Roadway Design
- 02-30-0600 QA/QC 30% Submission
- 02-60-0100 Roadway Design
- 02-60-0500 Maintenance of Traffic / TMP / WZTIA (60%)
- 02-60-0600 QA / QC 60% Submission
- 02-FD-0100 Roadway Design
- 02-FD-0200 Drainage / Stormwater Mgt / Erosion and Sediment Control
- 02-FD-0300 Traffic Engineering (Signals / Signs)
- 02-FD-0400 Maintenance of Traffic / TMP / WZTIA (100%)
- 02-FD-0500 QA / QC Final Submission
- 01-30-0100 Roadway Design
- 01-30-0600 QA/QC 30% Submission
- 01-60-0100 Roadway Design
- 01-60-1000 Prepare Right of Way Plans
- 01-60-1100 QA / QC 60% Submission
- 01-60-1200 VDOT / FHWA Review of 60% Plans / Reports / ROW Plans
- 01-60-1300 Revise and Resubmit Final Drainage and Stormwater Report
- 01-60-1400 VDOT / FHWA Review and Approval Final Drainage & SWM
- 01-EN-0200 EQ 103 - Environmental Certification
- 01-EN-0600 Water Quality Permit Application and Permit Acquisition
- 01-FD-1300 Construction Authorization
- 01-CN-0100 Element Kick-Off
- 01-CN-0200 Mobilization
- 01-CN-0300 Phase 1 MOT
- 01-CN-0400 Clear and Grub Ramp D Quadrant
- 01-CN-2000 Clear and Grub Ramp B Quadrant
- 01-CN-4000 Clear and Grub Ramp C Quadrant

- 01-CN-4300 Storm Sewer Ramp C
- 01-CN-4400 Fine Grade/UD/Stone Base Ramp C
- 01-CN-6200 Grading Ramp A
- 01-CN-6300 Storm Sewer Ramp A
- 01-CN-2300 Storm Ramp B
- 01-CN-2400 Fine Grade/UD/Stone Base Ramp B
- 01-CN-2500 Curb Ramp B
- 01-CN-2600 Base Asphalt Ramp B
- 01-CN-7900 Flip MOT to Median PH 1
- 01-CN-8000 Storm 250 Median PH 1
- 01-CN-8010 Fine Grade/UD/Stone Base 250 Median PH 1
- 01-CN-8020 Base Asphalt 250 Median PH 1
- 01-CN-8100 Flip MOT to Median Ph 2/Temp Signal Adjust
- 01-CN-8110 Storm Sewer Ph 2
- 01-CN-8120 Fine Grade/UD/Stone Base 250 Median Ph 2
- 01-CN-8130 Curb 250 Median Ph 2
- 01-CN-8140 Base Asphalt 250 Median Ph 2
- 01-CN-8150 Mill/Wedge/Level 250 Median Ph 2
- 01-CN-8200 Activate New/Temp Signals
- 01-CN-8210 Traffic Switch to New Pattern
- 01-CN-8250 Demo/Grade/UD D PH 3
- 01-CN-8280 Demo/Grade/UD Ramp C PH 3
- 01-CN-8310 Demo/Grade/UD Ramp A PH 3
- 01-CN-8340 Demo/Grade/UD Ramp A PH 3
- 01-CN-8350 Curb/Patch Ramp A PH 3
- 01-CN-8361 Final Grading Ramp A PH 3
- 01-CN-8400 Storm Tie-In 250 WB/Ramp C PH 3
- 01-UT-3000 Utility Relocation
- 01-CN-8410 BPPS-3 250 WB PH 3
- 01-CN-8430 BPPS-3 250 EB PH 3
- 01-CN-8440 Stone/Base Asphalt 250 EB PH 3
- 01-CN-9030 Final Surface Pavement
- 01-CN-9040 Final Pavement Markings
- 01-CN-9080 Punchlist/Project Closeout
- 00-PM-0011 Finish Construction Exit 124
- 00-00-9000 Final Completion

I-64 Exit 118 Element design and permitting activities tied to successor design and permitting activities for the I-64 Exit 124 Element create a critical path. Should the schedule start to be impacted by unanticipated delays in design and permitting, we have the ability to supplement our resources as necessary. Numerous construction activities on I-64 Exit 124 Element are also on the critical path. Our current calendar is based on a 5-day work week. Should unanticipated schedule delays start to become an issue, we will increase to 6-days, or possibly 7-days a week, or supplement our construction crews with many of our available and qualified local construction personnel.

### Construction Means and Methods

The durations and orders of operations were analyzed and evaluated based on estimated quantities calculated at the time of this proposal as well as average productions of similar activities in similar environments based on

historical production information. Furthermore, as a litmus test, field operations, including project superintendents, foreman and safety personnel, were engaged throughout the process in order to assess our managers, estimators and designers approaches to the Work. This exercise often flushes out constructability challenges and hurdles prior to design development.

Throughout the course of nearly all phases and stages of construction activities several major features of work are required. Each distinctive feature of work may require unique means and methods of construction that collectively provide the framework for the projects means and methods analysis. The following is a general summary of the major construction related work activities encompassed by the schedule:

- **Maintenance of Traffic (MOT):** First and foremost, keeping the traveling public safe as they approach and travel through work zones and keeping project personnel safe while working within the work zones are the most important imperatives on this project. This feature of work will primarily consist of the phased deployment of a well-designed MOT plan. Personnel overseeing the setup, installation of work zones shall be Work Zone Traffic Control (WZTC) trained. In addition, they will also provide monitoring on a daily basis and required maintenance to ensure a safe work zone.
- **Erosion and Sediment Control:** The basic principles of erosion and sediment control installation is for the comprehensive and immediate control of potential siltation run-off from the project limits to surrounding areas but most notably to existing water conveyance channels. The first step in this process is the establishment of the perimeter controls which most often run concurrently with clearing and demolition operations required to facilitate install of additional controls. After the perimeter controls are in place and functional, more extensive clearing and demolition operations may require additional controls, as needed, once areas of water concentration are identified. The most critical elements of this aspect of work are the preliminary installation of high-quality controls and the constant management and timely maintenance of the controls as the work progresses. The progress schedule addresses the initial steps of erosion control directly through the installation of silt fence, filter barrier, diversion dike, sediment traps/basins and as storm drainage progresses in the installation of check dams and outlet protections. Regular maintenance of the controls is critical as well and is incorporated into the succeeding work activities for each phase and stage of work.
- **Demolition and Clearing:** This feature of work is directly tied to the installation and maintenance of the erosion controls and will run concurrently throughout the schedule. As perimeter controls are established for each phase and stage of work bulk clearing of the sections will then be facilitated to open the door for the succeeding work activities. Trees and brush are removed and disposed of. When possible, demolition of a given feature will be delayed until absolutely necessary due to the impact they sometimes have to the work area. Demolished materials are disposed of in numerous ways depending on the type of material, to include haul-off or wasting in an approved disposal area.
- **Storm Drainage:** This feature of work provides the foundation for almost all portions of the phases and stages of work. Generally, Storm Drainage will directly follow the Clearing and Demolition activities where the existing grades or project phasing conditions allow. However, sometimes it is necessary to achieve all or a portion of grading activities or project phases to achieve the specified drainage network. Storm Drainage provides the mechanism for controlling water as the new grades and phases are established and therefore becomes the driver for most work. Storm Drainage systems are typically installed from the downstream to upstream end of the network with outfall channels to allow for the immediate control of any conveyance that occurs in the network. Also, whenever possible all networks are installed as a complete package of work to insure their functionality. The progress schedule addresses the entire Storm Drainage package required for the project over all phases and stages of work and is driven by many of the preceding features of work and can be tied to other features as the specific area dictates. Time for installation of storm drainage assumes a complete installation from start to finish, except when staged installation is necessitated, including all outfall establishment, structure and pipe installation, backfill, and inlet protection where applicable.

- **Grading/Excavation:** This feature of work includes all of the cut/fill/borrow/waste of material for roadway sections, shoulders, slopes, BMPs, and other features. This feature of work is tied to many other features to include storm drainage and utility relocation, which will run concurrently with many of the specific activities as the phases and work areas dictate. As the storm drainage is installed in each phase and stage of work, the cut to fill/waste or borrow/fill of material in that stage will then be achieved to provide the final roadway profile. Activities within each stage will also encompass many ancillary work items such as topsoil stripping or placement as well as minor excavations for utilities and walls as required. Coordination with proceeding and succeeding work is the critical element of this feature of work and will directly dictate the specific progress of activities. The progress schedule identifies the excavation activities as bulk activity that includes many small work items that do not always progress in a complete, systematic manner and may be weather dependent. Where possible progress on earthwork activities will be driven through to completed but in other cases may be progressed incrementally over the stage of work. Our Baseline Schedule will include more detail and will identify these separations, particularly where something is driving a succeeding activity.
- **Roadway Construction:** As work progresses through each phase and stage of work and final roadway sections are established, roadway construction to include underdrains, aggregate base, asphalt, and site feature establishment will commence. Several aspects of this feature of work will be done by subcontractors to include, asphalt, guardrail and final sign installation. The Baseline Schedule will outline in detail the many activities that directly apply to this feature of work and will progress in a linear fashion with some overlap in sub-contractor activities when the work area allows in an effort to maximize the productivity of the work. Coordination with sub-contractors is the key element of this feature of work and will require constant and extensive attention. As sections of roadway are completed they will be maintained and preserved until the final acceptance.
- **Lighting and Signalization:** With the exception of preliminary test bores for traffic signals, this work will proceed generally after establishment of MOT measures within each phase. Temporary and permanent signalization, and site lighting will be phased and installed as to not impact the traveling public through means of night work and directional boring where necessary. Exit 124 will required the development of a comprehensive phasing and signalization plan prior to deployment of the first phase. This will require extensive review with VDOT and public outreach and communication efforts.
- **Ditch and Shoulder Grading:** Portions of this feature of work will be run in conjunction with the Roadway Construction where the work area allows. Final establishment of the shoulders and ditch lines in some cases, however, must wait to be finalized after the completion of proceeding work such as, asphalt, curb, and guardrail placement. As the Roadway Construction work progresses and opportunity allows the ditches and shoulders, as well as applicable existing roadway obscuring will be progressed in an effort to maximize the speed in which roadway sections can be completed. The progress schedule outlines bulk activities for this feature of work which encompass several small work items required to finish the outer edges of the roadway. This feature of work also drives the final stabilization of the section and the potential removal of erosion and sediment controls following the establishment of permanent vegetation. Critical to the success of this feature of work are the preservation of the Roadway Construction and the finalization of any outstanding work items necessary to achieve final stabilization of the work area.
- **Close Out:** Once the roadway sections are completed and finalized the remaining aspects of work are tied to the establishment of the final roadway asphalt course, rumble strip installation, final stripping, and remaining permanent sign installation. Also, encompassed by this phase of work is the removal of erosion and sediment controls where applicable and the completion of final punch list of work items for storm drainage and utilities. The Baseline Schedule will identify these features of work in numerous activities that generally fall between the substantial completion and final completion milestones. Critical to the success of this feature of work are the proceeding management of work features and the minimization of punch list items requiring attention.

