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Response to Request for Proposals

SKIFFES CREEK CONNECTOR

James City County, Virginia

State Project No.: 0060-047-627, P101, R201, C501, B619, B620
Federal Project No.: STP-5A03(455), STP-5A03(972)
Contract ID Number: C00100200DB104

November 5, 2019

VOLUME I TECHNICAL PROPOSAL

Submitted By:

SHIRLEY
CONTRACTING COMPANY, LLC

In Association With:

Dewberry

4.1 - Letter of Submittal

SHIRLEY
CONTRACTING COMPANY, LLC

November 5, 2019

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

Re: Skiffes Creek Connector
James City County, Virginia
Contract ID Number: C00100200DB104
4.1 Letter of Submittal

Dear Ms. Mudgade:

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

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

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

4.1.5 - Principal Officer: Michael E. Post, Chief Executive Officer, Shirley Contracting Company, LLC, 8435 Backlick Road, Lorton, VA 22079, 703.550.8100 (P).

4.1.6 - Final Completion Date: October 27, 2022

4.1.7 - Unique Milestone Date: Open Skiffes Creek Connector to Traffic - June 29, 2022

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

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

4.1.10 - DBE Participation Goal: Shirley commits to achieving a 13% DBE participation goal for the entire value of the contract.

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

Sincerely,

Garry A. Palleschi
Vice President

4.2 - Offeror's Qualifications

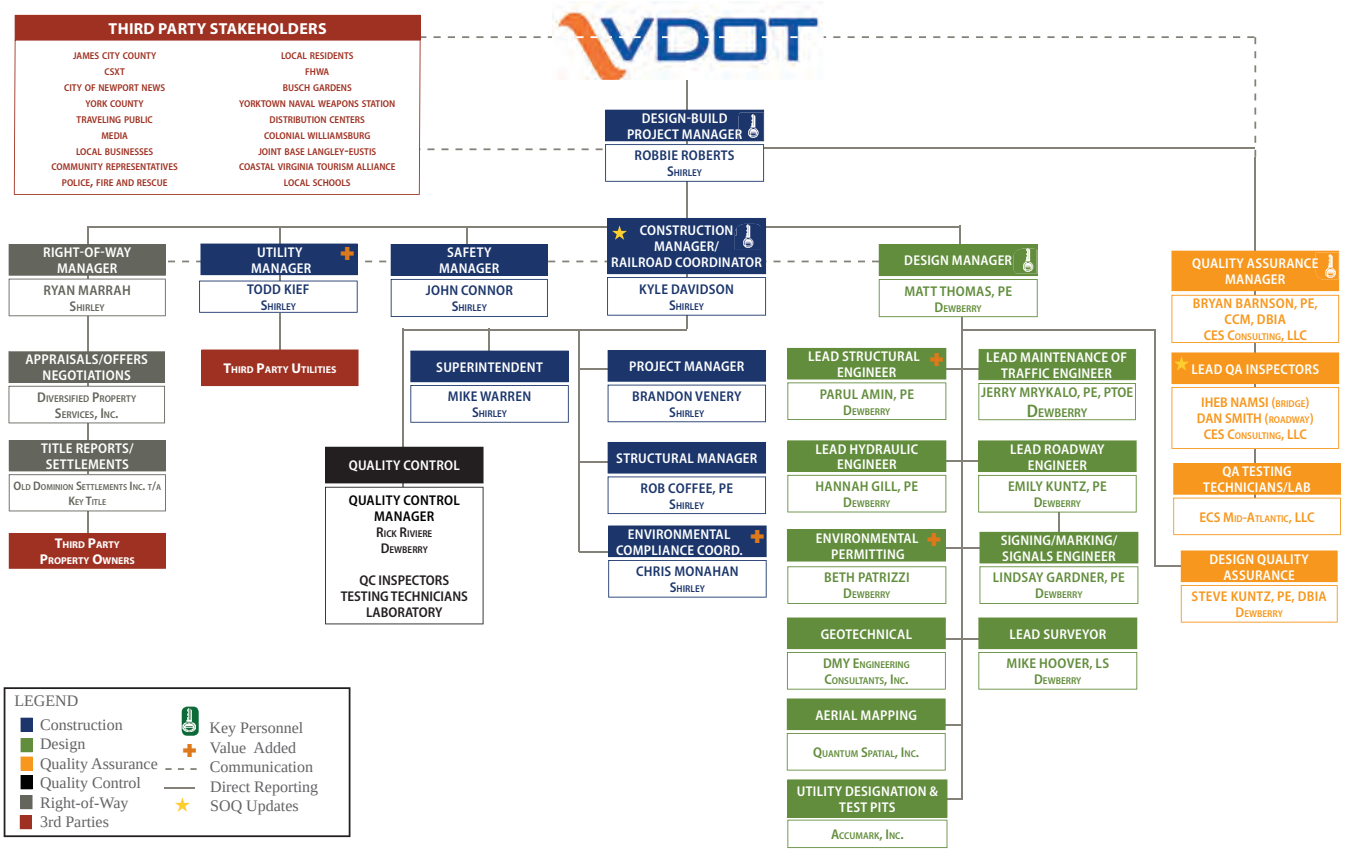
4.2 Offeror's Qualifications

4.2.1 Confirmation

We confirm that the information contained in our Statement of Qualifications (SOQ) remains true and accurate in accordance with Part 1, Section 11.4. As required by Part 2 Section 1.6 of the RFP, we have assigned our Construction Manager, Kyle Davidson to also serve as the Railroad Coordinator. (Note: Part 2, Section 1.6 requires a Utility Coordinator. Our Team included a Utility Manager as a Value Added personnel in our SOQ, therefore no changes are required.) In accordance with Part 2 Section 2.14.3 of the RFP, we are identifying the two required Lead QA Inspectors for the Project. The proposed additions to our organizational chart were approved by VDOT on October 31, 2019.

4.2.2 Organizational Chart

The Project Organizational Chart below identifies the "chain of command" and major functions to be performed and their reporting relationships in managing, designing and constructing the Project, including quality control/quality assurance. As there is no change to any functional relationships among the participants since the SOQ submittal, an updated narrative is not required.



4.3 - Design Concept

4.3 Design Concept

Introduction

Our Team's approach to developing our Conceptual Design and Technical Proposal is based on a complete review of the Request for Proposal (RFP) documents and requirements along with numerous visits to the Project site. It also focused on incorporating our knowledge and experience gained from working on the I-64 Capacity Improvements – Segments I and III Projects within the vicinity of this Project. While our Design Concept meets all requirements of the RFP, the enhancements we have incorporated achieve the following goals:

- Minimize environmental impacts and risk of unauthorized discharges, and maintain compliance;
- Reduce right-of-way (ROW) and easement impacts;
- Decrease long-term maintenance and inspection costs;
- Improve safety to the traveling public, construction and inspection staff;
- Assure early completion and earning the maximum incentive; and
- Reduce impacts to the traveling public during construction.

In addition to achieving the goals identified above, our Team's concept also:

- Meets or exceeds all requirements listed in the Design Criteria Table;
- Indicates that the limits of construction, including stormwater management facilities, are within the existing/proposed right-of-way limits shown in the RFP Conceptual Plans, with the exception of permanent and temporary easements; and
- Does not include design elements that require Design Waivers and/or Design Exceptions beyond those identified in the RFP documents.

Throughout the procurement phase of this Project, our Team's collaborative approach included weekly meetings to discuss the project challenges and identify solutions which address the RFP requirements and exceed the goals identified. These meetings included representatives from each discipline including roadway, structures, hydraulics, geotechnical, environmental, traffic, right-of-way, utilities, and construction. As a result, our Team identified several modifications, enhancements, and alternate concepts which were fully vetted to determine if they resulted in an enhancement to the RFP requirements. Many of these concepts were discussed in our Team's Proprietary Meeting, and based on our complete investigation and proprietary feedback from VDOT, we have incorporated nine enhancements into our Technical Proposal. These are shown in Table 1 and highlighted in our Volume II – Design Concept Plans with call-out boxes.

As part of these enhancements, we have developed two Alternative Technical Concepts (ATCs), which were presented to VDOT during our Team's Proprietary Meeting. After discussion with VDOT during the meeting and responses received from the meeting minutes, our Team included the following two ATCs within our Design Concept and are included in Table 1:

- **ATC #1**: Revised vertical profile on Route 60 to remove the need for full depth reconstruction; and
- **ATC #2**: Revised design on Route 143 to remove the need for full depth reconstruction.

Table 1 Enhancements and Benefits

Location/ Design Element	Enhancement	Project Benefit
Vertical Profile over Skiffes Creek (B619)	Lowered vertical profile by 2.5 feet	▪ Reduces amount of fill required approaching the bridge structure, thus reducing risk of settlement. ▪ Reduces length of retaining walls and steep slopes approaching the bridge. ▪ Increases public safety by minimizing off site trucking. ▪ Shortens length of bridge. ▪ Reduces height of pier. ▪ Reduces long-term maintenance costs. ▪ Decreases construction costs. ▪ Minimizes environmental impacts.
Vertical Profile between Skiffes Creek and CSX Railroad	Removed undulation and lowered vertical profile	▪ Balances earthwork between the bridges. ▪ Reduces risk of settlement. ▪ Improves rideability by providing a smooth profile between bridges as opposed to introducing additional crest/sag curves. ▪ Increases public safety by minimizing off site trucking. ▪ Increases clearance from overhead power lines.
Vertical Profile over CSX Railroad and Route 143	Shifted VPI to be centered over the CSX Railroad ROW	▪ Provides minimum vertical clearance over tracks while reducing the excess vertical clearance over Route 143. ▪ Reduces risk of settlement. ▪ Reduces length of retaining walls approaching the bridge. ▪ Reduces height of Abutment B and Pier. ▪ Increases public safety by minimizing off site trucking.
Vertical Profile on Route 60 (ATC #1)	Improved crest curve between Station 413+35 and 415+75	▪ Eliminates full depth reconstruction identified in the RFP. ▪ Allows for placement of variable depth overlay to reduce impacts to traffic during construction. ▪ Improves safety for the traveling public during construction. ▪ Removes potential for additional right-of-way impacts associated with temporary traffic shifts. ▪ Improves schedule since no additional widening or excavation is needed. ▪ Decreases construction costs.
Skiffes Creek Connector Horizontal Geometry	Provided curve widening for each of the four horizontal curves	▪ As identified by our Team at the Proprietary Meeting, incorporated widening on curves SCC_2 and SCC_3 to avoid side-swipe collisions between opposing trucks on tight horizontal curves. ▪ Implements curve widening on curves SCC_1 and SCC_4, exceeding the RFP requirements.
Right Turn Movement from Route 60 onto Green Mount Parkway	Increased the turning radius	▪ Eliminates off-tracking of design vehicles (WB-67s) turning right onto Green Mount Parkway from Route 60.
Vertical Profile on Route 143 (ATC #2)	Established profile to allow for milling and variable depth overlay	▪ Eliminates full depth reconstruction identified in the RFP. ▪ Allows for placement of variable depth overlay to ease impacts to traffic during construction. ▪ Avoids temporary pavement and/or ROW impacts to maintain four through lanes during construction. ▪ Improves schedule since no additional widening or excavation is needed. ▪ Decreases construction costs due to reduction in truck trips to remove excavated material.

Location/ Design Element	Enhancement	Project Benefit
Retaining Walls / Reinforced Slopes	Reduced total length of retaining walls / reinforced slopes by 125 linear feet	▪ Reduces long-term maintenance costs. ▪ Minimizes material deliveries. ▪ Decreases construction costs. ▪ Expedites Construction Schedule.
Bridge over CSX and Route 143 (B620)	Shifted Abutment A outside of CSX ROW	▪ Eliminates risk of settlement and impacts to existing 16" gas line. ▪ Eliminates both the RFP proposed cast-in-place concrete wall and deep foundation at Abutment A. ▪ Allows for use of MSE wall at Abutment A. ▪ Reduces CSX restrictions for Abutment A construction. ▪ Decreases construction cost. ▪ Provides schedule certainty.
Stormwater Management Approach	Optimized Design	▪ Decreases number of BMPs from five to four. ▪ Reduces long-term maintenance costs. ▪ Provides 2-7% additional efficiency to Skiffes Creek reservoir area. ▪ Reduces of runoff through infiltration.
Route 60	Optimized drainage design	▪ Reduces ROW acquisition on Parcels 003 & 004 by 0.35 acres. ▪ Minimizes utility conflicts and relocations.

4.3.1 Conceptual Roadway Plans

Completion of this Project will result in a 2-lane Urban Collector Street for approximately one mile, beginning at the existing intersection of Route 60 and Green Mount Parkway and continuing to the north to tie into Route 143 just east of the existing VDOT maintenance yard. Skiffes Creek Connector will provide local traffic with an efficient connection between Route 60 and 143 that the area is currently lacking. The Project will improve safety, aid with emergency evacuation, and smooth the transportation of goods in the area. Two new bridges will be constructed, one crossing Skiffes Creek and the other spanning the CSX Railroad and Route 143. The approved Route 143 superelevation rate Design Exceptions identified in RFP Section 2.1.4 has been incorporated into our Conceptual Plans. No additional Design Waivers or Exceptions are required by our Team's design concept.

(a) General Geometry

Skiffes Creek Connector will consist of a 2-lane undivided curb and gutter facility with one 12-foot lane in each direction. The design of the Skiffes Creek Connector, as well as Route 143 and Route 60, have been completed in accordance with the Design Criteria Table provided as Attachment 2.2 within the RFP. Skiffes Creek Connector has been specifically designed to meet the requirements of a GS-7 Urban Collector Street system with a 35 mph design speed. Route 60 and Route 143 have been designed as an Urban Principal Arterial with paved shoulders in accordance with the GS-5 geometric standard. Route 60 has a design speed of 50 mph and Route 143 was designed using a 60 mph design speed. Our Volume II - Design Concept includes information related to horizontal curve data and required superelevation rates.

In addition, a 10-foot wide shared-use Path (SUP) is provided to maintain access to the existing bus stop along eastbound Route 60 at the intersection with Green Mount Parkway.

(b) Horizontal and Vertical Alignments

Horizontal Alignments - The horizontal alignment of the Skiffes Creek Connector proposed by our Team is similar to the RFP. Our horizontal curves and superelevation rates meet the required geometric standards while remaining within the limits of the established right-of-way and environmental constraints. The

horizontal alignment along Route 143 is similar to the RFP with slight modifications to the turn lanes and tapers in order to maximize the reuse of existing pavement. The approved Design Exception for the superelevation rate of the Curve RTE143_2 on Route 143 has been incorporated into our Team's Conceptual Plans.

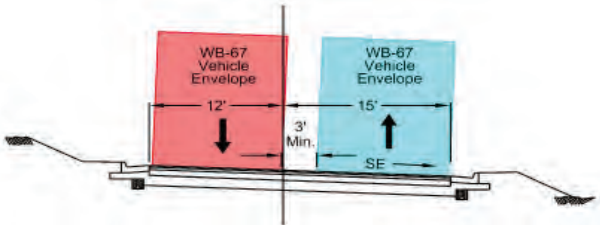


Figure 4.3.1.1 – Curve Widening Typical Section

As discussed at our Proprietary Meeting, our Team identified and proposed solutions for safety and operational issues with design vehicle off-tracking on Skiffes Creek Connector due to the tight horizontal curvature. VDOT concurred with these solutions and issued direction in an Addendum. While the Addendum only required additional pavement at two of the horizontal curves, **our Team has incorporated additional pavement at all four horizontal curves to maintain a three foot separation between opposing vehicles, as seen in Figure 4.3.1.1**. We have completed an AutoTurn analysis, which confirmed the additional pavement is adequate for safe operations and exceeds the RFP requirements. Specific widening widths at each curve are shown in our Volume II - Design Concept.

Vertical Alignments

Skiffes Creek Connector

After review of the RFP vertical alignment for Skiffes Creek Connector, our Team developed an optimized profile that meets all Design Criteria while reducing impacts and construction costs. **Our proposed profile crosses Skiffes Creek approximately 2.5 feet lower than the RFP, reducing fill volume at the abutments, minimizing the bridge substructure, and shortening the bridge length.**

Optimization of the vertical alignment between the two bridges has allowed our Team to balance earthwork in this area. The RFP concept required extensive off site fill material. However, site access will be a challenge for the portion of the Project that falls between Skiffes Creek and the CSX Railroad. After reviewing the geotechnical data available, we are confident that much of the cut material in this area will serve as suitable fill material. Therefore, **to minimize the import required and mitigate the site access challenge, we have balanced the earthwork between the B619 bridge and the B620 bridge**. This will minimize the number of trucks entering and exiting the site, thus enhancing the safety of the public. Additionally, we have improved the vertical alignment by eliminating unnecessary vertical curves. A comparison between the RFP and our Design Concept Profile is shown in Figure 4.3.1.2.

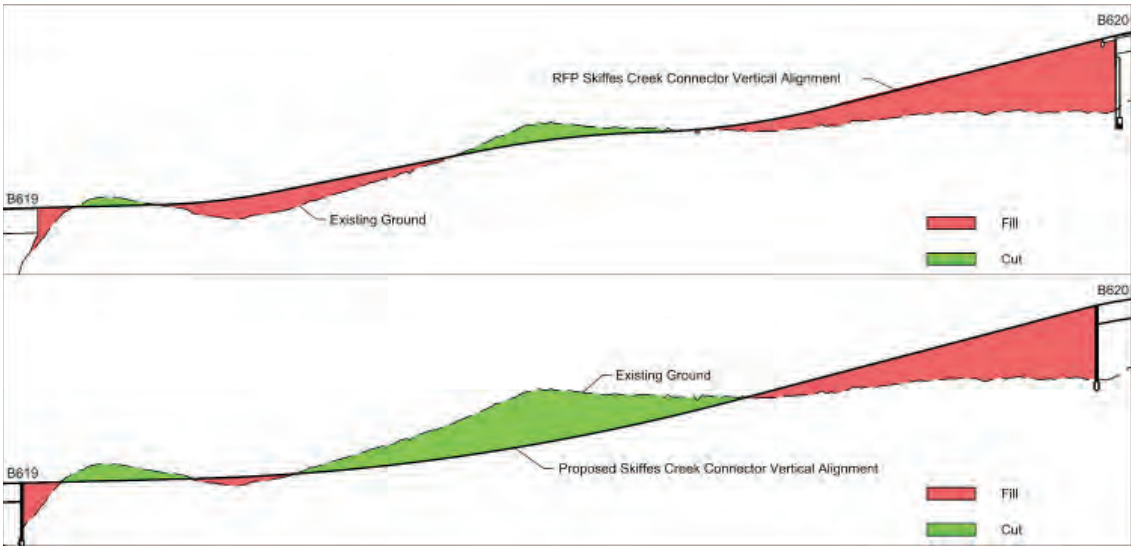


Figure 4.3.1.2 – Profile Comparison between RFP and our Team's Concept

Skiffes Creek Connector's crossing of the CSX Railroad and Route 143 has been optimized to minimize fill volumes, wall areas, and bridge substructure heights. Shifting the vertical point of Intersection (VPI) closer to the CSX Railroad and increasing both approach grades allows our Team to meet all of the required vertical clearances below the Dominion Energy transmission lines and above the railroad and roadway, while minimizing construction and long term maintenance costs. The Abutment A approach grade to the curve was increased to 5.25% compared to the RFP at 5.00%. The Abutment B approach grade to the curve was increased to 5.00% from the 4.30% shown in the RFP. This enhancement results in a reduction of import material and will limit the number of trucks entering the construction site, providing a safety benefit to the traveling public.

Route 60

The RFP required the full depth reconstruction of the existing vertical curve on Route 60 between approximate Stations 413+50 and 416+00 to improve the stopping sight distance. As discussed in the Proprietary Meeting and approved as our ATC #1, our Team is proposing to shift the crest Vertical Curve to Station 414+55 and lengthen the curve to exceed the minimum required stopping sight distance of 425-feet.

The changes in the Route 60 vertical profile remove the need for full depth reconstruction and allow the profile adjustments to be accommodated by variable depth overlays. This removes the concern for pavement drop-offs near active traffic and allows for work to be completed through off-peak lane closures. This represents a substantial benefit to the traveling public. By correcting the profile with pavement build-up and overlays, the work can be completed without the need to install concrete barrier or temporary paving that may introduce hazards to drivers and impact additional right-of-way.

Route 143

Our Team approached the pavement replacement on Route 143 in a similar manner. As discussed in our Proprietary Meeting, the RFP pavement required maintenance of four lanes of traffic. Our approved ATC #2 avoids pavement replacement by utlizing asphalt build-ups and overlays. Our proposed profile has been set in order to account for the superelevation correction of Curve RTE143_2 via the use of variable depth overlay. This was done while holding the approximate left edge of pavement along the westbound lanes. By setting the profile in this way, our Team was able to remove the need for the full depth reconstruction as shown in the RFP. Holding the elevation of the existing left edge of pavement of westbound will ensure that the variable depth overlay is kept to a minimum, allowing for easier shifting of traffic during construction. The profile has also been set using vertical geometry to provide a consistent minimum grade of 0.3% to ensure adequate drainage of the roadway.

(c) Maximum Grades

Maximum grades of each alignment are provided in Table 2. The Skiffes Creek Connector profile has been developed to balance the earthwork between the Skiffes Creek Bridge and the CSX Bridge. Our Team proposed to slightly increase the grades approaching the CSX Bridge when compared to the RFP in the Proprietary Meeting in order to optimize the profile over CSX and minimize the amount of import necessary on both approaches. VDOT concurred at the Proprietary Meeting that this increase to 5.25% was acceptable and would be negligible to the motoring public.

Table 2 Maximum Grades

Alignment	Maximum Grade
Skiffes Creek Connector	5.25%
Route 60	3.2%
Route 143	1.5%

(d) Typical Sections

The Skiffes Creek Connector will be constructed in accordance with the Design Criteria presented in Attachment 2.2 of the RFP with two 12 foot travel lanes along with standard CG-2 and CG-6 curb and

gutter. Horizontal sight distance presents a design challenge due to Skiffes Creek Connector's unique combination of tight horizontal radii, steep grades, narrow typical section, and high fills. Guardrail required to protect fixed objects or high fills has been placed to minimize impacts to the sight distance. In areas where guardrail would typically impact sight distance, our proposed design creates a larger graded bench behind the 6 inch curb to meet the required 14 foot lateral offset, thus providing adequate stopping sight distance without sacrificing driver safety. Retaining walls will be utilized in high fill areas in order to maintain the RFP's proposed right-of-way limits. Based on our Team's design and optimization of the Skiffes Creek Connector profile, **we have completely eliminated one retaining wall north of Skiffes Creek**. Locations of the remaining retaining walls are depicted in our Volume II – Design Concept.

Route 143 will be widened from its existing 4-lane undivided section to include the addition of left and right turn lanes onto the Branscome property and onto Skiffes Creek Connector without sacrificing capacity. The facility will remain an open section with an eight foot paved shoulder and graded ditch.

The scope of work on Route 60 mainly consists of turn lane improvements and the addition of a left turn and right turn onto the new Skiffes Creek Connector alignment. Additionally, the Project will provide shoulder strengthening and widening from Station 304+39.10 to Station 304+38.50 on the southern side the roadway and from Station 304+39.10 to Station 304+50 on the northern side. The facility will remain an open section with an 8 foot paved shoulder and graded ditch. A 10-foot SUP with a cross slope of 2% will be provided along Eastbound Route 60 at the intersection with Green Mount Parkway.

Additional Typical Section graphics are included in our Volume II - Design Concept and the discussion of the Bridge Typical Sections is included in Section 4.3.2.

(e) Conceptual Hydraulic and Stormwater Management Design

Storm Drainage

Storm drainage improvements will be completed along the entire limits of the Project in order to properly convey flow from the new travel lanes and shoulders to stormwater management basins, culverts, and adequate outfalls. Computations will be developed by our Team as part of the roadway design development, and will be submitted with each plan submission for review and approval prior to construction. Skiffes Creek Reservoir's watershed entirely encompasses the proposed Project site, thus requiring all impervious surfaces to drain to an acceptable BMP. Skiffes Creek Connector will utilize a curb and gutter typical section, allowing for the entirety of the impervious area to be captured within a closed drainage system and conveyed to acceptable stormwater management facilities. As depicted on our Volume II – Design Concept, operation and maintenance costs have been minimized by utilizing a single storm sewer trunk-line along Skiffes Creek Connector and the number of drop inlets have been limited by maximizing the spacing between each inlet. Our Team has completed a preliminary bridge drainage review, and neither bridge will require deck drains due to the design of the vertical alignment, the cross-slope, and the proximity of the upstream inlets. Open channels have been proposed along the perimeter of the Project where needed to convey off site flow and to protect our proposed cut slopes from erosion.

Stormwater Management

Stormwater management (SWP) will be designed in accordance with Virginia Department of Environmental Quality (DEQ) II-B Criteria. We are providing an improved stormwater management design to ensure that the water quality from the Project exceeds the City of Newport News Watershed Code of Ordinances 42-81 requirements for the Skiffes Creek Reservoir. **Our unique stormwater management approach reduces the number of proposed stormwater management BMP's from the five facilities identified in the RFP concept to four** by optimizing the type and placement of stormwater facilities. Our Team's unique design concept utilizes Dry Swales which have 2-7% greater efficiency than a wet pond design.

Dry Swales exceed the City of Newport Reservoir requirements as outlined in the Watershed Code of Ordinances 42-81.

Our design utilizes Dry Swales to provide maximum treatment while minimizing right-of-way impacts. Dry Swales do not require access roads and are smaller than other facilities that provide similar water quality treatment, thereby reducing the footprint required for stormwater facilities. Our design approach implements Dry Swales to provide more nutrient treatment than wet ponds with numerous benefits to VDOT, including:

- Dry Swales provide a smaller footprint than other BMPs;
- Reduced maintenance with removals of all retention BMPs;
- Reduces required SWM facilities;
- Provides additional 2-7% efficiency in SWM facilities draining to Skiffes Creek;
- Minimizes impact from proposed Bridge on reservoir storage area; and
- Reduces runoff through infiltration.

There are approximately four locations where concentrated flow will leave the Project site. These will be analyzed using the energy balance method for natural outfalls and manmade criteria. Our proposed Dry Swales will provide additional detention to meet water quantity requirements for the Project.

Hydrologic and Hydraulics Analysis

Our Team will perform a Hydrologic and Hydraulics Analysis and scour analysis for Bridge (B619) crossing Skiffes Creek and is further described is Section 4.3.2.

(f) Proposed Right-of-Way Limits

Since the proposed right-of-way along the Skiffes Creek Connector is generally set based on the horizontal alignment and the environmental constraints, our Team's proposed right-of-way limits are similar to what was presented in the RFP. However, based on our Team's design, **we have reduced the right-of-way and easement needs along Route 60, specifically, on Parcels 003 and 004 by approximately 0.35 acres**. Locations of these right-of-way reductions are shown in our Volume II – Design Concept.

(g) Proposed Utility Impacts

Specific details of our approach to utility conflicts, avoidance efforts and impacts are described in detail in Section 4.4.2.

(h) Other Key Project Features

Erosion and Sediment Control

To ensure environmental compliance is an integral part of our planning efforts, our Team has proactively developed a preliminary phased erosion and sediment control plan. Perimeter controls will be utilized to bypass clean off site water through or around the site area. Within the site, multiple phases of erosion and sediment control will be required to treat the runoff prior to leaving the site. Due to right-of-way constraints, we will be unable to construct temporary sediment basins. Therefore, we plan to direct the majority of the flow to strategically placed temporary sediment traps throughout the site, in addition to perimeter controls. All proposed permanent storm water management facilities will be built in the final stage of construction, allowing us to stabilize the constructed slopes, install inlet projection at each proposed inlet, and divert our storm sewers to outfall in temporary locations until the BMPs can be brought online. An example of our phased erosion and sediment control plans are included in Figures 4.3.1.3-5 on the following page.

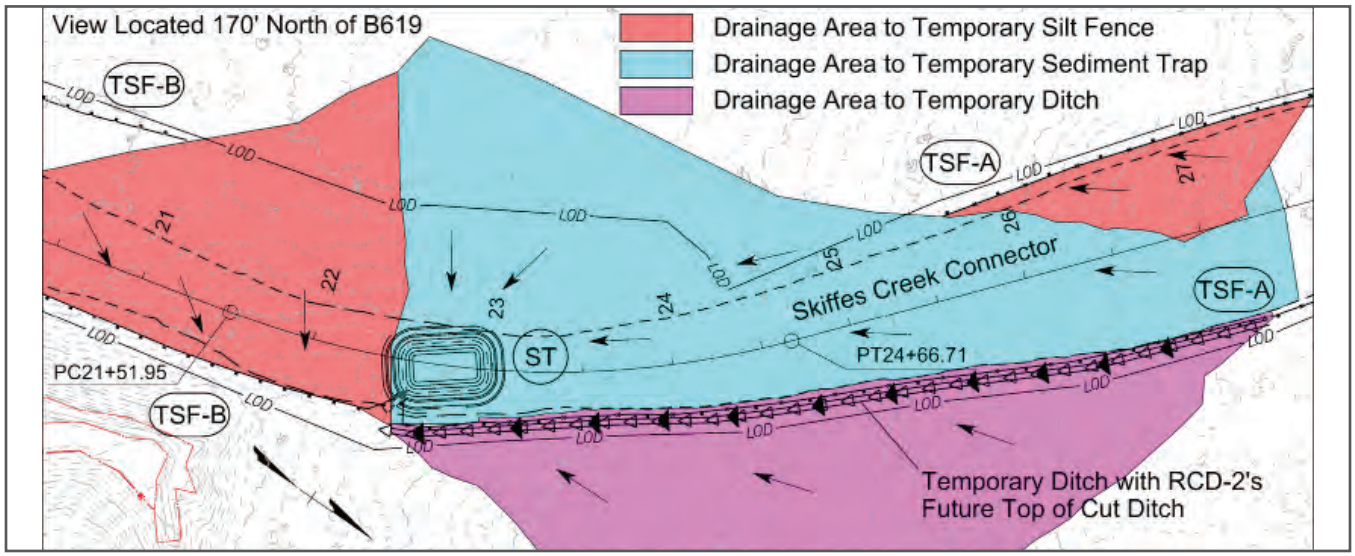


Figure 4.3.1.3 - Erosion and Sediment Control Phase 1 to be Utilized while Clearing and Initial Grading

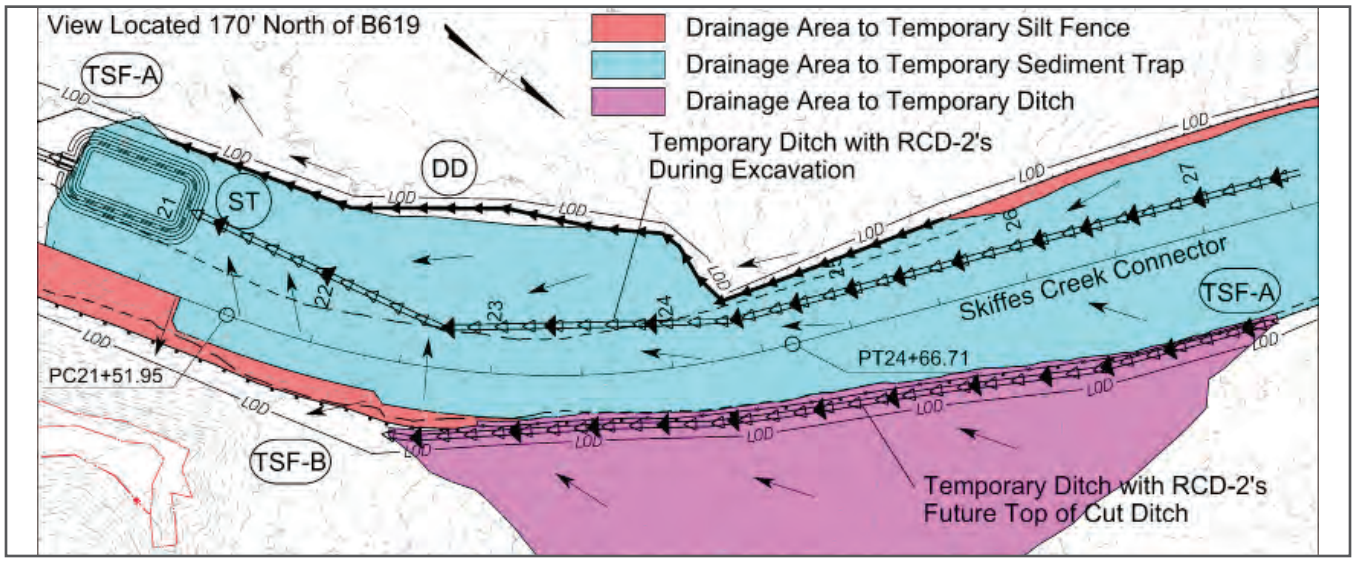


Figure 4.3.1.4 Erosion and Sediment Control Phase 2 to be Utilized During Major Grading

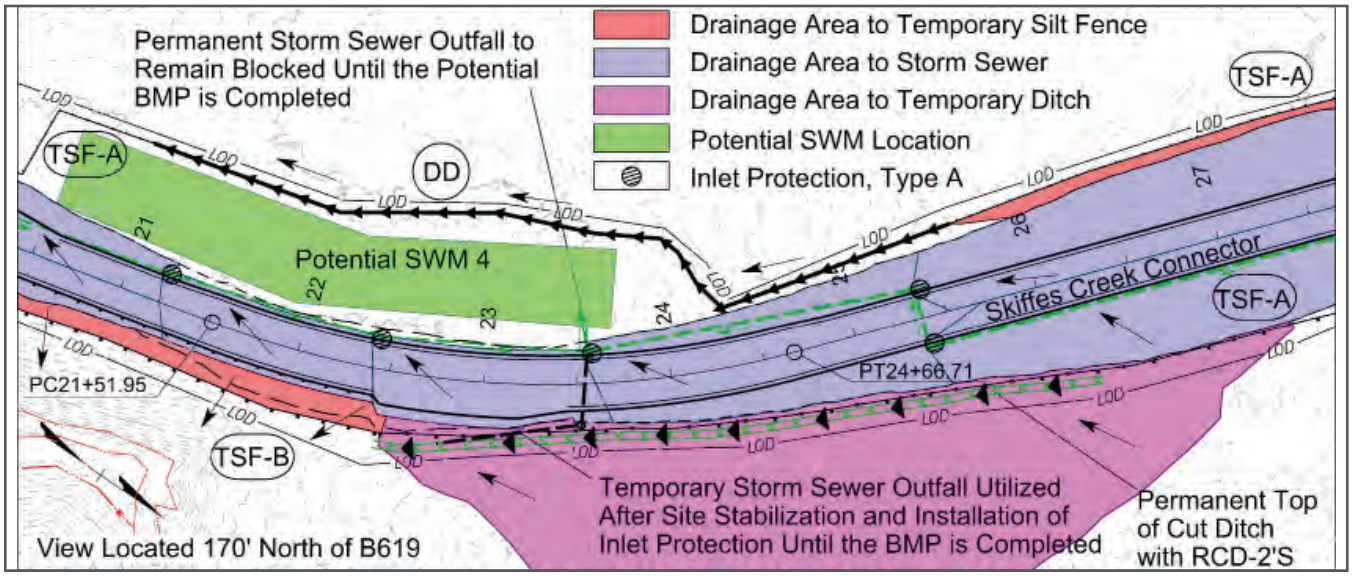


Figure 4.3.1.5 Erosion and Sediment Control Phase 3 to be Utilized while Constructing Potential SWM

Safety Enhancements

To maximize Project safety, we have proactively completed a safety study of the proposed alignment, and commit to designing and installing mitigation measures. One particular condition identified in this review are the horizontal curves on downgrades immediately beyond the crest vertical curves on each side of the bridge over CSX and Route 143. This geometric combination limits visibility of the horizontal curves, which could lead to run-off-road crashes or truck rollovers. As shown in Figure 4.3.1.6, we commit to exceeding the RFP requirements by installing both truck rollover warning signs in advance of the curve, and chevron signs on the outside of the curve.

Figure 4.3.1.6 Driver's View of Safety Enhancements

4.3.2 Conceptual Structural Plans

To ensure that our Technical Proposal is compliant with the RFP documents and achieves the goals identified for the Project, our Team reviewed the RFP documents for each bridge and evaluated multiple configurations and alternatives for each structure. Alternatives studied included different span arrangements, adjusted abutment locations, and different types of superstructure elements (prestressed concrete beams and steel girders). Based on this comprehensive analysis and review, we have developed our design approach as described below and as shown on our Team's Conceptual Structural Plans included in Volume II - Design Concept. Our Concept features numerous enhancements which reduce the initial construction and long-term maintenance costs, reduce schedule impacts and increase safety. These are summarized as follows:

Bridge Over Skiffes Creek (B619)

- Reduce bridge length from 300 feet to 252 feet.
- Reduce bridge deck area by 1,440 square feet.
- Lower profile by approximately 2.5 feet.

Bridge Over CSX and Route 143 (B620)

- Relocates Abutment A behind 16" gas line.
- Eliminates cast-in-place retaining wall at Abutment A.

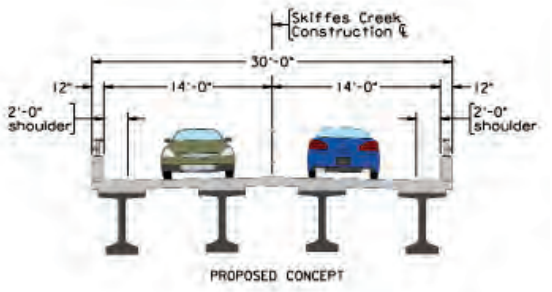


Figure 4.3.2.1 Transverse Section (B619)/B620

Bridge over Skiffes Creek (B619)

Our Team considered multiple span configurations for the Skiffes Creek Bridge. Based on our analysis, and in accordance with guidance obtained at our Team's Proprietary Meeting, we optimized the span arrangement, which improves constructability and access, reduces cost, and shortens the overall length of the bridge. Our transverse section matches the number of lanes, bridge width, number of girders, and barrier type (CPSR) required by the RFP and is shown in Figure 4.3.2.1.

We anticipate utilizing either VDOT Standard Prestressed Concrete Bulb-T beams or Grade 50 weathering steel girders for this bridge. Our Concept reduces the length of the bridge compared to the RFP concept, as shown in Figure 4.3.2.2, while still meeting the RFP requirement of the superstructure spanning the entire limits of the wetlands as discussed at our Team's

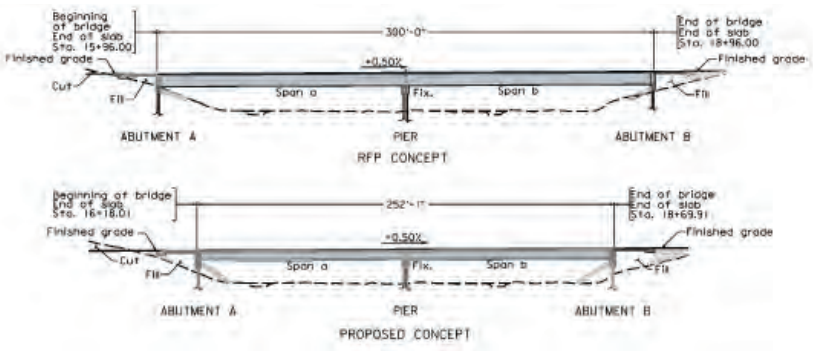


Figure 4.3.2.2 Bridge Span Comparison

Proprietary Meeting. Our Team lowered the profile of the bridge by approximately 2.5' from the RFP concept, resulting in reduced abutment and associated retaining wall heights, and reduced settlement and downdrag. This reduces material and construction costs while maintaining the freeboard between the design storm and the low chord elevation. The bridge will be designed and detailed utilizing VDOT's jointless bridge criteria and details.

Substructure

We have performed a preliminary scour analysis of the bridge to determine the impact scour has on the substructure type and foundations. Our analysis indicates the potential for moderate scour at both the abutments and the pier. We anticipate utilizing full integral abutments on a single row of piles with riprap in front. This abutment type is in full compliance with the requirements and the selection algorithm in Chapter 17 of the VDOT Manual of the Structure and Bridge Division. The use of full integral abutments has the added benefit of not requiring any abutment bearings, reducing future maintenance and inspection costs.

The pier is anticipated to be either a pile bent supported on a row of prestressed piles or a wall pier supported on steel piles. However, the final foundation type will be dependent upon the design geotechnical investigation. The pier will be designed to permit future jacking and replacement of the bearings during routine maintenance.

Environmental Considerations

Our layout also considered the environmental impact associated with the construction of this bridge. Specifically, our Team developed an approach to constructing the temporary causeway to access the pier. Since the causeway will be in place for no longer than one year, as shown in our Proposal Schedule in Section 4.6, the United States Army Corps of Engineers (USACE) will likely determine that the temporary structure will not require mitigation as a permanent impact. **Our Skiffes Creek bridge design coupled with our construction sequencing has reduced the amount of permanent impacts to Palustrine Forested wetlands by 0.56 acres. Of the 0.29 acres our Team's design anticipates to impact, 0.11 acres will be a conversion from PFO to PEM wetlands which results in a mitigation ratio of 1:1 rather than 2:1.**

Bridge over Route 143 and CSX Railroad (B620)

As with the bridge over Skiffes Creek, our Team considered multiple configurations and alternatives in order to develop the most cost effective bridge alternative while minimizing impacts to the traveling public and existing utilities. Weighing numerous factors, we determined that the 2-span configuration shown in our Team's Conceptual Structural Plans included in Volume II - Design Concept is the most cost effective way to meet all Project requirements. Our transverse section shown in Figure 4.3.2.1 matches the number of lanes, bridge width and number of girders and barrier type (CPSR) required by RFP. Our concept utilizes Grade 50 weathering steel plate girders for this bridge. The bridge will be designed and detailed utilizing VDOT's jointless bridge criteria and details.

Substructure

The proposed bridge consists of two spans supported by a multi-column pier and full-integral, cast-in-place concrete abutments behind MSE walls. The full integral abutments are supported on a single row of H-piles. Abutments and MSE walls are located, in compliance with VDOT S&B Manual for Bridges over Railroads, such that the piles are a minimum of six feet from the MSE wall face. The use of full integral abutments has the added benefit of not requiring any abutment bearings, which reduces future maintenance and inspection costs.

The Pier is anticipated to be a multi-column pier supported on steel piles. The Pier is located approximately 36'-4" from the centerline of the nearest exisiting track, and although a crashwall is only required when the pier is less than 25 feet from the centerline of a railroad track in accordance with VDOT S&B Manual, a crashwall will be provided to accommodate a future rail spur. The Pier will be designed to permit future jacking and replacement of the bearings during routine maintenance.

The RFP shows an existing gas line behind the Abutment A with considerable new fill placed above it. Based on our review of the preliminary geotechnical investigation, the weight of this fill will potentially generate unacceptable settlement of the gas line as well as making access to the gas line difficult. With the RFP concept, the gas line will likely require a protection slab or other means thus adding significantly to the construction cost as well as extending the construction duration. **As shown in Figure 4.3.2.3, our Team moved Abutment A from the RFP location to outside of the gas easement to span over the existing gas line and eliminates this risk.**

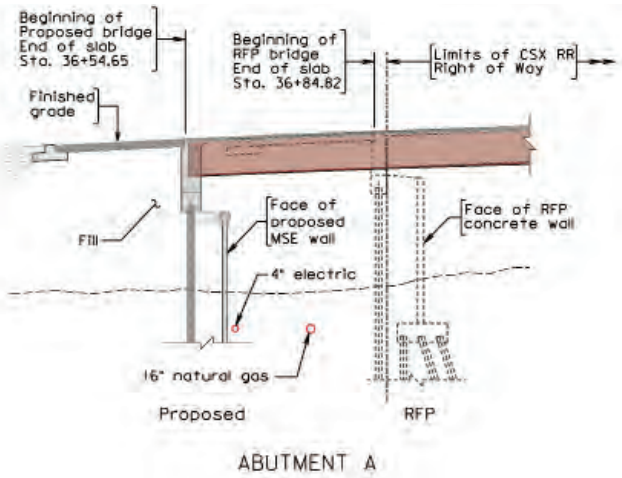


Figure 4.3.2.3 - Comparison of RFP Concept and Proposed Concept

An added benefit of moving the abutment is that it is now outside of the railroad right-of-way. This allows us to utilize a MSE wall at Abutment A in lieu of cast-in-place concrete wall shown in the RFP Conceptual Plans, further reducing the construction cost. Our Pier and Abutment B locations match the requirements of the RFP by providing the same horizontal clearance from track to Pier and maintaining the minimum 30 foot clearance from the Route 143 edge of pavement to Abutment B required by RFP Design Criteria.

Our concept reduces the height of the Abutment B and associated retaining wall by adjusting the profile and slightly increasing the grades from the RFP concept. This reduces construction cost and still provides minimum vertical clearances over existing and future tracks and Route 143. Shorter abutments and less fill reduces the magnitude of settlement and downdrag on piles, thus reducing material cost.

Geotechnical Considerations

It is anticipated that significant settlement will occur at and under the abutments of both bridges, potentially impacting the construction schedule. Based on the preliminary geotechnical information provided, surcharging the approaches behind the proposed abutments for a period of time is one option to mitigate the concern of post-construction settlement. The other impact to the bridge of anticipated settlement is the potential downdrag loads on the abutment piles. Our Team has considered several options to eliminate or greatly reduce the downdrag forces to achieve the most economical design. For more information on foundation and settlement, refer to the Section 4.4.3.

Material Selection, Maintenance, and Construction Considerations

Our Team has reviewed the RFP, Special Provisions, and the RFP Concept Plans with a goal of selecting materials which will require minimal long-term maintenance and inspection. The VDOT requirement to utilize low permeability concrete and corrosion resistant reinforcing steel greatly reduces maintenance for the proposed bridges. Reducing bridge deck area, utilizing full-integral abutments on a single row of piles behind MSE walls, and providing a jointless structure also reduces long-term maintenance and inspection costs. Construction of the CSX Bridge will be staged as necessary to maintain two lanes of traffic in both directions along Route 143 as specified in RFP.

Retaining Walls

Other than the retaining walls/MSE wall associated with the bridges, we anticipate approximately a 60-foot and a 110-foot long retaining wall near Station 52+50 along Skiffes Creek Connector on each side of the road as it approaches Route 143. Our Concept requires three walls associated with the CSX Bridge with a 145-foot long wall at the southeast corner, a 185-foot long wall at the Northeast corner, and a 60-foot long wall at the Northwest corner of the bridge. The walls at Skiffes Creek Bridge are about 35 feet and 60 feet long on the southeast and northeast side of the bridge, respectively. The walls associated with the Skiffes Creek Bridge are anticipated to be cast-in-place cantilever walls. The walls at the CSX Bridge and at Station 52+50 are anticipated to be VDOT Standard RW-3 walls.

Major Drainage Structures

The bridge over Skiffes Creek itself represents a major drainage structure. This crossing will require a Hydrologic and Hydraulic Analysis (H&HA) and a scour analysis. As part of our Team's conceptual design we have already completed preliminary analyses for this crossing and have calculated the structural elements, which will be finalized and verified as part of the final design. The bridge will span the wetlands, low velocities are expected, and scour depths will not control the bridge foundation design.

4.4 - Project Approach

4.4 Project Approach

4.4.1 Environmental Management Approach

Comprehensive Environmental Management during the design and construction phases is critical to the successful delivery of the Skiffes Creek Connector. Our approach begins with the recognition and understanding of VDOT's Environmental Performance Program (EPP) and the commitment that we make as the Design-Builder in carrying forward it's mission and creating a project culture of proactive and innovative environmental stewardship. The implementation of our Program starts with the identification of our Environmental Management Team (EMT). The EMT is a collaboration of the following:

- Experienced environmental professionals from various fields with extensive knowledge of the permitting process and the priorities and preferences of each regulatory agency;
- Roadway, drainage, and stormwater management engineers that can evaluate, anticipate, and protect environmental resources adjacent to the Project by the production of high-quality design documents and thorough, phased, erosion and sediment control plans; and,
- Dedicated and committed construction personnel that are diligent and adaptable in the installation, inspection, and maintenance of erosion and sediment controls on the Project site.

Our EMT has already begun the coordination and communication necessary to incorporate the Project enhancements described in Section 4.3. These preliminary efforts ensure the identification of Project constraints and commitments that must be addressed to minimize risks through the avoidance of Project impacts. Additionally, the EMT identifies the challenges and 'hot-points' where the installation of the appropriate level of stormwater run-off measures can maximize environmental performance.

The EMT utilizes a project-specific Environmental Risk Management approach to ensure the following are achieved:

- All necessary permits are identified at the outset;
- Project constraints and commitments are identified and surveyed, reflected on plans, staked and visibly demarcated in the field, and tracked through construction;
- Permitting is managed within appropriate timeframes and coordinated with design and construction. Hold Points are also clearly identified in the Schedule;
- Permitted impact limits are clearly defined to all parties involved;
- Project topography and existing discharge locations are surveyed early in design development to identify high-risk locations and design of the appropriate control measures for those areas;
- A robust construction compliance program is implemented, which integrates resources from VDOT, DEQ, and the Project staff to create unified response and reporting procedures;
- Construction is monitored and completed in accordance with the Contract, permits, National Environmental Policy Act (NEPA) commitments, and Project specifications; and,
- Risks are limited, and the Project Schedule is maintained.

Environmental Risk Management is achieved by implementing the following management concepts throughout design and construction to ensure comprehensive integration, as shown on Table 3 on the next page:

Table 3 - Environmental Risk Management Concepts

Identify	Integrate	Educate	Coordinate	Communicate	Execute	Monitor
Identify project constraints, environmental commitments and identification of Recognized Environmental Conditions (RECs) during RFQ/RFP stage	Experienced Environmental Management Team (EMT) fully integrated into Design-Build process	Education of the Design-Build team, the public, and the contractors conducting the work	Early regulatory agency coordination and regular meetings with VDOT regarding project impacts and avoidance opportunities	Continuing communication across disciplines to ensure environmental compliance	On time installation of E&S Devices	Site visits utilizing the Environmental Constraints Mapping (ECM) paired with GIS software to monitor impacts to and limits to environmentally sensitive areas
Facilitate avoidance and minimization efforts in environmentally sensitive areas	Utilize a proactive approach to minimize impacts, create a realistic project schedule and anticipate items that have potential to cause issues	Facilitate creative and innovative solutions for performing work in an environmentally responsible manner, while assuring constructability, compliance and meeting or exceeding goals	Hold Point meetings with DB team before work surrounding environmentally sensitive areas begin and provide EMT opportunity to review upcoming field activities to mitigate potential issues	RFI's reviewed by all disciplines when minor plan or field changes are requested to ensure proposed changes will not impact existing permits	Accurate C-107 and timely repairs of issues Continuing maintenance and diligence of site Updating of SWPPP and documentation of field changes	Complete all DEQ VWP Inspections to document construction progress and timing of impacts for all permitted areas

Environmental Approach During Design

Our Team's approach during the design phase will focus on two main objectives:

- Comprehensive Environmental Permitting; and
- Effective Erosion and Sediment Control (ESC) design matching the construction phasing and sequence of work.

Environmental Permitting

From conception to completion, two of the primary challenges facing the EMT is ensuring that all required environmental permits are obtained, and that compliance with these permits is maintained throughout all construction. To fully integrate environmental concerns into the design and minimize the risk of unforeseen environmental impacts and schedule delays, an Environmental Constraints Map (ECM) has been specifically tailored to identify each environmentally sensitive area. The ECM, developed as a Microstation file, is referenced into the design files to ensure each environmentally sensitive area and constraint is easily identified by each discipline. Being able to provide the ECM to design staff early in the design process enables the Team to avoid and minimize environmental impacts as well as Project delays. An example of an ECM for the Project is shown in Figure. 4.4.1.1.

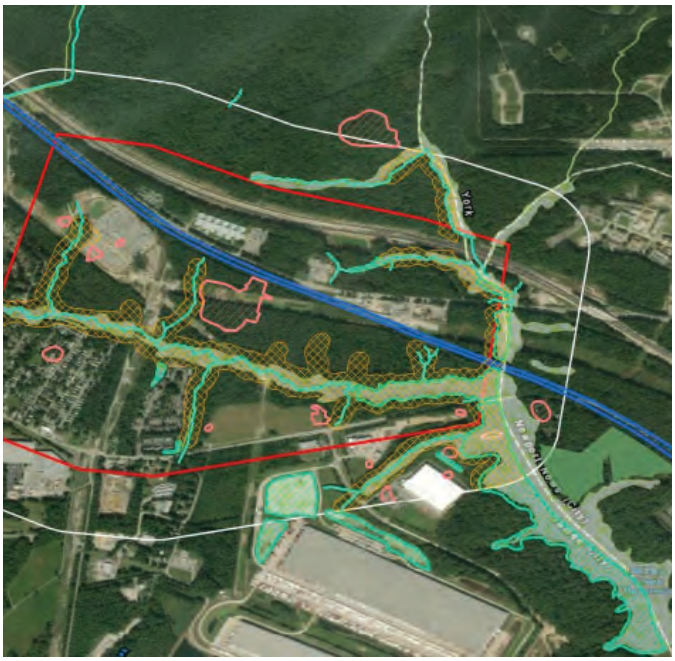


Figure 4.4.1.1 – Example of ECM currently featuring Potential Eligible Archaeological Sites (pink), Resource Protection Areas (orange), Water Features (green), and Eligible Architectural Sites (blue).

Our EMT's permitting process is borne from years of experience working with the Permitting Agencies and VDOT's Environmental Staff in Hampton Roads. Figure 4.4.1.2 on page 18 depicts our planned Environmental Permitting Process and is proven to facilitate meeting our commitments.

Bi-Weekly Coordination Meetings – From start to finish, formal meetings between design and construction staff are established on a bi-weekly basis. The EMT utilizes these meetings as an opportunity to provide experienced technical input and recommendations to ensure environmental constraints are being considered and addressed by all disciplines. Anticipated permit requirements, Project constraints and commitments are repeatedly highlighted in order to enable avoidance and minimization of environmental impacts while maintaining constructability needs.

Over-the-Shoulder Reviews – In addition to the Bi-Weekly Meetings, informal meetings occur between the EMT and design engineers. This ensures environmental constraints are being accounted for in real-time throughout the entirety of the design process. This constant communication eliminates rework during later stages of design, helping to avoid potential environmental permit modifications.

EMT Pre-Application Reviews – Prior to formal construction plan submission and environmental permit submittals, the EMT reviews the design to ensure that the environmental constraints highlighted in the Bi-Weekly and Over-the-Shoulder Meetings were properly addressed. Additionally, draft permits and environmental impact maps are presented to construction staff to ensure constructability. Table 4 identifies the environmental resources which need to be carefully accounted for in order to limit risk during design and construction.

Table 4 - Environmental Resources Accounted for During Design and Construction

Environmental Resources	Requirements	Method to Limit Risk
Threatened and Endangered Species	▪ Coordinate with USFWS, VDGIF, VDCR, & NOAA regarding the identification and impact assessment of state and federal T&E species (as noted in RFP). ▪ Project will implement a Time-of-Year Restriction if required. ▪ Comply with Special Provisions.	▪ No impacts to T&E species expected based on distance from work area, and implemented TOYR. ▪ Early coordination with USFWS, VDGIF, & DCR agencies during permitting. ▪ No bat inventory required as no structures are to be removed.
Noise Impacts	▪ Complete final design noise analysis. ▪ Receive approval from VDOT Chief Engineer and FHWA. ▪ Permanent noise mitigation if required.	▪ Review prior noise model and run preliminary model of concept design to determine compliance. ▪ Avoid significant changes in horizontal alignment or vertical profiles which would change the results of the Preliminary Noise Analysis. ▪ Inform public of survey process, results, and timelines.
Cultural Resources & Section 4(f) Resources	▪ Do not exceed the de minimus finding by VDHR. ▪ Remain within study limits noted in the RFP. ▪ Allow VDHR and consulting parties to review and comment during Project permitting process.	▪ Use ECM overlay of cultural resource study limits to avoid need for additional survey. ▪ Ensure grading & utilities do not encroach outside of study limits.

Environmental Resources	Requirements	Method to Limit Risk
Wetlands/Streams/ Water Quality Permitting	▪ Confirm wetland delineation completed by VDOT and acquire a Revised Jurisdictional Determination (JD) if required. ▪ Obtain CZMA Consistency, DEQ VWP Permit & Construction General Permit, and USACE Individual Permit. ▪ Continue to evaluate and document avoidance and minimization efforts. ▪ Provide mitigation for unavoidable wetland and WOUS impacts.	▪ At NTP conduct wetland reconfirmation and begin early agency coordination to obtain revised JD if required. ▪ Document avoidance/minimization efforts for expedited permit issuance. ▪ Pre-Application meeting with Regulatory Agencies to assess environmental impacts and address any permitting concerns.
Hazardous Materials	▪ Conduct Phase I ESA for all right-of-way acquisitions to comply with special provisions. ▪ Complete and distribute comprehensive spill prevention, control, and countermeasure (SPCC) plan.	▪ Conduct updated review of state and federal databases. ▪ Prepare and maintain SPCC with SWPPP ▪ Obtain access to Phase II properties early if required.

Regulatory Agency Pre-Application Meeting – After the Team has fully vetted the draft permit and impact limits, a meeting with the Virginia Department of Environmental Quality (DEQ), the Army Corps of Engineers (USACE), and any other interested agencies will be scheduled. During this meeting, impact limits based on design plans will be reviewed and comments addressed. Previous Pre-Application Meeting topics have focused on potential schedule delays, such as Time of Year Restrictions and protocol involving Compliance Self-Reporting. We have found that this approach ensures the submission of a complete application and expedites the permitting process, since each agency can comment on the information presented and provide any recommendations prior to submittal.

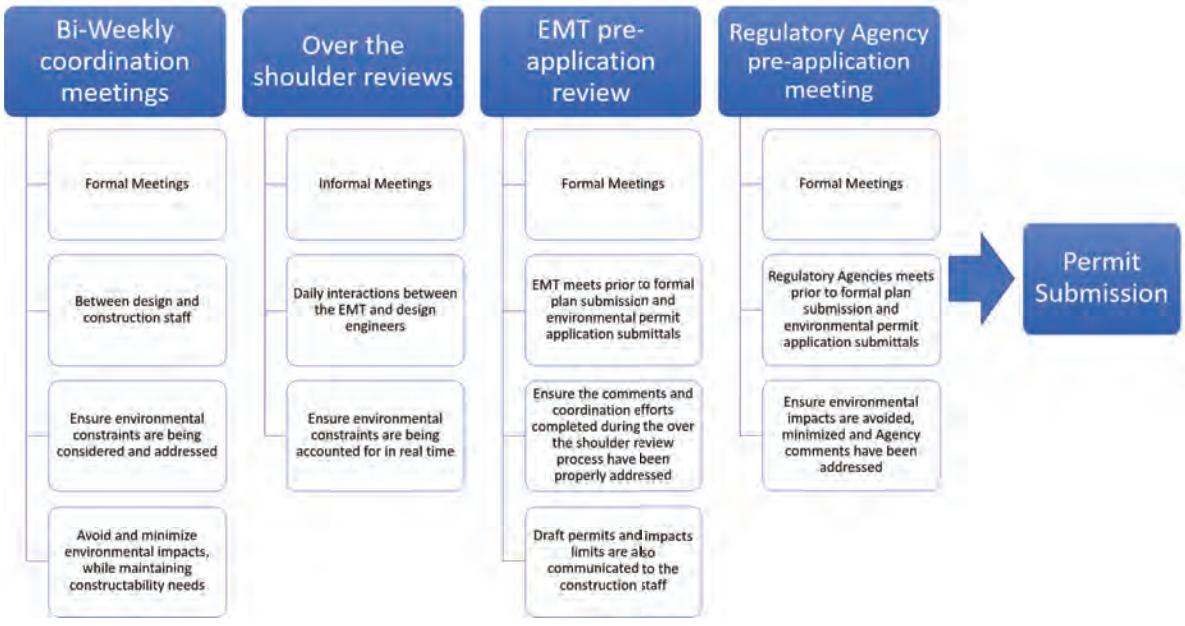


Figure 4.4.1.2 - Environmental Permitting Process (*discussed on page 16*)

Permit Submittals - Necessary environmental permit applications will only be submitted after the Pre-Application Meeting, 60% design, and utility field inspection (UFI) plans have been vetted. Submission at 60% design assures constructability and eliminates conflicts with utility relocations. This reduces the potential for delay of permit approvals and future permit modifications.

Based on the preliminary coordination efforts by our Team, it is anticipated that the Project will require a DEQ General Permit and a USACE Individual Permit. The need for a Virginia Marine Resource Commission (VMRC) permit is not anticipated due to Skiffes Creek having no tidal connection, and a drainage area of less than 5 square miles. EMT review of our initial design concept as compared to the RFP, results in a reduction of environmental impacts as follows in Table 5:

Table 5 - Reduction of Environmental Impacts

	VDOT	Shirley Team	% Reduction
Wetland Impacts	.85 AC	.35 AC	41%
Stream Impacts	673 LF	75 LF	88%

Erosion and Sediment Control Design

Consistent with our approach on the I-64 Capacity Improvements - Segment III Project, our Team will develop ESC plans which are phased to match construction staging. By developing ESC plans which match construction sequencing (as opposed to traditional two-phase plans), inspections of devices can be completed simply by understanding exactly which stage of construction is underway and which phase of ESC measures need to be installed at that time. An example of these ESC Plans are detailed in Section 4.3. Use of more robust devices, such as super silt fence instead of silt fence, will ensure any sediment runoff is controlled within the Project limits, avoiding undesired downstream impacts.

Skiffes Creek Connector has several outfalls that drain immediately upstream of the Skiffes Creek Reservoir and directly above Skiffes Creek introducing unique environmental design challenges. These challenges are further complicated by the types of soils within and surrounding the Project limits. Any runoff from the Project site has the immediate impact of degrading water quality, resulting in at least turbid water and potential sediment deposition in Skiffes Creek and Skiffes Creek Reservoir. Sediment deposition would result in increased impacts to wetlands and waters, potentially requiring additional permit approvals and modifications, as well as requiring documentation of unpermitted impacts.

Environmental Approach During Construction

During construction, our EMT will coordinate closely with the permitting agencies to ensure permit requirements are met, construction monitoring is completed efficiently and effectively, and all documentation is up-to-date. Our EMT affirms our commitment to work together to achieve the following objectives:

- 100% environmental protection and compliance while building and maintaining environmental protection measures;
- Ensure the utilization and maintenance of appropriate environmental protection measures, using sound judgment and teamwork;
- Maintain a “green” status for the NPDES/ECI permit inspections throughout the duration of the Project; and
- Recognize, report, and quickly resolve any issues that may arise.

To achieve these objectives, our Team will implement the following procedures:

Pre-Construction Coordination – Prior to any construction activities, the EMT will return to the field and reflag all non-permittted wetlands and WOUS to ensure limits are properly protected with silt fence and orange safety fence to avoid impacts. Permit impact plates, approved during the permit application process detailing the temporary and permanent impact limits, will be shared with construction staff to ensure avoidance of non-permitted areas. The areas where orange safety fence is required will be highlighted on

the Erosion and Sediment Control Plans so the limits are clearly defined during construction. Additionally, a pre-construction environmental constraints and commitments meeting will be held to educate all parties on the allowable limits of work.

Installation, Maintenance and Inspection of Erosion and Sediment Controls – Shirley takes a proactive approach with environmental compliance including the installation, maintenance and inspection of erosion and sediment (E&S) controls on its projects. Shirley crews are trained on the standards for all types of controls. Our Team familiarizes itself with the Project site, topography and existing drainage patterns in order to provide thorough constructability reviews of the design plans. Upon mobilizing, issuance of land disturbance permits and Released For Construction Plans (RFC), Shirley and its subcontractors proceed with installation of erosion and sediment controls before any land disturbance takes place. While it is common to dedicate a crew to installation and maintenance of E&S, all crews participate in these critical activities and review the areas in which they are working daily, prioritizing environmental compliance equally with safe work practices.

To support our construction teams, Shirley has established an in-house Environmental Department consisting of an Environmental Program Manager and full-time Environmental Inspectors. The Environmental Inspectors primary functions are to perform the bi-weekly C-107 inspections, update the Stormwater Pollution Prevention Plan (SWPPP), and ensure compliance with all applicable environmental permits and regulations. The Inspectors participate in inspections performed by VDOT NPDES and Environmental Compliance Inspectors, and DEQ. They provide updates to VDOT of the status of any action items identified during the inspections, fostering communication and providing assurance to VDOT that corrective action is performed in a timely manner. The Inspectors also perform routine audits to ensure that the SWPPP and all other Project documentation is properly maintained.

Shirley has an established internal Environmental Department consisting of an Environmental Program Manager and full-time inspection staff.

C-107 Compliance Checks – Completed on a twice-weekly basis, these field inspections are completed by Shirley's Environmental Inspection personnel and members of the Quality Control staff to identify deficiencies in erosion control measures and areas where additional controls may be necessary. These C-107 reviews will be combined with the monthly construction compliance inspections as necessary to ensure that compliance with the recently updated specifications released in the 2019 Construction General Permit are met.

Monthly Virginia Water Permit Inspections - Due to increased oversight and agency participation involved with environmental permit compliance, site visits during construction are vital to the success of the Environmental Management Approach. These site visits ensure permit requirements are met, erosion and sediment control measures are properly installed and maintained, and areas that may require additional attention are identified before becoming a deficiency on a formal log or C-107 review. During these site visits, the EMT will utilize iPads, paired with GIS software, and KMZ files to display the project area and jurisdictional impacts on Google Earth. Figure 4.4.1.3 shows an example of the I-64 Capacity Improvements -

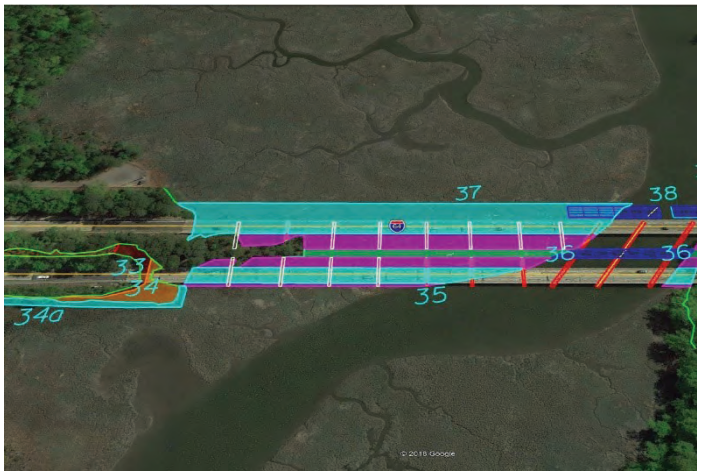


Figure 4.4.1.3 – Example of I-64 Segment III Capacity Improvements KMZ detailing impact areas over Queen's Creek. Impact number labels are utilized during VWP Permit Construction Compliance Inspections.

Segment III KMZ. By pinpointing the location of both the inspector and impacts in real time, any potential deviations from the permitted impacts can be assessed accurately and immediately. Additionally, these site visits provide the opportunity for both the Construction and Design Environmental Leads to evaluate upcoming field activities, which has proven to be effective in mitigating potential issues before they arise. This aggressive approach to environmental compliance provides additional assurances to regulatory agency staff that permit requirements are met.

VWP Compliance Reporting - To assure permit compliance, the EMT will complete the monthly VWP Permit Inspection Checklist and Biannual Construction Status Update Forms to document construction progress and timing of impacts for all permitted areas. As needed, the EMT have the ability to provide additional site visits to ensure permit compliance. All necessary reports will be submitted to each permitting agency, VDOT, QA/QC, and construction staff.

In the event that an undesired sediment release or non-permitted impact occurs during construction due to an unforeseen event (i.e. excessive rain events, construction sequencing changing, etc.), the EMT will contact the VDOT Project Manager and Regulatory Agencies to provide timely reporting, well within the 24 hour time frame as required per the VWP Permit. Contact with these agencies will be completed efficiently and effectively, identifying and implementing appropriate corrective action measures in the field. Having this localized experience with the Project area and local regulatory officials, the EMT is fully prepared to relay self-reporting instances to both State and Federal agencies to ensure compliance with all Environmental Permits.

4.4.2 Utilities

Approach To Utility Coordination, Adjustments, and Relocations

Since we launched our design-build program over 17 years ago, our Team has always viewed the utility scope as a critical, indispensable part of any successfully project. We recognized the impact that conflicts can have on every discipline including design, permitting, right-of-way, construction, and the schedule, and established dedicated in-house resources to focus solely on managing this scope. Led by our Utility Manager, our integrated Team has successfully completed more than 40 design-build projects in that timeframe, including several in the Hampton Roads District. Each of our projects has required coordination with many of the same utility companies that are present on this Project including Dominion Energy, Verizon, Level 3, Cox, MFN, AT&T, Sprint, Newport News Water Works, Hampton Roads Sanitation District, and VA Natural Gas. The focus, experience and close working relationships developed with each of these utility owners has already benefited and directly affected our design concept by enabling solutions that minimize risk and maintain schedule certainty.

Our approach to successful management of the utility scope of work encompasses the following goals:

- Accurate and timely identification of existing utilities;
- Integration with design to determine conflicts;
- Coordination with utility owners to develop conflict resolution strategies;
- Precise identification of necessary easements;
- Thorough integration with the Project Schedule and sequence of work; and
- Constant monitoring and tracking of relocation progress.

Our first and highest priority throughout design and construction is to completely avoid utility impacts. If conflicts cannot be avoided by design, we work diligently with each utility owner to minimize relocations through a combination of design and/or protection measures. Only as a last resort will we relocate utilities to eliminate conflicts with new construction.

An example of our early avoidance efforts relates to the existing 16" gas line owned by VA Natural Gas in an easement within the CSX Railroad right-of-way. As shown in the RFP, Abutment A for Bridge B620 is located between the gas line and the rail, with the gas line remaining under the approach roadway fill. After consulting with our geotechnical engineer, it was determined that the weight of the fill would cause significant settlement around the gas line. We then reviewed with the VA Natural Gas representative on several occasions to determine whether the settlement would cause issues with their facility. Because they could not definitively determine that the settlement would not cause issues with the line, our Utility Manager reviewed design alternatives with them. These options included constructing an arch-structure sleeve or a concrete protection slab, or completely relocating this portion of the line. A forth option was to simply span the line with the bridge. After considerable analysis, this was determined to be the most cost-effective, had the least schedule impact, and virtually eliminates the risk altogether, and is the basis of our Conceptual Design. It also benefits the utility by maintaining their access to the gas line.

During the preparation of this Technical Proposal, our Team's early coordination began by meeting each utility on multiple occasions to understand their facilities, review the design and schedule, and address conflicts and risk. Upon Award, these efforts will continue in earnest during final development of the design, right-of-way, permitting, scheduling, and construction sequence of work. Close coordination and early involvement will enable the utility companies to best coordinate their crew availability, maximize their production, and recognize areas of concern so that solutions can be integrated into our design and Project schedule. Figure 4.4.2.1 outlines the steps and activities we will perform to continue coordination with each utility owner once the Project is underway.

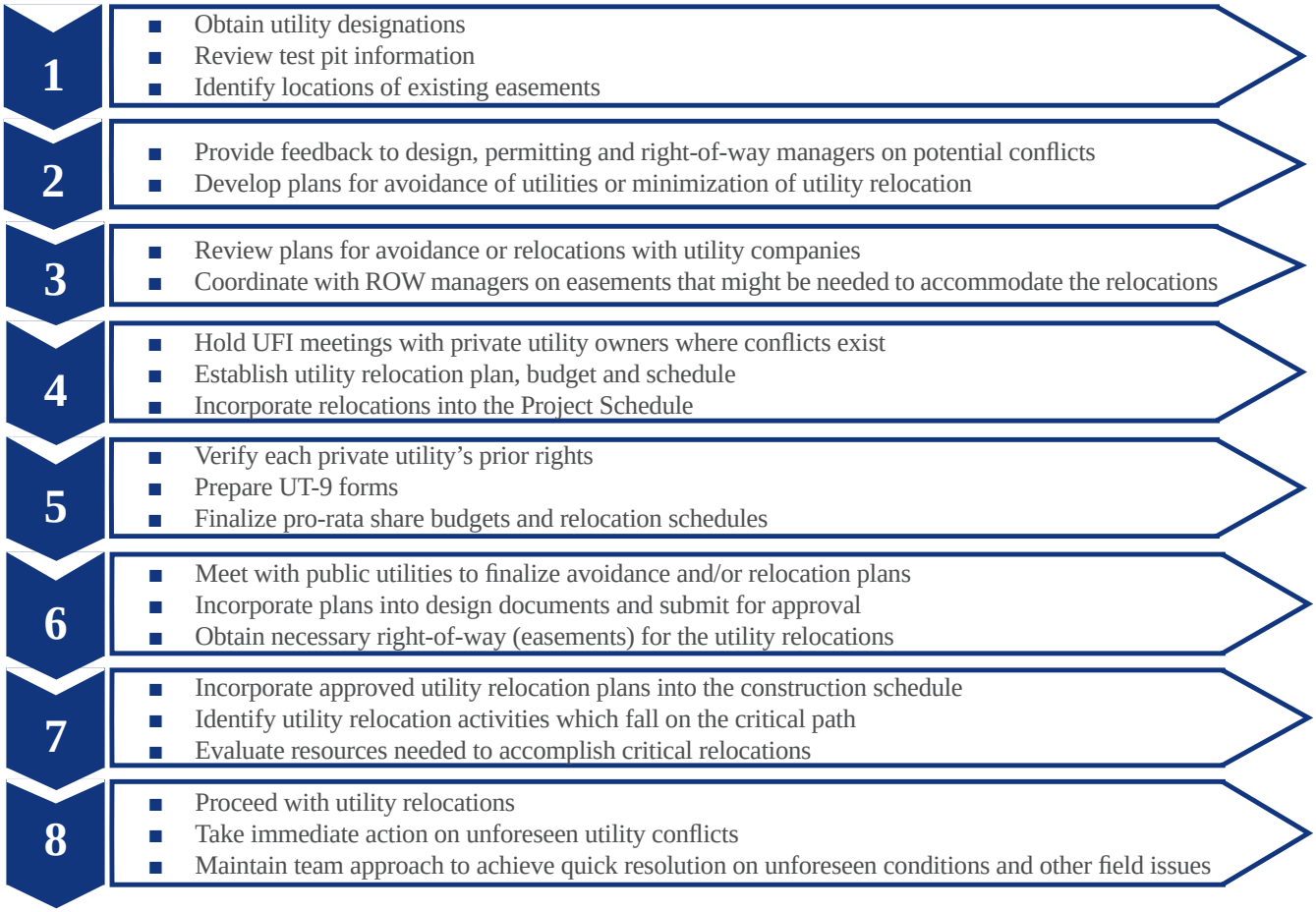


Figure 4.4.2.1 – Approach to Utility Coordination

Utility Conflicts and Solutions

As summarized in Table 5, the known utilities in conflict with the design and our strategies and solutions to mitigate them are identified.