# *Appendix*

Appendix





Attachment 4.0.1.1

**Technical Proposal Checklist**

**ATTACHMENT 4.0.1.1**  
**ALBEMARLE INTERSECTION BUNDLING**  
**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 3.7 (Form C-78-RFP)	Sections 3.7, 4.0.1.1	no	Appendix
<b>Letter of Submittal</b>	NA	Sections 4.1		
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	Volume I, Page 1
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	Volume I, Page 1
Authorized representative's original signature	NA	Section 4.1.1	yes	Volume I, Page 1
Declaration of intent	NA	Section 4.1.2	yes	Volume I, Page 1
120 day declaration	NA	Section 4.1.3	yes	Volume I, Page 1
Point of Contact information	NA	Section 4.1.4	yes	Volume I, Page 1
Principal Officer information	NA	Section 4.1.5	yes	Volume I, Page 1
Final Completion Date	NA	Section 4.1.6	yes	Volume I, Page 1
Unique Milestone Date(s)	NA	Section 4.1.7	yes	Volume I,

**ATTACHMENT 4.0.1.1**  
**ALBEMARLE INTERSECTION BUNDLING**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
				Page 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	yes	Volume I, Page 1
<b>Offeror's Qualifications</b>	NA	Section 4.2		
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	Volume I, Page 2
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	Volume I, Page 3
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	Vol. I, Page 2
<b>Design Concept</b>	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	Volume I, Pages 4-17
				Volume II, Pages 1-11
<b>Project Approach</b>	NA	Section 4.4		
Environmental Management	NA	Section 4.4.1	yes	Volume I, Pages 18-22

**ATTACHMENT 4.0.1.1**  
**ALBEMARLE INTERSECTION BUNDLING**  
**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Utilities	NA	Section 4.4.2	yes	Volume I, Pages 22-27
Geotechnical	NA	Section 4.4.3	yes	Volume I, Pages 27-32
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	Volume I, Pages 32-37
<b>Construction of Project</b>	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.1	yes	Volume I, Pages 38-51
Transportation Management Plan	NA	Section 4.5.2	yes	
<b>Proposal Schedule</b>	NA	Section 4.6		
Proposal Schedule	NA	Section 4.6	no	Volume II, Pages 12-29
Proposal Schedule Narrative	NA	Section 4.6	no	Volume I, pages 52-58
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.6	no	Included in Vol. I, Copy 1 of 10



Attachment 3.6.6

**Alternative Technical Concept (ATC) Response Form**

**ATTACHMENT 3.6.6**

**ALTERNATIVE TECHNICAL CONCEPT (ATC) RESPONSE FORM**

**ATC ID NUMBER: 2**

**ATC NAME-DESCRIPTION: Route 20 and Route 649 Roundabout Relocation**

**OFFEROR: Faulconer Construction Company**

**DATE ATC SUBMITTED: March 25, 2019**

- (A) The proposed ATC is acceptable for inclusion in the Proposal with such conditions, modifications and/or requirements as identified by VDOT in Attachment 1 of this response.
- (B) The ATC is not acceptable for inclusion in the Proposal.
- (C) The submittal does not qualify as an ATC but may be included in the Offeror's Proposal because it appears to be within the requirements of the RFP.

Signed: \_\_\_\_\_



*Harold L. Jones, Jr., P.E.*

**DATE OF ATC RESPONSE: March 29, 2019**

**ATTACHMENT 3.6.6 (cont.)**

**ALTERNATIVE TECHNICAL CONCEPT (ATC) RESPONSE FORM**

**ATC ID NUMBER: 2**

**ATC NAME-DESCRIPTION: Route 20 and Route 649 Roundabout Relocation**

**OFFEROR: Falconer Construction Company**

**DATE ATC SUBMITTED: March 25, 2019**

**ATTACHMENT 1**

1. The entrance width into the roundabout shall be consistent with the typical entry width range noted in NCHRP Report 672 Roundabouts: An Informational Guide Section 6.4.2 Entry Width. Transition of lanes to the existing width shall be revised accordingly.
2. Consistent with the note on ATC Conceptual plan, mill and overlay of existing pavement will be provided from Station 202+87 to Station 205+58.35.



**Attachment 3.6.7**

**List of Approved ATCs**

**ATTACHMENT 3.6.7**  
**LIST OF APPROVED ATCs INCLUDED IN TECHNICAL PROPOSAL**

**OFFEROR:**

**List all approved ATCs included in the Technical Proposal along with the page number references from Technical Proposal.**

<b>ATC ID Number</b>	<b>ATC Name Description</b>	<b>Date ATC Approved</b>	<b>Technical Proposal Reference Page(s) #</b>
2	Route 20 and Route 649 Roundabout Relocation	3/29/2019	4, 5, 7, 8, 11, 16, 21

**By signing this document, the Offeror hereby confirms that they are agreeing to all conditions that may have accompanied the ATC approval(s). The Offerors shall make a note of RFP Part 4 Section 2.1.10**

*"If the Contract Documents incorporate any ATCs and Design-Builder, for whatever reason: (a) does not comply with one or more Department conditions of pre-approval for the ATC; (b) does not obtain required third-party approval for the ATC; or (c) fails to implement the ATC, then Design-Builder shall: (1) provide written notice thereof to Department; and (2) comply with the requirements in the Contract Documents that would have applied in the absence of such ATC. Such compliance shall be without any increase in the Contract Price or extension to the Contract Time(s). For the avoidance of doubt, Design-Builder shall not be entitled to any increase in the Contract Price or extension of the Contract Time(s) as a result of any delay, inability or cost associated with the acquisition of any property that may be required to implement any ATC".*



[Signature: Offerors POC or Principal Officer]

Edwin F. Stelter

[Printed Name]

Vice President, Procurement

[Title]

**DATE:** 04/18/2019



## Attachment 3.7 (Form C-78-RFP)

### Acknowledgement of Receipt of RFP, Revisions and/or Addenda

**ATTACHMENT 3.7**

**COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**

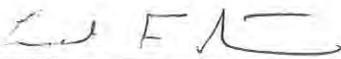
**RFP NO.** C00111814DB103  
 UPC 111814 (0250-002-956, P101, R201, C501; NHPP-002-7(051));  
 UPC 111727 (0029-002-959, P101, C501; HSIP-5104(269));  
 UPC 111813 (0029-002-955, P101, R201, C501; NHPP-002-7(050));  
 UPC 111730 (0250-002-954, P101, R201, C501; HSIP-002-7(049));  
**PROJECT NO.:** UPC 111733 (0020-002-953, P101, R201, C501; STP-5104(267));  
UPC 109397 (9999-002-941, P101, R201, C501)

**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 27, 2018  
(Date)
2. Cover letter of Addendum #1- February 7, 2019  
(Date)
3. Cover letter of Addendum #2- March 19, 2019  
(Date)
4. Cover letter of Addendum #3- April 10, 2019  
(Date)

  
SIGNATURE

4/19/19  
DATE

ED STELTER  
PRINTED NAME

VICE PRESIDENT  
TITLE



Attachment 9.3.1

**Proposal Payment Agreement**

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

**THIS PROPOSAL PAYMENT AGREEMENT** (this “Agreement”) is made and entered into as of this 12 day of March, 2019, by and between the Virginia Department of Transportation (“VDOT”), and Faulconer Construction Company, Incorporated (“Offeror”).

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s July 11, 2018 (last addendum on August 2, 2018) Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the Albemarle Intersection Bundling, Project Nos. UPC 111814 (0250-002-956, P101, R201, C501; NHPP-002-7(051)); UPC 111727 (0029-002-959, P101, C501; HSIP-5104(269)); UPC 111813 (0029-002-955, P101, R201, C501; NHPP-002-7(050)); UPC 111730 (0250-002-954, P101, R201, C501; HSIP-002-7(049)); UPC 111733 (0020-002-953, P101, R201, C501; STP-5104(267)); UPC 109397 (9999-002-941, P101, R201, C501) (“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 **thirty thousand and 00/100 Dollars (\$30,000.00)** ("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: \_\_\_\_\_

FAULCONER CONSTRUCTION COMPANY,  
INCORPORATED

By: David H. Galloway

Name: David H. Galloway

Title: Vice President



Attachments 11.8.6 (a) and (b)

**Certification Regarding Debarment Forms**

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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.

David R. Galloway      3/12/19  
Signature                      Date

Vice President  
Title

Faulconer Construction Company, Incorporated  
Name of Firm

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

- 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

April 23, 2019

Date

Director, Transportation

Title

Rummel, Klepper & Kahl, LLP (RK&K)

Name of Firm

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

- 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.

Maya Wilkins      4-16-2019      CFO  
Signature                      Date                      Title

NXL CONSTRUCTION SERVICES, INC.  
Name of Firm

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

- 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>4/16/2019</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.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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 02/06/19 Principal  
Signature Date Title

ECS Mid-Atlantic, LLC  
Name of Firm

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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<u>Alwood H. Hanson</u>	<u>12/5/18</u>	<u>President</u>
Signature	Date	Title

H & B Surveying and Mapping, LLC  
Name of Firm

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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*[Handwritten Signature]*      4/16/19      Director  
Signature                      Date                      Title

Rhodeside & Harwell  
Name of Firm

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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 _____ Signature	4/16/2019 _____ Date	PRESIDENT _____ Title
---	----------------------------	-----------------------------

KDR REAL ESTATE SERVICES  
\_\_\_\_\_  
Name of Firm

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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<u>Sheretta Jones</u>	<u>4/16/2019</u>	<u>Controller</u>
Signature	Date	Title
<u>Branscome Richmond</u>		
Name of Firm		

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

**Project No.:** UPC 111814 (0250-002-956, P101, R201, C501); UPC 111727 (0029-002-959, P101, C501); UPC 111813 (0029-002-955, P101, R201, C501); UPC 111730 (0250-002-954, P101, R201, C501); UPC 111733 (0020-002-953, P101, R201, C501); UPC 109397 (9999-002-941, P101, R201, C501)

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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.