Table 5 - Known Utility Conflicts and Mitigation Strategies

Utility/Owner Description	Approximate Location	Potential Conflict	Relocation Plan/ Mitigation Strategy
UNDERGROUND POWER/COMMUNICATION LINES			
Dominion Energy - U/G power	Rt. 60, STA 407+75	Potential conflict with road widening	Adjust In-Place
Dominion Energy - U/G power	Rt. 60, STA 412+70	Potential conflict with road widening	Adjust In-Place
Dominion Energy - U/G power	Skiffes Cr., STA 39+50	Potential Conflict with bridge fill	In-Kind Relocation
Level 3 - U/G fiber, handholes	Rt. 60, STA 402+05 RT	Potential conflict with road widening	Adjust In-Place
Level 3 - U/G fiber	Rt. 60, STA 410+00 to 411+50 RT	Potential conflict with storm sewer.	Adjust In-Place
Verizon - U/G copper pedestal	Rt. 60, STA 407+10 LT, STA 412+80 LT	Potential conflict with road widening	Adjust In-Place
Cox - U/G coax	Rt. 60. STA 409+50, STA 412+70	Potential conflict with road widening	In-Kind Relocation
Verizon - U/G copper pedestal	Rt. 60, STA 414+10 LT	Potential conflict with road widening	Adjust In-Place
Verizon - U/G fiber and copper	Rt. 60, STA 406+00 to 415+00 LT	Potential conflict with road widening	In-Kind Relocation
Verizon - U/G fiber and copper	Rt. 60, STA 406+00 to 411+00 RT	Potential conflict with road widening, storm sewer	In-Kind Relocation
MFN - U/G fiber	Skiffes Cr., STA 39+08	Potential conflict with bridge	Adjust In-Place, if necessary.
Verizon - U/G fiber	Skiffes Cr., STA 39+51	Potential conflict with bridge	In-Kind Relocation
OVERHEAD POWER/COMMUNICATION LINES			
Dominion Energy - O/H power	Rt. 60, STA 406+00 to 415+50 LT	Conflict with road widening	In-Kind Relocation
Verizon - O/H fiber and copper	Rt. 60, STA 406+00 to 415+50 LT	Conflict with road widening	In-Kind Relocation
Cox - O/H coax	Rt. 60, STA 406+00 to 415+50 LT	Conflict with road widening	In-Kind Relocation
WATER			
Newport News Waterworks - 30", valve	Rt. 60, STA 401+65 RT, STA 410+80 RT	Conflict with widening.	Adjust In-Place
Newport News Waterworks - 30"	Rt. 60, STA 410+00 to 411+50 RT	Potential conflict with storm sewer.	In-Kind Relocation
SEWER			
HRSD - 4" force main	Rt. 60, STA 410+00 to 410+25 RT	Potential conflict with storm sewer.	In-Kind Relocation (off-set)
HRSD - 24" force main manhole, valve	Rt. 60, STA 406+56 LT	Manhole located in future shoulder.	Adjust In-Place

Utility/Owner Description	Approximate Location	Potential Conflict	Relocation Plan/ Mitigation Strategy
HRSD - 24" force main	Rt. 60, STA 410+00 to 411+50 LT	Potential conflict with storm sewer.	In-Kind Relocation (off-set)
HRSD - 24" force main, valve	Rt. 60, STA 414+65 LT	Located in future RT turn lane.	Adjust In-Place
GAS			
VA Natural Gas - 16" line	Rt. 60, STA 410+00 to 411+50 RT	Potential conflict with storm sewer.	In-Kind Relocation (off-set)
VA Natural Gas - 16" line, manhole	Rt. 60, STA 411+70	Located in roadway.	Adjust In-Place
VA Natural Gas - 16" line, valves	Rt. 60, STA 412+05 RT	Located in roadway.	Adjust In-Place
VA Natural Gas - 16" line	Skiffes Cr., approx STA 36+75	Potential risk of settlement due to RFP bridge approach fills.	Avoided conflict by design - span with bridge
Va Natural Gas - Cathodic Protection	Skiffes Cr., approx STA 36+60	Potential risk of settlement due to RFP bridge approach fills.	Avoided conflict by design - span with bridge

Schedule Integration, Mitigation of Unexpected Conflicts and Delays

To manage the risk of utility conflicts impacting the schedule, our approach fully integrates this discipline into the design, right-of-way, permitting, construction, and scheduling activities. During construction, the Utility Manager constantly monitors progress of the relocations to quickly identify schedule concerns. If encountered, the schedule is reviewed for re-sequencing opportunities and the utility is tasked with taking measures to mitigate the delay impact.

During preparation of this Technical Proposal, our Team coordinated with the utility companies to develop design avoidance measures, relocation design, and relocation phasing and schedule for each impacted utility. This information, coupled with historical data captured from our past design-build experience, is integrated into our overall construction sequence and is reflected in our Proposal Schedule included in Section 4.6.

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

Redesign of Project Features: Once an unknown utility is identified, we will immediately perform an as-built survey of its location and overlay with the design to determine the extent of the conflict. Options will then be reviewed with affected disciplines to redesign elements that minimize and/or avoid the conflicts. If redesign is feasible, the Design Team will issue a formal Plan Revision to the Team.

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

Adjust in Place: If an unidentified utility is discovered during construction, our Team has successfully raised, lowered, or performed a “lift and lay” operation to eliminate the conflict. Adjusting the utility in place to eliminate the conflict without the need for a complete relocation limits the impact to the Project schedule and the utility.

Assisting in Construction of the Relocation: Another method to handle unidentified utility conflicts is assisting the utility companies with the utility relocation. We have assisted in the construction of duct banks, performed directional drilling, and drilled poles to expedite relocations. Assisting with the relocation allows our Team to control the schedule of a portion of the relocation, reducing the risk of delay.

Additional Strategies: As we monitor the progress of relocations, schedule slippages will become readily apparent. If encountered, our Utility Manager will consult with the utility to determine the nature of the delay and options for the utility to correct. Simultaneously, the Utility Manager will review the issue with the Construction Manager to identify opportunities for re-sequencing of the work, providing additional lane closures, extending work hours, supplementing resources, or any combination thereof. Additional scrutiny will be placed on the utility's performance and progress until we are satisfied that the schedule has been recovered.

4.4.3 Geotechnical Approach

Our Team has the unique ability to identify geotechnical risks and apply appropriate mitigation measures from our experience gained working on the I-64 Capacity Improvements – Segment I and Segment III Projects. In addition, our geotechnical engineer, DMY Engineering Consultants Inc. (DMY), brings geotechnical experience from the I-64 Capacity Improvements – Segment II Project. Based on this knowledge and our review of the RFP Geotechnical Data Report (GDR), we anticipate encountering several fine-grained soil layers consisting of coastal, alluvial, and fluvial deposits that will settle due to consolidation from new fills. Although current laboratory data indicates that consolidation should occur relatively quickly, these settlement periods pose a schedule risk. Recognizing the impact these soils have on the design of the bridges, slopes, and embankments, our Team's primary approach to mitigating this risk is to optimize the profiles to reduce the amount of embankment fill and therefore the amount of anticipated settlement. During final design, our Team will further refine this approach by determining limits of material removal, surcharging, or establishment of settlement periods. Our Proposal Schedule shown in Section 4.6 allows for this expected settlement period.

To address the settlement concerns at the bridges, we have evaluated multiple foundation options to support the abutments and piers. At Bridge B619, piles have been chosen and are designed to resist downdrag forces from the new roadway approach fills, which develop on any piles where the post-construction settlement of surrounding soils will exceed 0.4 inches. A more detailed analysis will be performed during the design phase, and as noted in Section 4.3, we have mitigated this concern by lowering the profile approximately 2.5 feet and reducing the height of the fills at the abutments. At Bridge B620, our concept includes MSE walls and pile-supported abutments. We have analyzed the anticipated settlement and resulting downdrag load on these piles and have the option to either install them either prior to, or after construction of the MSE fill.

Field geotechnical exploration will be performed in accordance with VDOT Materials Division's Manual of Instructions (MOI). We will perform continuous Standard Penetration Test (SPT) sampling at select soil strata and borings for embankments and bridges to accurately characterize the thickness of soil layers. Undisturbed samples of the fine-grained soils will be used for both one-dimensional consolidation testing and strength testing (direct shear and/or tri-axial shear). Within the anticipated stress ranges of the soils, the consolidation testing will be long enough to estimate secondary consolidation. In-situ Dilatometer testing (DMT) and Cone Penetrometer Testing with pore pressure measurements (CPTu) will be used at critical slopes, bridges, embankments, and major culverts. Pressure meter testing (PMT) will also be performed at select boring locations to better characterize strength and deformation parameters. At proposed infiltration facilities, in addition to the SPT borings, a temporary groundwater monitoring well will be installed to establish the long-term groundwater levels. Field infiltration testing will be performed where required.

Our Team will coordinate access to and from the site along with establishing the sequence of the subsurface exploration such that the test borings required for design of the bridges and critical slopes will be completed early in the design phase. This will allow design activities on critical elements to be advanced without impacting either the design or construction schedule. Selection of boring locations will be coordinated with design, construction, and permitting staff, ensuring that appropriate geotechnical information can be collected while avoiding environmentally sensitive areas. Borings locations will be coordinated with CSX when located near the existing railroad tracks. The majority of the field work will require track-mounted or all-terrain vehicles and mats will be used to access areas within streams and wetlands. Any drilling mud will be containerized and disposed outside of environmentally sensitive areas.

The following Table 6 summarizes potential geotechnical risks and our approach to mitigate them.

Table 6 - Geotechnical Risks and Mitigation Strategies

Risk Factor	Potential Risk	Mitigation Strategy
ROADWAY		
Roadway Subgrade	▪ High moisture, unsuitable for support of roadway without treatment. ▪ Shallow groundwater table may cause temporary rise of groundwater during construction. ▪ Limited subsurface exploration.	▪ We have evaluated in cut and at-grade sections of the project the unsuitable soils along the roadway alignment. ▪ Mechanically drying the soils to optimum moisture content. ▪ Adding a drying additive such as Lime to reduce the moisture of the soil. ▪ Install drains or a drainage layer during construction to relieve any temporary water pressures due to construction activities. ▪ Additional field exploration will be used to identify locations where unsuitable soils may be present.
Embankments and Slopes over 10 feet in height	▪ Long term settlement behavior of embankment. ▪ No consolidation testing was performed on the deeper clay soils. ▪ Limited boring data. ▪ Boring 19BH-013 at stream restoration area shows 7 feet of very low SPT material. ▪ Unsatisfactory slope stability using standard 2:1 slope. ▪ Restricted right of way conditions require fill slopes to be designed as reinforced slope or require the use of retaining walls.	▪ Dilatometer testing to better characterize the coarse-grained soils. ▪ Perform in-situ tests and laboratory testing on undisturbed samples to better characterize the strength and the deformation behavior of the underlying soils. ▪ Install temporary groundwater monitoring wells. ▪ Use 3-dimensional software to model settlement (Settle3D). ▪ Monitor settlement during construction using piezometer and settlement plates. Placement of pavement layers wait until the settlement is within acceptable threshold. ▪ The current consolidation data suggests that settlement will be relatively quick; however, surcharging and use of light weight fill material will be considered where the schedule does not permit a wait period. ▪ Prior to placement of any fill, undercut shallow soft fine-grained soils if present near the ground surface. ▪ Perform reliability analysis. ▪ Design reinforced slopes and/or retaining walls to meet both slope stability and right of way requirements.
BRIDGES		

Risk Factor	Potential Risk	Mitigation Strategy
Piles	▪ Lateral loading at abutments and piers may induce significant stresses in piles. ▪ Corrosive soils. Current testing data does not meet all requirement for evaluation of corrosion.	▪ Pile axial capacity will be calculated using in-situ data in conjunction with the SPT data. ▪ The lateral capacity will use SPT, CPTu, pressure meter, and Dilatometer testing (where available) to better characterize the soils. ▪ Additional samples will be taken for corrosion series testing where corrosion evaluation is required. Field and laboratory testing will be in accordance with special provisions. ▪ If corrosion is a risk, we will increase the pile size to allow for adequate sacrificial steel.
Abutments over CSX and Route 143	▪ Potential large and long-term settlement caused by fill and underlying clay layers (both shallow and deep). ▪ Consolidation data for shallow clays only was available in the GDR. No consolidation testing was performed on the deeper clay soils. ▪ Depending on when piles are installed, negative skin friction may develop on piles (downdrag). ▪ Potential damage to existing 16” gas line located below abutment fill in RFP Concept due to significant settlement.	▪ In-situ and undisturbed samples will be used to model settlement behavior of soils. The embankment will be modeled using analytical software (Settle3D). ▪ Light weight material may be considered within the MSE fill to reduce settlement. ▪ Consider installing piles through cans after MSE construction to eliminate or greatly reduce downdrag forces. ▪ Consider increasing size and deepening the piles to withstand downdrag forces. ▪ Move the abutment away from gas line to eliminate or greatly reduce settlement of utility. ▪ Piezometers will be used to monitor the pore pressure dissipation during embankment construction and during pile driving for both settlement and soil squeeze.
Pier at CSX and Route 143	▪ Vibrations due to pile driving.	▪ Evaluate the potential for construction and pile vibrations on the existing rail structures. ▪ Pre-bore or vibration barrier to reduce vibration concerns.
Abutments at Skiffes Creek	▪ Potential large and long-term settlement caused by fill and underlying soft clay layers (both shallow and deep). ▪ No consolidation testing performed for this bridge in the GDR. Parameters used for preliminary assessment based on CSX bridge data and local experience. ▪ Dense upper soils located above neutral plain will result in larger downdrag forces.	▪ In-situ and undisturbed samples will be used to model settlement behavior of soils. The embankment will be modeled using analytical software (Settle3D). ▪ Piezometers will be used to monitor the pore pressure dissipation during embankment construction and during pile driving for settlement. ▪ Consider increasing size and deepening the piles to withstand downdrag forces. ▪ Alternatively install pipe piles as sleeves to partially shield the piles thru the dense upper soils.
OTHER		

Risk Factor	Potential Risk	Mitigation Strategy
Stormwater Management Facilities	▪ No infiltration testing and limited long term groundwater data. ▪ Shallow groundwater will affect SWM design and performance. ▪ Slope stability of basin embankment.	▪ Perform infiltration testing at basins if infiltration is required. ▪ Install temporary piezometer to monitor long term groundwater level. ▪ Perform both drained and undrained laboratory testing on fine-grained soil samples.

4.4.4 Railroad Coordination

As noted in our Team's SOQ, construction of the new Skiffes Creek Connector Bridge over the CSX Transportation (CSXT) Railroad presents risks and challenges that need to be addressed proactively during all phases, starting with this Technical Proposal. Our approach includes assigning a full-time member of the Project Team as the Railroad Coordinator. As shown in our Organizational Chart in Section 4.2, we have designated our Construction Manager, Kyle Davidson, to serve in this position. He will communicate with CSXT's Engineer-Public Improvements representative for preliminary engineering and throughout the design and construction phases regarding submittals and work plans, as well as the daily coordination of construction activities.

Our Team has a through understanding of CSXT requirements and has built on its relationship with CSXT and its representatives at AECOM through the recent completion of several projects over CSXT facilities, including the nearby I-64 Capacity Improvements - Segment I Project, which included a bridge replacement over Industrial Park Drive and CSXT. Early in the design phase, our Team will contact the CSXT representative to review and discuss prescribed criteria for overhead bridge design and construction. At the same time, our Team will request permission from CSXT to enter the right-of-way for survey crews to confirm horizontal and vertical (top of) rail locations, perform utility designations and test pitting, and perform geotechnical investigations. During design, engineers will evaluate options to avoid impacts to CSXT facilities. The VDOT/CSXT Railroad Construction Agreement will be reviewed thoroughly so that requirements for design, reviews, and coordination are closely followed.

The Design Team will pay special attention to CSXT requirements for horizontal and vertical clearances. Designers will coordinate closely with the construction Team to ensure that temporary clearances established by CSXT are able to be maintained during construction of all substructure and superstructure elements. We will work closely with the geotechnical engineer to determine the influence zone of the pier and abutment construction to ensure that either the tracks are not impacted by construction or that proper protection, such as temporary sheeting, is designed and included in the plans. While our design has moved Abutment A further from the existing tracks than the RFP concept, we will make sure that any vibrations associated with driving piles will not have an adverse impact on the tracks or are mitigated by pre-drilling or other acceptable method determined in conjunction with the field data obtained during the design geotechnical investigation and analysis. This coordination will include evaluation of excavation required for substructure elements to determine if shoring is required, which would necessitate further design, calculations and submittal to CSXT. Through frequent constructability reviews, the Team will be well prepared to commence with detailed work plans for pile installation, pier construction, abutment construction, and beam erection.

Details for crashwalls, drainage elements and protective fencing will be developed and incorporated in initial design submittals to CSXT so that compliance with the CSXT criteria for these items can be confirmed. We will make sure that all submittals required by CSXT are reviewed by the Engineer of Record and are forwarded to CSXT's consultant for review as well. No submittal will be approved

for construction until all parties, the Engineer of Record, VDOT and CSXT (or their consultant), have reviewed and approved the submittal. The design schedule will incorporate adequate time for both VDOT and CSXT to review, which is understood to be up to forty-five days for each submission. Upon approval of the Baseline Construction Schedule during the design phase, our Team will proceed with submitting its request for a Flagman nine months or more in advance of construction over CSXT right-of-way. It is paramount that all efforts to ensure Flagman availability are made. Our Team will keep VDOT informed of all correspondence with the Railroad throughout this process.

Our Team will create and maintain a detailed Submittal Register listing design information and work plans to be submitted to CSXT for review. The submittals will include detailed information for the following items:

- Schedule
- Access and Site Security
- Ballast Protection
- Pile Driving
- Excavation & Support of Excavation
- MSE Wall Construction
- Girder Erection Plans
- Temporary Falsework
- Anti-Climb Fence
- Emergency Action Plan

Detailed Work Plans will be prepared during the design phase and submitted following approval of the bridge design. The construction Work Plans will include a map of the work site showing the CSXT tracks, CSXT right-of-way, access to piers and abutments, and locations of equipment and material staging. The map/site plan will include dimensions to the nearest track. Section details will be provided to further describe how crews will access all components of bridge construction over or adjacent to CSXT right-of-way. In the Work Plan, means for protecting CSXT facilities will be described including, but not limited to, ballast protection and safety fencing to identify the clear zone and keep workers out of the area.

Specific hoisting operations and beam erection plans will be carefully prepared and submitted to CSXT for review and approval. These plans will identify locations of lifting equipment, material staging, outrigger setup, and swing radius with dimensions shown to nearest track and established points in the work area. Computations will be prepared for all picks and will include the weight of the rigging material, 150% factor of safety and capacity charts for all components of the lifting equipment. The plans will include a narrative of the sequence of events for any hoisting operations and beam erection with the potential to foul the tracks. From experience on previous projects, our Team understands that review of the work plan, hoisting operations plan, erection procedure plan or any other submittal required by CSXT may generate questions and/or comments that need to be responded to promptly and with enough detail to not negatively impact the Project Schedule.

I-64 Capacity Improvements – Segment I bridges over CSXT & Industrial Park Drive – Newport News, VA

Following Notice to Proceed and prior to any mobilization, Railroad Protective Insurance will be provided. Based on our knowledge of rail traffic through the Skiffes Creek area and communication with local CSXT representatives, a temporary crossing of the railroad is not anticipated to be feasible without extensive planning, coordination, construction of gates to prohibit access, and limitations on when crossings would be allowed. With that, we have developed a plan to access the work area from either side of the railroad so that no track crossings will be required. Once a Flagman is identified, a preconstruction meeting including, but not limited to, the Flagman, Rail Master, Engineer, Construction Team, and VDOT will be scheduled to discuss roles and responsibilities and lines of communication during the construction phase. Our Team will establish a process for daily communication and coordination of construction activities, safety briefing,

review of train schedules and any work restrictions, and to discuss any concerns. Activities for which a Flagman must be present in order to proceed will be clearly defined. Contingency plans and protocol for circumstances such as weather interruptions or Flagman absence will be discussed. We understand that close coordination with CSXT representatives throughout design and construction is not only our duty and obligation, but critical to the Project's success.

4.4.5 Quality Assurance/Quality Control (QA/QC)

Our Team constantly refines our quality approach from project to project with a goal of reducing VDOT's staffing and oversight. Recently, we have refined our QA/QC plan and approach for VDOT's Hampton Roads District on the I-64 Capacity Improvements - Segment III Project. This current version of the process will serve as the basis for our Skiffes Creek Connector QA/QC program. Our QA/QC Plan addresses both design and construction and defines the organization, work processes, and systems necessary to provide assurance that the Project is successfully delivered by our Team.

In addition, our QA/QC Plan is in accordance with VDOT's *Minimum Requirements for Quality Assurance and Quality Control on Design-Build and Public-Private Transportation Act Projects (July 2018 QA/QC Guide)* and establishes criteria for quality control, quality assurance, owners independent assurance, verification, and oversight duties for all personnel.

Design QA/QC Approach

Our approach to design QA/QC includes implementing multiple processes with various QA/QC personnel throughout the duration of the Project. Our plan and other design documents ensure that the appropriate quality standards are included, suitable materials are selected, and work is constructed in a safe manner.

The benefits of our design QA/QC process are that it is:

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

Our Team has over 17 years of experience performing Quality Assurance/Quality Control on VDOT design-build projects.

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

Design QA/QC Plan

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

- Procedures for preparing and checking all drawings, specifications, and other design submittals including procedures to correct errors and deficiencies prior to submission;
- Processes to ensure design submittals are stamped, signed, and dated by the responsible Professional Engineer licensed by the Commonwealth of Virginia;
- Actions to confirm that the level, frequency, and methods for review of design including independent review are in compliance with VDOT's functional requirements;
- Procedures for coordinating work performed by different persons in the same or different area, fabrication shops, casting yards, and other pertinent fabrication facilities at remote locations, or in related tasks to avoid conflicts, omissions, or misalignments;

- Procedures for identifying elements of design that require special construction QA/QC attention or emphasis;
- Identification by firm, discipline, name, qualification, duty, responsibility, and authority for all personnel and/or entities responsible for design QA/QC including sub-consultants; and
- Establishment of design QA/QC functions, including scheduled activities for design QA/QC, identifying the drawings, specifications, and other design submittals that will be submitted to VDOT.

Our QA/QC Process for Deliverable Documents:

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

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

Design Review

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

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

The Design QA Manager performs design quality assurance reviews throughout the duration of the Project as set forth in the QA/QC Plan. He verifies that required quality control functions were performed properly and in conjunction with the Design Manager and directs the correction of nonconforming design practices. He ensures that:

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

Interdisciplinary Coordination

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

During design, weekly meetings are held, where details can be discussed and coordinated with the multiple design discipline leaders including roadway, structural, hydraulics, and traffic engineers. Additionally, environmental permitting, utility relocation, right-of-way acquisition, and construction staff are involved

to ensure design progresses in a manner which considers long lead items (such as environmental permits or structural steel orders), is compliant with environmental regulations (including consideration and documentation of avoidance and minimization strategies), and matches the required phasing for completion of the Project (such as advancing right-of-way or utility relocation plans on critical properties).

Potential conflicts or challenges are recognized and discussed at these meetings, and the entire project Team is able to efficiently identify alternate solutions. Coordination between disciplines continues beyond the design phase, ensuring that unforeseen situations which may arise are addressed as efficiently and collectively throughout the duration of the Project.

Constructability Review

Throughout our Team's history of working on VDOT design-build projects, we have found that regular, informal, over-the-shoulder type reviews from construction personnel work best to produce quality designs. These types of reviews are conducted at weekly internal progress meetings where Matt Thomas (and the discipline leads as appropriate) presents roll plots and/or developed plans to the construction personnel who are building particular pieces of the Project. Immediate feedback regarding the design is provided and appropriate adjustments are discussed so that unnecessarily difficult, unsafe, or out-of-schedule construction is avoided. Conversely, explanations regarding design requirements are conveyed to construction personnel, ultimately resulting in a greater overall understanding of project requirements. This type of on-the-spot review regularly occurs within our design offices between discipline leads and construction personnel, as is typical of all of our VDOT design-build work.

In addition to informal constructability reviews, Matt and our Design-Build Project Manager (DBPM), Robbie Roberts, will coordinate formal reviews of the design by construction personnel prior to each plan submission. Comments regarding the constructability of the design are provided to Matt for incorporation and/or further discussion prior to completing each design phase.

Quality Assurance and Quality Control of Design and Field Changes

Design changes, including proposed field modifications to the design, occurring after final submission and release of the Construction Documents to the field shall be subject to the same procedures stipulated in the Design QA/QC Plan. Requests for field changes shall be reviewed by the engineer that performed the original design. No field changes shall be allowed without approval by the engineer indicating compliance with applicable design standards and contractual requirements. Field changes will only be accepted following certification of the Design Manager confirming completion of all design quality assurance and quality control procedures. When the need for a field change is identified, the Construction Manager and Design Manager will discuss the requested change and determine if it is minor in nature and can be documented through a Request for Information (RFI), or if a formal plan revision is necessary to document a major field change. If a plan revision is necessary, our Team will coordinate with VDOT prior to making the change to establish the review and approval process for the subject change. Proposed plan revisions shall not be provided to stakeholders for review until after approval is obtained from VDOT. Similarly, plan revisions will not be issued for construction until approved by VDOT.

Construction QA/QC Approach

Our Team's Construction QA and QC Procedures, further described within our QA/QC Plan, have been established to conform to VDOT's Minimum QA/QC Requirements (QA/QC Guide). Our Plan provides the specific requirements of the Project and encompasses procedures for Construction Quality Assurance, Construction Quality Control, VDOT's role, Materials Testing, Inspections, Documentation, Auditing and Recovery. Schedule and coordination of QA and QC activities are addressed including Witness and Hold Points for inspection of work at critical stages. During construction, the QA and QC Teams follow the

established and approved QA/QC Plan. The QA/QC Plan is structured to ensure that QC and QA functions are performed independently and that procedures are closely followed, and confirmed through audit processes. Key elements of the Construction QA/QC Procedures are outlined in the following paragraphs.

Construction Quality Assurance

The Quality Assurance Team, led by the Quality Assurance Manager (QAM) Bryan Barnson, P.E. of CES Consulting, is independent of the Designer and Contractor and is responsible for Quality Assurance of the roadway, bridges and all other construction operations, including managing the independent QA testing technicians. The QA Team will include two lead inspectors, one for roadway and one for bridge construction. The QA Team will be present during all construction operations and ensure that the work and QC activities are performed per Contract requirements. The QAM will report directly to the DBPM and has the authority and responsibility to stop work if not performed in accordance with the Contract requirements. The QAM will review and approve monthly applications for payment and will report to VDOT if payments should be withheld for non-conformance or work that lacks the proper materials documentation.

The QAM will conduct preparatory inspection meetings for all major trades and work activities. These meetings will be held prior to the start of any new work packages and will be attended by the Construction Manager, Superintendent, subcontractors, QA staff, QC staff and VDOT. QA and QC procedures will be reviewed in detail in the meetings and Witness and Hold Points will be confirmed. QA inspectors will perform daily inspections and material testing as required by to meet all QA sampling, testing and analysis of materials on the Project. The QA Team will ensure that construction quality is verified at frequencies meeting or exceeding those required by the VDOT Construction Manual, the Materials Manual of Instructions and the QA/QC Guide. All QA inspectors will complete daily reports and QA Independent Assurance (QA IA) and verification sampling and testing (QA VST) reports for all quality assurance inspections. The QAM compares QA IA and QA VST results to the QC, Owner Independent Assurance (OIA) and Owner Verification Sampling and Testing (OVST) results for consistency. The QAM determines and certifies to VDOT whether the materials and work are compliant with the approved drawings, specifications and applicable VDOT standards and reference documents.

Construction Quality Control

The Quality Control Team, led by Quality Control Manager (QCM) Rick Riviere of Dewberry Engineers,Inc. is responsible for daily QC inspections and material testing for all construction operations as directed by the Construction Manager and reports directly to the Construction Manager. In addition to inspection of the construction activities, the QCM and QC Team are responsible for all QC sampling, testing and analysis of materials and will verify quality at frequencies meeting or exceeding the VDOT Construction Manual, the Materials Manual of Instructions and the QA/QC Guide. The QCM participates in the preparation of the QA/QC Plan, including the checklists that will be utilized by QC inspectors during the inspection process. All QC Inspection Staff will hold the applicable certifications required by the QA/QC Guide for the work they are inspecting. The inspectors will be experienced in VDOT practices and methodology and will be responsible for monitoring all work activities for the Project.

All QC staff actively inspecting and/or testing components of the Project complete an Inspector Daily Report (IDR). The IDR's are electronic diaries in accordance with VDOT guidelines and include, as an attachment, copies of all QC materials tests completed for the day's activities. Signed hard copies of the IDR's are submitted to the QCM daily for review and approval and saved to a shared drive for access and immediate review by the QAM. The QCM prepares and submits an electronic Quality Control Monthly Report which summarizes all work completed during the period, inspections, tests, materials placed, action taken for failing materials and NCR's. The QC Team will coordinate daily with the construction staff

to ensure adequate staffing, including testing technicians, are assigned for the scheduled activities. The contractor will provide both three-week look ahead schedules and an Expected Daily Activities (EDA) report to the QC Team to facilitate scheduling and coordination of testing and inspections.

QA/QC Staffing Plan

The QA/QC Team has the training and experience required to properly execute the quality program that has delivered numerous, successful projects. Our design construction and quality staff has worked both together and with VDOT for many years and will be responsible for the successful delivery of the Skiffes Creek Connector Project. This should provide both assurance to VDOT and allow the Department to minimize its oversight of the Project as it chooses. A list of QA/QC staff and duties is provided in Table 7.

Table 7 - QA/QC Staff and Duties

Design-Build Project Manager
Robbie Roberts provides supervision and administrative management of the entire project including the overall design and construction. He establishes the QA/QC program and ensures design and construction QA and QC efforts are adequate for the Project.
Design Manager
Matt Thomas, PE directs and coordinates the design process including work by subconsultants and is accountable for the Design QA/QC Plan. He is responsible for implementing, monitoring and adjusting, as necessary, the Design QA/QC Plan to ensure acceptable quality of the design work.
Design Quality Assurance Manager
Steve Kuntz, PE, DBIA is responsible for quality assurance of design elements included in the Project. Following completion of design quality control reviews, he performs a complete QA review of all design documents prior to submission to VDOT.
Construction Manager/Railroad Coordinator
Kyle Davidson directs and manages day-to-day construction operations and the construction QC. He ensures construction is in accordance with the Project requirements and will be on site full-time for the duration of construction operations.
Quality Assurance Manager
Bryan Barnson, PE is responsible for the development of and adherence to the QA/QC Plan, ensuring all work and materials as well as testing and sampling are performed in accordance with the Contract and approved construction plans and specifications..
Quality Assurance Inspections
CES Consulting, LLC will provide full-time Quality Assurance Inspectors for both roadway and bridge construction elements. There will be two lead QA inspectors, **Dan Smith** for Roadway and **Iheb Namsi** for Bridge. Additional inspectors will be assigned during peak construction months.
Quality Assurance Testing
ECS Mid-Atlantic, LLC will perform QA laboratory testing for the Project.
Quality Control Manager
Rick Riviere is responsible for construction quality control and oversees construction quality control inspection and testing activities. Rick assigns inspectors and testing technicians for each work package and monitors reporting documentation to ensure that the work was completed per Contract requirements.
Construction Quality Control Inspections and Testing
Similar to the QA staffing plan, there will be two lead Quality Control Inspectors on site full-time - one for roadway and one for bridge. Additional inspectors will be utilized when required by the Project Schedule to ensure sufficient coverage is provided at all times. A certified QC laboratory will be engaged to perform all QC laboratory tests.

4.5 - Construction of the Project

4.5 Construction of the Project

4.5.1 Sequence of Construction

The design and sequence of construction developed by our Team and presented in this Technical Proposal emphasize both safety and efficiency through all stages of construction. The sequence of work described in the paragraphs below and in our Proposal Schedule achieves the following goals:

- Ensuring the safety of the traveling public and workers;
- Maintains mobility and minimizes impact to the traveling public on Routes 143 and 60;
- Protects environmentally sensitive areas during construction;
- Complies with specific requirements for the railroad;
- Provides beneficial use of the Skiffes Creek Connector prior to Final Completion; and
- Delivers Early Completion achieving the maximum No Excuse Incentive.

As shown in Section 4.3, numerous enhancements were incorporated into the design based on input from all Project disciplines. Included among these are several construction enhancements that contribute greatly to our ability to achieve the goals described above, and are listed in Table 8 below:

Table 8 - Construction Enhancements and Benefits

Enhancements	Benefits
Early Start Design Package to allow work to commence within existing ROW.	Allows for early start of work, maximizing opportunities to both mitigate delays and achieve early completion.
ATC #1 overlays Route 60 in lieu of full depth reconstruction.	Significantly reduces lane closures required and impact to traveling public.
ATC #2 rehabilitates the pavement section on Route 143 in lieu of full depth reconstruction.	Drastically reduces lane closures required to complete the work, minimizing impact to the traveling public.
Span gas line with bridge at railroad.	Eliminates risk of settlement of the existing gas line (and potential relocation), eliminates cast-in-place wall.
Opening of Skiffes Creek Connector prior to Final Completion.	Provides beneficial use of the new road early to the public.
Sequence and scheduling of work to achieve the maximum incentives available for early completion.	Provide early completion benefiting all project stakeholders, as intended by the incentive program.

Project Work Areas

Our Sequence of Work has been developed to allow efficient execution of the Project Schedule. To facilitate this effort, the Project has been split into multiple work areas including three new roadway, two bridge, and two existing roadway work areas, as seen in Figure 4.5.1.1. By establishing distinct work areas, our construction management teams can effectively oversee and manage construction operations. This allows for the most efficient use of resources and ensures the utmost quality is achieved, while maintaining the highest levels of safety.

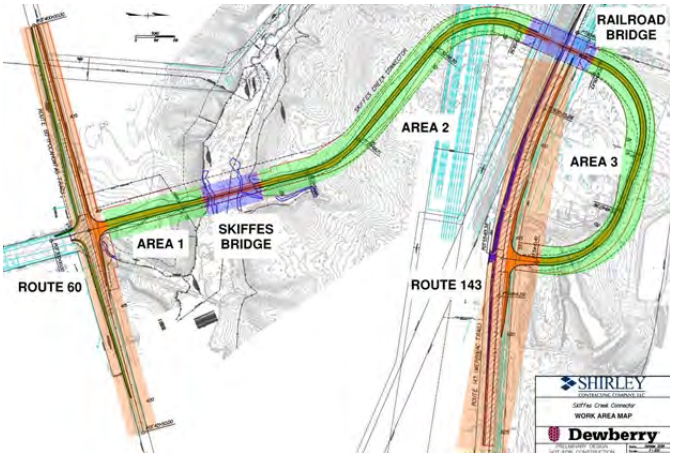


Figure 4.5.1.1 - Work Area Map

Construction Sequence

We propose three major stages of roadway construction corresponding to timelines associated with the acquisition of right of way and receipt of environmental permitting. The Stage 1 construction will consist of roadway construction work along Route 143 within VDOT ROW. The Stage 2 construction captures the new roadway work between Route 143 and Route 60 including the bridges over CSX Railroad and Skiffes Creek. The Stage 3 construction completes the placement of surface asphalt, permanent pavement markings, construction signage, final signal timings, and "Finishing" items. A brief summary of construction stages follows in Table 9.

Table 9 Construction Stages

Stage	Activity
Stage 1 Early Start Package	▪ Install maintenance of traffic devices include temporary construction signs and Portable Changeable Message Signs (PCMS). ▪ Perform Eastbound roadway improvements at Route 143. ▪ Perform utility relocations at Route 60.
Stage 2 Construction Phase	▪ Perform Westbound roadway improvements at Route 143. ▪ Perform Route 60 roadway improvements including signalized intersection. ▪ Construct new roadway through Area 1. ▪ Construct new bridge over Skiffes Creek. ▪ Construct new roadway through Area 2. ▪ Construct new bridge over CSXT and Route 143. ▪ Construct new roadway through Area 3. ▪ Construct all stormwater management components. ▪ Install new traffic signal at Route 143.
Stage 3 Final Surface Paving	▪ Complete final surface paving at Route 143. ▪ Complete final surface paving at Route 60. ▪ Install permanent pavement markings and signage.

Stage 1

Route 143 Eastbound Widening and Improvements

Our Team has developed ATC #2 to reduce the full depth pavement reconstruction along the Route 143 roadway and still achieve the RFP geometric requirements. Therefore, our Stage 1 work will consist of widening the existing pavement to accommodate the additional turn lanes and variable depth overlay to achieve proposed profiles and cross-slopes.

Since all Stage 1 work is contained within VDOT ROW, this work will be completed utilizing an early plan set and is scheduled to begin in the Fall of 2020. The work along Route 143 during Stage 1 construction will begin along the right shoulder of the Eastbound lanes. A work zone will be established utilizing temporary traffic barrier service to ensure a safe working area. The current capacity of Route 143 will not be affected during the Stage 1 construction as all four lanes will be maintained during peak hours. Access to existing facilities, including the VDOT service yard, Branscome's concrete and asphalt plant, and the Virginia Correctional Facility will always be maintained during construction activities. Utilizing the established work zone behind the temporary traffic barrier service, the variable width pavement widening will be constructed along the existing right edge of pavement. The exact pavement section will be determined upon the recommendations of the pavement analyses performed in our preliminary engineering design phase. Following completion of the pavement widening, the temporary traffic barrier service will be removed.

Once the temporary traffic barrier service is removed, variable depth milling and pavement overlay will be completed on Route 143 to correct stopping sight distance along the roadway. This operation will occur under temporary lane closures during the allowable lane closure hours defined in the RFP. After

completion of the pavement overlay, temporary pavement markings will be installed. The temporary pavement markings will shift traffic onto the widened pavement along the Eastbound side of the roadway. This configuration will facilitate the pavement widening along the Westbound direction and allow for construction access to Work Area 3 during Stage 2 construction.

Stage 2

Route 143 Westbound Widening and Improvements

Following completion of the Stage 1 work and traffic shift along Eastbound Route 143, the Westbound Route 143 work will begin. Temporary concrete barrier service will also be utilized in this phase of construction to establish a safe work zone. Access to all existing facilities will continue to be maintained throughout the duration of this stage of work. This stage of work will consist of widening the existing pavement along the right edge to create the new right turn lane. The work area will also serve as access for the new roadway construction in Work Area 3.

Route 60 Widening and Improvements

In Stage 2, the Route 60 improvements will begin. Our Team has developed ATC #1 to correct the sight distance over an existing crest vertical curve by utilizing variable depth overlay in lieu of full depth reconstruction. This stage's work will consist of the pavement widening along the existing edge of pavement and the variable depth overlays. The activities on Route 60 will begin along the Westbound lanes. The first stage will be to establish the work zone by setting temporary traffic barrier barrels and construction signs along the right edge of the Westbound lanes. The existing lanes will be maintained throughout this phase of construction. Once the work zone is established, the pavement widening along the existing edge will begin. This will create the new right turn lane as well as serve as a construction access point for the new roadway construction in Work Area 1. After the widening is completed, the pavement build-ups and overlay (ATC #1) on Route 60 will be performed during allowable lane closure hours, primarily during off-peak times, to reduce impacts to the traveling public as described in our Design Approach. The work will be coordinated so that pavement drop-offs are limited to no more than 2" in depth. Temporary wedge pavement will be utilized as necessary at the intersection of Route 60 and Green Mount Parkway to eliminate bumps until the build-ups are completed.