MSK      12/16/18      CHIEF OPERATING OFFICER  
Signature      Date      Title

GLENNO ENGINEERING PLLC  
Name of Firm



VOLUME 2

TECHNICAL PROPOSAL FOR

# ALBEMARLE INTERSECTION BUNDLING

A DESIGN BUILD PROJECT

Contract ID# C00111814DB103



April 23, 2019

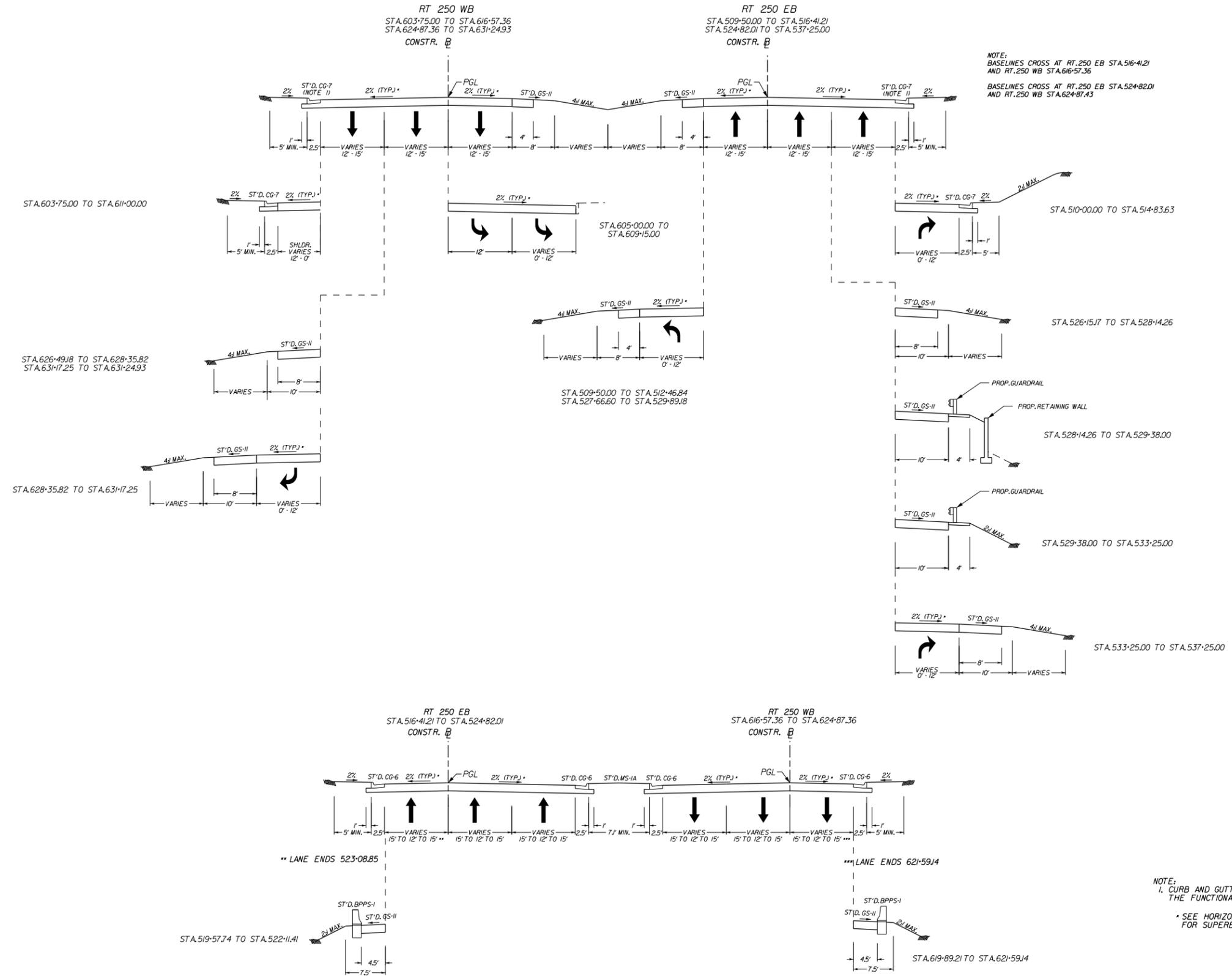


## Section 4.3.1.1

# Conceptual Roadway Plans



# TYPICAL SECTIONS



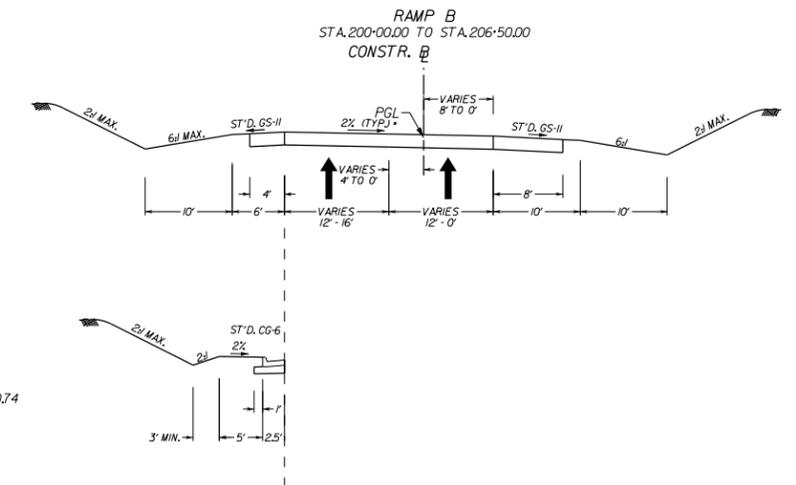
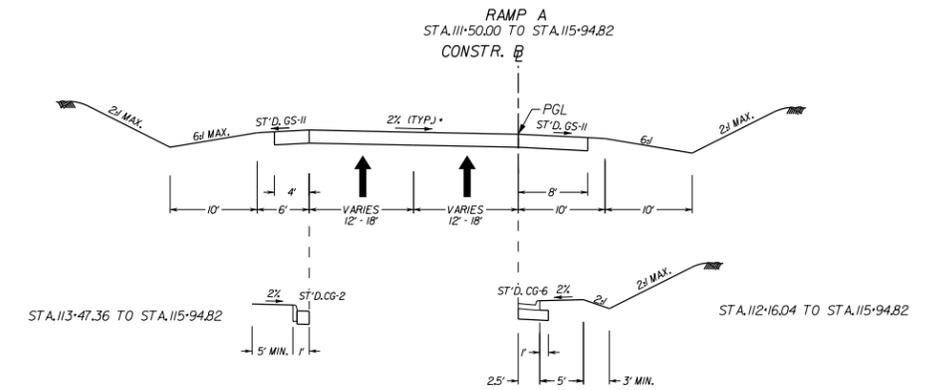
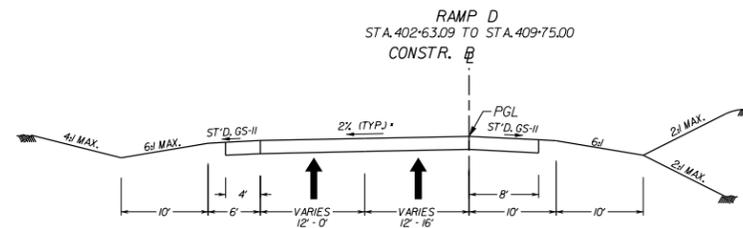
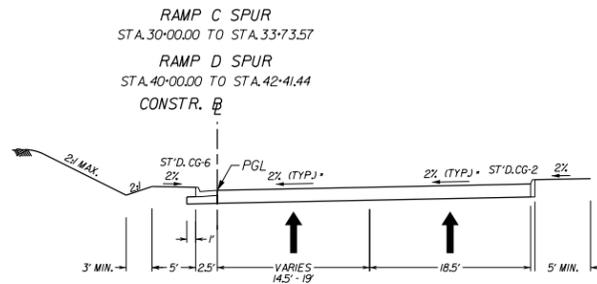
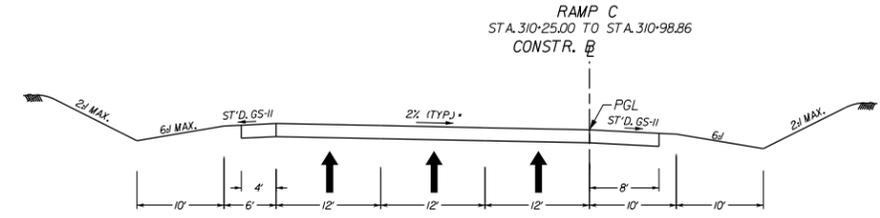
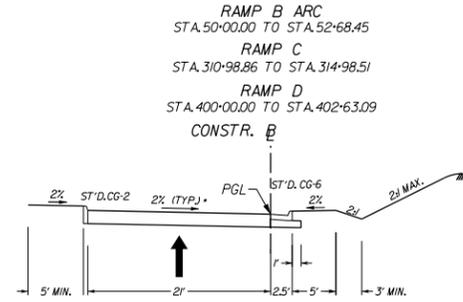
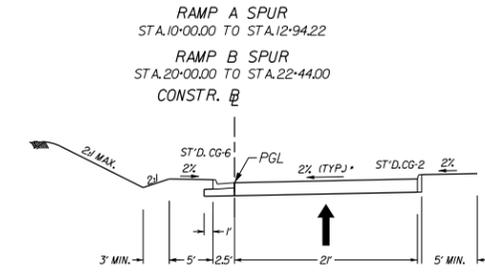
NOTE:  
 BASELINES CROSS AT RT. 250 EB STA. 516+41.21  
 AND RT. 250 WB STA. 616+57.36  
 BASELINES CROSS AT RT. 250 EB STA. 524+82.01  
 AND RT. 250 WB STA. 624+87.43

NOTE:  
 1. CURB AND GUTTER TO BE ST'D. CG-6 WITHIN  
 THE FUNCTIONAL AREA OF THE INTERSECTION  
 \* SEE HORIZONTAL CURVE DATA  
 FOR SUPERELEVATION RATES

NOT TO SCALE

4/23/2019 d:\11814-typicals-rkk.dgn

**TYPICAL SECTIONS**



**BASILINE TIE POINT DATA**

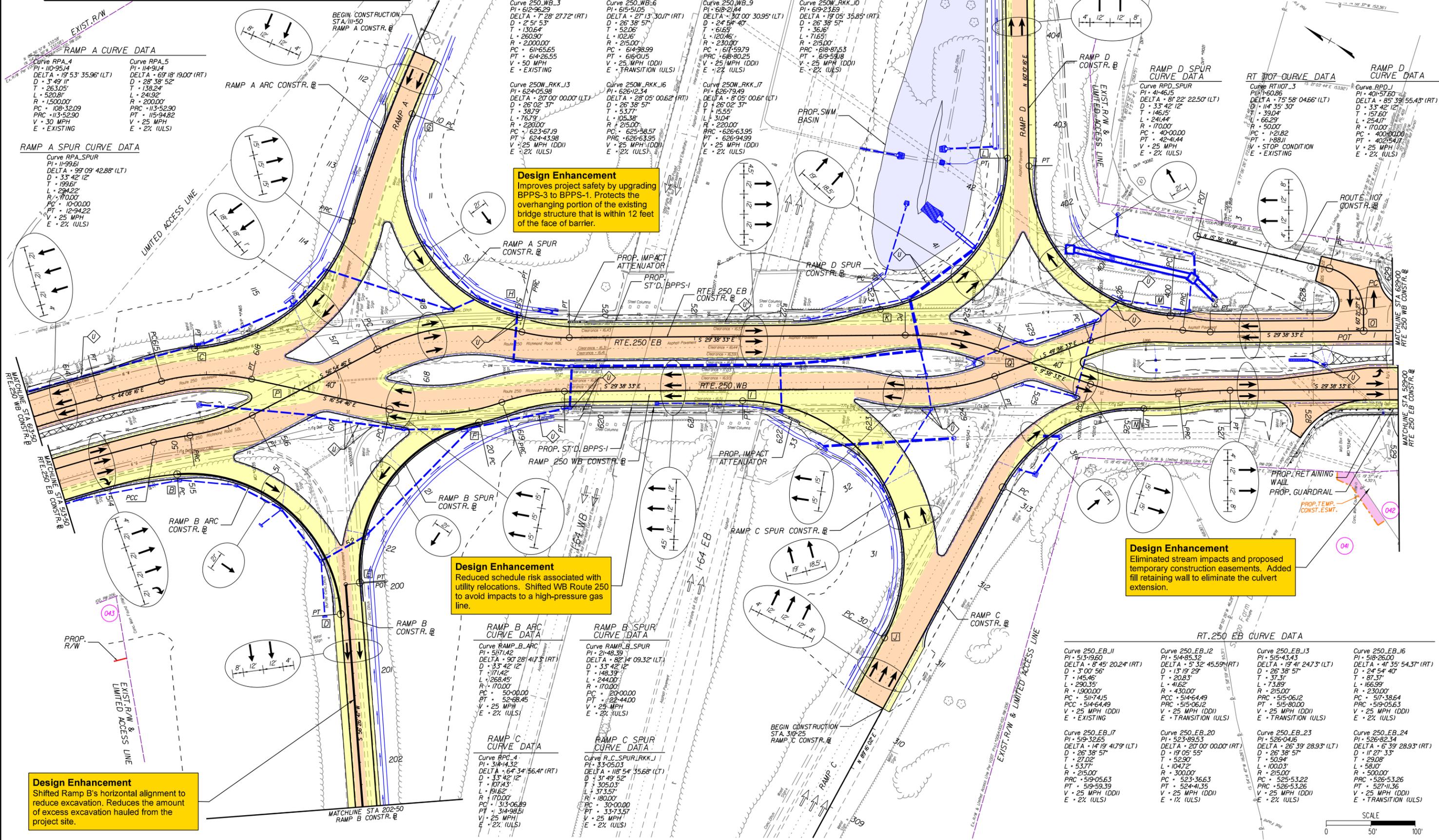
<b>A</b> BEGIN CONSTRUCTION HANSENS MT RD.CONSTR. @ POC STA.612+95.00 RT 250 WB CONSTR. @ PT STA.6+00.00 HANSENS MT RD.CONSTR. @ Δ = 90° 00' 00" LT	<b>G</b> BEGIN CONSTRUCTION RAMP A SPUR CONSTR. @ POC STA.112+16.04 RAMP A CONSTR. @ PC STA.10+00.00 RAMP A SPUR CONSTR. @ 24.00' LT	<b>M</b> BEGIN CONSTRUCTION RAMP D CONSTR. @ POC STA.626+49.8 RT 250 WB CONSTR. @ PC STA.400+00.00 RAMP D CONSTR. @ 15.00' LT
<b>B</b> BEGIN CONSTRUCTION RAMP B ARC CONSTR. @ POC STA.514+68.01 RT 250 EB CONSTR. @ PC STA.50+00.00 RAMP B ARC CONSTR. @ 39.17' RT	<b>H</b> END CONSTRUCTION RAMP A SPUR CONSTR. @ POC STA.519+00.01 RT 250 EB CONSTR. @ PT STA.12+94.22 RAMP A SPUR CONSTR. @ 15.00' LT	<b>N</b> END CONSTRUCTION RAMP C CONSTR. @ POC STA.526+15.7 RT 250 EB CONSTR. @ PT STA.314+98.51 RAMP C CONSTR. @ 15.00' RT
<b>C</b> END CONSTRUCTION RAMP A CONSTR. @ POC STA.615+39.01 RT 250 WB CONSTR. @ PT STA.115+94.82 RAMP A CONSTR. @ 30.00' LT	<b>I</b> END CONSTRUCTION RAMP C SPUR CONSTR. @ POT STA.621+59.14 RT 250 WB CONSTR. @ PT STA.33+63.19 RAMP C SPUR CONSTR. @ 12.00' RT	<b>O</b> BEGIN CONSTRUCTION RT 1107 CONSTR. @ POT STA.628+67.13 RT 250 WB CONSTR. @ PT STA.1+00.00 RT 1107 CONSTR. @ Δ = 90° 00' 00" LT
<b>D</b> END CONSTRUCTION RAMP B ARC CONSTR. @ POT STA.200+32.94 RAMP B CONSTR. @ PT STA.52+74.70 RAMP B ARC CONSTR. @ 8.00' RT	<b>J</b> BEGIN CONSTRUCTION RAMP C SPUR CONSTR. @ POT STA.310+95.41 RAMP C CONSTR. @ PC STA.30+00.00 RAMP C SPUR CONSTR. @ 36.00' LT	<b>P</b> POT STA.516+41.21 RT 250 EB CONSTR. @ POT STA.616+57.36 RT 250 WB CONSTR. @ Δ = 40° 00' 00" RT
<b>E</b> END CONSTRUCTION RAMP B SPUR CONSTR. @ BEGIN CONSTRUCTION RAMP B CONSTR. @ POT STA.200+00.00 RAMP B CONSTR. @ PT STA.22+47.30 RAMP B SPUR CONSTR. @ 16.00' LT	<b>K</b> BEGIN CONSTRUCTION RAMP D SPUR CONSTR. @ POT STA.523+08.85 RT 250 EB CONSTR. @ PC STA.40+00.00 RAMP D SPUR CONSTR. @ 29.01' LT	<b>Q</b> POT STA.524+82.01 RT 250 EB CONSTR. @ POT STA.624+87.36 RT 250 WB CONSTR. @ Δ = 40° 00' 00" RT
<b>F</b> BEGIN CONSTRUCTION RAMP B SPUR CONSTR. @ POC STA.618+57.76 RT 250 WB CONSTR. @ PC STA.20+00.00 RAMP B SPUR CONSTR. @ 15.00' RT	<b>L</b> END CONSTRUCTION RAMP D SPUR CONSTR. @ POT STA.402+63.09 RAMP D CONSTR. @ PT STA.42+41.44 RAMP D SPUR CONSTR. @ 24.00' LT	