Roadway, Drainage, and Stormwater Facility Construction

Following the issuance of final environmental permits, clearing and grubbing activities, roadway drainage will commence for all Work Areas concurrently. All construction run-off can be controlled with E&S control devices such as check dams, silt logs, sediment traps, and inlet protections. Drainage work in Stage 2 includes construction of the required culverts and retaining walls. All necessary stormwater facilities will be constructed in the stage.

Roadway excavation and grading consists of stripping of all native topsoil. Any suitable excavation will be cut and placed in fill areas up to subgrade. In all areas, we have allowed time in our excavation activities to account for the remediation or removal and replacement of soft or unsuitable soil. Following all cut to fill operations, 4 inches of Cement Treated Aggregate (CTA) base material will be placed along with standard UD-4 underdrain. After placement of the subbase material, asphalt crews will place 2-inches of Open Graded Drainage Layer (OGDL) followed by 4-inches of Base Mix asphalt (BM-25.0). Following placement of the BM-25.0, the 2-inch Intermediate Asphalt (IM-19.0) layer will be placed. Finally, after placement of the intermediate asphalt, installation of all required guardrail, signage, and signals will occur.

Bridge Construction

Skiffes Creek Bridge – Upon approval of bridge plans, issuance of wetlands permits and environmental clearance from VDOT, our Team will construct the new two-span Bridge B619 over Skiffes Creek. Access

will be provided in the form of a temporary road from Route 60 and a temporary causeway from the Abutment A side of the creek extending across the defined wetland area, as shown in Figure 4.5.1.2. The stone causeway will provide the necessary access to install the Pier and also for setting girders for both spans. The temporary road will be designed and constructed to accommodate the trucks that will deliver girders for each span. We have coordinated with Dominion Energy to utilize their existing access road from Route 60 to Area 2, which will provide access for Abutment B construction discussed below. After the bridge decks are poured, the temporary causeway will be removed and remaining bridge work will be accessed from the deck. The causeway will be removed less than one year from installation. The activities, sequence and overall duration for the construction of this bridge are provided and described in Sections 4.6.1 Proposal Schedule and 4.6.2 Proposal Schedule Narrative of our Team's Technical Proposal.

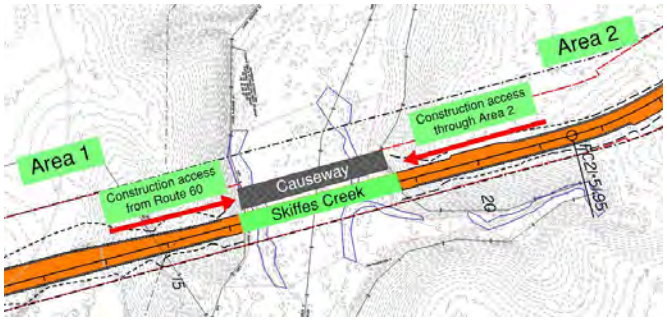


Figure 4.5.1.2 - Proposed Access to Skiffes Bridge

CSX Railroad/Route 143 Bridge – For Bridge B620 over the CSX Railroad and Route 143 our Team will implement a unique design that eliminates the settlement risk to the existing 16 inch gas line that runs parallel to the railroad. By shifting Abutment A behind the cathodic protection of the gas line, we have eliminated the roadway approach fill over the gas line. Stage 2 work will include construction of Bridge B620, working sequentially from the Abutment B along Route 143 to the Pier between the CSX Railroad and Route 143 and finally to Abutment A on the other side of the CSX Railroad.

To address the challenges of construction access to the Abutment A side of the bridge, our Team has developed two options. First is the use of the Skiffes Creek causeway described above. The second is a benefit of the relationship our Utility Manager has with Dominion Energy. During the preparation of this Technical Proposal, Dominion provided a draft agreement to be finalized upon Award, that will allow our Team to use their access road from Route 60 to their facility in the vicinity of Abutment B. This access is shown in Figure 4.5.1.3. Both of these options avoid the need for installation of a costly, time consuming, and restrictive railroad crossing to provide access from Route 143. Access for construction of the Pier and Abutment B will be from Route 143 in conjunction with our temporary traffic control setups.

Figure 4.5.1.3 - Access to Area 2

Stage 3

Final Surface Paving and Pavement Markings

Stage 3 work consists of all finish elements of the Project. In this stage, placement of the final 2-inches of Surface Mix (SM-12.5) asphalt will be completed. By deferring the placement of the surface asphalt until all other major operations have completed, our Team can ensure a smooth rideable surface free from marring from temporary pavement markings or construction activities. Following placement of the surface asphalt, the permanent pavement markings and snow plowable markers will be installed. Also, in this Stage, the final Signal timings will be completed.

Safety and Operations

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

- Training on construction safety, fall protection, first aid, rigging and trenching, and excavation;
- Support from the Safety Department and a Safety Manager assigned to the Project;
- Orientation to the Project's unique demands for all Shirley and subcontractor employees;
- Daily safety talks and review of the Safe Plan of Action for the day's activities;
- Daily safety inspections performed by members of the Project team designed to engage all workers on site to ensure safety is paramount;
- Monthly team safety meetings to review incidents and new safety topics;
- Issuance of a Shirley Dig Permit prior to any excavation activity;
- 100% Glove Policy to mitigate hand injuries; and
- Recognition of employees who consistently display a good safety attitude, follow safe work practices, and achieve safety performance goals.

For the safety of the traveling public, our Team's Transportation Management Plan (TMP), presented in the following Section 4.5.2, provides the baseline for maintaining mobility through the project with limited interaction with construction activities. The public and work zone coincide at Routes 143 and 60, and these locations will receive the appropriate temporary construction signage and delineation between existing roadway and the work zone. For the work zone setup, or any temporary lane closures allowed by the contract, the VDOT Work Zone Safety Checklist will serve as the minimum standard for conformance with the Project's safety requirements, and checks will be performed daily. In the case of any incidents on or adjacent to the site, our Team will work closely with first responders and VDOT's Traffic Operations Center (TOC) and Incident Management staff to make the scene safe and restore traffic when applicable.

Staging and Storage Areas

Our Team understands the importance of a smart site logistics plan and good housekeeping, as both improve public perception and safety for all involved. Storage of materials will be isolated to areas where safe delivery access can be provided while ensuring that no material is stored in a location which would introduce a hazard (such as obscuring line of sight) to the travelling public, construction, or inspection staff. Material staging areas will be defined for both roadway and bridge elements.

Construction entrances at the B620 Bridge will be implemented so that equipment and material deliveries to the bridge do not affect traffic on Route 143. Deliveries to Skiffes Creek Bridge will come from Route 60 through Area 1, with the exception of all Area 2 materials which will come through either the causeway or Dominion Energy Access Road. We will coordinate deliveries well ahead of time with our suppliers to ensure all parties are informed of delivery locations, work hours and any restrictions on existing roadways. Materials not required for immediate construction activities will be stored off site until needed.

4.5.2 Transportation Management Plan

All aspects of our TMP are intended to exceed the Project expectations for safe and effective traffic control, and minimize impacts to the traveling public, stakeholders, and construction personnel. We accomplish this by limiting impacts to both Route 60 and Route 143 by avoiding reconstruction of pavement. This eliminates long-term lane closures, decreases the construction duration, and represents our ATC #1 and ATC #2. To accomplish other safety and mobility goals, we have committed to mitigation and communication

strategies that considerably exceed the requirements of the RFP. Some of these strategies are listed below, and are detailed on the following pages:

- Sequencing of construction that minimizes lane closures and flagging;
- Configuring work zones to provide motorists and workers temporary barrier protection;
- Analyzing existing safety concerns and mitigating them prior to major construction activities;
- Utilizing enhanced safety devices such as higher visibility devices, wet reflective pavement markings, and wider than required markings; and
- Committing to provide enhanced public communication outreach at our Team's cost, such as additional PCMS signs for motorist guidance and "Pardon our Dust" meetings.

TMP Philosophy

Our TMP and construction program is focused on reducing the Project's anticipated impacts to the traveling public and exceeding the safety requirements of the RFP. Above all, our Team values the safety of all parties in every facet of design and construction. To aid the Team in achieving these goals, we bring the advantages of the preceding work on the I-64 Capacity Improvements - Segment I and III Projects as Lead Contractor and Lead Designer.

Our TMP and TTC plans will place a particularly heavy emphasis on eliminating the need for lane closures to the best extent possible. To meet these high safety and mobility standards, the TTC and TMP plan development will be led by our Traffic Engineer, Jerry Mrykalo PE, who is a Professional Traffic Operations Engineer (PTOE) and is certified as a VDOT Work Zone Traffic Control instructor. Additionally, our design engineers have completed our in-house Work Zone Traffic Control Training Program and are VDOT certified in the development of TTC and TMP plans.

Sequence of Work

The Project will be segmented into multiple work areas, two of which have unique construction and temporary traffic control features. Construction staging and sub-staging for these two segments was developed to enhance safety and mobility for each area. After carefully studying numerous phasing options, we have determined a sequence of construction to efficiently construct the Project while minimizing mobility impacts to the traveling public. To achieve this, we have developed area-specific temporary traffic control strategies as highlighted on Exhibit 4.5.2.1 on page 41. This exhibit depicts the detailed staging that we will use to safely maintain all lanes during construction on each segment.

Traffic Control Details

As shown on Exhibit 4.5.2.1, our Team has developed a temporary traffic control strategy that minimizes stakeholder impacts. Immediately after beginning the design of the TMP upon Project Award, we will complete fully detailed design on the site-specific Temporary Traffic Control (TTC) plans, which will detail specific elements required during construction of the Project. These plans will be developed for each stage of work to identify barrier and channelization locations, temporary sign locations, PCMS devices, construction access points, temporary pavement markings, temporary drainage, areas of construction, and all other requirements per VDOT's I&IM-241.7, the Virginia Work Area Protection Manual, and the Manual on Uniform Traffic Control Devices (MUTCD).

Our Team recognizes common shortfalls with TTC in work zones, and we are committed to avoiding these conditions with carefully designed site specific temporary traffic control plans. For example, we know how critical it is to ensure that barrier ends and impact attenuators are flared as far away from traffic as possible, as driver collisions with impact attenuators can result in high-severity crashes. Also, we know that temporary traffic barrier placement must be reviewed to ensure adequate drainage and snow removal

Skiffes Creek Connector

Route 60 (Pocahontas Trail)

Route 143 (Merrimac Trail)

POT 400+00.00

POT 300+00.00

POT 421+50.00

POT 55+83.38

PT 604+00.00

PC 608+25.28

PT 618+11.29

PT 54+10.40

PC 606+43.

PT 45+64.68

PT 48+61.96

PC 21+51.95

PT 24+66.71

PC 30+68.30

PT 37+58.56

405

410

415

420

605

610

615

620

625

LEGEND

STAGE 1- EARLY PACKAGE

STAGE 2A

STAGE 2B

STAGE 3 (OVERLAY)

EXHIBIT 4.5.2.1
Sequence of Construction

SCALE
0 100' 200'

capabilities are maintained. In addition, Portable Changeable Message Sign (PCMS) device locations and messages will be included in the plans. The careful design of locations meeting sight distance requirements and concise, comprehensible message design by our traffic engineers ensures that these extremely valuable devices are utilized to the maximum benefit without providing confusing or incomplete information. Technical highlights of our proposed plan are as follows:

Route 60

- No long term lane closures planned, exceeding RFP requirements;
- No temporary detours planned;
- Flagging operations will follow Part 2 Section 2.10.3 of the RFP, with additional restrictions self-imposed to further minimize public impact. Temporary lane closures are anticipated for night time paving, shoulder improvements, placement of traffic barriers, and delivery of materials;
- Minimum 11' wide lanes will be maintained; and
- All temporary traffic shifts will be designed to meet the full posted speeds on Route 60, exceeding the requirements of the Virginia Work Area Protection Manual.

Route 143

- No long term lane closures planned;
- No temporary detours planned;
- Flagging operations will follow Part 2, Section 2.10.3 of the RFP, with additional restrictions self-imposed to further minimize public impact; Temporary lane closures are anticipated for night time paving, shoulder improvements, placement of traffic barriers, and delivery of materials;
- Minimum 11' wide lanes will be maintained; and
- All temporary traffic shifts will be designed to meet the full posted speeds on Route 143, exceeding the requirements of the Virginia Work Area Protection Manual.

As a proactive step, our Team has completed an analysis utilizing VDOT's TE-350.1 process to determine the appropriate posted speed limit during construction. Based on this analysis, we recommend maintaining the existing posted speed limit on Route 60 and Route 143 due to the reasons listed below:

- All temporary geometry and lane shifts will meet the standards for the full posted speed limit, exceeding the requirements of the RFP;
- 11' lane widths will be maintained on Route 60 and Route 143; and
- In addition to minimizing motorist delay, research has proven that lowering speed limits where geometric conditions do not require the reduction actually lessen safety, since large deviations between drivers' speeds commonly result in increased probability of crashes.

This recommendation will be fully discussed with VDOT's Traffic Engineering staff, and we understand that the final determination will be made in coordination with the District Traffic Engineer Post-Award.

Unique Project Challenges & Solutions

Specific attention has been given to the unique challenges of the Project, with focus on mitigation and communication strategies that enhance safety, minimize public impacts, and minimize schedule risk. By carefully studying these elements, our Team has devised the following unique solutions:

1. ATC #1: Maintaining Traffic during Route 60 Construction

A major challenge associated with this Project is the proposed reconstruction of the existing crest vertical curve in order to meet sight distance standards on Route 60. This presents a constructability challenge, as the RFP planned lowering of this existing vertical curve would likely have required a continuous lane

closure on Route 60 with flagging or temporary signals to alternate two-way traffic in a single lane and perform two-stage reconstruction. To overcome this challenge, our Team's ATC #1 instead raises the existing crest and preceding sag curve with wedge overlay, and ultimately corrects the substandard sight distance issue without the need for reconstruction and the associated long term lane closures. This solution increases traffic mobility by eliminating the long-term single lane operation, and improves safety for both the traveling public and construction personnel associated with two-way traffic flow in a single lane.

2. ATC #2: Maintaining Traffic during Route 143 Construction

Another major challenge is maintaining traffic on Route 143 during construction. The requirement to maintain all four existing lanes (two lanes in each direction) during peak hours while completely reconstructing the pavement would have required multi-stage construction with either splitting of traffic or significant areas of temporary pavement widening with possible ROW impacts. Recognizing this complicated and safety challenging process, our ATC #2 design instead avoids pavement demolition and reconstruction by achieving cross-slope correction via wedge overlay pavement to be constructed with only off-peak temporary lanes closures. This represents a significant enhancement to the traveling public and to the safety of motorists and construction personnel, as full four lane mobility will be maintained during peak travel periods without splitting of traffic or temporary pavement widening.

3. Intersection Sight Distance / Driveways

The combination of a linear roadway on Route 143 with un-signalized left turn movements creates the potential for temporary barrier to impact intersection sight lines, making uncontrolled turn movements more difficult. To minimize impacts on existing sight lines, our Team will utilize the following strategies in an effort to protect the traveling public:

- During design, perform intersection sight line assessments for all turn movements along Route 143.
- Where sight distances are found to be inadequate, flare barriers away from the roadway, or replace a section of barrier with channelizing devices in order to eliminate the sight distance restriction.
- Install oversize intersection warning signs in advance of un-signalized intersections.

4. Maintenance of Transit Access and Pedestrian Safety

With the Project focusing heavily on vehicular traffic, it is critical not to lose focus on pedestrian safety and transit access on Route 60. Our Team is committed to maintaining both Williamsburg Area Transit Authority (WATA) existing transit stops throughout construction. Where paths are adjacent to work areas or travel lanes, they will be physically separated from potential hazards for enhanced safety, exceeding the RFP requirements. In addition, we propose installing fluorescent yellow-green pedestrian crossing warning signs to make drivers cognizant of pedestrian activity through the work zone.

5. Accommodating Heavy Vehicle Traffic

Our Team understands the importance of safety and mobility during construction for heavy vehicles along both Routes but especially along Route 60. With there being two distribution facilities and a large equipment center along Green Mount Parkway, we anticipated several heavy vehicles traveling through the work zone daily. To allow these larger vehicles to maneuver through the work zone safely and efficiently, our Team commits to providing adequate turning radii at the existing intersections and construction entrances by running each movement through our AutoTURN software using the WB-67 as a design vehicle.

6. Use of Barrier on Route 143

Although not specifically required by the RFP, the Team commits to using temporary concrete barrier to protect bridge construction along Route 143. The benefits include:

- Improved safety for construction personnel;
- Improved safety for vehicular traffic; and
- Reduced amount of temporary lane closures necessary.

Investigation and Mitigation of Existing Safety Issues

We are committed to exceeding the RFP requirements and maximizing safety measures. Our Team has performed an investigation of existing crash statistics and safety concerns within the Project limits and has proactively developed approaches to mitigate these risks. Exceeding the RFP requirements, our Team will employ site-specific impact management strategies in order to maximize safety. Many of these safety improvements will be installed prior to major construction activities to mitigate existing safety concerns, as we intend to enhance public safety even while the permanent improvements are still in the design phase. In addition to installing enhancements on the existing roadway prior to construction, the following safety improvements will be utilized throughout the construction stages:

- Full continuous temporary raised pavement markers for increased lane alignment visibility, especially at night and during wet pavement conditions (only required at lane shifts per the Work Area Protection Manual);
- The use of wider than required lane lines for increased delineation of lane shifts on all roadways, and the use of temporary transverse rumble strips to alert motorists of possible lane closures on cross streets;
- Installing pedestrian warning signs for transit stops to alert drivers; and
- Monitoring of traffic and safety conditions during construction. Our Team commits to monitoring traffic and safety conditions in the work zone throughout construction, and reviewing conditions for safety upon implementation of new traffic control patterns. These reviews will be completed by traffic engineers to ensure that the controls have been implemented correctly, and to provide suggestions and recommendations for enhancements.

Stakeholder Communication and Mitigation Strategies

Our Team recognizes that proactive communication with all project stakeholders is essential to a successful TMP. As with any large scale transportation improvement project, some inconvenience is unavoidable, but our Team's goal is to minimize these impacts. We have identified Project stakeholders, and we have devised specific innovative communication and mitigation strategies that exceed the Project requirements. These include our commitment to use additional PCMS devices for motorist guidance, committing to hold "Pardon our Dust" meetings, limiting lane closures, truck traffic entering/exiting the median, and enhanced safety devices. These stakeholders, their potential impacts, and our planned communication and mitigation strategies are detailed in the Table 10.

Table 10 Stakeholder Communication and Mitigation Strategies

Stakeholders	Impacts	Communication/Mitigation Strategies
Traveling Public	Minimal travel time delays for temporary operations.	• Optimization of lane closure hours will limit closures to off-peak allowable hours of lowest volume. • All work operations behind barrier will maximize lane widths. • Portable Changeable Message Signs will be utilized for public notices.

Stakeholders	Impacts	Communication/Mitigation Strategies
Local Residents	Possible construction noise and construction activities close to their property.	• Coordination of construction activities with residential groups via notification and "Pardon Our Dust" meetings • Limiting hauling activities to non-residential routes wherever possible.
Schools James City County Public Schools York County Schools Newport News Public Schools Mt. Gilead Christian Academy College of William & Mary	Potential delays to school buses/transportation services.	• Coordination of construction activities directly with school staff. • No lane closures during school bus operating hours when possible. • Advance notification of traffic pattern changes.
Police, Fire & Rescue James City County Police & Fire York County Sheriff & Fire Newport News Police & Fire Virginia State Police Sentara Hospital	Potential response time impact.	• Advance notification of temporary lane restrictions and changes to traffic patterns. • Special emergency responder meetings to be held with project staff. • Representatives will be notified of approved lane closure requests, and provide a 24/7 contact.
Adjacent Projects I-64 Segment III Potential Site Development Project(s)	Potential construction coordination impacts between projects.	• Temporary lane closures will be coordinated internally. • Major operations will be coordinated to avoid compounding traffic impacts. • Resources such as PCMS devices can be coordinated and shared for major events.
Area Attractions Busch Gardens Water Country USA Golf Clubs Historical Attractions	Potential impact to access routes.	• Representatives will be notified of approved lane closures. • Limiting hauling activities to non-attraction routes wherever possible.
Williamsburg Area Transport (WATA)	Potential impacts to bus transit routes.	• Notifications of work will be sent to transit operators in advance of traffic switches or detour implementation.
Government/Military Camp Peary Government Facility Naval Supply Center - Cheatham Annex Yorktown Naval Weapons Station	Potential impact to access routes.	• Representatives will be notified of approved lane closures.
Industrial Facilities Anheuser-Busch Branscome Inc. Climatrol Wal-Mart Distribution Center Carter Machinery Virginia Electric Power Substation	Potential impacts to distribution and delivery truck routes.	• Temporary traffic control will be designed to accommodate heavy truck traffic. • The construction team will notify these stakeholders of major construction activities that may affect business operations (such as temporary stoppages for overhead signal work).

4.6 - Proposal Schedule

4.6 Proposal Schedule

4.6.1 Proposal Schedule

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

4.6.2 Proposal Schedule Narrative

Shirley has reviewed in detail the Skiffes Creek Connector Project and schedule requirements of the RFP and has developed a Proposal Schedule outlining our plan to successfully manage all phases of the Project. This schedule has been optimized to deliver the Project in the shortest amount of time possible while meeting the requirements of the RFP, minimizing impacts to road users and local stakeholders, protecting the environment, coordinating with the railroad, and ensuring motorist's and worker's safety. Our Team plans to execute and deliver this Project by the July 29, 2022 Early Completion deadline and earn the full "No Excuse" Incentive. **As an added benefit to the public, we commit to a Unique Milestone to open the Skiffes Creek Connector to traffic no later than June 29, 2022**. A summary of this Contract and Schedule Milestones are shown in Table 11.

Table 11 - Contract and Schedule Milestones

Contract and Schedule Milestones	Date
Notice of Intent to Award	December 12, 2019
CTB Award/Notice of Award	January 15, 2020
Design-Build Contract Execution	February 12, 2020
Notice to Proceed (NTP)	February 14, 2020
Begin Stage 1 Construction	September 15, 2020
Begin Stage 2 Construction	December 9, 2020
Begin Stage 3 Construction	March 25, 2022
Unique Milestone - Open Skiffes Creek Connector to Traffic	June 29, 2022
Early Completion / "No Excuse" Incentive	July 29, 2022
Final Completion	October 27, 2022

Work Breakdown Structure

Our Team has developed a detailed Proposal Schedule in accordance with the RFP requirements. The Team has organized the schedule into a hierarchical Work Breakdown Structure (WBS) in order to demonstrate the relationships and activity durations amongst the milestones, scope validation period, design, public involvement, environmental permitting, ROW acquisition, utility relocation, construction, and project management disciplines. All elements of the design-build process are captured under these Level 1 tasks and are described below:

A. ***Schedule Milestones:*** Area reserved for easy review on the Project status. The Scope Validation Period is also included in this section.

B. ***Design Phase:*** Includes preliminary engineering services, geotechnical work, plan development, design QA/QC reviews, submittal milestones, and VDOT and FHWA reviews and approvals. This section includes a second level WBS structure to group design activities by roadway and for each bridge structure.

C. ***Public Involvement/Public Relations:*** This section of the schedule includes activities and milestones for developing the planned public involvement process including communication plans, public

information meetings, first responder meetings and updates to the Office of Public Affairs for major traffic shifts and the VDOT website.

D. Environmental Permitting: Includes wetland and stream delineations, jurisdictional determinations, permit management and preparation, mitigation, permit submissions, and reviews from the authorities having jurisdiction. Also included are hazardous material surveys, threatened and endangered species identification and assessment, and noise analysis.

E. Right-of-Way/Easement Acquisition: This section of the schedule is used to outline and monitor the acquisition of ROW and easements for the Project including title searches, appraisals and reviews, offers, negotiations, and settlements.

F. Utility Relocations: Includes activities for utility relocations such as UFI meetings, preparation of plans and estimates (P&E), approval of plans and estimates, utility relocation design by the utility owner, approval of the utility design, and utility relocation. The utility relocations are separated into second level WBS groups based on utility owner.

G. Construction: Includes all components of roadway and bridge construction including Project Management and the Quality Assurance/Quality Control processes. The Construction section of the schedule is segmented by additional levels of WBS structure to divide the construction activities into stages of work, areas of work, eastbound or westbound lanes and major portions of work such as roadway, bridge, culvert or retaining wall activities. This strategy and grouping of work packages has proven to allow for easy and clear tracking of activity progress to ensure on-time completion and in the case of this Project, Early Completion.

Table 12 is a complete outline of the WBS Structure for the Project:

Table 12 - WBS Structure

WBS Path	WBS Name
C00100200DB104-PS.SKIFFES CREEK.A	**SCHEDULE MILESTONES**
C00100200DB104-PS.SKIFFES CREEK.B	**DESIGN PHASE**
C00100200DB104-PS.SKIFFES CREEK.B.A	PRELIMINARY DESIGN WORK
C00100200DB104-PS.SKIFFES CREEK.B.A.A	DESIGN QA/QC PLAN
C00100200DB104-PS.SKIFFES CREEK.B.A.B	**SCHEDULE DEVELOPMENT and UPDATES**
C00100200DB104-PS.SKIFFES CREEK.B.A.C	SURVEY and MAPPING
C00100200DB104-PS.SKIFFES CREEK.B.A.D	GEOTECHNICAL INVESTIGATIONS and REPORTING
C00100200DB104-PS.SKIFFES CREEK.B.A.D.1	ROADWAY GER
C00100200DB104-PS.SKIFFES CREEK.B.A.D.2	BRIDGE GER
C00100200DB104-PS.SKIFFES CREEK.B.A.E	UTILITY DESIGNATIONS and TEST-PITS
C00100200DB104-PS.SKIFFES CREEK.B.B	STAGE 1 - EARLY START PACKAGE (VA-14 3)
C00100200DB104-PS.SKIFFES CREEK.B.C	ROADWAY DESIGN
C00100200DB104-PS.SKIFFES CREEK.B.D	BRIDGE DESIGN
C00100200DB104-PS.SKIFFES CREEK.B.D.A	**BRIDGE B619 SKIFFES CREEK BRIDGE**
C00100200DB104-PS.SKIFFES CREEK.B.D.B	**BRIDGE B620 RAILROAD BRIDGE**
C00100200DB104-PS.SKIFFES CREEK.C	PUBLIC INVOLVEMENT
C00100200DB104-PS.SKIFFES CREEK.D	ENVIRONMENTAL PERMITTING
C00100200DB104-PS.SKIFFES CREEK.D.A	JOINT WETLANDS and WATERS PERMITTING
C00100200DB104-PS.SKIFFES CREEK.D.A.A	THREATENED & ENDANGERED SPECIES

WBS Path	WBS Name
C00100200DB104-PS.SKIFFES CREEK.D.B	**HAZMAT and ENVIRONMENTAL SITE ASSESSMENTS**
C00100200DB104-PS.SKIFFES CREEK.D.C	LD 445 / STORMWATER PERMIT
C00100200DB104-PS.SKIFFES CREEK.D.C.A	STAGE 1 - LAND DISTURBANCE PERMIT
C00100200DB104-PS.SKIFFES CREEK.D.C.B	PROJECT WIDE LAND DISTURBANCE PERMIT
C00100200DB104-PS.SKIFFES CREEK.D.D	NOISE ANALYSIS
C00100200DB104-PS.SKIFFES CREEK.D.E	TMDL ACTION PLAN
C00100200DB104-PS.SKIFFES CREEK.E	RIGHT OF WAY ACQUISITION/EASEMENTS
C00100200DB104-PS.SKIFFES CREEK.E.A	RIGHT OF WAY PLANS
C00100200DB104-PS.SKIFFES CREEK.E.A.A	R/W PLANS
C00100200DB104-PS.SKIFFES CREEK.E.A.B	PROJECT SPECIFIC ACQUISITION and RELOCATION PLAN
C00100200DB104-PS.SKIFFES CREEK.E.B	ROW ACQUISITIONS
C00100200DB104-PS.SKIFFES CREEK.E.B.A	R/W GROUP 1 ACQUISITIONS
C00100200DB104-PS.SKIFFES CREEK.E.B.B	R/W GROUP 2 ACQUISITIONS
C00100200DB104-PS.SKIFFES CREEK.F	UTILITY RELOCATIONS
C00100200DB104-PS.SKIFFES CREEK.F.A	DOMINION ENERGY
C00100200DB104-PS.SKIFFES CREEK.F.B	VERIZON UNDERGROUND
C00100200DB104-PS.SKIFFES CREEK.F.C	COX COMMUNICATIONS
C00100200DB104-PS.SKIFFES CREEK.G	CONSTRUCTION
C00100200DB104-PS.SKIFFES CREEK.G.A	PRE-CONSTRUCTION, SUBMITTALS and MATERIAL PROCUREMENT
C00100200DB104-PS.SKIFFES CREEK.G.A.A	MONTHLY PROJECT ADMINISTRATION TASKS
C00100200DB104-PS.SKIFFES CREEK.G.A.A.1	DESIGN CONSTRUCTION SUPPORT
C00100200DB104-PS.SKIFFES CREEK.G.A.B	**SUBMITTALS ROADWAY**
C00100200DB104-PS.SKIFFES CREEK.G.A.C	BRIDGE B-619 (SKIFFES CREEK)
C00100200DB104-PS.SKIFFES CREEK.G.A.D	BRIDGE B-620 (RAILROAD BRIDGE)
C00100200DB104-PS.SKIFFES CREEK.G.A.E	CONSTRUCTION QUALITY ASSURANCE / QUALITY CONTROL PROCESS
C00100200DB104-PS.SKIFFES CREEK.G.B	STAGE 1 - ADVANCED PACKAGE(S)
C00100200DB104-PS.SKIFFES CREEK.G.B.A	STAGE 1 - ROUTE 143
C00100200DB104-PS.SKIFFES CREEK.G.B.A.A	STAGE 1 - ROUTE 143 EASTBOUND WIDENING / IMPROVEMENTS
C00100200DB104-PS.SKIFFES CREEK.G.C	STAGE 2 - NEW CONSTRUCTION
C00100200DB104-PS.SKIFFES CREEK.G.C.A	STAGE 2 - ROUTE 60
C00100200DB104-PS.SKIFFES CREEK.G.C.A.1	STAGE 2 - ROUTE 60 EASTBOUND WIDENING / IMPROVEMENTS
C00100200DB104-PS.SKIFFES CREEK.G.C.A.2	STAGE 2 - ROUTE 60 WESTBOUND WIDENING / IMPROVEMENTS
C00100200DB104-PS.SKIFFES CREEK.G.C.A.3	STAGE 2 - ROUTE 60 SHARED USE PATH
C00100200DB104-PS.SKIFFES CREEK.G.C.A.4	STAGE 2 - ROUTE 60 TRAFFIC SIGNAL
C00100200DB104-PS.SKIFFES CREEK.G.C.B	STAGE 2 AREA 1 - ROUTE 60 to SKIFFES CREEK BRIDGE
C00100200DB104-PS.SKIFFES CREEK.G.C.B.1	STAGE 2 AREA 1 - ACCESS, CLEARING. AND E&S
C00100200DB104-PS.SKIFFES CREEK.G.C.B.2	STAGE 2 AREA 1 - ROADWAY

WBS Path	WBS Name
C00100200DB104-PS.SKIFFES CREEK.G.C.B.3	STAGE 2 AREA 1 - SWM BASINS
C00100200DB104-PS.SKIFFES CREEK.G.C.B.4	STAGE AREA 1 - LANDSCAPING
C00100200DB104-PS.SKIFFES CREEK.G.C.C	STAGE 2 - SKIFFES CREEK BRIDGE (B619)
C00100200DB104-PS.SKIFFES CREEK.G.C.C.1	STAGE 2 B619 - CAUSEWAY
C00100200DB104-PS.SKIFFES CREEK.G.C.C.2	STAGE 2 B619 - ABUTMENT A
C00100200DB104-PS.SKIFFES CREEK.G.C.C.3	STAGE 2 B619 - BENT
C00100200DB104-PS.SKIFFES CREEK.G.C.C.4	STAGE 2 B619 - ABUTMENT B
C00100200DB104-PS.SKIFFES CREEK.G.C.C.5	STAGE 2 B619 - DECK
C00100200DB104-PS.SKIFFES CREEK.G.C.D	STAGE 2 AREA 2 - SKIFFES CREEK BRIDGE to RAILROAD BRIDGE
C00100200DB104-PS.SKIFFES CREEK.G.C.D.1	STAGE 2 AREA 2 - ACCESS, CLEARING. AND E&S
C00100200DB104-PS.SKIFFES CREEK.G.C.D.2	STAGE 2 AREA 2 - FILL AT RAILROAD BRIDGE ABUTMENT A
C00100200DB104-PS.SKIFFES CREEK.G.C.D.3	STAGE 2 AREA 2 - ROADWAY
C00100200DB104-PS.SKIFFES CREEK.G.C.D.4	STAGE 2 AREA 2 - SWM BASINS
C00100200DB104-PS.SKIFFES CREEK.G.C.D.5	STAGE AREA - LANDSCAPING
C00100200DB104-PS.SKIFFES CREEK.G.C.E	STAGE 2 - RAILROAD BRIDGE (B620)
C00100200DB104-PS.SKIFFES CREEK.G.C.E.1	STAGE 2 B620 - ABUTMENT B
C00100200DB104-PS.SKIFFES CREEK.G.C.E.2	STAGE 2 B620 - PIER
C00100200DB104-PS.SKIFFES CREEK.G.C.E.3	STAGE 2 B620 - ABUTMENT A
C00100200DB104-PS.SKIFFES CREEK.G.C.E.4	STAGE 2 B620 - DECK
C00100200DB104-PS.SKIFFES CREEK.G.C.F	STAGE 2 AREA 3 - RAILROAD BRIDGE to ROUTE 143
C00100200DB104-PS.SKIFFES CREEK.G.C.F.1	STAGE 2 AREA 3 - ACCESS, CLEARING. AND E&S
C00100200DB104-PS.SKIFFES CREEK.G.C.F.2	STAGE 2 AREA 3 - FILL AT RAILROAD BRIDGE ABUTMENT B
C00100200DB104-PS.SKIFFES CREEK.G.C.F.3	STAGE 2 AREA 3 - ROADWAY
C00100200DB104-PS.SKIFFES CREEK.G.C.F.4	STAGE 2 AREA 3 - CULVERT & RETAINING WALLS AT STREAM CROSSING
C00100200DB104-PS.SKIFFES CREEK.G.C.F.5	STAGE 2 AREA 3 - SWM BASINS
C00100200DB104-PS.SKIFFES CREEK.G.C.F.6	STAGE 2 AREA 3 - LANDSCAPING
C00100200DB104-PS.SKIFFES CREEK.G.C.G	STAGE 2 - ROUTE 143
C00100200DB104-PS.SKIFFES CREEK.G.C.G.1	STAGE 2 - ROUTE 143 WESTBOUND WIDENING / IMPROVEMENTS
C00100200DB104-PS.SKIFFES CREEK.G.C.G.2	STAGE 2 - ROUTE 143 TRAFFIC SIGNAL
C00100200DB104-PS.SKIFFES CREEK.G.D	STAGE 3 - FINAL PAVING, STRIPING, & SIGNAGE
C00100200DB104-PS.SKIFFES CREEK.G.D.A	STAGE 3 - ROUTE 60
C00100200DB104-PS.SKIFFES CREEK.G.D.B	STAGE 3 AREA 1 - ROUTE 60 to SKIFFES CREEK BRIDGE
C00100200DB104-PS.SKIFFES CREEK.G.D.C	STAGE 3 AREA - SKIFFES CREEK BRIDGE to RAILROAD BRIDGE
C00100200DB104-PS.SKIFFES CREEK.G.D.D	STAGE 3 AREA 3 - RAILROAD BRIDGE to ROUTE 143
C00100200DB104-PS.SKIFFES CREEK.G.D.E	STAGE 3 - ROUTE 143

Geography and Construction Staging

Our Schedule is organized by the three major Stages of work. Within each Stage, the Schedule is further divided into seven geographic Areas – three new roadway areas, two bridges and two existing roadways.

The limits of these Stages and Areas were carefully planned in order to construct the Project as safely and efficiently as possible. Figure 4.6.2.1 illustrates these areas.

Figure 4.6.2.1 - Construction Areas and Geographic Phasing of Work

The three Stages of construction are generally defined as follows:

- STAGE 1 – Early package work consists of roadway widening and improvement construction along Route 143 Eastbound within the VDOT Right-of-Way, and utility relocations along Route 60.
- STAGE 2 – Main stage of roadway work consists of new roadway construction in Areas 1 through 3, construction of two bridges - B-619 over Skiffes Creek and B-620 over CSX Railroad and Route 143, widening and improvements along Route 60 Eastbound and Westbound, and widening and improvements along Route 143 Westbound.
- STAGE 3 – Final stage of construction consists of final asphalt surface, pavement markings, and signage in all areas; final inspections and punchlist.

The seven work Areas are defined by the following stationing and geographical breakpoints:

- ROUTE 60 – Station 400+00 to 419+60 of Route 60.
- AREA 1 – Station 10+00 to 16+00 along Skiffes Creek Connector from Route 60 to Skiffes Creek.
- BRIDGE OVER SKIFFES CREEK (B619) – Bridge structure over Skiffes Creek.
- AREA 2 – Station 19+00 to 36+50 along Skiffes Creek Connector from Skiffes Creek to the CSX Railroad.
- BRIDGE OVER CSX RAILROAD and ROUTE 143 (B620) – Bridge structure over CSX Railroad and Route 143.
- AREA 3 – Station 39+25 to 55+50 along Skiffes Creek Connector from CSX Railroad to Route 143.
- Route 143 – Station 625+70 to 602+10 of Route 143.

Schedule Calendars

The following is a description of the calendars used for this Project.

5 HOL: "5-Day Workweek with Holidays" – This calendar is based on five working days per week with the Holidays inserted as non-work days. This calendar is used for all design and administrative activities in the CPM network.

5 HOL_WTH: "5-Day with Normal Anticipated Weather" – This calendar is used for the majority of construction activities. It includes holidays as inserted in the '5 HOL' calendar as well as 'block-out' days for the anticipated normal weather in the region. The basis of the weather calendar was developed using a NOAA-based weather day assumption from the nearby military installation (Camp Peary), then modified to anticipate that the contractor and sub-contractors are responsible for making up normal weather days as part of their contractual requirements.

5HOL_WTH_LC: "Lane Closure Calendar" - Assigned to activities that must rely on lane closures in order to be performed; such as night-time paving operations. For this calendar we inserted 'non-work' days for lane closure restrictions preceding and following major holidays in accordance with the contract documents.

5HOL_WTH_LC_SHDWN: "Winter Shutdown Calendar" - Assigned to activities that are unable to be performed during mid-December through mid-March due to cold weather. Activities such as, concrete deck pours, bridge overlay work, surface asphalt, and cement treated aggregate are included in this restricted calendar.

5HOL_CLEAR: "Clearing Calendar" - Assigned to tree clearing activities that are unable to be performed during June 1st through July 1st due to bat "pup season".

5HOL_LANDSCAPE: "Landscaping Calendar" - Assigned to activities that are unable to be performed during March 16th through October 14th due to allowable "planting season". Activities such as reforestation plantings and wetland plantings and establishment are included in this restricted calendar.

7 DAY: "7-Day Calendar" – Assigned to activities that have durations based on calendar days instead of work days. Activities such as VDOT's 21 calendar day submittal review, concrete curing activities and monthly maintenance items are included in this calendar.

Plan to Accomplish the Work/Means and Methods

The narrative below describes our Team's overall plan and sequence of operations grouped by the Level I WBS Project disciplines. These include design, public involvement, environmental permitting, ROW acquisition, utility relocation, construction, and project management. The sequencing of each discipline was developed by considering the construction phasing and determining the longest path to project completion. All factors were considered including manpower, subcontractors, materials, design, environmental constraints, and most importantly, public safety and safety of the workforce. The Project staging was developed to address the full scope of work, and was further refined based on plan approvals, anticipated receipt of environmental permits and access to ROW parcels for new roadway and bridge work. We divided the Project into logical and manageable areas including three new roadwork areas, two existing roadway areas and two bridge work areas. The areas can be tracked and managed by dedicated supervision during construction to best manage the work.

Design

This section of the schedule includes those activities necessary for preliminary design, geotechnical work, early MOT and roadway plans, roadway design, bridge design and third-party coordination including engineering plan preparation and approvals. It also includes time for the necessary Design QA/QC reviews

at the multiple steps in the design process. As specified in the RFP, we have included a 21-calendar day activity for VDOT review after each submission. The design phase also includes activities for the completion of surveys, test pits, H&HA studies, and geotechnical investigations, including a 90-calendar day activity for VDOT's review of the geotechnical report prior to submission of the final roadway and bridge plans.

Our Team begins the design phase immediately upon execution of the Contract. To address the overall Project duration included in the RFP, design disciplines will prepare roadway and bridge plans concurrently. Final Road and B619 Bridge Plans are expected to be issued for construction in December 2020. The B620 Bridge Plans are shown to be approved February 15, 2021 to allow for the required 45-day plan reviews by CSXT and their consultant engineers.

Critical Path activities in the design phase of the Proposal Schedule include obtaining right of entry (which includes property owner notification timeline), field investigations and surveys, establishment of horizontal and vertical geometry, and roadway drainage design. The preparation, review, and submission of the first submission (60%) Roadway Plans are next on the Critical Path as that is a prerequisite for submission of the Joint Permit Application (JPA) to DEQ and the USACE. Ultimately, the Approval of the final JPA and environmental clearance from VDOT will enable construction of the temporary causeway for access to build the Skiffes Creek Bridge.

Public Involvement/Public Relations

The Public Involvement section includes submitting our Emergency Contact List upon NTP, assisting VDOT with development of the Public Information and Communication Plan (PICP) and holding Public Information Meetings in incremental stages during construction. This section also includes providing regular updates to the Office of Public Affairs. The schedule includes the major milestone activities for the Design Public Information Meetings which will include local businesses, homeowner's associations, government representatives, community groups, and other stakeholders. We will also provide information for regular weekly lane closure schedules to VDOT for use on its website.

Environmental Permitting

The Environmental Permitting process will begin at NTP with gaining access to affected property owners along the Project's corridor to begin the required Phase I environmental surveys. Our Team immediately performs wetland delineations, obtains jurisdictional determinations and prepares the Joint Wetlands and Water Permit Application. Following completion and submission of the 60% roadway plans, we will submit the necessary Permit Applications to the authorities having jurisdiction (AHJ). We anticipate that the Individual Permit for USACE as well as the Virginia Water Protection Permit from DEQ will require 120 days for review and approval. Our Team will also complete the requisite VDOT forms LD-445, Stormwater Pollution Prevention Plans (SWPPP) and related information for inclusion on the VDOT SWPPP General Information sheets. While we will pursue the full Land Disturbance Permit (LDP) prior to Stage 1 Early Package work activities, the Proposal Schedule allows for issuance of a limited LDP to ensure Stage 1 may proceed as planned.

Right-of-Way Acquisition

The acquisition of property rights is required to obtain permanent ROW as well as permanent and temporary easements. All work, other than the improvements along Routes 143 and 60, require the acquisition of ROW to construct the new roadway and both bridges. This results in portions of the ROW acquisition process falling on the Critical Path. Specifically, ROW Parcel 002 (Peninsula Pentecostals, Inc.) will need to be acquired to commence work in Area 1 to clear trees and construct an access road to the Skiffes Creek Bridge, which comprises the remainder the Critical Path following the ROW process.

Our Team is very familiar with the ROW process and have included detailed activities on the Proposal Schedule. We have used the historical average timeframes that we anticipate for acquisition of property rights either by agreed negotiation or by certificate of take. Preparation of ROW plans will closely follow the completion of the 60% plans. The appraisal process will start after the 60% plans have been reviewed by VDOT and after the limits of ROW are confirmed. After VDOT review of the appraisals, offers are prepared and the negotiation process continues. Upon agreement with the landowner(s), the certificate package is prepared for VDOT review, the acquisition goes to settlement and entry is granted following Notice to Commence Construction by VDOT.

Utility Relocations

Our Technical Proposal identifies the proposed utility impacts expected. To simplify and accurately track each utility relocation, we created a WBS that groups the utility relocation activities by utility owner and Project location. This allows us to coordinate the work with construction sequencing. Within each utility owner group, we have included activities for holding the Utility Field Inspection (UFI) meeting, preparation of the plans and estimates by the utility owner, approval of the plans and estimates, design of the utility relocation, and relocation of the utility by Area. The utility relocation schedule starts with formal UFI meetings following completion of all utility test pits and progression of design documents to roughly 60%. This enables our Team to confirm and adjust our list of utility conflicts based on the field test pit data obtained prior to holding the formal UFI meetings. We continue this early coordination of utilities throughout the design phase of the Project to ensure that right-of-way and roadway plans are coordinated with the utility relocation plans. Currently, we are projecting that the overhead facilities of Cox Communications, Dominion Energy and Verizon along westbound Route 60 will need to be relocated. Additionally, underground facilities of Verizon along eastbound and westbound Route 60 may need to be relocated. The timeframes for utility relocations are identified in our Proposal Schedule and linked to the appropriate construction activities. Utility relocations are not anticipated to be critical activities on this Project.

Construction

Project Management

In this section of the schedule, we identified early construction activities such as schedule preparation, mobilization, submittals, subcontractor and major material procurement, production of shop drawings, and fabrication of critical long lead time items such as precast concrete beams and signal equipment.

Quality Assurance and Quality Control

In a separate WBS group, we identified the QA/QC Activities for the Project. These include the submission and approval of the QA/QC plan and the Preparatory Meetings (Hold Points) that are required prior to commencing with construction activities. The overall Level of Effort for the QA/QC process is represented by a bar spanning all construction activities until Final Completion of the Project.

Stage 1 – Route 143 Eastbound Widening/Improvements and Route 60 Utility Relocations (starts Fall 2020)

To facilitate traffic movement from Route 143 onto the new Skiffes Creek Connector at a new intersection, the addition of a left turn lane is needed. This requires additional roadway width and is accomplished by widening the existing pavement to the outside in the eastbound direction. Since this work is contained within existing VDOT ROW, our construction Team will begin the widening along Route 143 eastbound in the Fall of 2020 upon approval of the early MOT and Roadway plan set and all necessary permits. This allows the eastbound work to be completed while permitting and final plan approval is obtained for other portions of the Project by late December 2020.

On Route 60, there are existing utilities that are located within the construction limits and require

relocation. Our Team will work closely with the utility owners in this phase to begin relocation of the overhead lines and poles early in 2021 to prepare for Stage 2 work. There are multiple utilities in conflict including overhead power and communication lines, an underground cable along Route 60 westbound, and an underground cable along Route 60 eastbound. It is anticipated that this work will be completed in early 2021.

Stage 2 – Roadway and Bridge Construction in Areas 1 thru 3 (Winter 2020 to Summer 2022)

Upon final approval of the roadway plans, environmental permits, and ROW acquisition, construction of a majority of the Project elements can begin. Specifically, Stage 2 consists of new roadway construction for the Skiffes Creek Connector, roadway improvements along east and westbound Route 60, roadway improvements along westbound Route 143, construction of the Skiffes Creek Bridge, and construction of the Bridge over CSX Railroad and Route 143. Stage 2 will begin in late 2020 and will initially include the roadway widening and improvements along eastbound Route 60 and westbound Route 143 and clearing in Work Area 3. By focusing our efforts on the areas of existing ROW, work can commence in 2020 after plan and permit approval while the ROW acquisition process proceeds along westbound Route 60, Work Area 1, and Work Area 2.

Once the ROW and property access are received in mid-April 2021, our crews' efforts will shift to the westbound direction of Route 60 and Work Area 1 to provide access to Skiffes Creek Bridge Abutment A to begin causeway construction. Access to Skiffes Creek Bridge is critical to the Project and will be achieved from both directions as shown below in Figure 4.6.2.2.

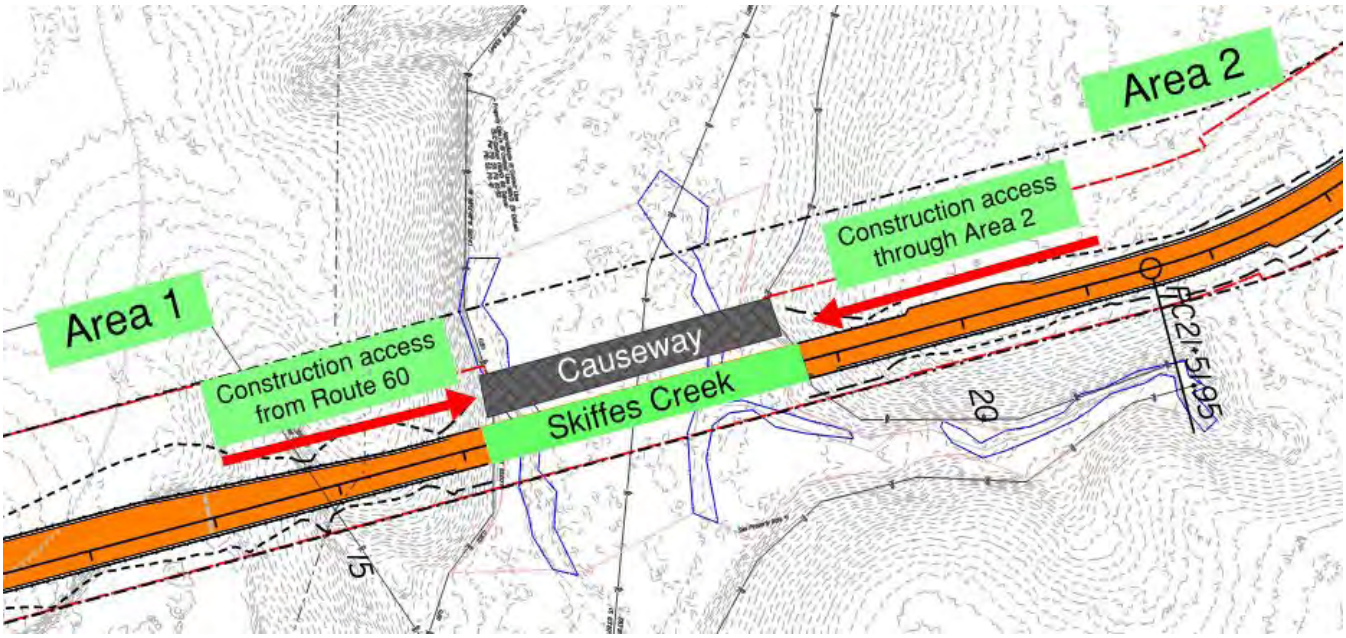


Figure 4.6.2.2.- Stage 2- Skiffes Creek Bridge Access

Concurrently with clearing and access work through Work Area 1, clearing and access will commence in Work Area 2 to achieve access to Skiffes Creek Bridge Abutment B and CSX Railroad Bridge Abutment A. Work Area 2 access is challenging due its location between Skiffes Creek and CSX's railroad. In addition to the causeway, our Team has coordinated closely with Dominion Energy and have their permission to utilize an existing access road from Route 60 to access Work Area 2 as shown in Figure 4.6.2.3 on the next page. This eliminates the need for a costly and time-consuming temporary railroad crossing to access from Route 143.

Figure 4.6.2.3 - Dominion Energy - Work Area 2 Access

Stage 3 - Final Asphalt Surface and Pavement Markings - (Spring to Summer 2022)
Stage 3 will encompass the installation of the final asphalt surface and pavement markings as well as removal of all construction signage. The focus of this Stage is to open the new roadway to traffic by June 29, 2022 and achieve our Unique Milestone. The work will be scheduled so that inspections are completed prior to opening the road, and any punchlist items completed after the opening to achieve the maximum Early Completion No Excuse Incentive.

Critical Path

Listed below is a description of the Project's Critical Path as depicted in the Proposal Schedule. In summary, the Critical Path runs directly through the design, right-of-way acquisition and construction activities associated with the Skiffes Creek Bridge B619, final paving activities, and completion milestones.

Design Phase

Preliminary Engineering

- Obtain Right of Entry
- Perform Aerial Mapping
- Perform Utility Locating
- Perform Existing Storm Sewer Investigations
- Existing Drainage Inventory Survey
- Utility Designations

Roadway Design

- Set Horizontal and Vertical Geometry

- Roadway Drainage Design
- Stormwater Management & Adequate Outfall
- Complete Plan Details
- Compile Roadway Plans (1st Submission)

Right-of-Way Plans

- Prepare Right-of-Way Plans (with 60% 1st Submission Roadway Plans)
- VDOT Review/Comment Right-of-Way Plans
- Comment Response / Plan Changes
- VDOT Review 2nd Round R/W Plans
- Right-of-Way Plans Approved

Right-of-Way Acquisitions

- R/W Group 1- Complete Appraisal
- R/W Group 1- Review Appraiser Completes Review
- R/W Group 1- Submit Appraisal to VDOT (RUMS)
- R/W Group 1- VDOT Approves Appraisal
- R/W Group 1- Negotiator Make Initial Contact / Present Offer
- R/W Group 1- Negotiations
- R/W Group 1- Prepare Certificate Package
- R/W Group 1- Submit Certificate Package to VDOT
- R/W Group 1- VDOT Reviews / Issues Certificate & Check
- R/W Group 1- Design Builder Files Certificate at Courthouse
- R/W Group 1- Property Access for Constr & Utilities - If By Certificate
- R/W Group 1 - Design Builder Requests NTCC by Parcels
- R/W Group 1- Access to Parcel 2 (Peninsula Pentecostals Inc.)

Construction Phase

Stage 2 Area 1 – Access, Clearing, and E&S

- Area 1 - Install Perimeter E&S Controls
- Area 1 - Cut and Clear Trees
- Area 1 - Install Access Road to Skiffes Creek Bridge

Stage 2 – Skiffes Creek Bridge (B619)

- SC - SOE For South Access Ramp
- SC - Excavate/Lag for South Access
- SC - Causeway Construction and Drainage
- SC - SOE For North
- SC - Excavate/Lag for North Access
- SC - Auxiliary Platform at Span A
- SC - F/P/S Abutment Integral Abutment
- SC - Settlement Plates/Piezometer
- SC - Select Backfill to Approach Subgrade
- SC - Pier Area Rough Grading
- SC - Mobilize Pile Driving
- SC - Template and PDA Test Pile Initial Drive
- SC - PDA Pile Set Up Period
- SC - Test Pile ReStrike
- SC - Production Pile List/Fabrication

- SC - Production Piles
- SC - F/P Bent Cap
- SC - F/P/S Abutment Seat
- SC - Cure Abutment Seat
- SC - F/P/S Integral Abutment
- SC - Select Backfill to Approach Subgrade
- SC - Settlement Waiting Period - 60 CD's
- SC - Final Settlement Monitoring/Geotech Approval
- SC - F/P/S Sleeper Slabs
- SC - F/P/S Approach Slabs
- SC - Provide Access to Bridge at Abutment
- SC - Erect Girders/Diaphragms Span B
- SC - Erect Girders/Diaphragms Span A
- SC - Torque Diaphragms/Bolster Grades
- SC - Reinforcing Steel
- SC - Prep Deck/Set Up Screed
- SC - Pour Decks
- SC - Cure Deck Concrete
- SC - F/P/S Closure Diaphragm
- SC - Bridge Railing Parapet/Terminal Walls
- SC - Bridge Railing Post and Rail
- SC - Grooving

Stage 3 – Final Paving, Striping, and Signage

- Route 60 - Install Permanent Pavement Markings
- Route 60 - Install Arrows, Markers, and Stop Bars
- Route 60 - Remove Construction Signage
- Area 1 - Install Permanent Pavement Markings
- Route 143 - Install Permanent Pavement Markings
- Route 143 - Install Arrows, Markers, and Stop Bars

Final Milestone Activities

- ***Unique Milestone*** Open Skiffes Creek Connector to Traffic
- Perform Punchlist Work
- Early Completion - No Excuse Inventive (by July 29, 2022)
- No Excuse Incentive Daily Rate
- Final Completion Date (10/27/22)

Key Scheduling Assumptions

- Railroad Flagman services will be available as needed to meet the Project Schedule.
- Environmental permitting agencies will accept VDOT's RFP avoidance and minimization efforts taken in the RFP phase as sufficient to process permits without delay.
- Utility companies will coordinate their relocations in accordance with our Project Schedule.
- There are no hazardous material, threatened & endangered species, or unforeseen environmental constraints, other than those identified in the RFP, that could delay the Project Schedule.
- Crew leveling has been developed through crew-flow relationships between like activities.
- Crews are based on an 8-hour workday and 5-day workweek calendar. A detailed description of the calendars is included in this narrative.
- Generally, the schedule has been built with work in certain areas of the Project starting when access

is available (either via work availability, property rights, or utility access) and/or at the completion of a prior stage of work. We have provided some crew flow predecessor relationships in several locations throughout the schedule mainly where adjacent work is available and crew flow is logical as to not 'stack' too many work areas on top of each other.

- Finish-Start relationships are used as much as possible to create a logical flow of work in each area. There is some overlapping of activities such as with earthwork and drainage activities performed by different crews, but it is limited due to the constraints of the established Project corridor.

Appendix

Attachment 3.6 - Acknowledgment of Receipt of Proposal (Form C-78)

Form C-78-RFP

ATTACHMENT 3.6

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. C00100200DB104

PROJECT NO.: 0060-047-627, P101, R201, C501, B619, B620

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 – August 1, 2019 (Date)
2. Cover letter of RFP Addendum No. 1 – October 11, 2019 (Date)
3. Cover letter of RFP Addendum No. 2 – October 22, 2019 (Date)
4. Cover letter of RFP Addendum No. 3 – October 29, 2019 (Date)

SIGNATURE — November 5, 2019 DATE

Garry A. Palleschi — PRINTED NAME

Vice President — TITLE

Attachment 4.0.1.1 - Technical Proposal Checklist

ATTACHMENT 4.0.1.1

SKIFFES CREEK CONNECTOR

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	Appendix
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	Appendix
Letter of Submittal	NA	Sections 4.1		Page 1
Letter of Submittal on Offeror's letterhead	NA	Section 4.1.1	yes	Page 1
Identify the full legal name and address of Offeror	NA	Section 4.1.1	yes	Page 1
Authorized representative's original signature	NA	Section 4.1.1	yes	Page 1
Declaration of intent	NA	Section 4.1.2	yes	Page 1
120 day declaration	NA	Section 4.1.3	yes	Page 1
Point of Contact information	NA	Section 4.1.4	yes	Page 1
Principal Officer information	NA	Section 4.1.5	yes	Page 1
Final Completion Date	NA	Section 4.1.6	yes	Page 1
Unique Milestone Date(s)	NA	Section 4.1.7	yes	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	Page 1

ATTACHMENT 4.0.1.1

SKIFFES CREEK CONNECTOR

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Offeror's Qualifications	NA	Section 4.2		Page 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	Page 2
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	Page 2
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	Page 2
Design Concept	NA	Section 4.3		Page 3-14
Conceptual Roadway Plans and description	NA	Section 4.3.1	yes	Page 5-11
Conceptual Structural Plans and description	NA	Section 4.3..2	yes	Page 11-14
Project Approach	NA	Section 4.4		Page15-34
Environmental Management	NA	Section 4.4.1	yes	Page 15-21
Utilities	NA	Section 4.4.2	yes	Page 21-25
Geotechnical	NA	Section 4.4.3	yes	Page 25-28
Railroad Coordination	NA	Section 4.4.4	yes	Page 28-30
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.5	yes	Page 30-34
Construction of Project	NA	Section 4.5		Page 35-45

ATTACHMENT 4.0.1.1

SKIFFES CREEK CONNECTOR

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Sequence of Construction	NA	Section 4.5.1	yes	Page 35-39
Transportation Management Plan	NA	Section 4.5.2	yes	Page 39-45
Proposal Schedule	NA	Section 4.6		Section 4.6
Proposal Schedule	NA	Section 4.6	no	Section 4.6
Proposal Schedule Narrative	NA	Section 4.6	no	Section 4.6
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.6	no	Section 4.6

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 ____ day of _____, 20__, by and between the Virginia Department of Transportation ("VDOT"), and Shirley Contracting Company, LLC ("Offeror").

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications ("SOQs") pursuant to VDOT's February 27, 2019 (last addendum on April 19, 2019) Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **Skiffes Creek Connector, Project No. 0060-047-627, P101, R201, C501, B619, B620** ("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: _____

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

By: _____

Name: Garry A. Palleschi

Title: Vice President

Attachment 11.8.6 (a) & (b) - Debarment Forms

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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.

Signature	11/5/19 Date	Vice President Title

Shirley Contracting Company, LLC
Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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	Date	Title
	10/30/19	VICE PRESIDENT

PENNONI ENGINEERS INC.
Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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.

	10/23/2019	President
Signature Arlan Singh	Date	Title

CES CONSULTING LLC
Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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] 10/24/19 Vice President

Signature Date Title

DMY Engineering Consultants Inc.

Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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.

W. R McKeague 10/25/2019 Vice President
Signature Date Title

Quantum Spatial, Inc.
Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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.

	10/24/2019	Vice President
Signature	Date	Title

Accumark, Inc.

Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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.

W. [signature] 10/28/19 VP / BUSINESS MANAGER

Signature Date Title

ECS MID-ATLANTIC, LLC

Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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.

Patricia E Dubbeck 10/22/2019 President

Signature Date Title

Diversified Property Services, Inc.

Name of Firm

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

Project No.: 0060-047-627, P101, R201, C501, B619, B620

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	Date	Title
[signature]	11-24-19	Vice President

Old Dominion Settlements, Inc. T/A Key Title
Name of Firm

ELECTRONIC COPY

Response to Request for Proposals

SKIFFES CREEK CONNECTOR

James City County, Virginia

State Project No.: 0060-047-627, P101, R201, C501, B619, B620
Federal Project No.: STP-5A03(455), STP-5A03(972)
Contract ID Number: C00100200DB104

November 5, 2019

VOLUME II DESIGN CONCEPT

Submitted By:

SHIRLEY
CONTRACTING COMPANY, LLC

In Association With:

Dewberry®

4.3.1 - Conceptual Roadway Plans

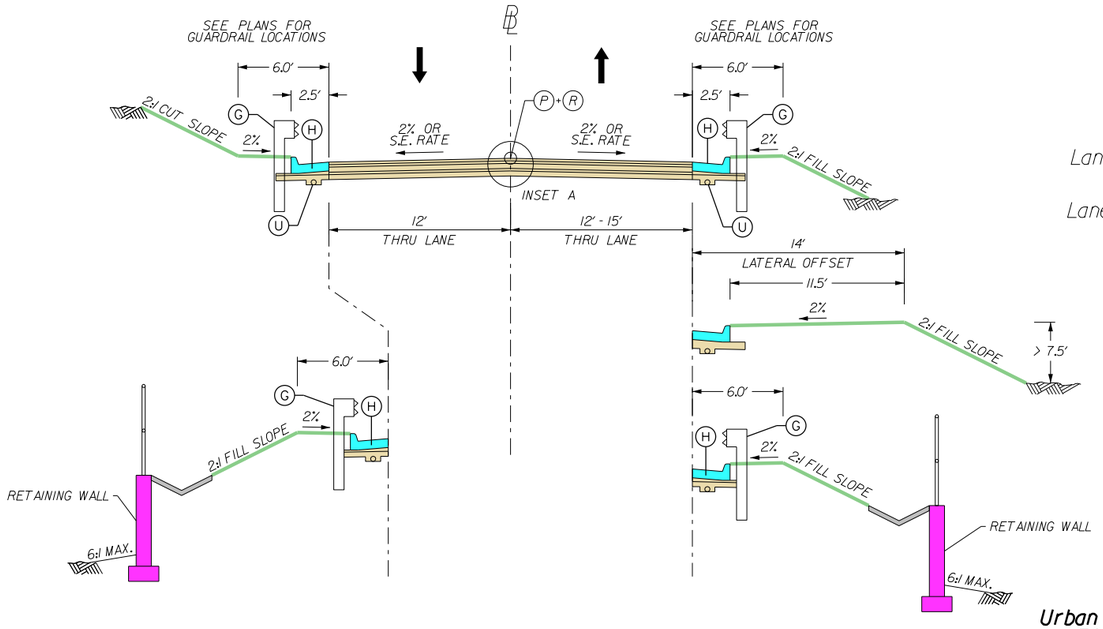
TYPICAL SECTIONS

STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	60	0060-047-627 P101, R201, C501	2A

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

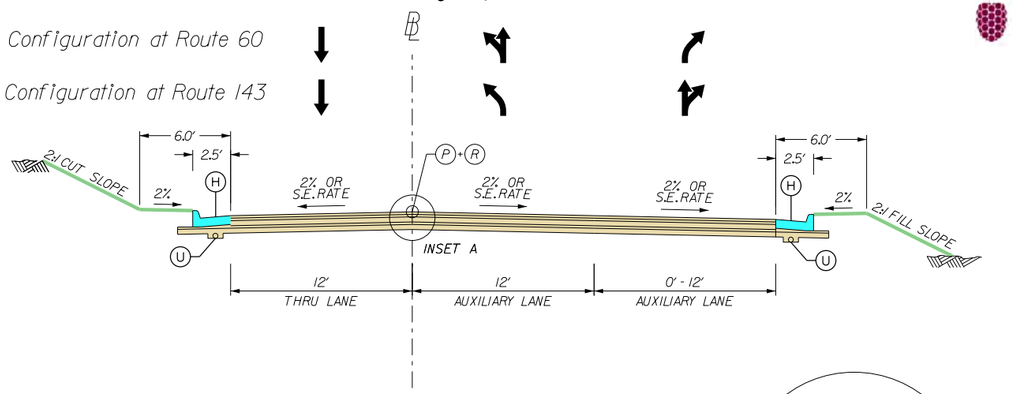
Skiffes Creek Connector
Urban Collector Street (GS-7)
35 MPH Design Speed

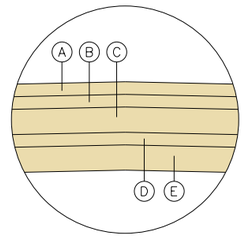


Skiffes Creek Connector
Urban Collector Street (GS-7)
35 MPH Design Speed

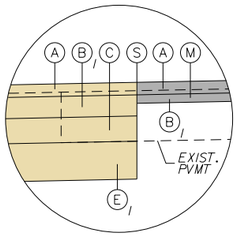
Lane Configuration at Route 60

Lane Configuration at Route 143





INSET A



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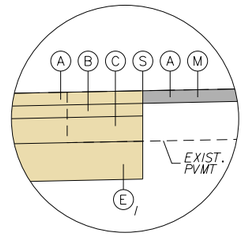
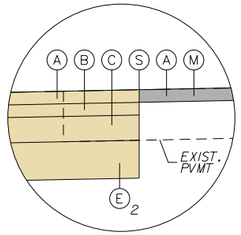
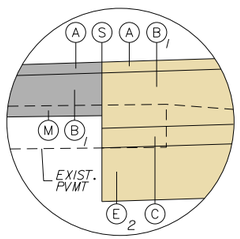


INSET B

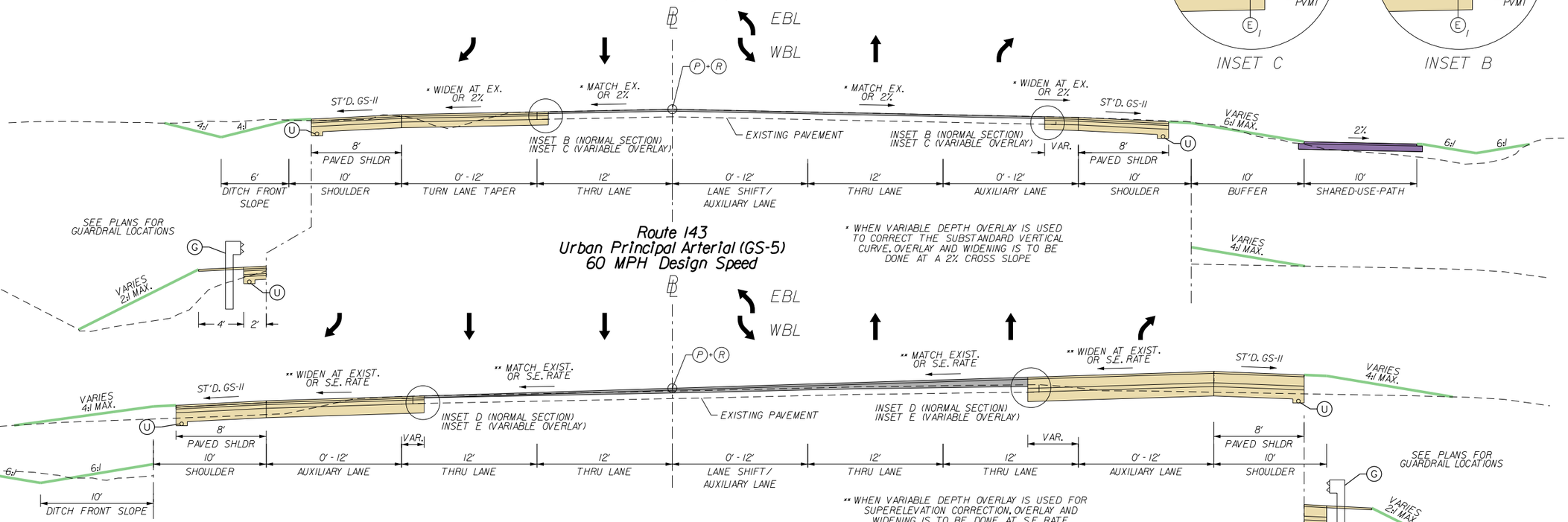


INSET D



INSET E

Route 60
Urban Principal Arterial (GS-5)
50 MPH Design Speed



Route 143
Urban Principal Arterial (GS-5)
60 MPH Design Speed

* WHEN VARIABLE DEPTH OVERLAY IS USED TO CORRECT THE SUBSTANDARD VERTICAL CURVE, OVERLAY AND WIDENING IS TO BE DONE AT A 2% CROSS SLOPE

** WHEN VARIABLE DEPTH OVERLAY IS USED FOR SUPERELEVATION CORRECTION, OVERLAY AND WIDENING IS TO BE DONE AT S.E. RATE

LEGEND

- (A) 2" Asphalt Concrete, Type SM-12.5D @ 220 lbs/sy
- (B) 2" Asphalt Concrete, Type IM-19.0D @ 220 lbs/sy
- (B)1 Variable Depth Asphalt Concrete Overlay, Type IM-19.0D @ 220 lbs/sy
- (C) 4" Asphalt Concrete, Type BM-25.0A
- (D) 2" Asphalt Open Graded Drainage Layer (OGDL)
- (E) 4" Cement Treated Aggregate Base Material, Type I, Size 21A (CTA)
- (E)1 6" Min. Aggregate Base Material, Type I, Size 21 or Match Existing Depth, Whichever is Greater
- (E)2 10" Min. Aggregate Base Material, Type I, Size 21 or Match Existing Depth, Whichever is Greater
- (G) Guardrail, St'd. GR-MGS-1 Req'd.
- (H) Curb & Gutter, St'd. CG-6 Req'd.
- (M) Mill 2" of Existing Asphalt Concrete
- (P) Profile Grade Line (PGL)
- (R) Point of Rotation
- (S) Full Depth Sawcut, St'd. WP-2 Req'd.
- (U) Underdrain, St'd. UD-4 Req'd.

- Proposed Grass Median / Buffer / Planted Area
- Proposed Roadway Pavement
- Proposed Milling and Overlay / Build-up
- Proposed Curb
- Proposed Retaining Wall
- Proposed Shared-Use-Path

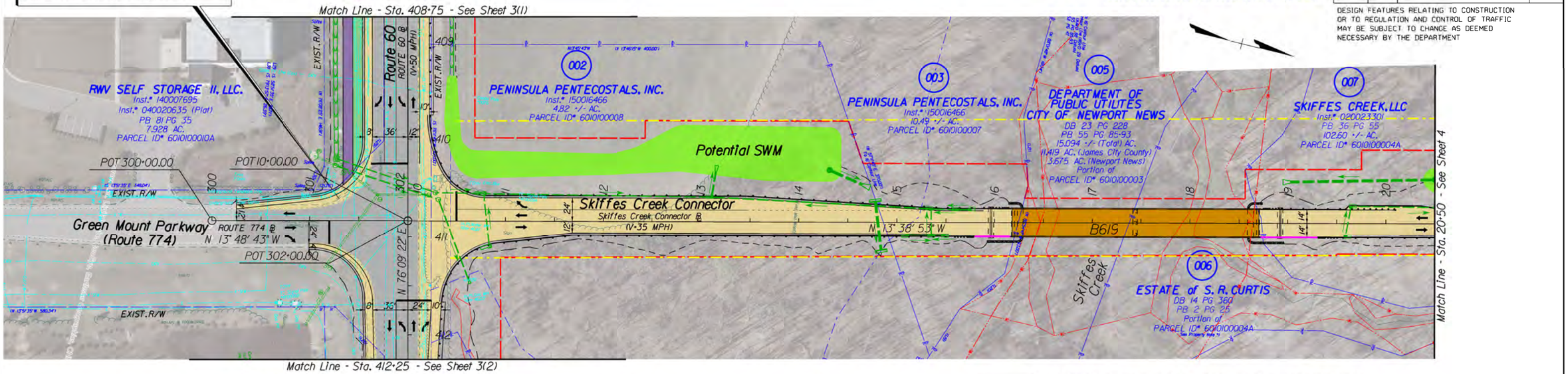
SCALE	PROJECT	SHEET NO.
0 10' 20'	0060-047-627	2A

Dewberry | SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	60	0060-047-627 P101, R201, C501	3

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

DESIGN ENHANCEMENT
Increased turning radius for right turn movement eliminates off-tracking of design vehicle.