STA.200+00.00 TO STA.200+20.74

\* SEE HORIZONTAL CURVE DATA FOR SUPERELEVATION RATES.

NOT TO SCALE

# CONCEPTUAL ROADWAY PLANS



<p><b>CONSTRUCTION LIMITS</b></p> <p>--- CUT</p> <p>--- FILL</p>	<p>PROG. NEW PAVEMENT</p> <p>PROG. MILL &amp; OVERLAY</p>	<p>WETLAND &amp; STREAM IMPACTS</p> <p>OBSCURE PAVEMENT</p>	<p>UTILITY IMPACT</p>	<p>EXIST. RIGHT OF WAY</p> <p>PROP. RFP RIGHT OF WAY</p> <p>PROP. RFP PERM. EASEMENT</p> <p>PROP. RFP TEMP. CONSTR. EASEMENT</p>
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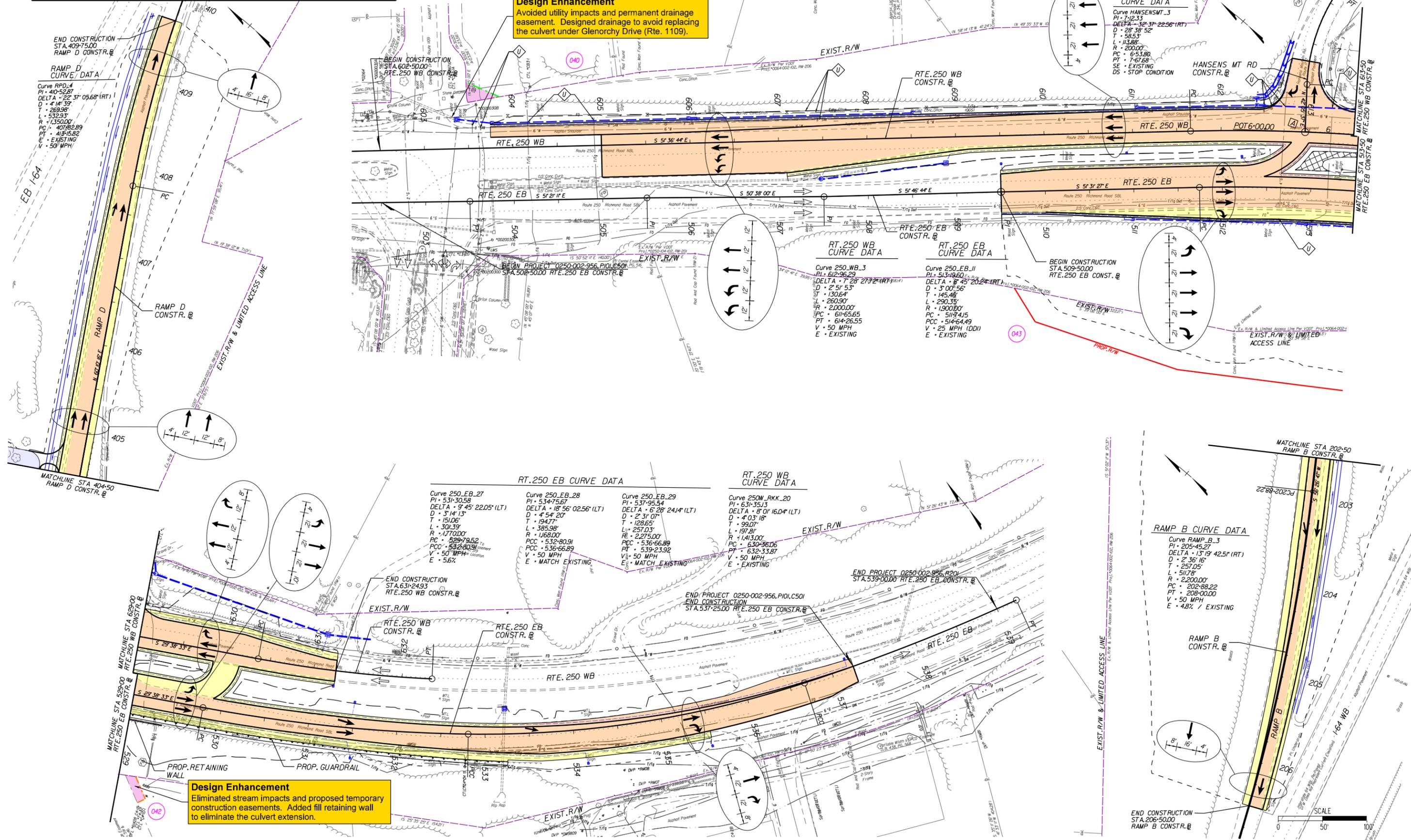
**FAULCONER CONSTRUCTION COMPANY** **RK&K**  
 STATE PROJECT NO. 0250-002-956, P101, C501    UPC NO. 111814    SHEET NO. 3

4/23/2019 clllbb@constr.rk&k.com

# CONCEPTUAL ROADWAY PLANS

**Design Enhancement**  
 Avoided utility impacts and permanent drainage easement. Designed drainage to avoid replacing the culvert under Glenorchy Drive (Rte. 1109).

**Design Enhancement**  
 Eliminated stream impacts and proposed temporary construction easements. Added fill retaining wall to eliminate the culvert extension.



**CONSTRUCTION LIMITS**  
 --- CUT  
 --- FILL

PROP. NEW PAVEMENT  
 PROP. MILL & OVERLAY

WETLAND & STREAM IMPACTS  
 OBSCURE PAVEMENT

UTILITY IMPACT

EXIST. RIGHT OF WAY  
 PROP. RFP RIGHT OF WAY  
 PROP. RFP PERM. EASEMENT  
 PROP. RFP TEMP. CONSTR. EASEMENT

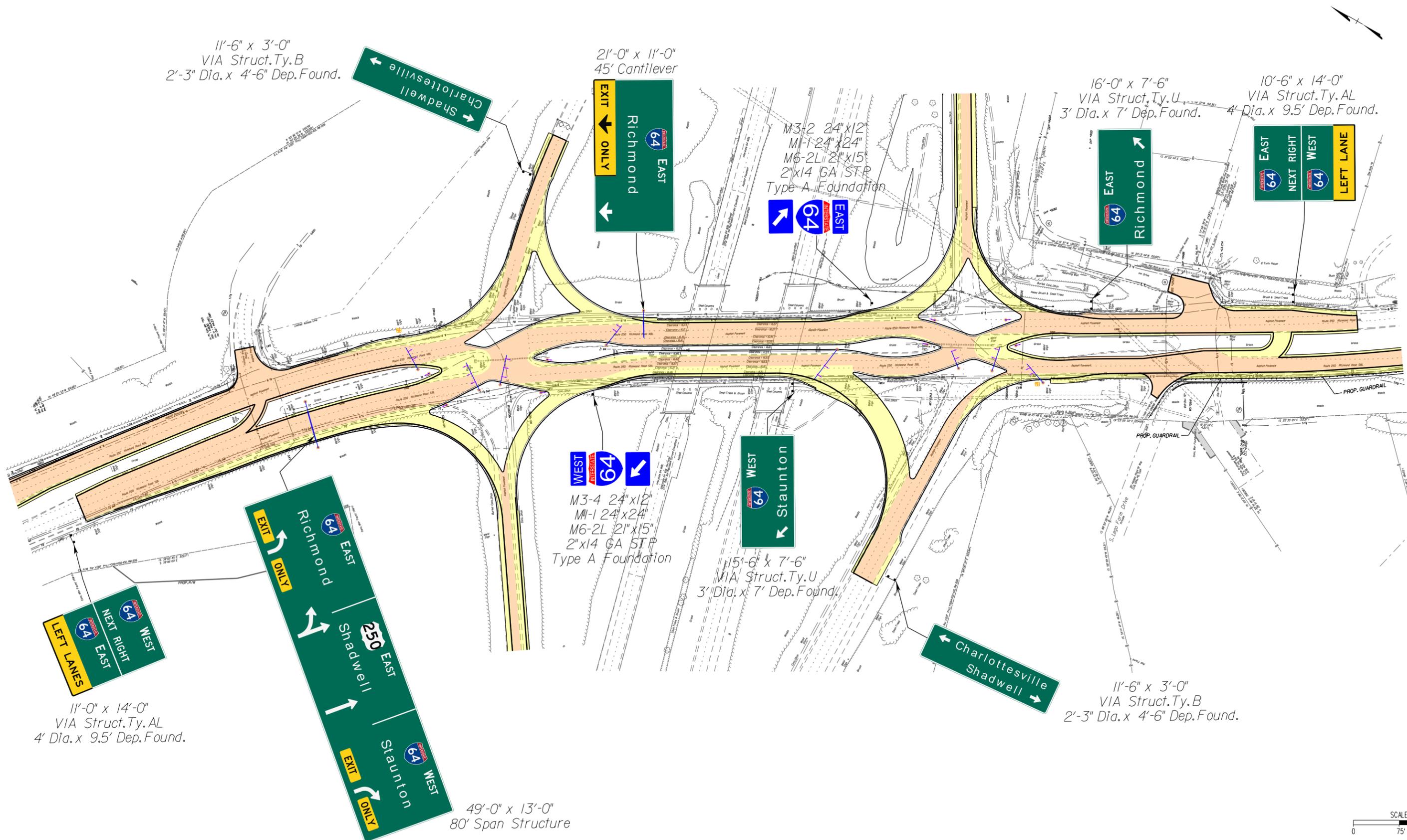
**FAULCONER** **RK&K**  
 CONSTRUCTION COMPANY

STATE PROJECT NO. 0250-002-956, P/OI, C501  
 UPC NO. 111814  
 SHEET NO. 4

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4/23/2019

# CONCEPTUAL SIGNING PLANS



11'-6" x 3'-0"  
VIA Struct. Ty. B  
2'-3" Dia. x 4'-6" Dep. Found.