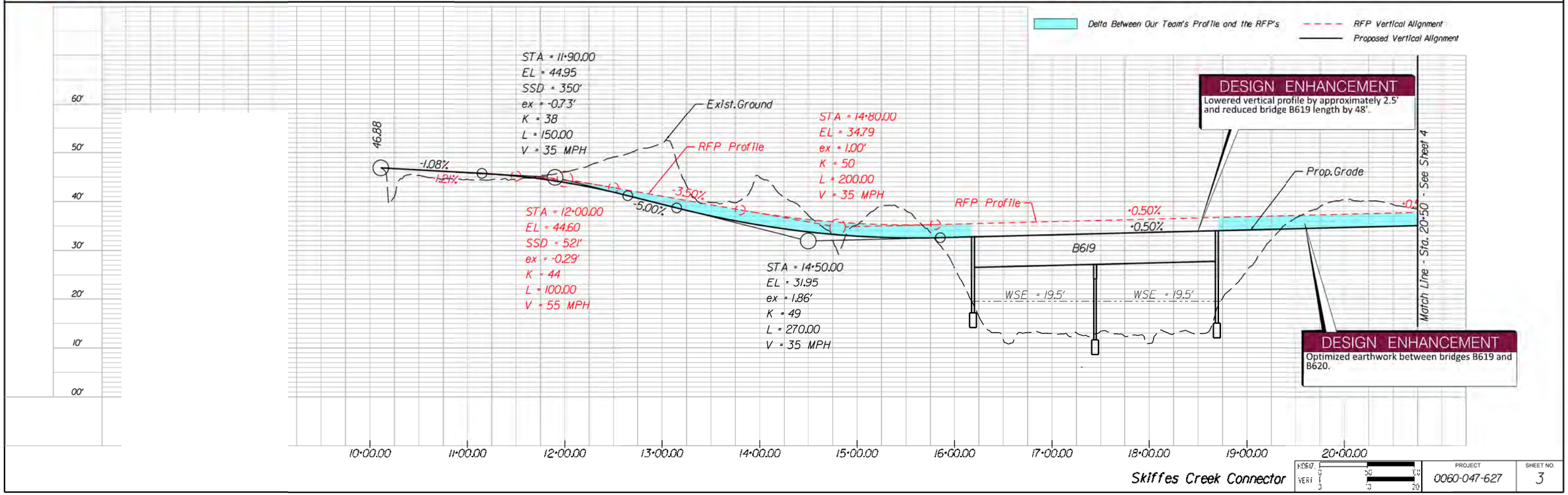


Proposed Full Depth Pavement
Proposed Milling and Overlay / Build-Up
Proposed Shared Use Path
Proposed Bridge
Lane Use Arrows
Proposed Grass Median/Buffer/Planted Area
Potential Stormwater Management Facility
Reduction of Fee Simple Right-Of-Way
Proposed Retaining Wall
Proposed Fee Simple Right-of-Way per RFP
Offeror's Revised Proposed Fee Simple Right-of-Way
Environmental Corridor
Existing Property Lines
Proposed Utility Relocations
Existing Utility Designations per RFP

	Turn Lane ID	Required Storage	Provided Storage	Taper Req'd. & Provided
Route 60 @ SCC	SBR	255×	300	200
	WBL	Existing	200	200
	WBR	0	0	200
	EBL	175	200	200
	EBR	Existing	200	200

× Required Storage Is Based on Queue Length of Adjacent Lanes as to not Block Turn Lanes

SCALE 0 50' 100'



Skiffes Creek Connector

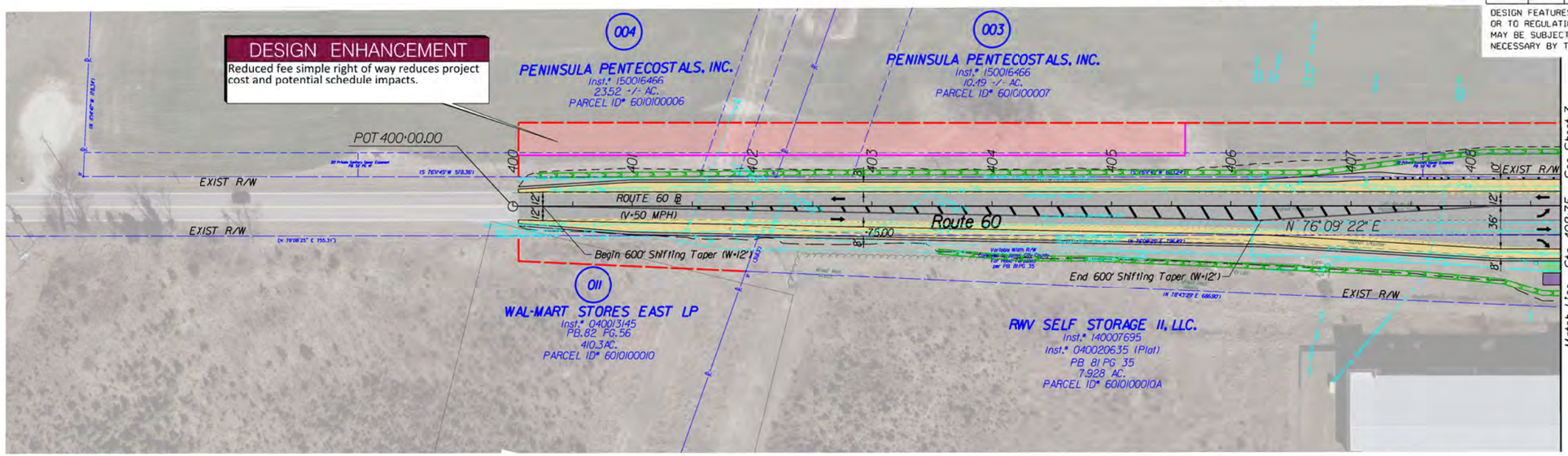
HORIZ. 1" = 50'
VERT 1" = 10'

PROJECT	SHEET NO.
0060-047-627	3

Dewberry | SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	60	0060-047-627 P101, R201, C501	3(1)

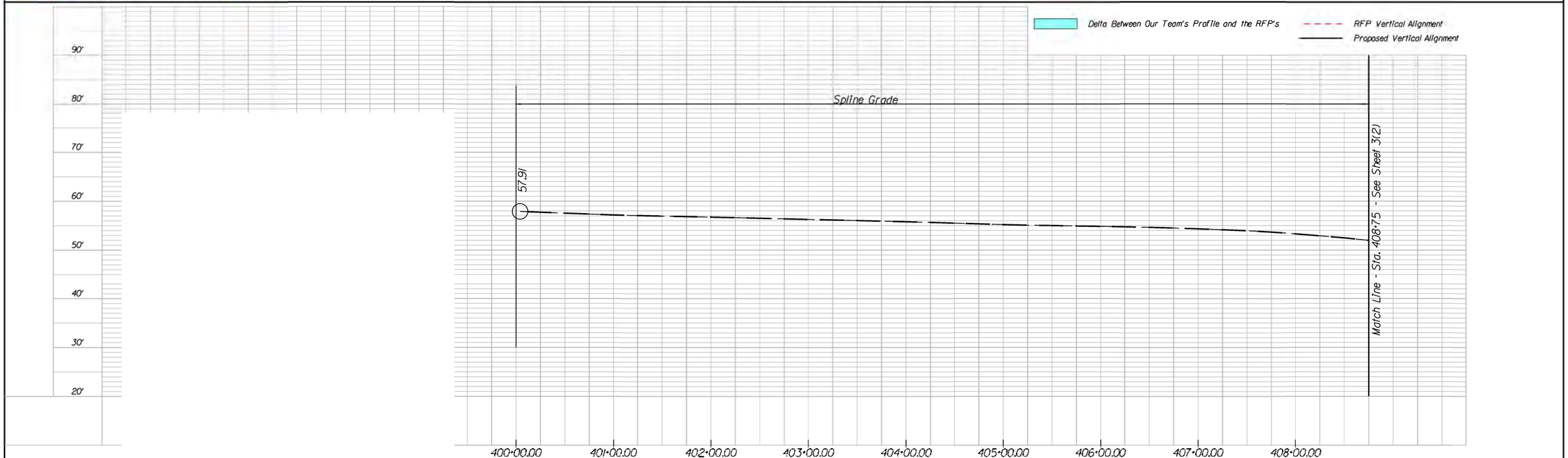
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



Proposed Full Depth Pavement
Proposed Milling and Overlay / Build-Up
Proposed Shared Use Path
Proposed Bridge
Lane Use Arrows
Proposed Grass Median/Buffer/Planted Area
Potential Stormwater Management Facility
Reduction of Fee Simple Right-Of-Way
Proposed Retaining Wall
Proposed Fee Simple Right-of-Way per RFP
Offeror's Revised Proposed Fee Simple Right-of-Way
Environmental Corridor
Existing Property Lines
Proposed Utility Relocations
Existing Utility Designations per RFP

	Turn Lane ID	Required Storage	Provided Storage	Taper Req'd. & Provided
Route 60 @ SCC	EBL	175	200	200
	EBR	Existing	200	200

SCALE 0 50' 100'



Route 60

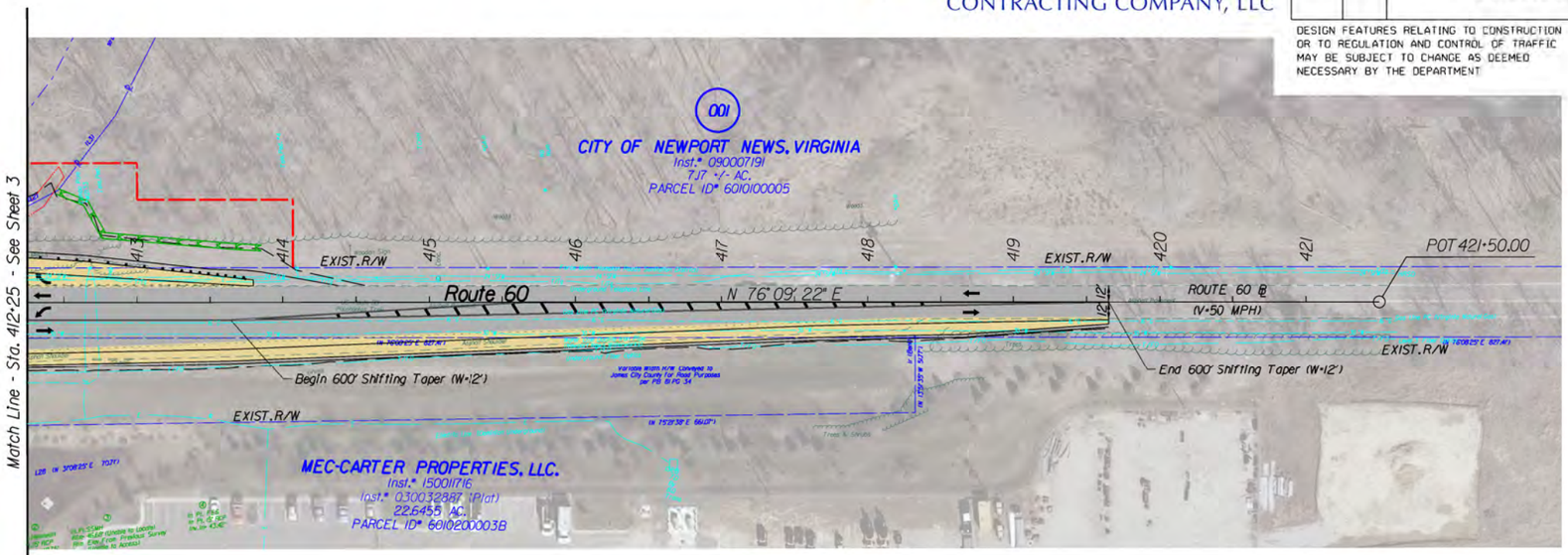
HORIZ. 1" = 50'
VERT 1" = 10'

PROJECT	SHEET NO.
0060-047-627	3(1)

Dewberry | SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO
VA.	60	0060-047-627 P101, R201, C501	3(2)

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

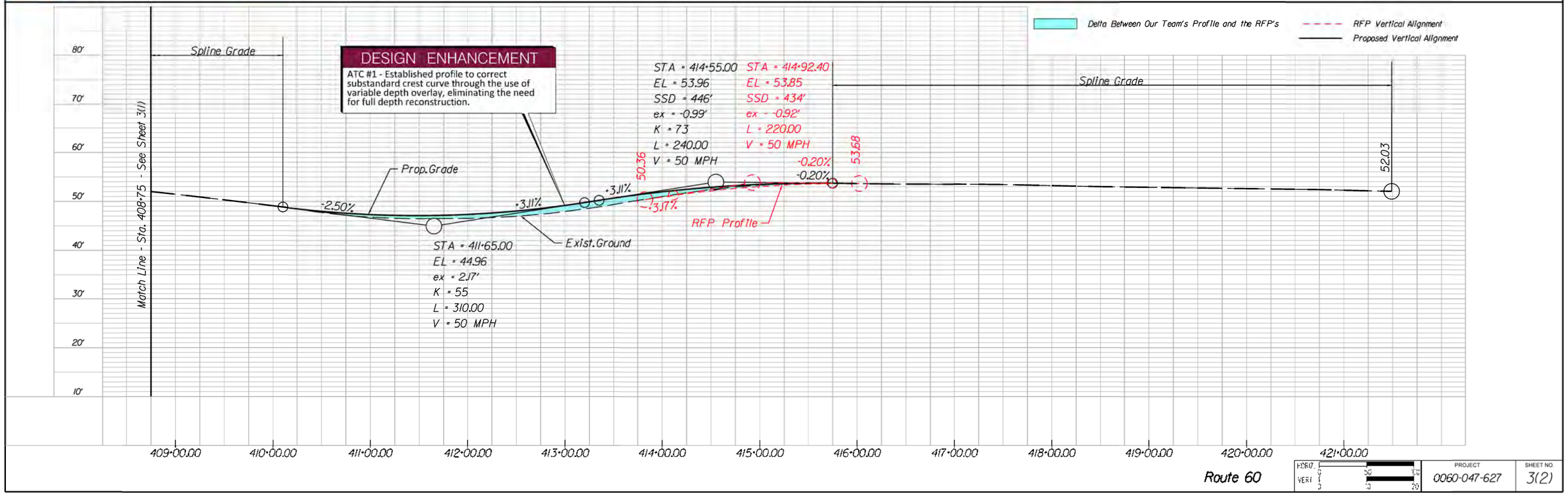


Lane Use Arrows

- Proposed Full Depth Pavement
- Proposed Milling and Overlay / Build-Up
- Proposed Shared Use Path
- Proposed Bridge
- Proposed Grass Median/Buffer/Planted Area
- Potential Stormwater Management Facility
- Reduction of Fee Simple Right-Of-Way
- Proposed Retaining Wall
- Proposed Fee Simple Right-of-Way per RFP
- Offeror's Revised Proposed Fee Simple Right-of-Way
- Environmental Corridor
- Existing Property Lines
- Proposed Utility Relocations
- Existing Utility Designations per RFP

	Turn Lane ID	Required Storage	Provided Storage	Taper Req'd. & Provided
Route 60 ℄ SCC	WBL	Existing	200	200
	WBR	0	0	200

SCALE 0 50' 100'



Route 60

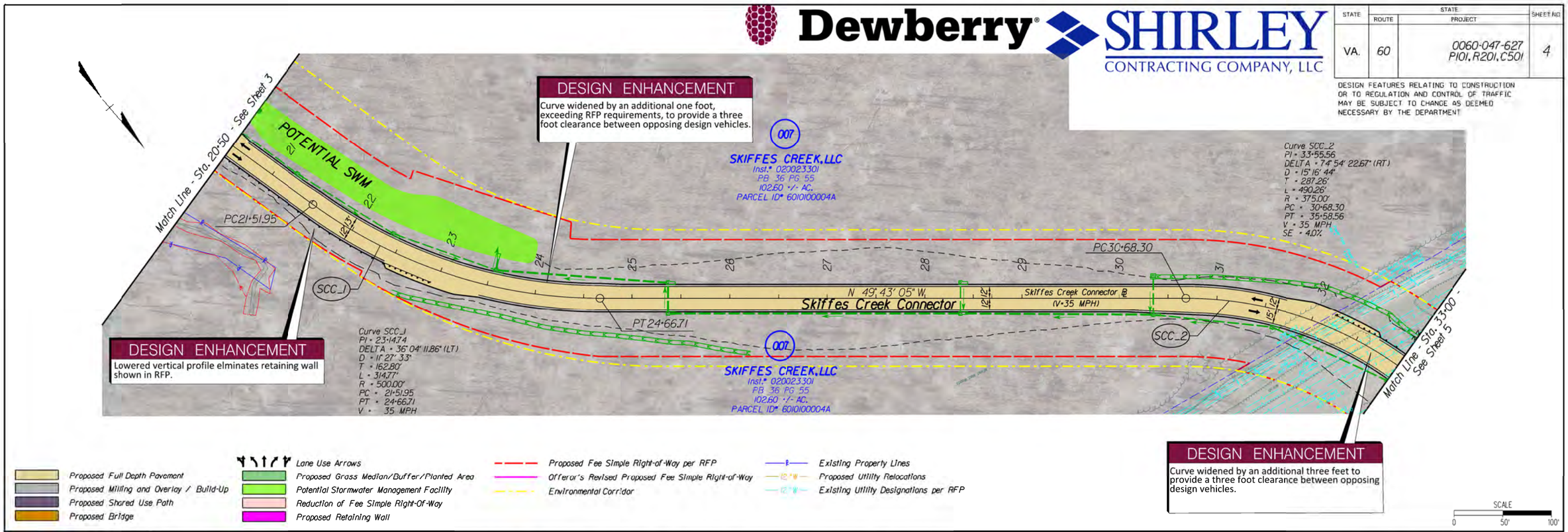
HORIZ. 1" = 30' VERT 1" = 3'

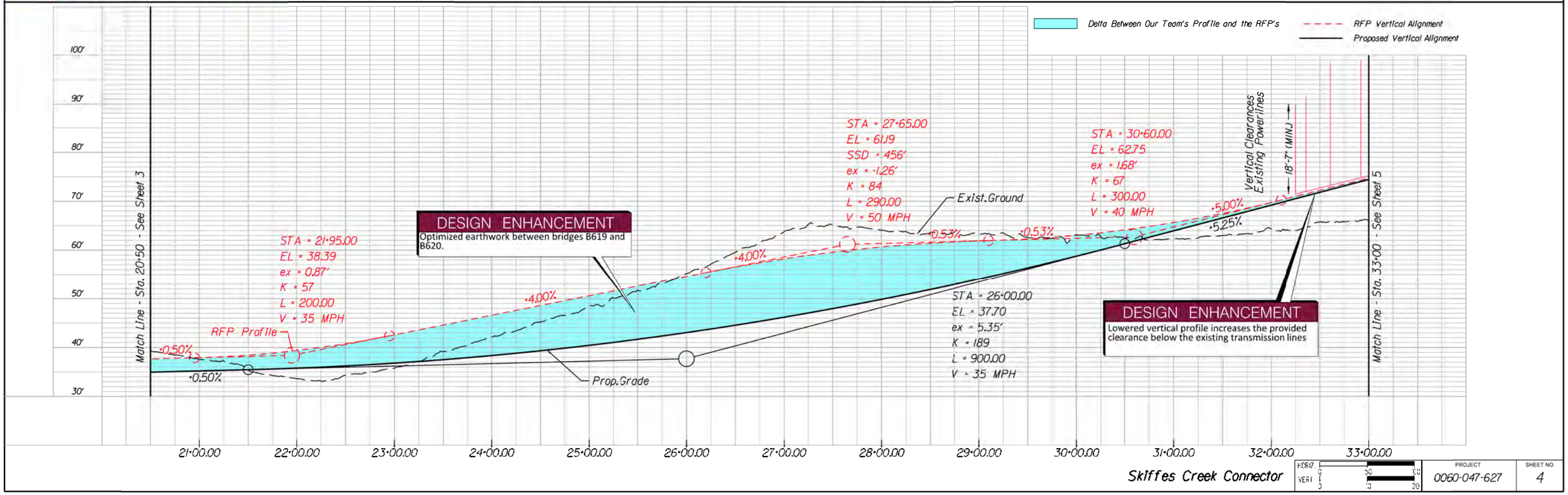
PROJECT	SHEET NO.
0060-047-627	3(2)

Dewberry | SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO
VA.	60	0060-047-627 P101,R201,C501	4

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





Skiffes Creek Connector

HORIZ. 1" = 50'
VERT 1" = 10'

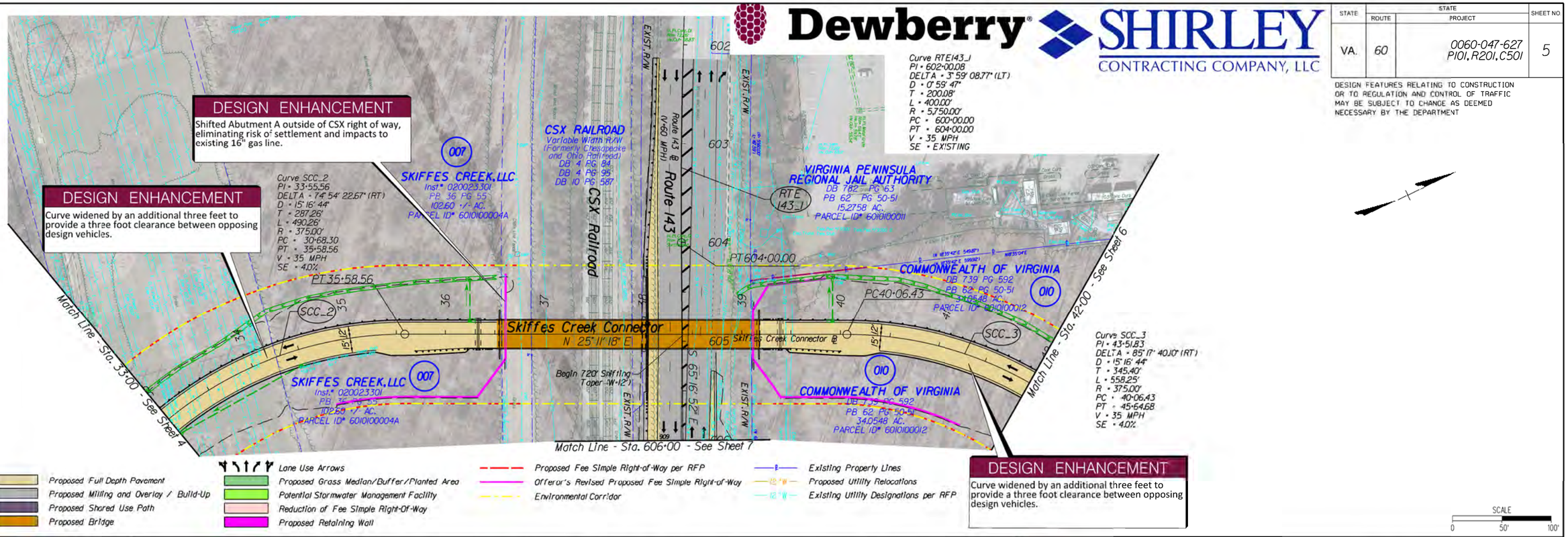
PROJECT	SHEET NO.
0060-047-627	4

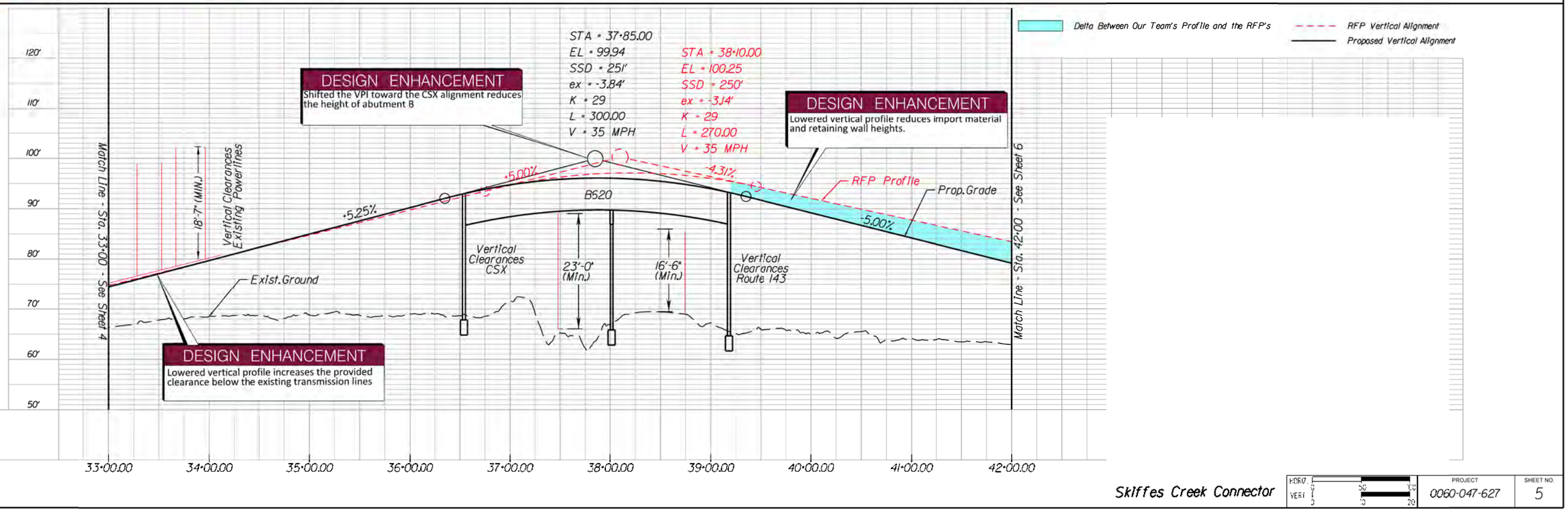
Dewberry

SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	60	0060-047-627 P101, R201, C501	5

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





Skiffes Creek Connector

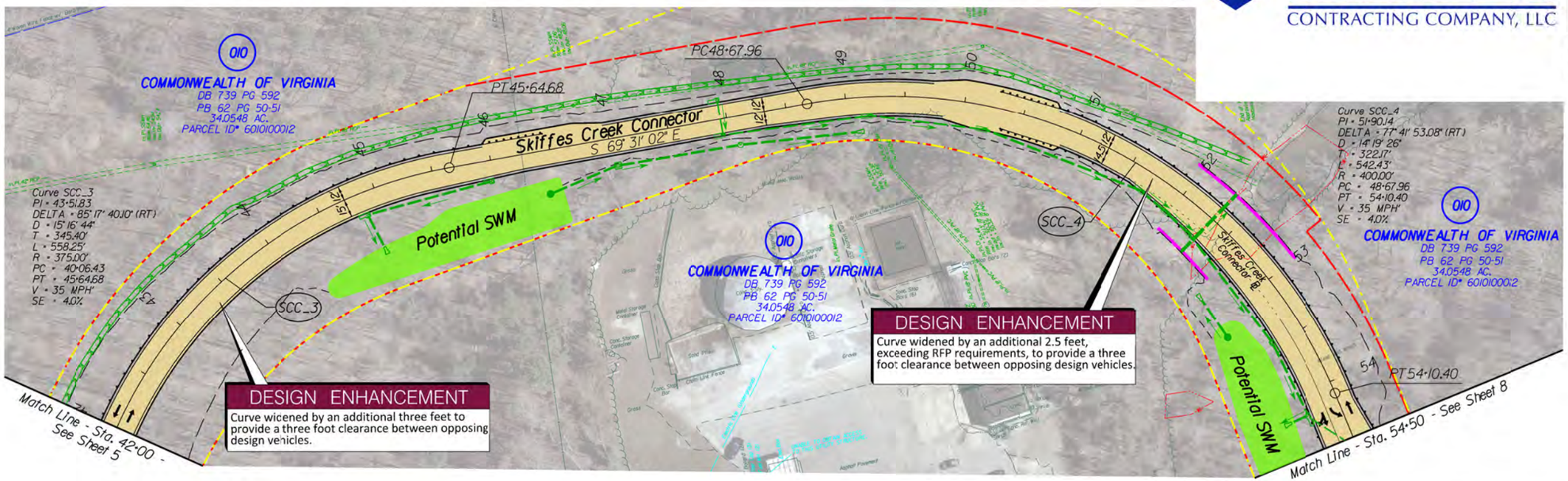
HORIZ. 1" = 50'
VERT. 1" = 10'

PROJECT	SHEET NO.
0060-047-627	5

Dewberry | SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	60	0060-047-627 P101,R201,C501	6

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

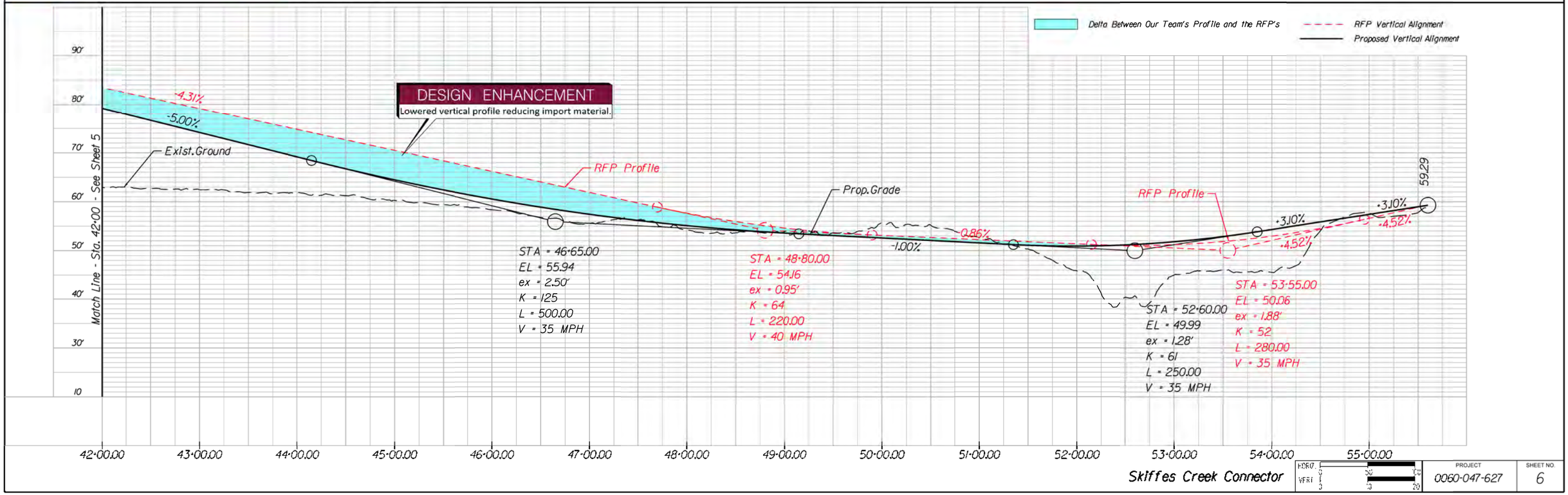


Proposed Full Depth Pavement
Proposed Milling and Overlay / Build-Up
Proposed Shared Use Path
Proposed Bridge
Lane Use Arrows
Proposed Grass Median/Buffer/Planted Area
Potential Stormwater Management Facility
Reduction of Fee Simple Right-Of-Way
Proposed Retaining Wall
Proposed Fee Simple Right-of-Way per RFP
Offeror's Revised Proposed Fee Simple Right-of-Way
Environmental Corridor
Existing Property Lines
Proposed Utility Relocations
Existing Utility Designations per RFP

	Turn Lane ID	Required Storage	Provided Storage	Taper Req'd.& Provided
Route 143 @ SCC	SBTR	230*	230	200

* Required Storage Is Based on Queue Length of Adjacent Lanes as to not Block Turn Lanes

SCALE 0 50' 100'



Skiffes Creek Connector

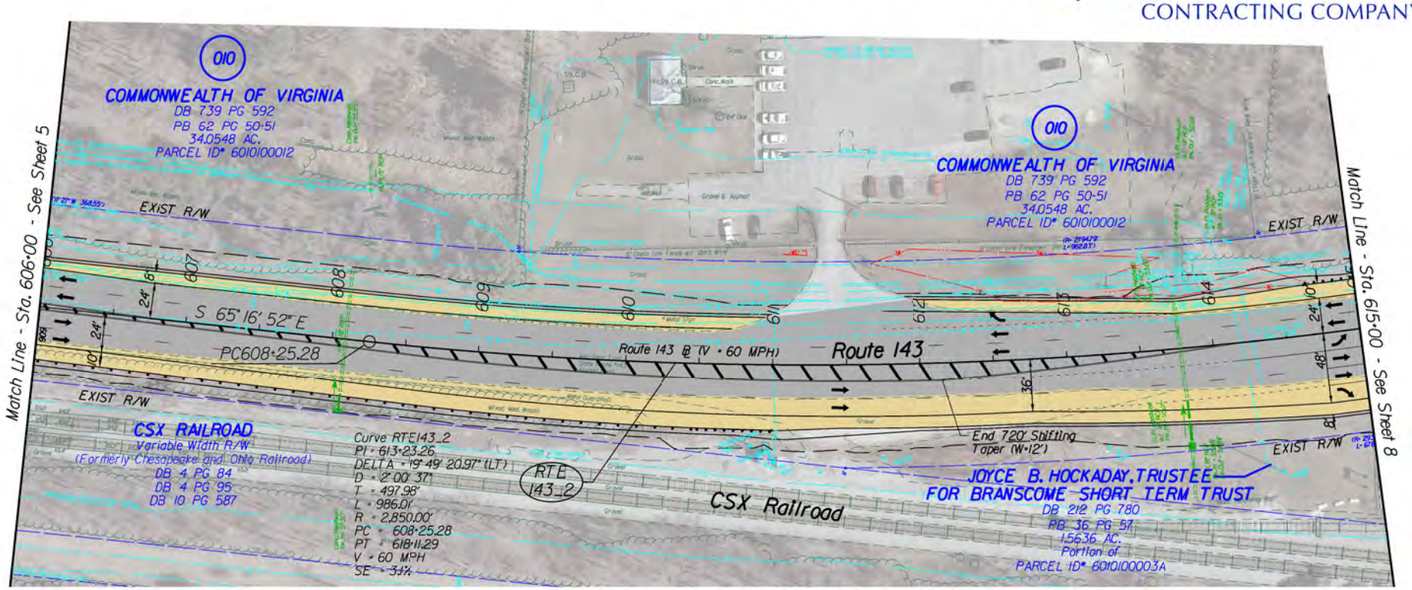
HORIZ. 1" = 50' VERT. 1" = 10'

PROJECT	SHEET NO.
0060-047-627	6

Dewberry | SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	60	0060-047-627 P101,R201,C501	7

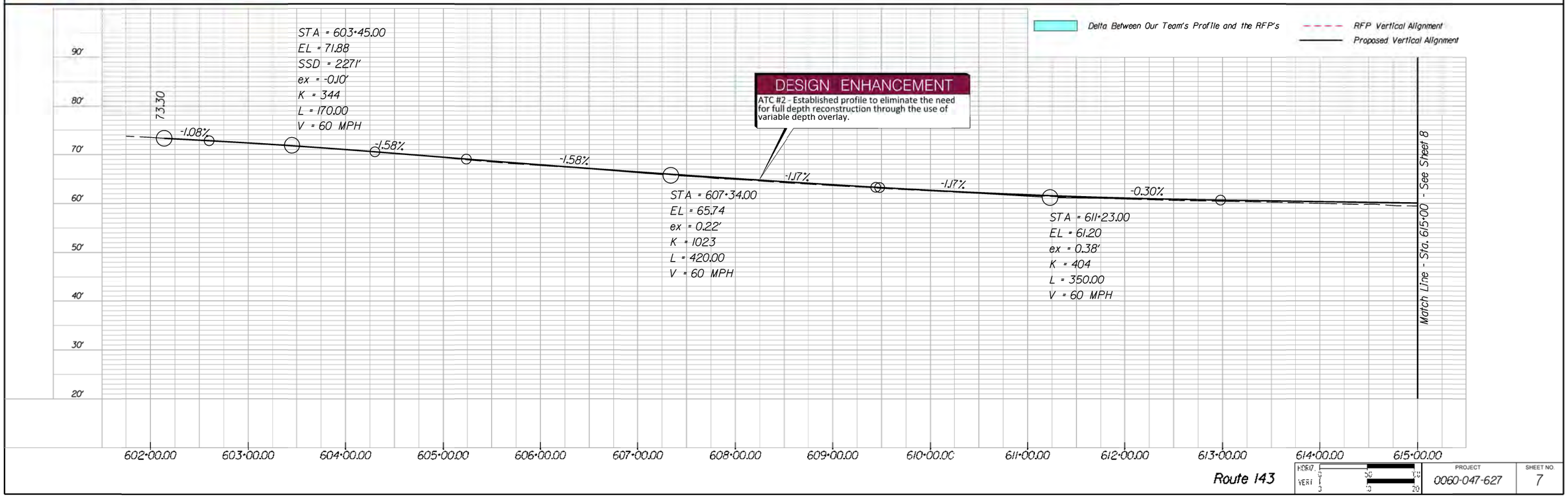
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT



Proposed Full Depth Pavement
Proposed Milling and Overlay / Build-Up
Proposed Shared Use Path
Proposed Bridge
Lane Use Arrows
Proposed Grass Median/Buffer/Planted Area
Potential Stormwater Management Facility
Reduction of Fee Simple Right-Of-Way
Proposed Retaining Wall
Proposed Fee Simple Right-of-Way per RFP
Offeror's Revised Proposed Fee Simple Right-of-Way
Environmental Corridor
Existing Property Lines
Proposed Utility Relocations
Existing Utility Designations per RFP

	Turn Lane ID	Required Storage	Provided Storage	Taper Req'd.& Provided
Route 143 @ SCC	EBL	155	160	200
	EBR	100	100	200

SCALE 0 50' 100'



Route 143

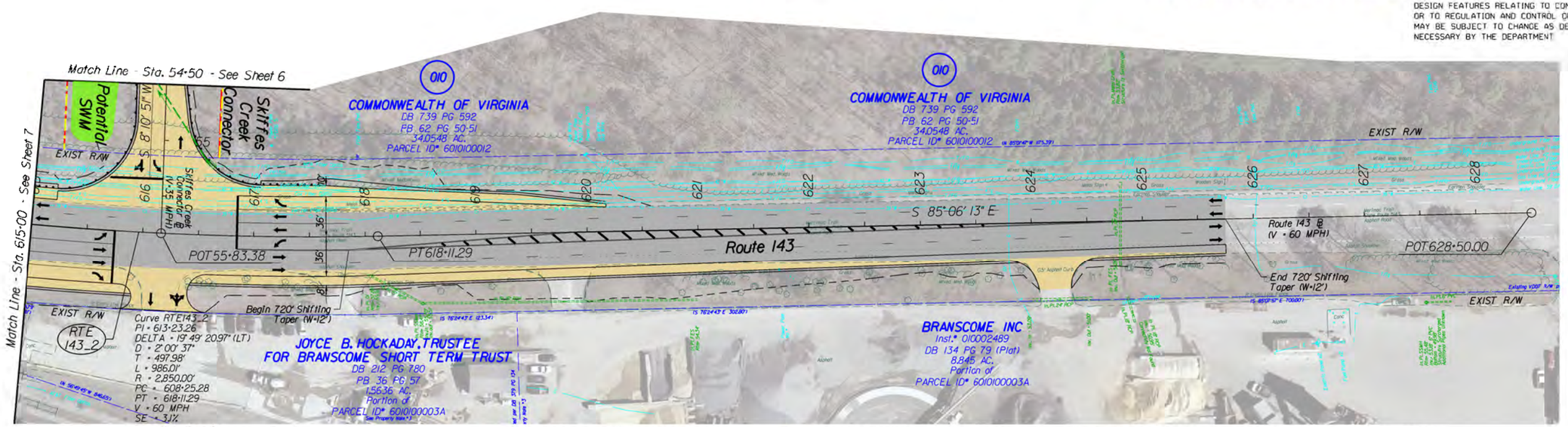
HORIZ. 0 30 60
VERT 0 10 20

PROJECT	SHEET NO.
0060-047-627	7

Dewberry | SHIRLEY CONTRACTING COMPANY, LLC

STATE	STATE ROUTE	STATE PROJECT	SHEET NO
VA.	60	0060-047-627 P101,R201,C501	8

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

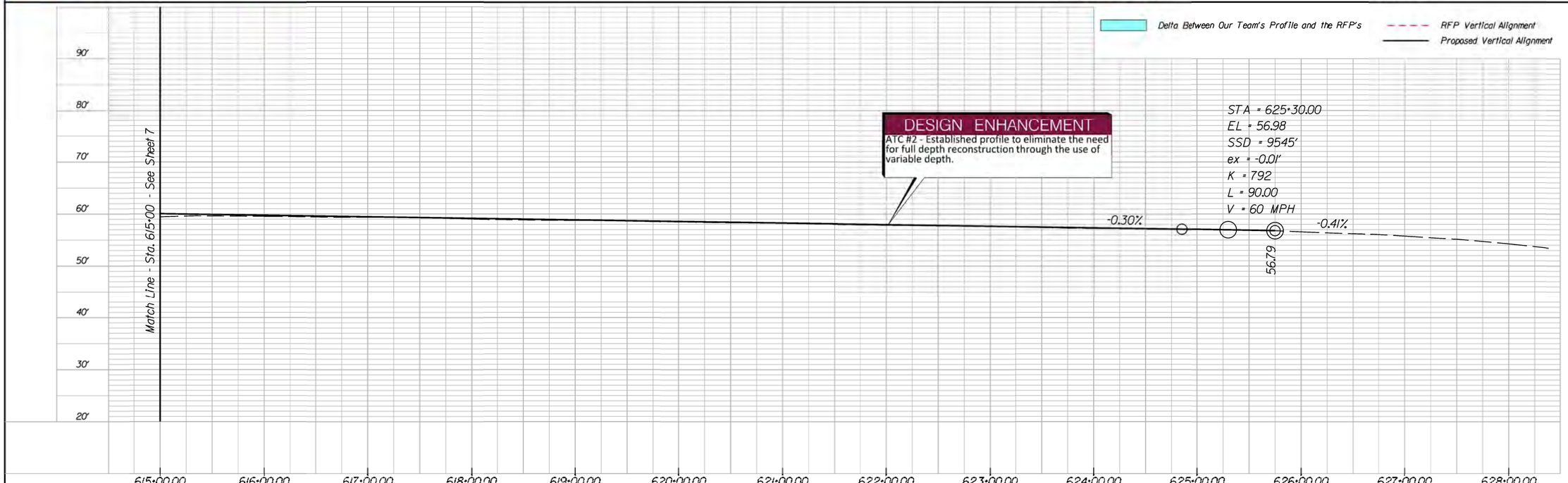


Proposed Full Depth Pavement
Proposed Milling and Overlay / Build-Up
Proposed Shared Use Path
Proposed Bridge
Lane Use Arrows
Proposed Grass Median/Buffer/Planted Area
Potential Stormwater Management Facility
Reduction of Fee Simple Right-Of-Way
Proposed Retaining Wall
Proposed Fee Simple Right-of-Way per RFP
Offeror's Revised Proposed Fee Simple Right-of-Way
Environmental Corridor
Existing Property Lines
Proposed Utility Relocations
Existing Utility Designations per RFP

	Turn Lane ID	Required Storage	Provided Storage	Taper Req'd.& Provided
Route 143 @ SCC	SBTR	230x	230	200
	WBL	100	100	200
	WBR	100	100	200
	EBL	155	160	200
	EBR	100	100	200

x Required Storage Is Based on Queue Length of Adjacent Lanes as to not Block Turn Lanes

SCALE 0 50' 100'



Route 143

HORIZ. 1" = 30'
VERT 1" = 10'

PROJECT	SHEET NO.
0060-047-627	8

4.3.2 - Conceptual Structural Plans

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	STP-5A03(455)	XXX	0060-047-627, B619	1
Federal Structure No. XXXXXXXXXXXXX			FHWA Construction and Scour Code:		X581-SN
Federal Stewardship and Oversight Code: NFO				UPC No. 100200	

DESIGN EXCEPTION(S):

None.

GENERAL NOTES:

Width: 28'-0" face-to-face of rails.

Span layout: 125'-1½" - 125'-1½" prestressed concrete bulb-T beam spans continuous for live load.

Capacity: HL-93 loading.

Drainage area: N/A sq. mi.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.

Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2018; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

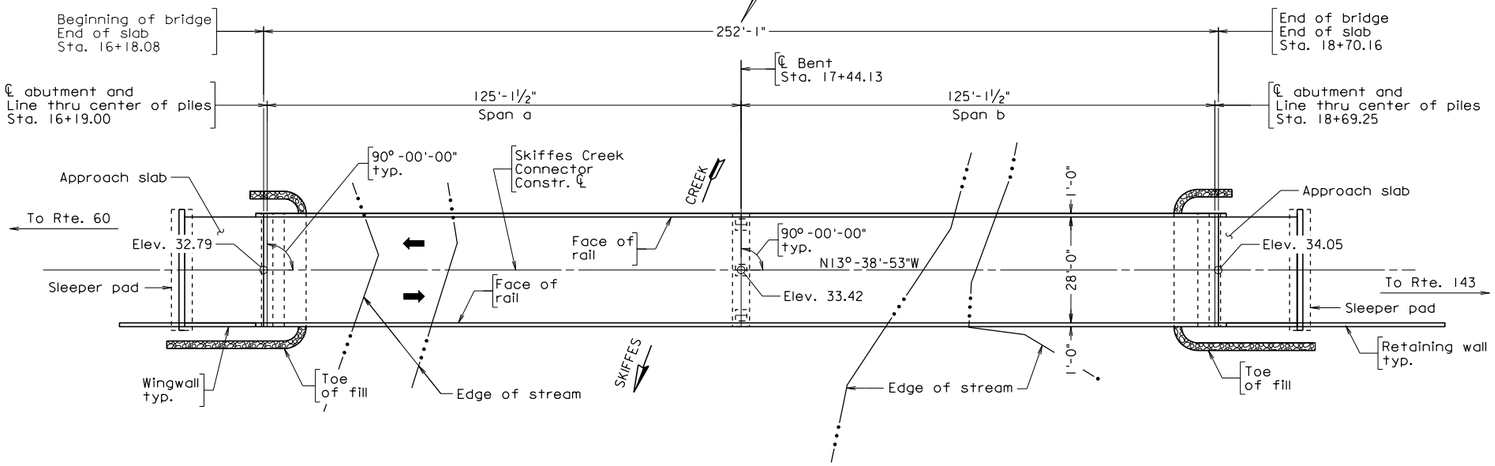
These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

DESIGN ENHANCEMENT

Reduced length of RFP bridge from 300' to 252' which reduced initial construction cost and long-term maintenance costs.



ABUTMENT A — ABUTMENT B

PLAN

DESIGN ENHANCEMENT

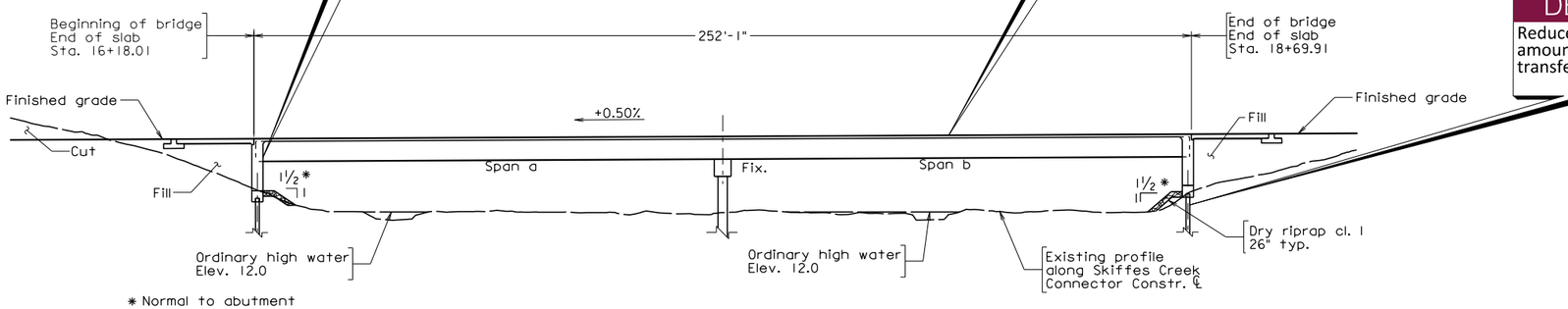
Lowered bridge profile by approximately 2.5' which reduced abutment and associated retaining wall heights while improving the projects construction schedule.

DESIGN ENHANCEMENT

Reduced bridge overall footprint by 16% thus decreasing associated environmental impacts.

DESIGN ENHANCEMENT

Reduced amount of required fill decreases the amount of settlement and downdrag loads transferred to the piles.



* Normal to abutment

ABUTMENT A — BENT — ABUTMENT B

DEVELOPED SECTION ALONG CONSTRUCTION ℄

Scale: 1" = 20'

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE ON SKIFFES CREEK CONNECTOR OVER SKIFFES CREEK
JAMES CITY COUNTY - 0.1 MI. N. RTE. 60
PROJ. 0060-047-627, B619

Recommended for Approval: _____ Developer _____ Date

Approved: _____ Chief Engineer _____ Date

XXX-XX

Date: September XX, 2019 © 2019, Commonwealth of Virginia Sheet 1 of 2

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION ENGINEER
Dewberry Engineers Inc. Fairfax, Virginia STRUCTURAL ENGINEER

PLANS BY:	Dewberry Engineers Inc.
COORDINATED:	---
SUPERVISED:	---
DESIGNED:	---
DRAWN:	---
CHECKED:	---

No.	Description	Date

REVISIONS

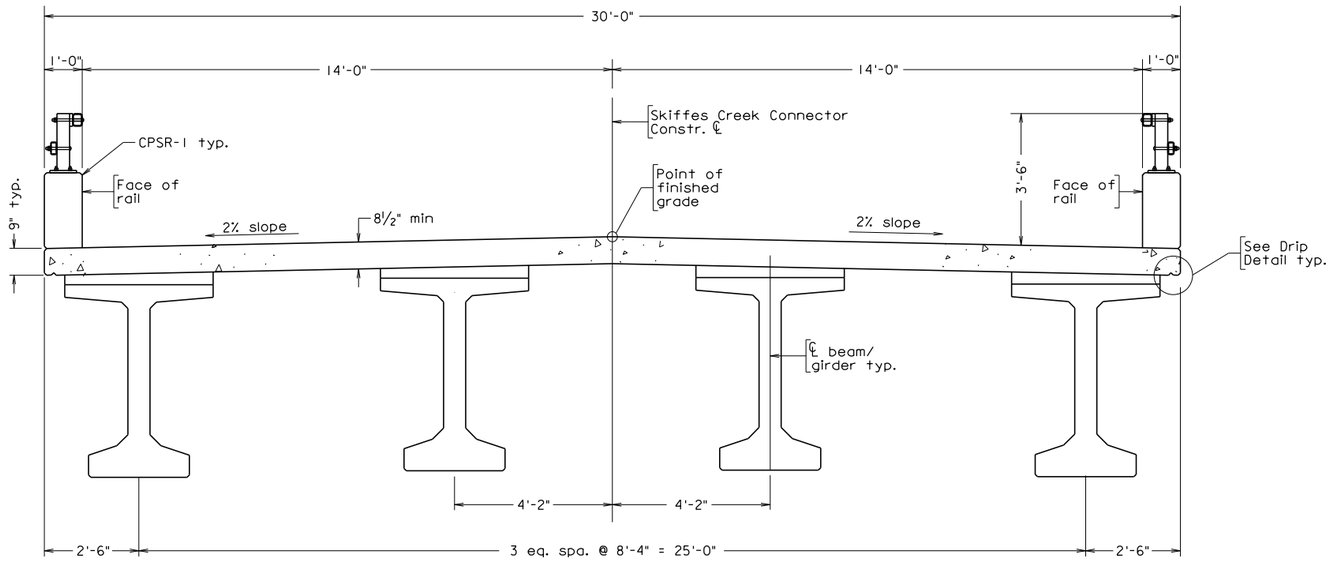
For Table of Revisions, see Sheet 2.

SC_001_Conceptual Design 1.dgn

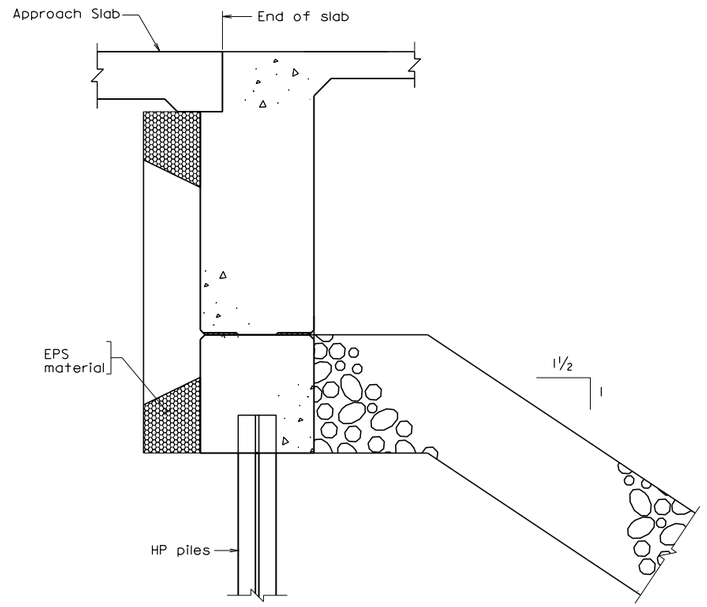
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—		XXX	0060-047-627, B619	

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

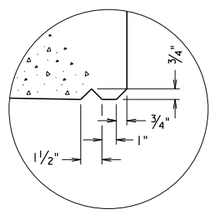


TRANSVERSE SECTION



ABUTMENT SECTION

Not to scale



DRIP DETAIL

Scale ½" = 1'-0" unless otherwise noted

© 2019, Commonwealth of Virginia

Dewberry Engineers Inc.
Fairfax, Virginia
STRUCTURAL ENGINEER

No.	Description	Date
Revisions		

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

TRANSVERSE SECTION

Designed: ..... Drawn: ..... Checked:	Date	Plan No.	Sheet No.
	Aug. 2019	XXX-XX	of

SC.002_Typical Section with CPSR.dgn

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	STP-5A03(455)	XXX	0060-047-627, B620	1
Federal Structure No. XXXXXXXXXXXXXX			FHWA Construction and Scour Code:		X581-SN
Federal Stewardship and Oversight Code:		NFO		UPC No. 100200	

DESIGN EXCEPTION(S):

None

GENERAL NOTES:

Width: 28'-0" face-to-face of rails.

Span layout: 146'-0", 115'-0" continous steel plate girder spans

Capacity: HL-93 loading.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.

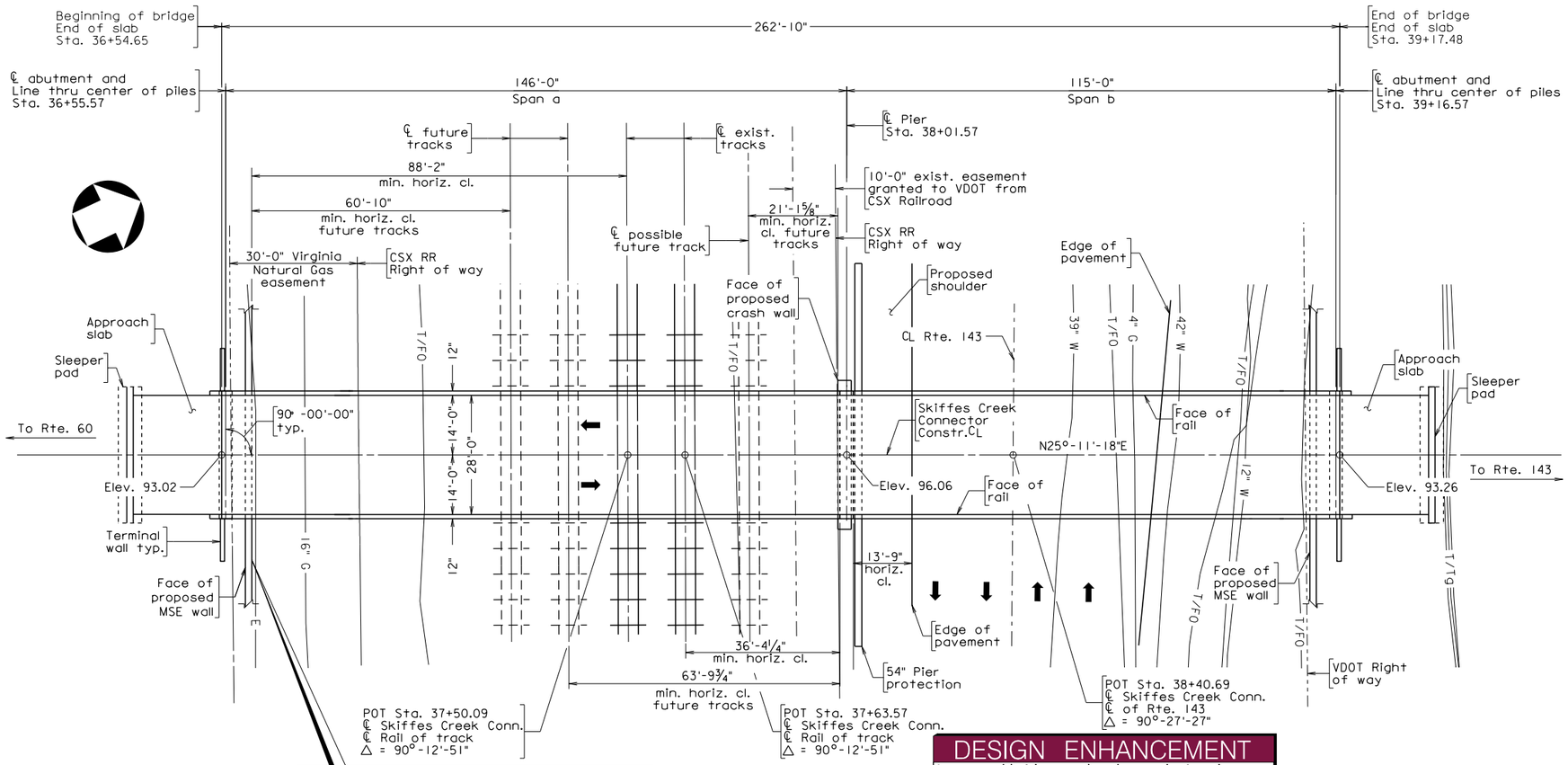
Design: AASHTO LRFD Bridge Design Specifications, 8th Edition, 2018; and VDOT Modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

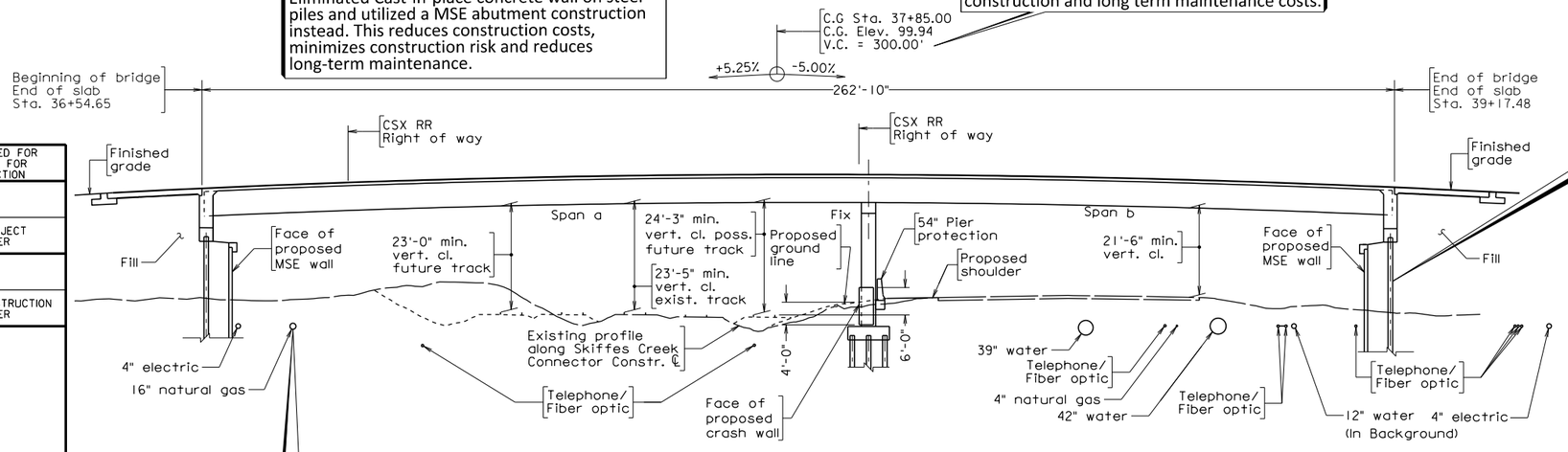


DESIGN ENHANCEMENT

Eliminated Cast-in-place concrete wall on steel piles and utilized a MSE abutment construction instead. This reduces construction costs, minimizes construction risk and reduces long-term maintenance.

DESIGN ENHANCEMENT

Increased bridge grades thus reducing the heights of the north abutment, pier and retaining walls which subsequently reduces construction and long term maintenance costs.



DEVELOPED SECTION ALONG CONSTRUCTION ℄

Note: All utilities shown 3'-0" below existing profile along centerline in absence of exact elevation.

DESIGN ENHANCEMENT

Reduced amount of required fill decreases the amount of settlement and downdrag loads transferred to the piles.

DESIGN ENHANCEMENT

Relocated south abutment to span over existing 16"gas line thus eliminating settlement issues, reducing cost while providing easy access for future maintenance.

Scale: 1/16" = 1'-0"

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE ON SKIFFES CREEK CONNECTOR OVER VA ROUTE 143 AND CSX RAILROAD JAMES CITY COUNTY - 0.6 MI. WEST OF I-64/ VA RTE. 143 INTERCHANGE PROJ. 0060-047-627, B620

Recommended for Approval: _____ Developer Date

Approved: _____ Chief Engineer Date

XXX-XX

Date: September XX, 2019 © 2019, Commonwealth of Virginia Sheet 1 of 2

No.	Description	Date

REVISIONS

For Table of Revisions, see Sheet 2.

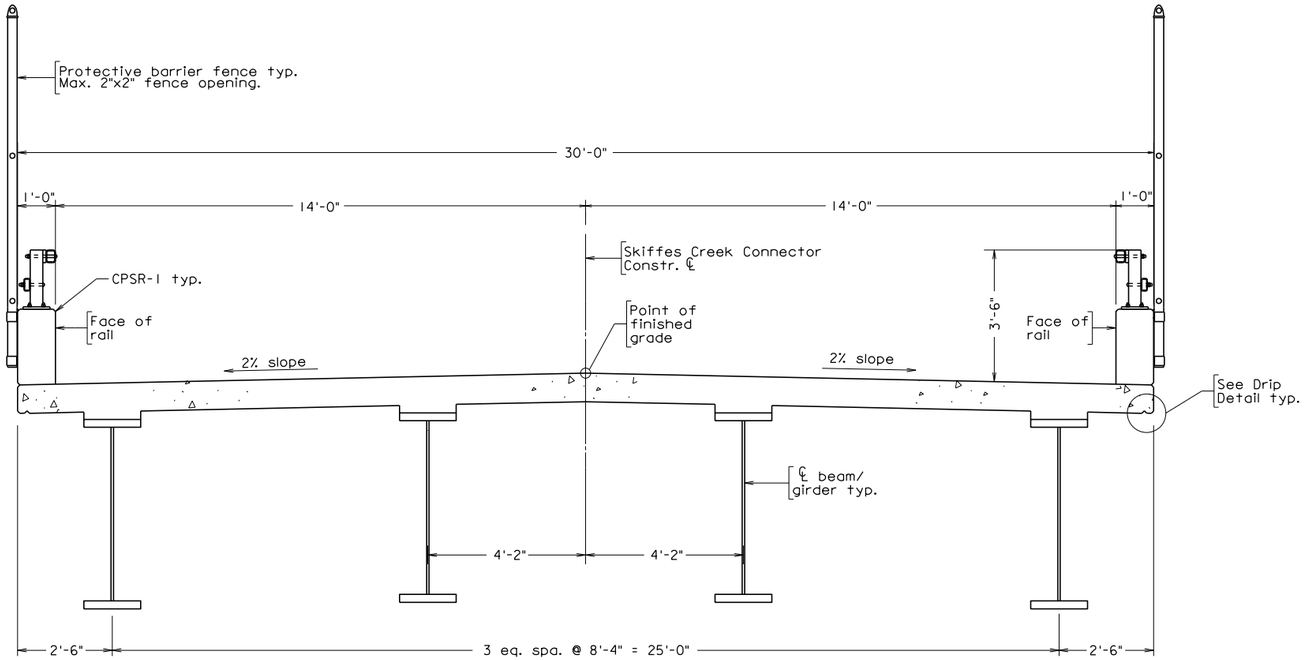
RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
VDOT PROJECT MANAGER	
DISTRICT CONSTRUCTION ENGINEER	
Dewberry Engineers Inc. Fairfax, Virginia STRUCTURAL ENGINEER	
PLANS BY:	Dewberry Engineers Inc.
COORDINATED:	---
SUPERVISED:	---
DESIGNED:	---
DRAWN:	---
CHECKED:	---

CSX_001_Conceptual Design 1.dgn

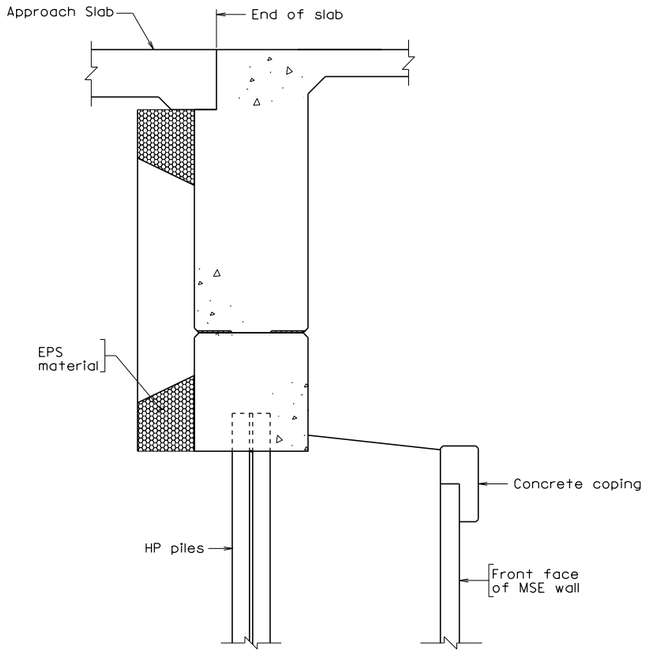
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	———	XXX	0060-047-627, B620	2

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

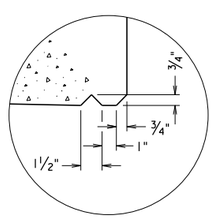


TRANSVERSE SECTION



ABUTMENT SECTION

Not to scale



DRIP DETAIL

Scale: ½" = 1'-0" unless otherwise noted

© 2019, Commonwealth of Virginia

CSX_002_Typical Section with CPSR.dgn

Dewberry Engineers Inc.
Fairfax, Virginia
STRUCTURAL ENGINEER

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

TRANSVERSE SECTION

Designed:	Date	Plan No.	Sheet No.
Drawn:	Aug. 2019	XXX-XX	of
Checked:			

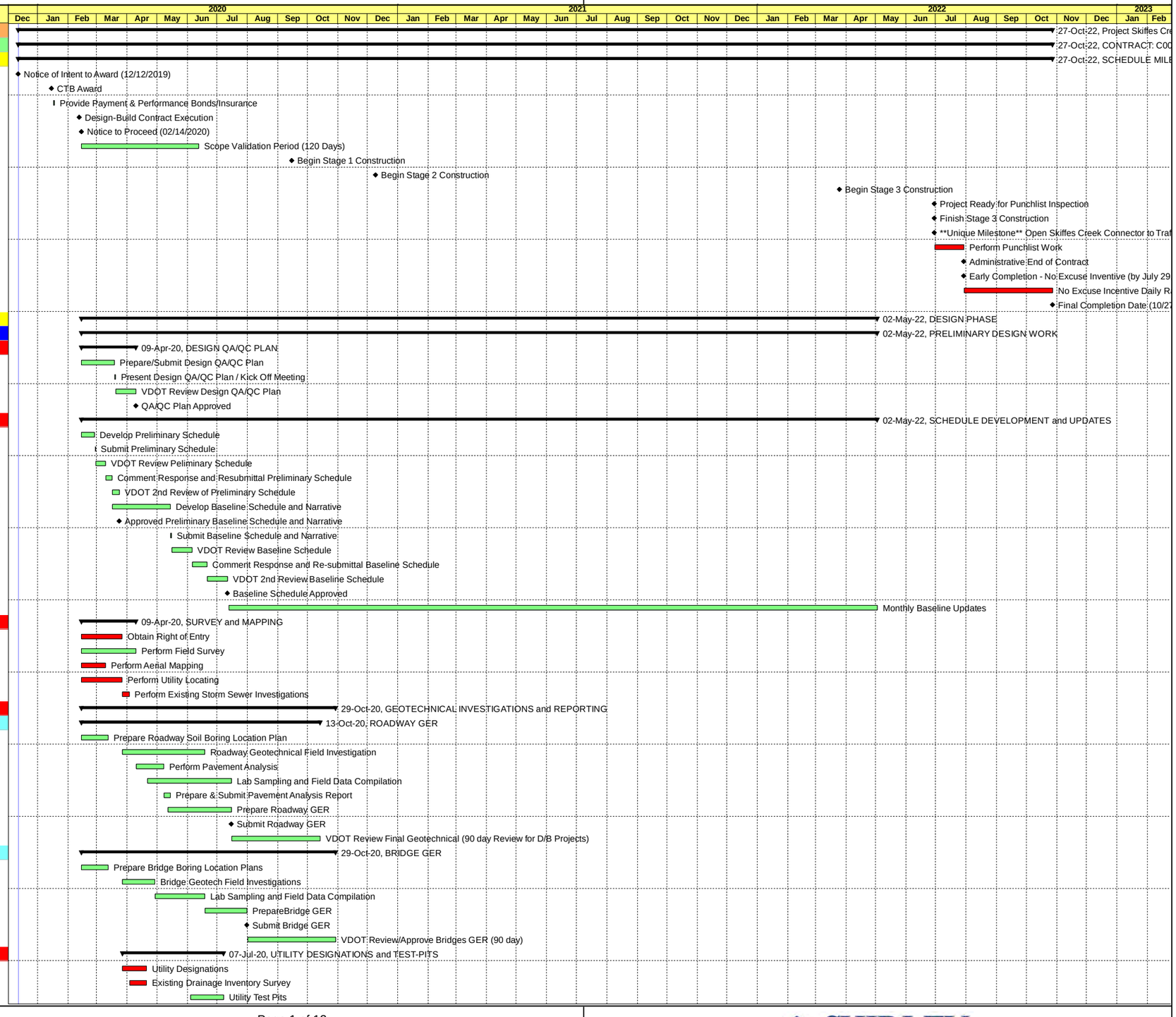
4.6.1 - Proposal Schedule

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
Project Skiffes Creek - Proposal Schedule		623	12-Dec-19	27-Oct-22
CONTRACT: C001000200DB104	**- SKIFFES CREEK CONNECTOR**	623	12-Dec-19	27-Oct-22
SCHEDULE MILESTONES		623	12-Dec-19	27-Oct-22
A000000-1000	Notice of Intent to Award (12/12/2019)	0	12-Dec-19*	
A000000-1010	CTB Award	0	15-Jan-20	
A000000-1020	Provide Payment & Performance Bonds/Insurance	1	17-Jan-20	17-Jan-20
A000000-1030	Design-Build Contract Execution	0	12-Feb-20	
A000000-1040	Notice to Proceed (02/14/2020)	0	14-Feb-20	
A000000-1050	Scope Validation Period (120 Days)	120	14-Feb-20	12-Jun-20
A000000-1060	Begin Stage 1 Construction	0	15-Sep-20	
A000000-1070	Begin Stage 2 Construction	0	09-Dec-20	
A000000-1080	Begin Stage 3 Construction	0	25-Mar-22	
A000000-1090	Project Ready for Punchlist Inspection	0		29-Jun-22
A000000-1100	Finish Stage 3 Construction	0		29-Jun-22
A000000-1110	**Unique Milestone** Open Skiffes Creek Connector to Traffic	0		29-Jun-22
A000000-1120	Perform Punchlist Work	30	30-Jun-22	29-Jul-22
A000000-1130	Administrative End of Contract	0		29-Jul-22
A000000-1140	Early Completion - No Excuse Inventive (by July 29, 2022)	0		29-Jul-22
A000000-1150	No Excuse Incentive Daily Rate	90	30-Jul-22	27-Oct-22
A000000-1160	Final Completion Date (10/27/22)	0		27-Oct-22*
DESIGN PHASE		468	14-Feb-20	02-May-22
PRELIMINARY DESIGN WORK		468	14-Feb-20	02-May-22
DESIGN QA/QC PLAN		32	14-Feb-20	09-Apr-20
BAA0000-1000	Prepare/Submit Design QA/QC Plan	24	14-Feb-20	18-Mar-20
BAA0000-1010	Present Design QA/QC Plan / Kick Off Meeting	1	19-Mar-20	19-Mar-20
BAA0000-1020	VDOT Review Design QA/QC Plan	21	20-Mar-20	09-Apr-20
BAA0000-1030	QA/QC Plan Approved	0		09-Apr-20
SCHEDULE DEVELOPMENT and UPDATES		468	14-Feb-20	02-May-22
BAB0000-1000	Develop Preliminary Schedule	14	14-Feb-20	27-Feb-20
BAB0000-1010	Submit Preliminary Schedule	1	28-Feb-20	28-Feb-20
BAB0000-1020	VDOT Review Peliminary Schedule	10	29-Feb-20	09-Mar-20
BAB0000-1030	Comment Response and Resubmittal Preliminary Schedule	5	10-Mar-20	16-Mar-20
BAB0000-1040	VDOT 2nd Review of Preliminary Schedule	5	17-Mar-20	23-Mar-20
BAB0000-1050	Develop Baseline Schedule and Narrative	59	17-Mar-20	14-May-20
BAB0000-1060	Approved Preliminary Baseline Schedule and Narrative	0		23-Mar-20
BAB0000-1070	Submit Baseline Schedule and Narrative	1	15-May-20	15-May-20
BAB0000-1080	VDOT Review Baseline Schedule	21	16-May-20	05-Jun-20
BAB0000-1090	Comment Response and Re-submittal Baseline Schedule	15	06-Jun-20	20-Jun-20
BAB0000-1100	VDOT 2nd Review Baseline Schedule	21	21-Jun-20	11-Jul-20
BAB0000-1110	Baseline Schedule Approved	0		11-Jul-20
BAB0000-1120	Monthly Baseline Updates	450	13-Jul-20	02-May-22
SURVEY and MAPPING		32	14-Feb-20	09-Apr-20
BAC0000-1000	Obtain Right of Entry	30	14-Feb-20	26-Mar-20
BAC0000-1010	Perform Field Survey	40	14-Feb-20	09-Apr-20
BAC0000-1020	Perform Aerial Mapping	15	14-Feb-20	09-Mar-20
BAC0000-1030	Perform Utility Locating	30	14-Feb-20	26-Mar-20
BAC0000-1040	Perform Existing Storm Sewer Investigations	5	27-Mar-20	02-Apr-20
GEOTECHNICAL INVESTIGATIONS and REPORTING		155	14-Feb-20	29-Oct-20
ROADWAY GER		144	14-Feb-20	13-Oct-20
BAD1000-1000	Prepare Roadway Soil Boring Location Plan	20	14-Feb-20	12-Mar-20
BAD1000-1010	Roadway Geotechnical Field Investigation	50	27-Mar-20	18-Jun-20
BAD1000-1030	Perform Pavement Analysis	20	10-Apr-20	07-May-20
BAD1000-1020	Lab Sampling and Field Data Compilation	60	21-Apr-20	15-Jul-20
BAD1000-1050	Prepare & Submit Pavement Analysis Report	5	08-May-20	14-May-20
BAD1000-1040	Prepare Roadway GER	45	12-May-20	15-Jul-20
BAD1000-1060	Submit Roadway GER	0		15-Jul-20
BAD1000-1070	VDOT Review Final Geotechnical (90 day Review for D/B Projects)	90	16-Jul-20	13-Oct-20
BRIDGE GER		155	14-Feb-20	29-Oct-20
BAD2000-1000	Prepare Bridge Boring Location Plans	20	14-Feb-20	12-Mar-20
BAD2000-1010	Bridge Geotech Field Investigations	20	27-Mar-20	28-Apr-20
BAD2000-1020	Lab Sampling and Field Data Compilation	30	29-Apr-20	18-Jun-20
BAD2000-1030	PrepareBridge GER	25	19-Jun-20	31-Jul-20
BAD2000-1040	Submit Bridge GER	0		31-Jul-20
BAD2000-1050	VDOT Review/Approve Bridges GER (90 day)	90	01-Aug-20	29-Oct-20
UTILITY DESIGNATIONS and TEST-PITS		61	27-Mar-20	07-Jul-20
BAE0000-1010	Utility Designations	15	27-Mar-20	20-Apr-20
BAE0000-1000	Existing Drainage Inventory Survey	10	03-Apr-20	20-Apr-20
BAE0000-1020	Utility Test Pits	20	04-Jun-20	07-Jul-20