21'-0" x 11'-0"  
45' Cantilever

16'-0" x 7'-6"  
VIA Struct. Ty. U  
3' Dia. x 7' Dep. Found.

10'-6" x 14'-0"  
VIA Struct. Ty. AL  
4' Dia. x 9.5' Dep. Found.

M3-2 24"x12"  
M1-1 24"x24"  
M6-2L 2"x15"  
2"x14 GA ST P  
Type A Foundation

M3-4 24"x12"  
M1-1 24"x24"  
M6-2L 2"x15"  
2"x14 GA ST P  
Type A Foundation

15'-6" x 7'-6"  
VIA Struct. Ty. U  
3" Dia. x 7' Dep. Found.

11'-6" x 3'-0"  
VIA Struct. Ty. B  
2'-3" Dia. x 4'-6" Dep. Found.

49'-0" x 13'-0"  
80' Span Structure

11'-0" x 14'-0"  
VIA Struct. Ty. AL  
4' Dia. x 9.5' Dep. Found.

CONSTRUCTION LIMITS  
- - - - - CUT  
- - - - - FILL

PROP. NEW PAVEMENT  
PROP. MILL & OVERLAY

WETLAND & STREAM IMPACTS  
OBSCURE PAVEMENT

UTILITY IMPACT

EXIST. RIGHT OF WAY  
PROP. RFP RIGHT OF WAY  
PROP. RFP PERM. EASEMENT  
PROP. RFP TEMP. CONSTR. EASEMENT

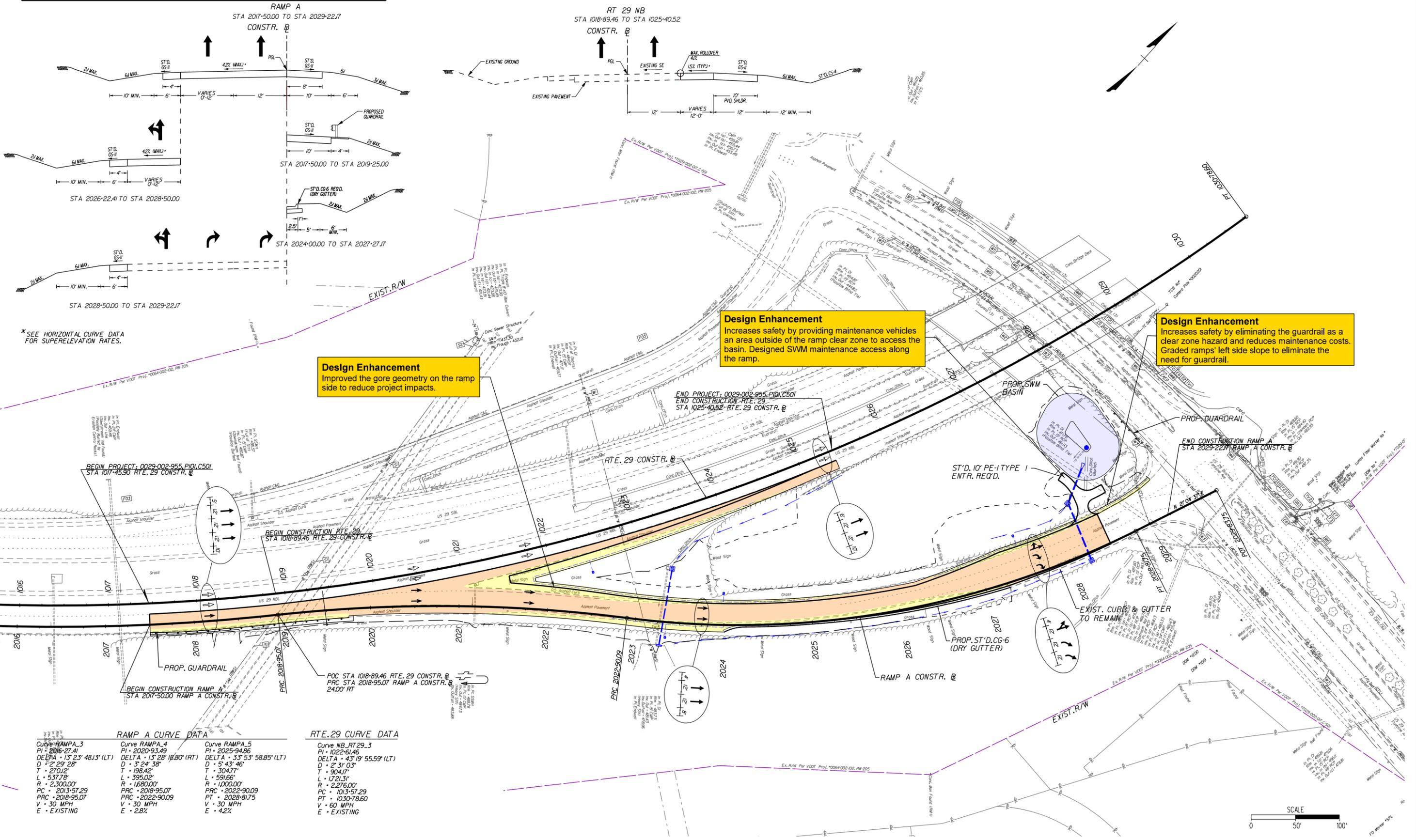
**FAULCONER** **RK&K**  
CONSTRUCTION COMPANY

STATE PROJECT NO. 0250-002-956, P101, C501  
UPC NO. 111814  
SHEET NO. 5

4/23/2019 111814planst1\_rkk.dgn



# CONCEPTUAL ROADWAY PLANS



\* SEE HORIZONTAL CURVE DATA FOR SUPERELEVATION RATES.

**Design Enhancement**  
Improved the gore geometry on the ramp side to reduce project impacts.

**Design Enhancement**  
Increases safety by providing maintenance vehicles an area outside of the ramp clear zone to access the basin. Designed SWM maintenance access along the ramp.

**Design Enhancement**  
Increases safety by eliminating the guardrail as a clear zone hazard and reduces maintenance costs. Graded ramps' left side slope to eliminate the need for guardrail.

RAMP A CURVE DATA		RTE.29 CURVE DATA	
Curve RAMP_A_3 PI • 2016-27.41 DELTA • 13° 23' 48J3" (LT) D • 2' 29' 28" T • 270.12' L • 537.78' R • 2,300.00' PC • 2013-57.29 PRC • 2018-95.07 V • 30 MPH E • EXISTING	Curve RAMP_A_4 PI • 2020-93.49 DELTA • 13° 28' 18.80" (RT) D • 3' 24' 38" T • 198.42' L • 395.02' R • 1680.00' PC • 2018-95.07 PRC • 2022-90.09 V • 30 MPH E • 2.8%	Curve RAMP_A_5 PI • 2025-94.86 DELTA • 33° 53' 58.85" (LT) D • 5' 43' 46" T • 304.77' L • 591.68' R • 1000.00' PC • 2022-90.09 PT • 2028-81.75 V • 30 MPH E • 4.2%	Curve NB_RT29_3 PI • 1022-61.46 DELTA • 43° 19' 55.59" (LT) D • 2' 31' 03" T • 904.17' L • 1721.31' R • 2,276.00' PC • 1013-57.29 PT • 1030-78.60 V • 60 MPH E • EXISTING

CONSTRUCTION LIMITS  
 - - - - CUT  
 - - - - FILL

PROP. NEW PAVEMENT  
 PROP. MILL & OVERLAY

WETLAND & STREAM IMPACTS  
 OBSCURE PAVEMENT

UTILITY IMPACT

EXIST. RIGHT OF WAY  
 PROP. RFP RIGHT OF WAY  
 PROP. RFP PERM. EASEMENT  
 PROP. RFP TEMP. CONSTR. EASEMENT

**FAULCONER CONSTRUCTION COMPANY** **RK&K**

STATE PROJECT NO. 0029-002-955, P101,C501  
 UPC NO. 111813  
 SHEET NO. 7

4/23/2019

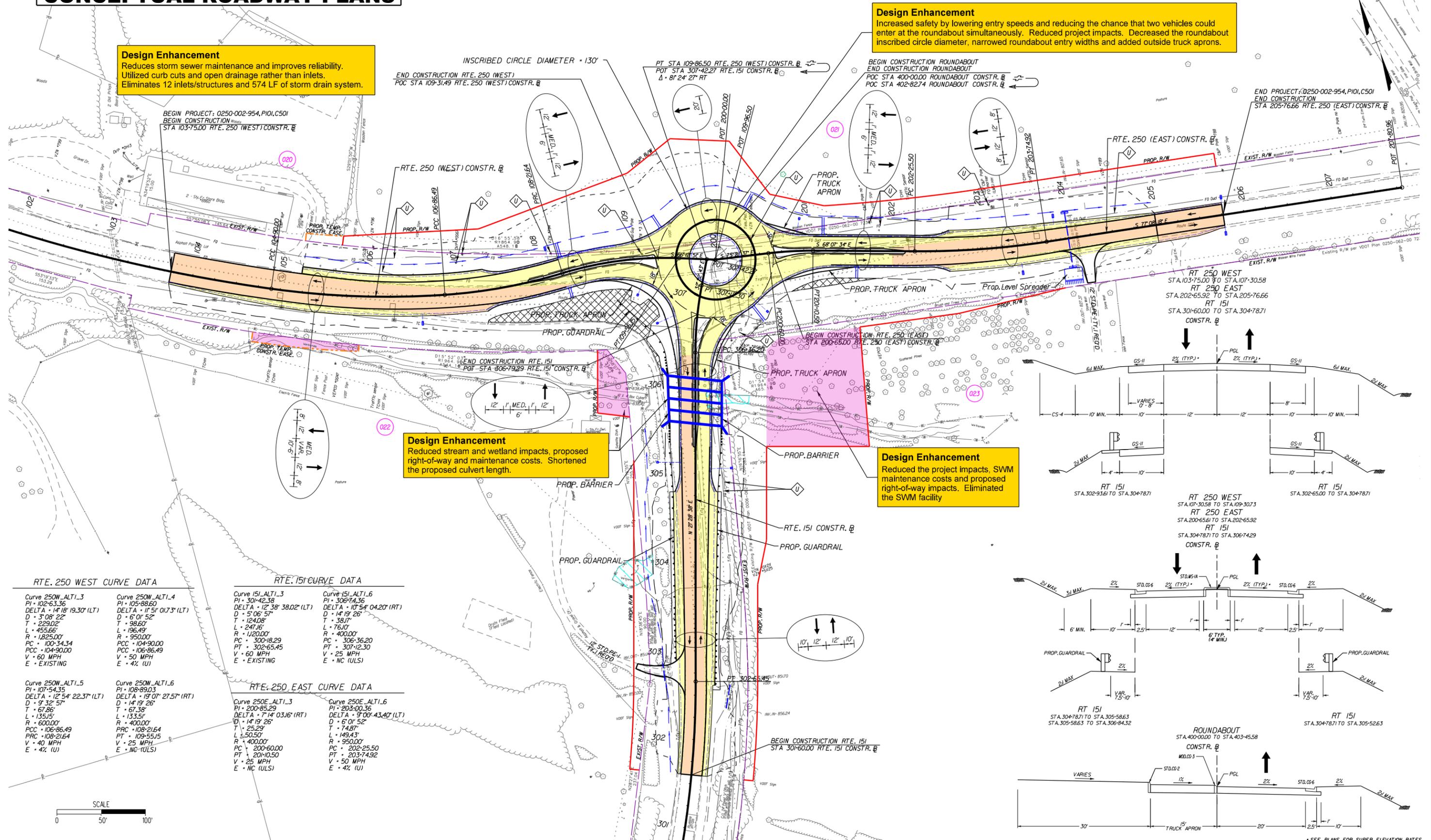
# CONCEPTUAL ROADWAY PLANS

**Design Enhancement**  
 Reduces storm sewer maintenance and improves reliability. Utilized curb cuts and open drainage rather than inlets. Eliminates 12 inlets/structures and 574 LF of storm drain system.

**Design Enhancement**  
 Increased safety by lowering entry speeds and reducing the chance that two vehicles could enter at the roundabout simultaneously. Reduced project impacts. Decreased the roundabout inscribed circle diameter, narrowed roundabout entry widths and added outside truck aprons.

**Design Enhancement**  
 Reduced stream and wetland impacts, proposed right-of-way and maintenance costs. Shortened the proposed culvert length.

**Design Enhancement**  
 Reduced the project impacts, SWM maintenance costs and proposed right-of-way impacts. Eliminated the SWM facility



### RTE. 250 WEST CURVE DATA

Curve 250W_ALTI_3 PI = 102+63.36 DELTA = 14° 18' 19.30" (LT) D = 3' 08' 22" T = 229.02' L = 455.66' R = 1825.00' PC = 100+34.34 PCC = 104+90.00 V = 60 MPH E = EXISTING	Curve 250W_ALTI_4 PI = 105+88.60 DELTA = 11° 51' 01.73" (LT) D = 6' 01' 52" T = 98.60' L = 196.49' R = 950.00' PC = 104+90.00 PCC = 106+86.49 V = 50 MPH E = 4% (U)
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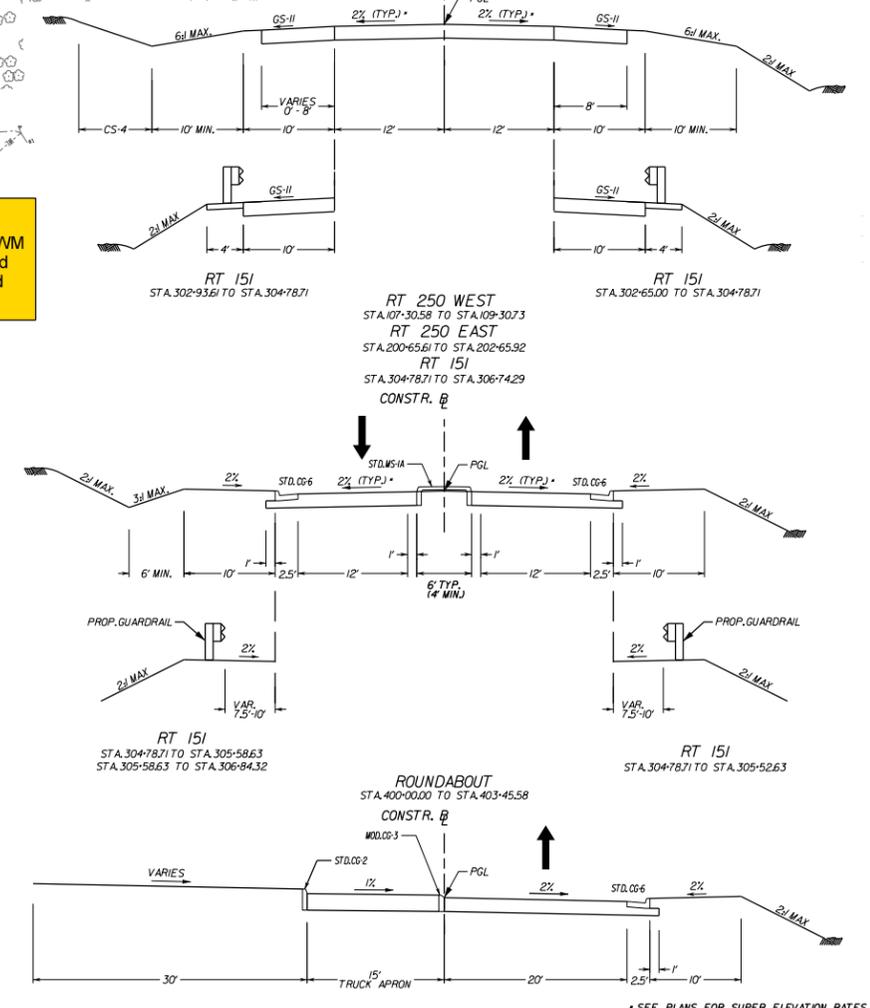
### RTE. 151 CURVE DATA

Curve 151_ALTI_3 PI = 301+42.38 DELTA = 12° 38' 38.02" (LT) D = 5' 06' 57" T = 124.08' L = 247.16' R = 1120.00' PC = 300+18.29 PT = 302+65.45 V = 60 MPH E = EXISTING	Curve 151_ALTI_6 PI = 306+74.36 DELTA = 10° 54' 04.20" (RT) D = 14' 19' 26" T = 38.17' L = 76.01' R = 400.00' PC = 306+36.20 PT = 307+12.30 V = 25 MPH E = NC (ULS)
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### RTE. 250 EAST CURVE DATA

Curve 250E_ALTI_3 PI = 200+85.29 DELTA = 7° 14' 03.16" (RT) D = 14' 19' 26" T = 25.29' L = 50.50' R = 400.00' PC = 200+60.00 PT = 201+05.00 V = 25 MPH E = NC (ULS)	Curve 250E_ALTI_6 PI = 203+00.36 DELTA = 9° 00' 43.40" (LT) D = 6' 01' 52" T = 74.57' L = 149.43' R = 950.00' PC = 202+25.50 PT = 203+74.92 V = 50 MPH E = 4% (U)
---	---

Curve 250W_ALTI_5 PI = 107+54.35 DELTA = 12° 54' 22.37" (LT) D = 9' 32' 57" T = 67.86' L = 135.15' R = 600.00' PCC = 106+86.49 PT = 108+21.64 V = 40 MPH E = 4% (U)	Curve 250W_ALTI_6 PI = 108+89.03 DELTA = 19° 07' 27.57" (RT) D = 14' 19' 26" T = 67.38' L = 133.51' R = 400.00' PCC = 108+21.64 PT = 109+25.15 V = 25 MPH E = NC (ULS)
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### CONSTRUCTION LIMITS

- - - - CUT
- - - - FILL

- PROP. NEW PAVEMENT
- PROP. MILL & OVERLAY

- WETLAND & STREAM IMPACTS
- OBSCURE PAVEMENT

- UTILITY IMPACT

- EXIST. RIGHT OF WAY
- PROP. RFP RIGHT OF WAY
- PROP. RFP PERM. EASEMENT
- PROP. RFP TEMP. CONSTR. EASEMENT

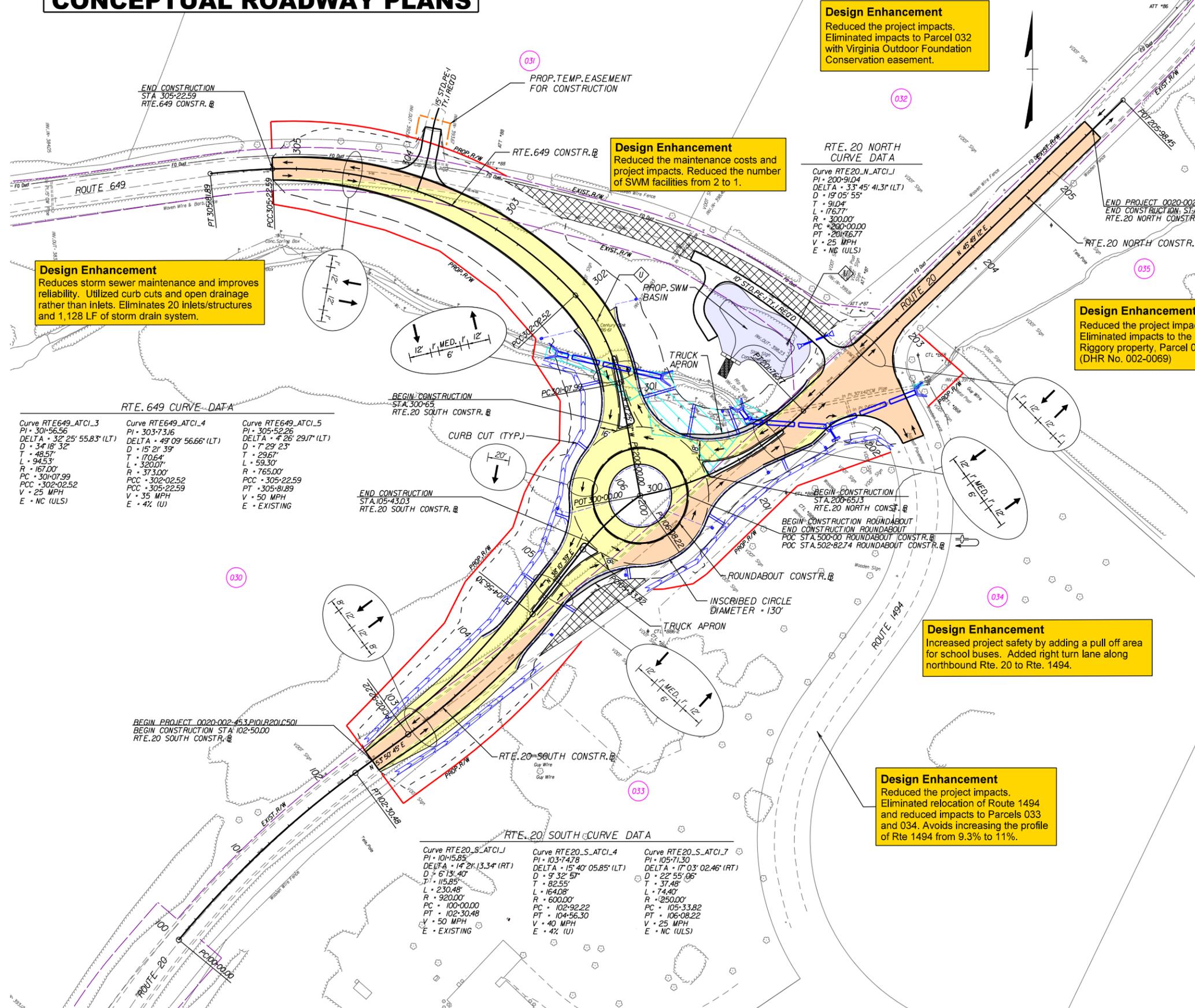


STATE PROJECT NO. 0250-002-954, P101, C501  
 UPC NO. 111730  
 SHEET NO. 8

dl11730p01sch - r1k.dgn

4/23/2019

# CONCEPTUAL ROADWAY PLANS



**Design Enhancement**  
 Reduced the project impacts. Eliminated impacts to Parcel 032 with Virginia Outdoor Foundation Conservation easement.

**Design Enhancement**  
 Reduced the maintenance costs and project impacts. Reduced the number of SWM facilities from 2 to 1.

**Design Enhancement**  
 Reduces storm sewer maintenance and improves reliability. Utilized curb cuts and open drainage rather than inlets. Eliminates 20 inlets/structures and 1,128 LF of storm drain system.

**Design Enhancement**  
 Reduced the project impacts. Eliminated impacts to the historic Riggory property, Parcel 035. (DHR No. 002-0069)

**Design Enhancement**  
 Increased project safety by adding a pull off area for school buses. Added right turn lane along northbound Rte. 20 to Rte. 1494.

**Design Enhancement**  
 Reduced the project impacts. Eliminated relocation of Route 1494 and reduced impacts to Parcels 033 and 034. Avoids increasing the profile of Rte 1494 from 9.3% to 11%.

**RTE. 649 CURVE DATA**

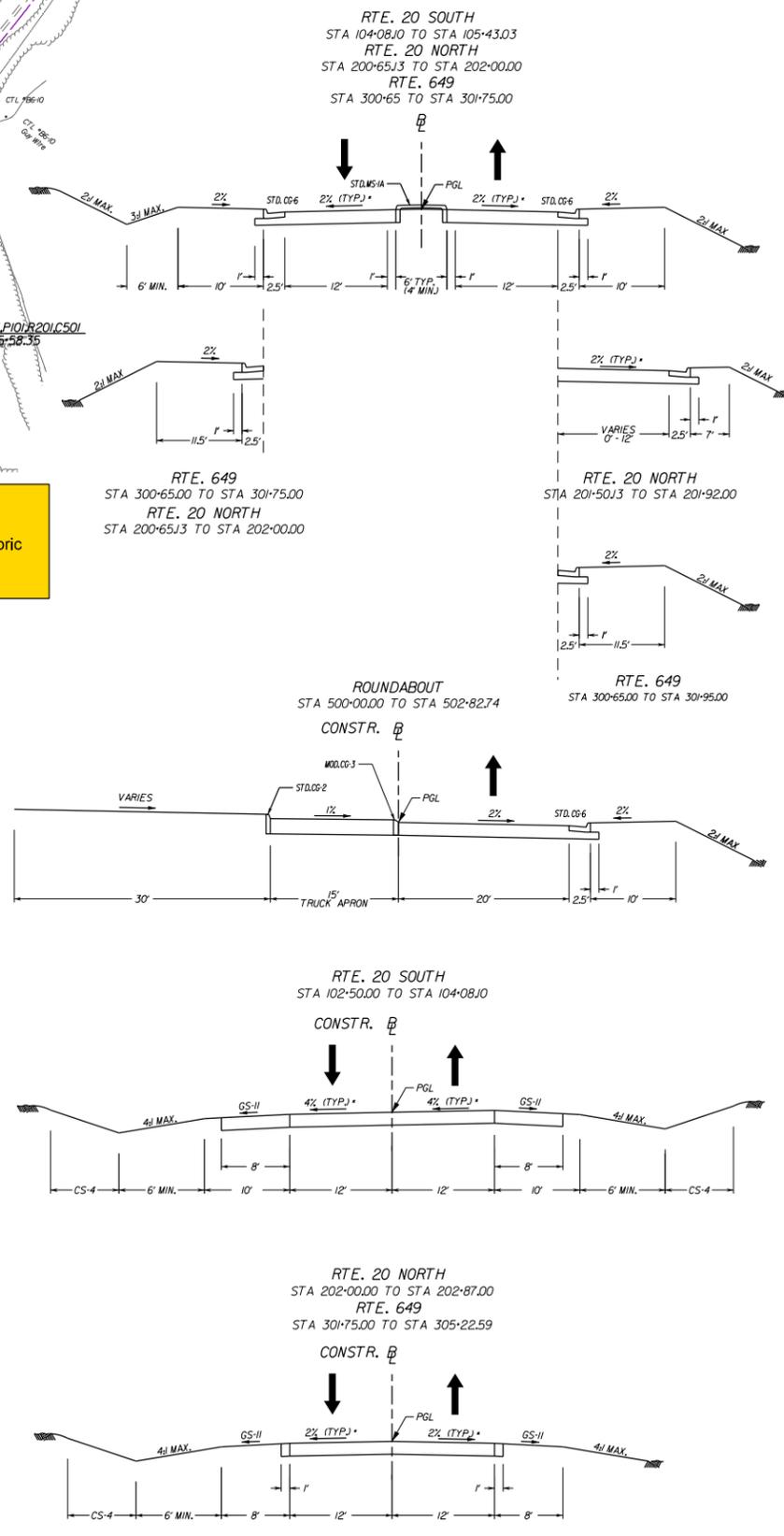
Curve RTE649_ATCI_3	Curve RTE649_ATCI_4	Curve RTE649_ATCI_5
PI • 30156.56	PI • 30373.16	PI • 30592.26
DELTA • 32° 25' 55.83" (LT)	DELTA • 49° 09' 56.66" (LT)	DELTA • 4° 28' 29.17" (LT)
D • 34' 18" 32"	D • 15' 2" 39"	D • 7' 29' 23"
T • 48.57'	T • 29.67'	T • 29.67'
L • 94.53'	L • 320.07'	L • 59.30'
R • 167.00'	R • 373.00'	R • 765.00'
PC • 30107.99	PC • 30202.52	PC • 30522.59
PCC • 30202.52	PCC • 30522.59	PCC • 30522.59
V • 25 MPH	V • 35 MPH	V • 50 MPH
E • NC (ULS)	E • 4% (U)	E • EXISTING

**RTE. 20 NORTH CURVE DATA**

Curve RTE20\_N\_ATCI\_1  
 PI • 20091.04  
 DELTA • 33° 45' 41.31" (LT)  
 D • 19' 05' 55"  
 T • 91.04'  
 L • 176.77'  
 R • 300.00'  
 PC • 20000.00  
 PT • 20116.77  
 V • 25 MPH  
 E • NC (ULS)

**RTE. 20 SOUTH CURVE DATA**

Curve RTE20_S_ATCI_1	Curve RTE20_S_ATCI_4	Curve RTE20_S_ATCI_7
PI • 1015.85	PI • 1037.78	PI • 1057.30
DELTA • 14° 21' 13.34" (RT)	DELTA • 15° 40' 05.85" (LT)	DELTA • 17° 03' 02.46" (RT)
D • 5' 13" 40"	D • 5' 52" 57"	D • 22' 55" 06"
T • 115.85'	T • 82.55'	T • 37.48'
L • 230.48'	L • 164.08'	L • 74.40'
R • 920.00'	R • 600.00'	R • 250.00'
PC • 10000.00	PC • 10292.22	PC • 10533.82
PT • 10230.48	PT • 10456.30	PT • 10608.22
V • 50 MPH	V • 40 MPH	V • 25 MPH
E • EXISTING	E • 4% (U)	E • NC (ULS)



**CONSTRUCTION LIMITS**  
 - - - CUT  
 - - - FILL

PROG. NEW PAVEMENT  
 PROG. MILL & OVERLAY

WETLAND & STREAM IMPACTS  
 OBSCURE PAVEMENT

UTILITY IMPACT

EXIST. RIGHT OF WAY  
 PROP. RFP RIGHT OF WAY  
 PROP. RFP PERM. EASEMENT  
 PROP. RFP TEMP. CONSTR. EASEMENT

**FAULCONER** **RK&K**  
 CONSTRUCTION COMPANY

STATE PROJECT NO. 0020-002-953, PIO1R20IC501  
 UPC NO. 111733  
 SHEET NO. 9

4/23/2019 d111733project\_ATC.dgn

# PROPERTY IMPACT SCHEMATIC

RFP Impacts = 0.12 Acres  
ATC Impacts = 0.11 Acres

RFP Impacts = 0.24 Acres  
ATC Impacts = 0.00 Acres

RFP Impacts = 0.16 Acres  
ATC Impacts = 0.00 Acres

RFP Impacts = 1.75 Acres  
ATC Impacts = 1.75 Acres

RFP Impacts = 0.13 Acres  
ATC Impacts = 0.04 Acres

RFP Impacts = 0.60 Acres  
ATC Impacts = 0.23 Acres

Curlo Colombini House/  
Mirror Farm Property  
(DHR No.002-1928)

Virginia Outdoor  
Foundation (VOF)  
Property

Riggory Historic  
Property  
(DHR No.002-0069)

4/23/2019 ATC\_R/W\_Levitt.dgn

- EXIST. RIGHT OF WAY
- PROP. ATC RIGHT OF WAY
- PROP. ATC TEMP. CONSTR. EASEMENT
- PROP. RFP RIGHT OF WAY
- PROP. RFP PERM. EASEMENT
- PROP. RFP TEMP. CONSTR. EASEMENT

- VOF PROPERTY
- SOUTHEAST MOUNTAIN RURAL HISTORIC DISTRICT (DHR No. 002-1822)



**FAULCONER** CONSTRUCTION COMPANY **RK&K**

STATE PROJECT NO. 0020-002-953, P101, C501

UPC NO. 111733

SHEET NO. 10





## Section 4.6

# Proposal Schedule



Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	Q												Q																												
							M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M				
<b>EPS: Faulconer Construction</b>							981	981	28-May-19	29-Mar-23	0																																				
<b>EPS: Charlottesville</b>							981	981	28-May-19	29-Mar-23	0																																				
<b>Project: Albemarle Bundle Design Schedule V7</b>							981	981	28-May-19	29-Mar-23	0																																				
00-00-0100	Notice of Intent to Award	0	0	28-May-19*		38	◆ Notice of Intent to Award																																								
00-00-0200	Notice To Proceed	0	0	22-Jul-19*		0	◆ Notice To Proceed																																								
00-00-0300	Scope Validation	120	120	22-Jul-19	18-Nov-19	1227	■ Scope Validation																																								
<b>WBS: Project Milestones</b>							743	743	04-May-20	29-Mar-23	0																																				
00-PM-0020	Start Construction Exit 118	0	0	04-May-20		743	◆ Start Construction Exit 118																																								
00-PM-0030	Start Construction Fontaine	0	0	18-May-20		733	◆ Start Construction Fontaine																																								
00-PM-0060	Start Construction Rio Mills	0	0	22-May-20		729	◆ Start Construction Rio Mills																																								
00-PM-0031	Finish Construction Fontaine	0	0		20-Aug-20*	0	◆ Finish Construction Fontaine																																								
00-PM-0061	Finish Construction Rio Mills	0	0		23-Sep-20*	43	◆ Finish Construction Rio Mills																																								
00-PM-0040	Start Construction 250/151	0	0	05-Oct-20		635	◆ Start Construction 250/151																																								
00-PM-0021	Finish Construction Exit 118	0	0		21-Oct-20*	24	◆ Finish Construction Exit 118																																								
00-PM-0050	Start Construction 20/694	0	0	08-Dec-20		591	◆ Start Construction 20/694																																								
00-PM-0010	Start Construction Exit 124	0	0	20-May-21		476	◆ Start Construction Exit 124																																								
00-PM-0051	Finish Construction 20/649	0	0		23-Jun-21	452	◆ Finish Construction 20/649																																								
00-PM-0041	Finish Construction 250/151	0	0		07-Oct-21	377	◆ Finish Construction 250/151																																								
00-PM-0011	Finish Construction Exit 124	0	0		29-Mar-23	0	◆ Finish Construction Exit 124																																								
00-00-9000	Final Completion	0	0		29-Mar-23	0	◆ Final Completion																																								
<b>WBS: Public Involvement/Public Outreach</b>							253	253	16-Oct-19	13-Oct-20	454																																				
00-PU-1300	Exit 118/Fontain Project Stakeholder Mee	1	1	16-Oct-19	17-Oct-19	14	◆ Exit 118/Fontain Project Stakeholder Meeting #1																																								
00-PU-1900	Rio Mills Project Stakeholder Meeting #1	1	1	07-Nov-19	08-Nov-19	55	◆ Rio Mills Project Stakeholder Meeting #1																																								
00-PU-1500	250/151 Project Stakeholder Meeting #1	1	1	14-Nov-19	15-Nov-19	361	◆ 250/151 Project Stakeholder Meeting #1																																								
00-PU-1700	20/649 Project Stakeholder Meeting #1	1	1	21-Feb-20	24-Feb-20	420	◆ 20/649 Project Stakeholder Meeting #1																																								
00-PU-1400	Exit 118/Fontain Project Stakeholder Mee	1	1	04-Mar-20	04-Mar-20	44	◆ Exit 118/Fontain Project Stakeholder Meeting #2																																								
00-PU-2000	Rio Mills Project Stakeholder Meeting #2	1	1	11-Mar-20	11-Mar-20	85	◆ Rio Mills Project Stakeholder Meeting #2																																								
00-PU-1600	250/151 Project Stakeholder Meeting #2	1	1	25-Mar-20	25-Mar-20	472	◆ 250/151 Project Stakeholder Meeting #2																																								
00-PU-1100	Exit 124 Project Stakeholder Meeting #1	1	1	15-May-20	18-May-20	34	◆ Exit 124 Project Stakeholder Meeting #1																																								
00-PU-1800	20/649 Project Stakeholder Meeting #2	1	1	22-Jun-20	22-Jun-20	534	◆ 20/649 Project Stakeholder Meeting #2																																								
00-PU-1200	Exit 124 Project Stakeholder Meeting #2	1	1	13-Oct-20	13-Oct-20	144	◆ Exit 124 Project Stakeholder Meeting #2																																								
<b>WBS: UPC 111814 - I64 Exit 124 Interchange Improvements</b>							943	943	22-Jul-19	29-Mar-23	0																																				
<b>WBS: Environmental</b>							464	464	22-Jul-19	14-May-21	0																																				
01-EN-0500	Wetland Delineations and USACE JD	85	85	22-Jul-19	18-Nov-19	197	■ Wetland Delineations and USACE JD																																								
01-EN-0700	Cultural Resources Clearance	85	85	22-Jul-19	18-Nov-19	349	■ Cultural Resources Clearance																																								
01-EN-0800	Hazardous Materials - Phase 1 ESA	85	85	22-Jul-19	18-Nov-19	349	■ Hazardous Materials - Phase 1 ESA																																								
01-EN-0900	Threatened and Endangered Species C	85	85	22-Jul-19	18-Nov-19	349	■ Threatened and Endangered Species Clearances																																								
01-EN-0400	NEPA Reevaluation	20	20	10-Apr-20	07-May-20	130	■ NEPA Reevaluation																																								
01-EN-0100	EQ 201 - Right of Way Reauthorization	30	30	25-Sep-20	09-Nov-20	30	■ EQ 201 - Right of Way Reauthorization																																								
01-EN-0300	EQ 200 - PS&E Authorization	30	30	25-Sep-20	09-Nov-20	130	■ EQ 200 - PS&E Authorization																																								
01-EN-0600	Water Quality Permit Application and Per	130	130	25-Sep-20	02-Apr-21	0	■ Water Quality Permit Application and Permit Acquisition																																								
01-EN-0200	EQ 103 - Environmental Certification	30	30	02-Apr-21	14-May-21	0	■ EQ 103 - Environmental Certification																																								
<b>WBS: Geotechnical</b>							232	232	22-Jul-19	17-Jun-20	197																																				
01-GT-0100	Permits and Property Notification	30	30	22-Jul-19	30-Aug-19	272	■ Permits and Property Notification																																								
01-GT-0200	Boring Layout/Utility Clearances	30	30	22-Jul-19	30-Aug-19	272	■ Boring Layout/Utility Clearances																																								
01-GT-0300	Drill Borings and Field Work	45	45	19-Dec-19	21-Feb-20	197	■ Drill Borings and Field Work																																								

■ Actual Work   
 ■ Critical Remaining Work   
 ▼ Summary  
■ Remaining Work   
 ◆ Milestone

















Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	Q												Q																								
							M	J	Jul	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M
<b>WBS: UPC 111730 - US Route 250 and Route 151 Roundabout</b>							357	▼ 07-Oct-21, WBS: UPC 111730 - US Route 250 and Route 151 Roundabout																																			
<b>WBS: Environmental</b>							344	▼ 30-Sep-20, WBS: Environmental																																			
04-EN-0500	Wetland Delineations and USACE JD	85	85	22-Jul-19	18-Nov-19	385	▶ Wetland Delineations and USACE JD																																				
04-EN-0700	Cultural Resources Clearance	85	85	22-Jul-19	18-Nov-19	535	▶ Cultural Resources Clearance																																				
04-EN-0800	Hazardous Materials - Phase 1 ESA	85	85	22-Jul-19	18-Nov-19	535	▶ Hazardous Materials - Phase 1 ESA																																				
04-EN-0900	Threatened and Endangered Species C	85	85	22-Jul-19	18-Nov-19	535	▶ Threatened and Endangered Species Clearances																																				
04-EN-0400	NEPA and 4(f) Reevaluation	20	20	01-Oct-19	28-Oct-19	490	▶ NEPA and 4(f) Reevaluation																																				
04-EN-0600	Water Quality Permit Application and Per	150	150	20-Jan-20	18-Aug-20	344	▶ Water Quality Permit Application and Permit Acquisition																																				
04-EN-0100	EQ 201 - Right of Way Reauthorization	30	30	09-Mar-20	20-Apr-20	399	▶ EQ 201 - Right of Way Reauthorization																																				
04-EN-0300	EQ 200 - PS&E Authorization	30	30	09-Mar-20	20-Apr-20	459	▶ EQ 200 - PS&E Authorization																																				
04-EN-0200	EQ 103 - Environmental Certification	30	30	18-Aug-20	30-Sep-20	344	▶ EQ 103 - Environmental Certification																																				
<b>WBS: Geotechnical</b>							428	▼ 14-Apr-20, WBS: Geotechnical																																			
04-GT-0100	Permits and Property Notification	30	30	22-Jul-19	30-Aug-19	458	▶ Permits and Property Notification																																				
04-GT-0200	Boring Layout/Utility Clearances	30	30	22-Jul-19	30-Aug-19	458	▶ Boring Layout/Utility Clearances																																				
04-GT-0300	Drill Borings and Field Work	45	45	15-Oct-19	18-Dec-19	428	▶ Drill Borings and Field Work																																				
04-GT-0400	Laboratory Testing for Soil Borings	40	40	29-Oct-19	26-Dec-19	428	▶ Laboratory Testing for Soil Borings																																				
04-GT-0500	Draft Geotechnical Report	45	45	19-Nov-19	24-Jan-20	428	▶ Draft Geotechnical Report																																				
04-GT-0600	QA/QC Report	10	10	27-Jan-20	07-Feb-20	428	▶ QA/QC Report																																				
04-GT-0700	VDOT /FHWA Review of Preliminary Rep	21	21	08-Feb-20	28-Feb-20	612	▶ VDOT /FHWA Review of Preliminary Report																																				
04-GT-0800	Revise and Update Final Geotechnical R	7	7	28-Feb-20	10-Mar-20	428	▶ Revise and Update Final Geotechnical Report																																				
04-GT-0900	QA/QC Final Geotechnical Report and R	10	10	10-Mar-20	24-Mar-20	428	▶ QA/QC Final Geotechnical Report and Recommendations																																				
04-GT-1000	VDOT /FHWA Review of Final Geotechni	21	21	25-Mar-20	14-Apr-20	614	▶ VDOT /FHWA Review of Final Geotechnical Report																																				
04-GT-1100	Final Geotechnical Report Approval	0	0	14-Apr-20		428	▶ Final Geotechnical Report Approval																																				
<b>WBS: Incidental Survey</b>							463	▼ 10-Jan-20, WBS: Incidental Survey																																			
04-IS-0100	Property Owner Survey Letters (covers al	30	30	22-Jul-19	30-Aug-19	380	▶ Property Owner Survey Letters (covers all field investigations)																																				
04-IS-0200	Establish project controls	10	10	02-Sep-19	13-Sep-19	380	▶ Establish project controls																																				
04-IS-0300	Perform Incidental Survey and Update B	25	25	16-Sep-19	21-Oct-19	380	▶ Perform Incidental Survey and Update Base Survey																																				
04-IS-0400	Survey Wetland Stakeout	20	20	19-Nov-19	18-Dec-19	428	▶ Survey Wetland Stakeout																																				
04-IS-0500	Locate Borings	15	15	19-Dec-19	10-Jan-20	463	▶ Locate Borings																																				
<b>WBS: 30% Design</b>							362	▼ 30-Oct-19, WBS: 30% Design																																			
04-30-0100	Roadway Design	35	35	12-Aug-19	27-Sep-19	343	▶ Roadway Design																																				
04-30-0200	Drainage / Stormwater Mgt/ Erosion and	30	30	12-Aug-19	20-Sep-19	348	▶ Drainage / Stormwater Mgt/ Erosion and Sediment Control																																				
04-30-0300	Preliminary Drainage and Stormwater Re	25	25	12-Aug-19	13-Sep-19	353	▶ Preliminary Drainage and Stormwater Report																																				
04-30-0400	Preliminary Hydrology and H&HA Analys	30	30	19-Aug-19	27-Sep-19	343	▶ Preliminary Hydrology and H&HA Analysis for Stockton Creek																																				
04-30-0500	Traffic Engineering (Markings / Signs)	20	20	19-Aug-19	13-Sep-19	353	▶ Traffic Engineering (Markings / Signs)																																				
04-30-0600	Maintenance of Traffic / TMP (30%)	15	15	19-Aug-19	06-Sep-19	358	▶ Maintenance of Traffic / TMP (30%)																																				
04-30-0700	QA/QC 30% Submission	7	7	01-Oct-19	09-Oct-19	343	▶ QA/QC 30% Submission																																				
04-30-0800	VDOT /FHWA Review of 30% Plans	21	21	10-Oct-19	30-Oct-19	521	▶ VDOT /FHWA Review of 30% Plans																																				
<b>WBS: 60% Design / FI / Right of Way</b>							399	▼ 20-Apr-20, WBS: 60% Design / FI / Right of Way																																			
04-60-0100	Roadway Design	45	45	10-Oct-19	13-Dec-19	343	▶ Roadway Design																																				
04-60-0200	Drainage / Stormwater Mgt/ Erosion and	35	35	10-Oct-19	27-Nov-19	353	▶ Drainage / Stormwater Mgt/ Erosion and Sediment Control																																				
04-60-0300	Semifinal Drainage and Stormwater Rep	30	30	17-Oct-19	27-Nov-19	353	▶ Semifinal Drainage and Stormwater Report																																				
04-60-0400	Traffic Engineering (Markings / Signs)	30	30	17-Oct-19	27-Nov-19	353	▶ Traffic Engineering (Markings / Signs)																																				
04-60-0500	H&HA Analysis and Report for Stockton C	30	30	17-Oct-19	27-Nov-19	353	▶ H&HA Analysis and Report for Stockton Creek																																				
04-60-0600	Maintenance of Traffic / TMP / WZTIA (60	35	35	17-Oct-19	06-Dec-19	348	▶ Maintenance of Traffic / TMP / WZTIA (60%)																																				
04-60-0700	Preliminary Design Retaining Walls / Win	35	35	17-Oct-19	06-Dec-19	348	▶ Preliminary Design Retaining Walls / Wing Walls / Incidental Structures																																				

█ Actual Work   
 █ Critical Remaining Work   
 ▼ Summary  
█ Remaining Work   
 ◆ Milestone