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

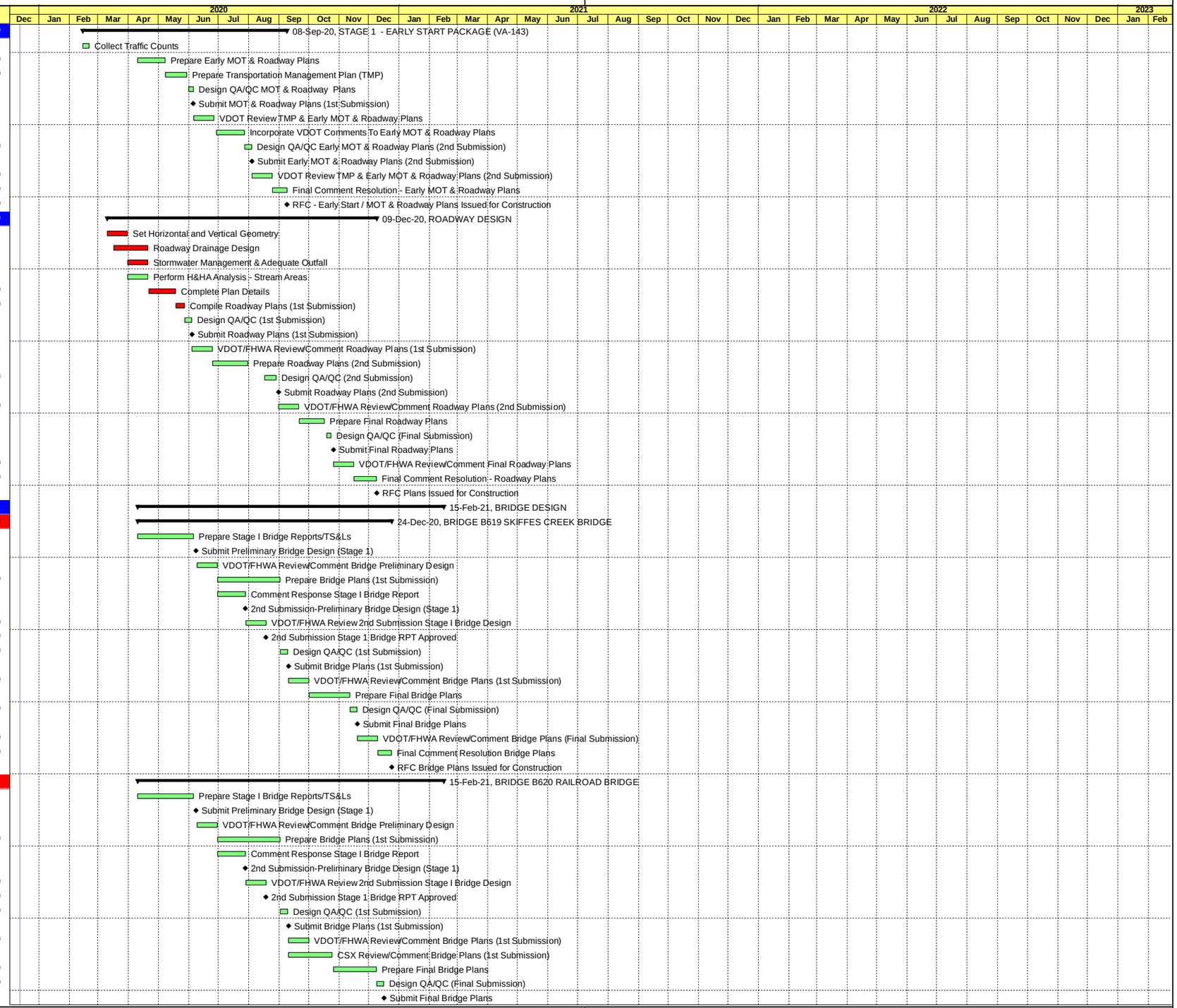
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
STAGE 1 - EARLY START PACKAGE (VA-143)		122	14-Feb-20	08-Sep-20
BB00000-1000	Collect Traffic Counts	5	14-Feb-20	20-Feb-20
BB00000-1010	Prepare Early MOT & Roadway Plans	20	10-Apr-20	07-May-20
BB00000-1020	Prepare Transportation Management Plan (TMP)	15	08-May-20	29-May-20
BB00000-1030	Design QA/QC MOT & Roadway Plans	5	01-Jun-20	05-Jun-20
BB00000-1040	Submit MOT & Roadway Plans (1st Submission)	0		05-Jun-20
BB00000-1050	VDOT Review TMP & Early MOT & Roadway Plans	21	06-Jun-20	26-Jun-20
BB00000-1060	Incorporate VDOT Comments To Early MOT & Roadway Plans	20	29-Jun-20	27-Jul-20
BB00000-1070	Design QA/QC Early MOT & Roadway Plans (2nd Submission)	5	28-Jul-20	03-Aug-20
BB00000-1080	Submit Early MOT & Roadway Plans (2nd Submission)	0	04-Aug-20	
BB00000-1090	VDOT Review TMP & Early MOT & Roadway Plans (2nd Submissio	21	04-Aug-20	24-Aug-20
BB00000-1100	Final Comment Resolution - Early MOT & Roadway Plans	10	25-Aug-20	08-Sep-20
BB00000-1110	RFC - Early Start / MOT & Roadway Plans Issued for Construction	0		08-Sep-20
ROADWAY DESIGN		161	10-Mar-20	09-Dec-20
BC00000-1000	Set Horizontal and Vertical Geometry	15	10-Mar-20	30-Mar-20
BC00000-1010	Roadway Drainage Design	25	17-Mar-20	20-Apr-20
BC00000-1020	Stormwater Management & Adequate Outfall	15	31-Mar-20	20-Apr-20
BC00000-1030	Perform H&HA Analysis - Stream Areas	15	31-Mar-20	20-Apr-20
BC00000-1040	Complete Plan Details	20	21-Apr-20	18-May-20
BC00000-1050	Compile Roadway Plans (1st Submission)	6	19-May-20	27-May-20
BC00000-1070	Design QA/QC (1st Submission)	5	28-May-20	03-Jun-20
BC00000-1080	Submit Roadway Plans (1st Submission)	0	04-Jun-20	
BC00000-1090	VDOT/FHWA Review/Comment Roadway Plans (1st Submission)	21	04-Jun-20	24-Jun-20
BC00000-2000	Prepare Roadway Plans (2nd Submission)	25	25-Jun-20	30-Jul-20
BC00000-2030	Design QA/QC (2nd Submission)	10	17-Aug-20	28-Aug-20
BC00000-2040	Submit Roadway Plans (2nd Submission)	0	31-Aug-20	
BC00000-2050	VDOT/FHWA Review/Comment Roadway Plans (2nd Submission)	21	31-Aug-20	20-Sep-20
BC00000-3000	Prepare Final Roadway Plans	20	21-Sep-20	16-Oct-20
BC00000-3010	Design QA/QC (Final Submission)	5	19-Oct-20	23-Oct-20
BC00000-3020	Submit Final Roadway Plans	0	26-Oct-20	
BC00000-3030	VDOT/FHWA Review/Comment Final Roadway Plans	21	26-Oct-20	15-Nov-20
BC00000-3040	Final Comment Resolution - Roadway Plans	15	16-Nov-20	08-Dec-20
BC00000-3050	RFC Plans Issued for Construction	0	09-Dec-20	
BRIDGE DESIGN		174	10-Apr-20	15-Feb-21
BRIDGE B619 SKIFFES CREEK BRIDGE		153	10-Apr-20	24-Dec-20
BDA0000-1000	Prepare Stage I Bridge Reports/TS&Ls	40	10-Apr-20	05-Jun-20
BDA0000-1010	Submit Preliminary Bridge Design (Stage 1)	0	08-Jun-20	
BDA0000-1020	VDOT/FHWA Review/Comment Bridge Preliminary Design	21	09-Jun-20	29-Jun-20
BDA0000-1030	Prepare Bridge Plans (1st Submission)	45	30-Jun-20	01-Sep-20
BDA0000-1040	Comment Response Stage I Bridge Report	20	30-Jun-20	28-Jul-20
BDA0000-1050	2nd Submission-Preliminary Bridge Design (Stage 1)	0		28-Jul-20
BDA0000-1060	VDOT/FHWA Review 2nd Submission Stage I Bridge Design	21	29-Jul-20	18-Aug-20
BDA0000-1070	2nd Submission Stage 1 Bridge RPT Approved	0		18-Aug-20
BDA0000-1080	Design QA/QC (1st Submission)	8	02-Sep-20	09-Sep-20
BDA0000-1090	Submit Bridge Plans (1st Submission)	0	10-Sep-20	
BDA0000-1100	VDOT/FHWA Review/Comment Bridge Plans (1st Submission)	21	10-Sep-20	30-Sep-20
BDA0000-1110	Prepare Final Bridge Plans	30	01-Oct-20	11-Nov-20
BDA0000-1120	Design QA/QC (Final Submission)	5	12-Nov-20	18-Nov-20
BDA0000-1130	Submit Final Bridge Plans	0	19-Nov-20	
BDA0000-1140	VDOT/FHWA Review/Comment Bridge Plans (Final Submission)	21	19-Nov-20	09-Dec-20
BDA0000-1150	Final Comment Resolution Bridge Plans	10	10-Dec-20	23-Dec-20
BDA0000-1160	RFC Bridge Plans Issued for Construction	0	24-Dec-20	
BRIDGE B620 RAILROAD BRIDGE		174	10-Apr-20	15-Feb-21
BDB0000-1000	Prepare Stage I Bridge Reports/TS&Ls	40	10-Apr-20	05-Jun-20
BDB0000-1010	Submit Preliminary Bridge Design (Stage 1)	0	08-Jun-20	
BDB0000-1020	VDOT/FHWA Review/Comment Bridge Preliminary Design	21	09-Jun-20	29-Jun-20
BDB0000-1030	Prepare Bridge Plans (1st Submission)	45	30-Jun-20	01-Sep-20
BDB0000-1040	Comment Response Stage I Bridge Report	20	30-Jun-20	28-Jul-20
BDB0000-1050	2nd Submission-Preliminary Bridge Design (Stage 1)	0		28-Jul-20
BDB0000-1060	VDOT/FHWA Review 2nd Submission Stage I Bridge Design	21	29-Jul-20	18-Aug-20
BDB0000-1070	2nd Submission Stage 1 Bridge RPT Approved	0		18-Aug-20
BDB0000-1080	Design QA/QC (1st Submission)	8	02-Sep-20	09-Sep-20
BDB0000-1090	Submit Bridge Plans (1st Submission)	0	10-Sep-20	
BDB0000-1100	VDOT/FHWA Review/Comment Bridge Plans (1st Submission)	21	10-Sep-20	30-Sep-20
BDB0000-1110	CSX Review/Comment Bridge Plans (1st Submission)	45	10-Sep-20	24-Oct-20
BDB0000-1120	Prepare Final Bridge Plans	30	26-Oct-20	08-Dec-20
BDB0000-1130	Design QA/QC (Final Submission)	5	09-Dec-20	15-Dec-20
BDB0000-1140	Submit Final Bridge Plans	0	16-Dec-20	



Remaining Level of Effort | Remaining Work | Milestone

Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

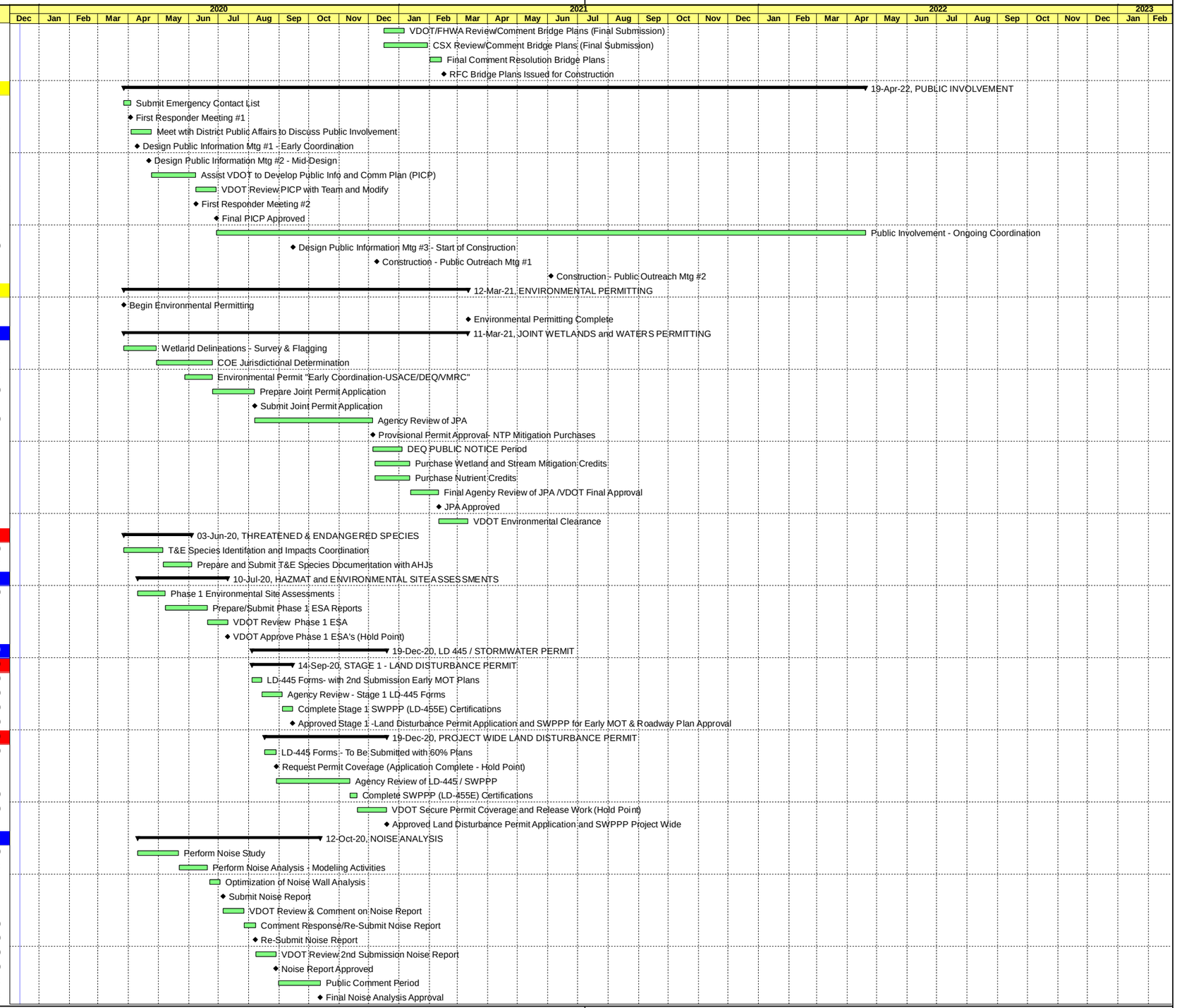
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
BDB0000-1150	VDOT/FHWA Review/Comment Bridge Plans (Final Submission)	21	16-Dec-20	05-Jan-21
BDB0000-1160	CSX Review/Comment Bridge Plans (Final Submission)	45	16-Dec-20	29-Jan-21
BDB0000-1170	Final Comment Resolution Bridge Plans	10	01-Feb-21	12-Feb-21
BDB0000-1180	RFC Bridge Plans Issued for Construction	0	15-Feb-21	
PUBLIC INVOLVEMENT		435	27-Mar-20	19-Apr-22
C000000-1000	Submit Emergency Contact List	7	27-Mar-20	02-Apr-20
C000000-1010	First Responder Meeting #1	0		02-Apr-20
C000000-1020	Meet wtih District Public Affairs to Discuss Public Involvement	15	03-Apr-20	23-Apr-20
C000000-1030	Design Public Information Mtg #1 - Early Coordination	0		09-Apr-20
C000000-1050	Design Public Information Mtg #2 - Mid-Design	0	21-Apr-20	
C000000-1040	Assist VDOT to Develop Public Info and Comm Plan (PICP)	45	24-Apr-20	07-Jun-20
C000000-1060	VDOT Review PICP with Team and Modify	21	08-Jun-20	28-Jun-20
C000000-1070	First Responder Meeting #2	0		08-Jun-20
C000000-1080	Final PICP Approved	0	29-Jun-20	
C000000-1090	Public Involvement - Ongoing Coordination	450	29-Jun-20	19-Apr-22
C000000-1100	Design Public Information Mtg #3 - Start of Construction	0		15-Sep-20
C000000-1110	Construction - Public Outreach Mtg #1	0	09-Dec-20	
C000000-1120	Construction - Public Outreach Mtg #2	0	04-Jun-21	
ENVIRONMENTAL PERMITTING		196	27-Mar-20	12-Mar-21
D000000-1000	Begin Environmental Permitting	0	27-Mar-20	
D000000-1010	Environmental Permitting Complete	0	12-Mar-21	
JOINT WETLANDS and WATERS PERMITTING		196	27-Mar-20	11-Mar-21
DA00000-1000	Wetland Delineations - Survey & Flagging	20	27-Mar-20	28-Apr-20
DA00000-1010	COE Jurisdictional Determination	40	29-Apr-20	24-Jun-20
DA00000-1020	Environmental Permit "Early Coordination-USACE/DEQ/VMRC"	20	28-May-20	24-Jun-20
DA00000-1030	Prepare Joint Permit Application	30	25-Jun-20	06-Aug-20
DA00000-1040	Submit Joint Permit Application	0	07-Aug-20	
DA00000-1050	Agency Review of JPA	120	07-Aug-20	04-Dec-20
DA00000-1060	Provisional Permit Approval- NTP Mitigation Purchases	0	05-Dec-20	
DA00000-1070	DEQ PUBLIC NOTICE Period	30	05-Dec-20	03-Jan-21
DA00000-1080	Purchase Wetland and Stream Mitigation Credits	20	07-Dec-20	11-Jan-21
DA00000-1090	Purchase Nutrient Credits	20	07-Dec-20	11-Jan-21
DA00000-1100	Final Agency Review of JPA /VDOT Final Approval	21	12-Jan-21	09-Feb-21
DA00000-1110	JPA Approved	0	10-Feb-21	
DA00000-1120	VDOT Environmental Clearance	30	10-Feb-21	11-Mar-21
THREATENED & ENDANGERED SPECIES		41	27-Mar-20	03-Jun-20
DAA0000-1000	T&E Species Identifation and Impacts Coordination	40	27-Mar-20	05-May-20
DAA0000-1010	Prepare and Submit T&E Species Documentation with AHJs	20	06-May-20	03-Jun-20
HAZMAT and ENVIRONMENTAL SITE ASSESSMENTS		55	10-Apr-20	10-Jul-20
DB00000-1010	Phase 1 Environmental Site Assessments	20	10-Apr-20	07-May-20
DB00000-1020	Prepare/Submit Phase 1 ESA Reports	30	08-May-20	19-Jun-20
DB00000-1030	VDOT Review Phase 1 ESA	21	20-Jun-20	10-Jul-20
DB00000-1040	VDOT Approve Phase 1 ESA's (Hold Point)	0		10-Jul-20
LD 445 / STORMWATER PERMIT		82	04-Aug-20	19-Dec-20
STAGE 1 - LAND DISTURBANCE PERMIT		25	04-Aug-20	14-Sep-20
DCA0000-1000	LD-445 Forms- with 2nd Submission Early MOT Plans	8	04-Aug-20	13-Aug-20
DCA0000-1010	Agency Review - Stage 1 LD-445 Forms	21	14-Aug-20	03-Sep-20
DCA0000-1020	Complete Stage 1 SWPPP (LD-455E) Certifications	5	04-Sep-20	14-Sep-20
DCA0000-1030	Approved Stage 1 -Land Disturbance Permit Application and SWPPI	0		14-Sep-20
PROJECT WIDE LAND DISTURBANCE PERMIT		75	17-Aug-20	19-Dec-20
DCB0000-1000	LD-445 Forms - To Be Submitted with 60% Plans	10	17-Aug-20	28-Aug-20
DCB0000-1010	Request Permit Coverage (Application Complete - Hold Point)	0	29-Aug-20	
DCB0000-1020	Agency Review of LD-445 / SWPPP	75	29-Aug-20	11-Nov-20
DCB0000-1030	Complete SWPPP (LD-455E) Certifications	5	12-Nov-20	18-Nov-20
DCB0000-1040	VDOT Secure Permit Coverage and Release Work (Hold Point)	30	19-Nov-20	18-Dec-20
DCB0000-1050	Approved Land Disturbance Permit Application and SWPPP Project	0	19-Dec-20	
NOISE ANALYSIS		111	10-Apr-20	12-Oct-20
DD00000-1000	Perform Noise Study	30	10-Apr-20	21-May-20
DD00000-1010	Perform Noise Analysis - Modeling Activities	20	22-May-20	19-Jun-20
DD00000-1020	Optimization of Noise Wall Analysis	9	22-Jun-20	02-Jul-20
DD00000-1030	Submit Noise Report	0	06-Jul-20	
DD00000-1040	VDOT Review & Comment on Noise Report	21	06-Jul-20	26-Jul-20
DD00000-1050	Comment Response/Re-Submit Noise Report	10	27-Jul-20	07-Aug-20
DD00000-1060	Re-Submit Noise Report	0		07-Aug-20
DD00000-1070	VDOT Review 2nd Submission Noise Report	21	08-Aug-20	28-Aug-20
DD00000-1080	Noise Report Approved	0		28-Aug-20
DD00000-1090	Public Comment Period	30	31-Aug-20	12-Oct-20
DD00000-1100	Final Noise Analysis Approval	0		12-Oct-20



Remaining Level of Effort | Remaining Work | Milestone
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TASK filter: All Activities

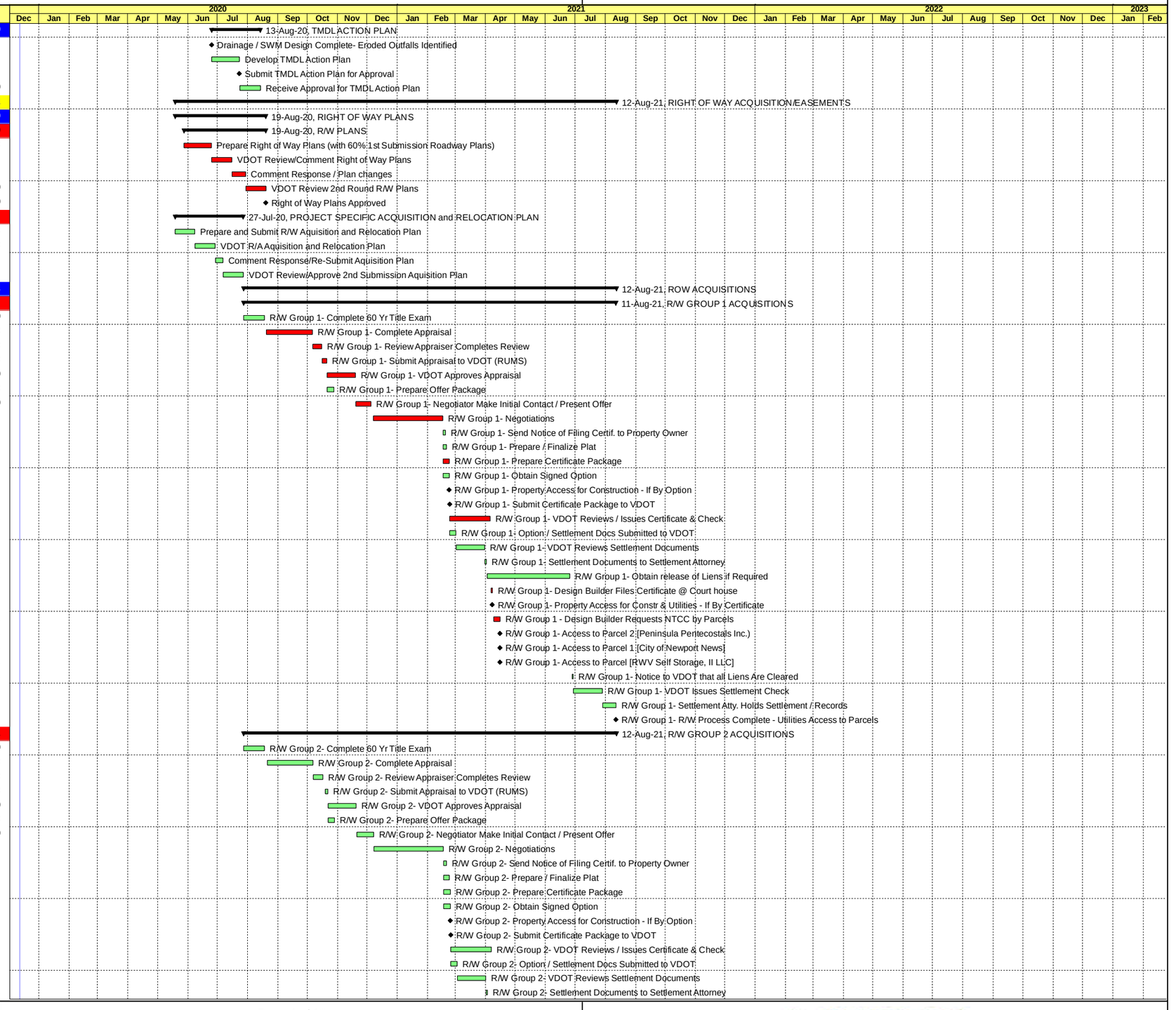
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
TMDL ACTION PLAN		35	25-Jun-20	13-Aug-20
DE00000-1000	Drainage / SWM Design Complete- Eroded Outfalls Identified	0	25-Jun-20	
DE00000-1010	Develop TMDL Action Plan	20	25-Jun-20	23-Jul-20
DE00000-1020	Submit TMDL Action Plan for Approval	0		23-Jul-20
DE00000-1030	Receive Approval for TMDL Action Plan	15	24-Jul-20	13-Aug-20
RIGHT OF WAY ACQUISITION/EASEMENTS		254	19-May-20	12-Aug-21
RIGHT OF WAY PLANS		53	19-May-20	19-Aug-20
R/W PLANS		49	28-May-20	19-Aug-20
EAA0000-1000	Prepare Right of Way Plans (with 60% 1st Submission Roadway Pla	20	28-May-20	24-Jun-20
EAA0000-1010	VDOT Review/Comment Right of Way Plans	21	25-Jun-20	15-Jul-20
EAA0000-1020	Comment Response / Plan changes	10	16-Jul-20	29-Jul-20
EAA0000-1030	VDOT Review 2nd Round R/W Plans	21	30-Jul-20	19-Aug-20
EAA0000-1040	Right of Way Plans Approved	0		19-Aug-20
PROJECT SPECIFIC ACQUISITION and RELOCATION PLAN		40	19-May-20	27-Jul-20
EAB0000-1000	Prepare and Submit R/W Aquisition and Relocation Plan	20	19-May-20	07-Jun-20
EAB0000-1010	VDOT R/A Aquisition and Relocation Plan	21	08-Jun-20	28-Jun-20
EAB0000-1020	Comment Response/Re-Submit Aquisition Plan	5	29-Jun-20	06-Jul-20
EAB0000-1030	VDOT Review/Approve 2nd Submission Aquisition Plan	21	07-Jul-20	27-Jul-20
ROW ACQUISITIONS		214	28-Jul-20	12-Aug-21
R/W GROUP 1 ACQUISITIONS		214	28-Jul-20	11-Aug-21
EBA0000-1000	R/W Group 1- Complete 60 Yr Title Exam	15	28-Jul-20	17-Aug-20
EBA0000-1010	R/W Group 1- Complete Appraisal	32	20-Aug-20	05-Oct-20
EBA0000-1020	R/W Group 1- Review Appraiser Completes Review	8	06-Oct-20	15-Oct-20
EBA0000-1030	R/W Group 1- Submit Appraisal to VDOT (RUMS)	3	16-Oct-20	20-Oct-20
EBA0000-1040	R/W Group 1- VDOT Approves Appraisal	21	21-Oct-20	18-Nov-20
EBA0000-1050	R/W Group 1- Prepare Offer Package	5	21-Oct-20	27-Oct-20
EBA0000-1060	R/W Group 1- Negotiator Make Initial Contact / Present Offer	10	19-Nov-20	04-Dec-20
EBA0000-1070	R/W Group 1- Negotiations	45	07-Dec-20	15-Feb-21
EBA0000-1080	R/W Group 1- Send Notice of Filing Certif. to Property Owner	3	16-Feb-21	18-Feb-21
EBA0000-1090	R/W Group 1- Prepare / Finalize Plat	4	16-Feb-21	19-Feb-21
EBA0000-1100	R/W Group 1- Prepare Certificate Package	5	16-Feb-21	22-Feb-21
EBA0000-1110	R/W Group 1- Obtain Signed Option	5	16-Feb-21	22-Feb-21
EBA0000-1120	R/W Group 1- Property Access for Construction - If By Option	0		22-Feb-21
EBA0000-1130	R/W Group 1- Submit Certificate Package to VDOT	0	23-Feb-21	
EBA0000-1140	R/W Group 1- VDOT Reviews / Issues Certificate & Check	30	23-Feb-21	05-Apr-21
EBA0000-1150	R/W Group 1- Option / Settlement Docs Submitted to VDOT	5	23-Feb-21	01-Mar-21
EBA0000-1160	R/W Group 1- VDOT Reviews Settlement Documents	21	02-Mar-21	30-Mar-21
EBA0000-1200	R/W Group 1- Settlement Documents to Settlement Attorney	2	31-Mar-21	01-Apr-21
EBA0000-1210	R/W Group 1- Obtain release of Liens if Required	60	02-Apr-21	25-Jun-21
EBA0000-1170	R/W Group 1- Design Builder Files Certificate @ Court house	2	06-Apr-21	07-Apr-21
EBA0000-1180	R/W Group 1- Property Access for Constr & Utilities - If By Certificate	0		07-Apr-21
EBA0000-1190	R/W Group 1 - Design Builder Requests NTCC by Parcels	5	09-Apr-21	15-Apr-21
EBA0000-1220	R/W Group 1- Access to Parcel 2 [Peninsula Pentecostals Inc.)	0		15-Apr-21
EBA0000-1240	R/W Group 1- Access to Parcel 1 [City of Newport News]	0		15-Apr-21
EBA0000-1600	R/W Group 1- Access to Parcel [RWV Self Storage, II LLC]	0		15-Apr-21
EBA0000-1260	R/W Group 1- Notice to VDOT that all Liens Are Cleared	1	28-Jun-21	28-Jun-21
EBA0000-1270	R/W Group 1- VDOT Issues Settlement Check	21	29-Jun-21	28-Jul-21
EBA0000-1280	R/W Group 1- Settlement Atty. Holds Settlement / Records	10	29-Jul-21	11-Aug-21
EBA0000-1290	R/W Group 1- R/W Process Complete - Utilities Access to Parcels	0		11-Aug-21
R/W GROUP 2 ACQUISITIONS		214	28-Jul-20	12-Aug-21
EBB0000-1000	R/W Group 2- Complete 60 Yr Title Exam	15	28-Jul-20	17-Aug-20
EBB0000-1010	R/W Group 2- Complete Appraisal	32	21-Aug-20	06-Oct-20
EBB0000-1020	R/W Group 2- Review Appraiser Completes Review	8	07-Oct-20	16-Oct-20
EBB0000-1030	R/W Group 2- Submit Appraisal to VDOT (RUMS)	3	19-Oct-20	21-Oct-20
EBB0000-1040	R/W Group 2- VDOT Approves Appraisal	21	22-Oct-20	19-Nov-20
EBB0000-1050	R/W Group 2- Prepare Offer Package	5	22-Oct-20	28-Oct-20
EBB0000-1060	R/W Group 2- Negotiator Make Initial Contact / Present Offer	10	20-Nov-20	07-Dec-20
EBB0000-1070	R/W Group 2- Negotiations	45	08-Dec-20	16-Feb-21
EBB0000-1080	R/W Group 2- Send Notice of Filing Certif. to Property Owner	3	17-Feb-21	19-Feb-21
EBB0000-1090	R/W Group 2- Prepare / Finalize Plat	4	17-Feb-21	22-Feb-21
EBB0000-1100	R/W Group 2- Prepare Certificate Package	5	17-Feb-21	23-Feb-21
EBB0000-1110	R/W Group 2- Obtain Signed Option	5	17-Feb-21	23-Feb-21
EBB0000-1120	R/W Group 2- Property Access for Construction - If By Option	0		23-Feb-21
EBB0000-1130	R/W Group 2- Submit Certificate Package to VDOT	0	24-Feb-21	
EBB0000-1140	R/W Group 2- VDOT Reviews / Issues Certificate & Check	30	24-Feb-21	06-Apr-21
EBB0000-1150	R/W Group 2- Option / Settlement Docs Submitted to VDOT	5	24-Feb-21	02-Mar-21
EBB0000-1160	R/W Group 2- VDOT Reviews Settlement Documents	21	03-Mar-21	31-Mar-21
EBB0000-1200	R/W Group 2- Settlement Documents to Settlement Attorney	2	01-Apr-21	02-Apr-21



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

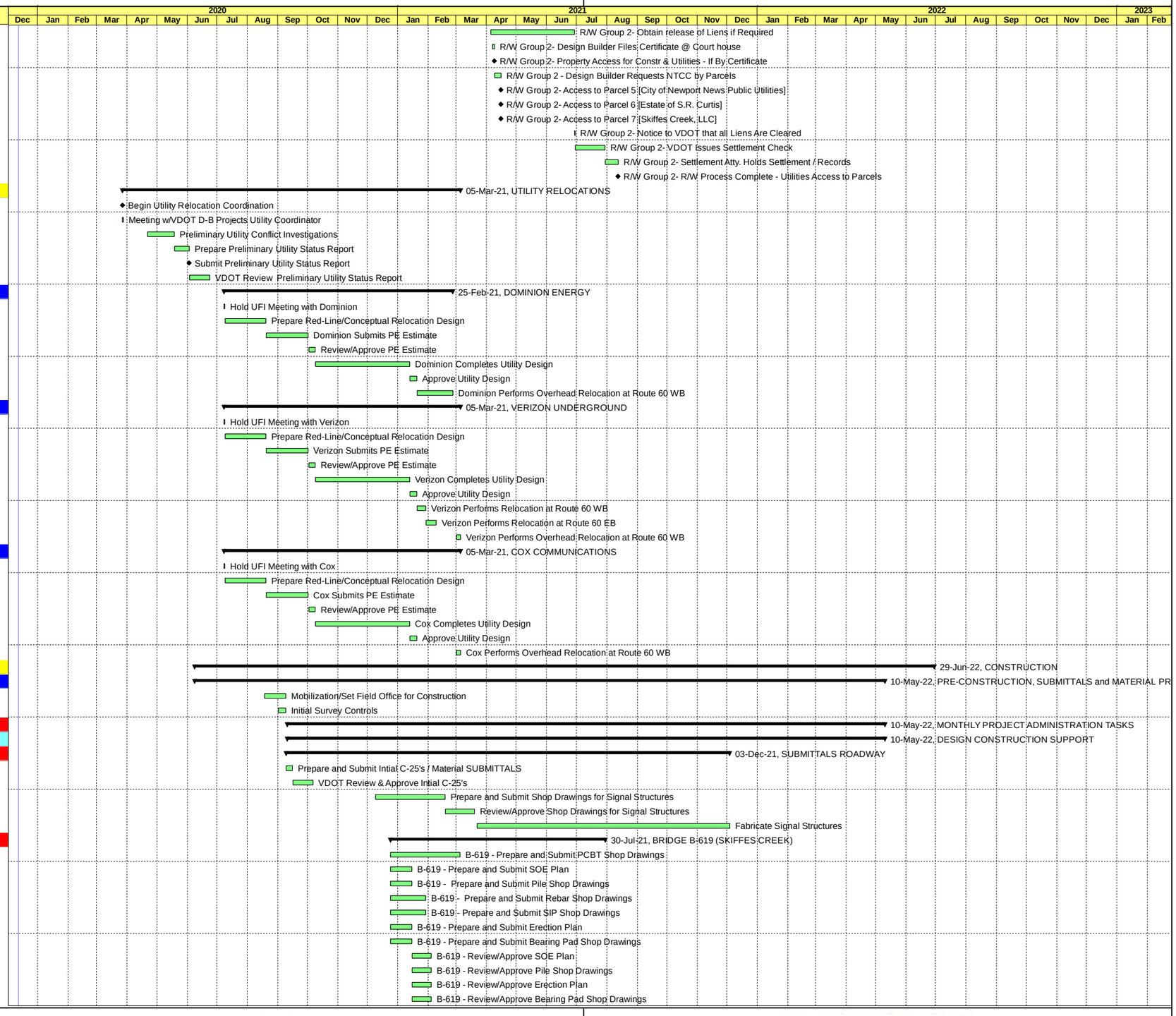
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
EBB0000-1210	R/W Group 2- Obtain release of Liens if Required	60	05-Apr-21	28-Jun-21
EBB0000-1170	R/W Group 2- Design Builder Files Certificate @ Court house	2	07-Apr-21	08-Apr-21
EBB0000-1180	R/W Group 2- Property Access for Constr & Utilities - If By Certificate	0		08-Apr-21
EBB0000-1190	R/W Group 2 - Design Builder Requests NTCC by Parcels	5	09-Apr-21	15-Apr-21
EBB0000-1220	R/W Group 2- Access to Parcel 5 [City of Newport News Public Utiliti	0		15-Apr-21
EBB0000-1230	R/W Group 2- Access to Parcel 6 [Estate of S.R. Curtis]	0		15-Apr-21
EBB0000-1240	R/W Group 2- Access to Parcel 7 [Skiffes Creek, LLC]	0		15-Apr-21
EBB0000-1250	R/W Group 2- Notice to VDOT that all Liens Are Cleared	1	29-Jun-21	29-Jun-21
EBB0000-1260	R/W Group 2- VDOT Issues Settlement Check	21	30-Jun-21	29-Jul-21
EBB0000-1270	R/W Group 2- Settlement Atty. Holds Settlement / Records	10	30-Jul-21	12-Aug-21
EBB0000-1280	R/W Group 2- R/W Process Complete - Utilities Access to Parcels	0		12-Aug-21
UTILITY RELOCATIONS		194	27-Mar-20	05-Mar-21
F000000-1000	Begin Utility Relocation Coordination	0	27-Mar-20	
F000000-1010	Meeting w/VDOT D-B Projects Utility Coordinator	1	27-Mar-20	27-Mar-20
F000000-1020	Preliminary Utility Conflict Investigations	20	21-Apr-20	18-May-20
F000000-1030	Prepare Preliminary Utility Status Report	10	19-May-20	02-Jun-20
F000000-1040	Submit Preliminary Utility Status Report	0		02-Jun-20
F000000-1050	VDOT Review Preliminary Utility Status Report	21	03-Jun-20	23-Jun-20
DOMINION ENERGY		128	08-Jul-20	25-Feb-21
FA00000-1000	Hold UFI Meeting with Dominion	1	08-Jul-20	08-Jul-20
FA00000-1010	Prepare Red-Line/Conceptual Relocation Design	30	09-Jul-20	19-Aug-20
FA00000-1020	Dominion Submits PE Estimate	30	20-Aug-20	01-Oct-20
FA00000-1030	Review/Approve PE Estimate	5	02-Oct-20	08-Oct-20
FA00000-1040	Dominion Completes Utility Design	60	09-Oct-20	12-Jan-21
FA00000-1050	Approve Utility Design	5	13-Jan-21	19-Jan-21
FA00000-1060	Dominion Performs Overhead Relocation at Route 60 WB	20	20-Jan-21	25-Feb-21
VERIZON UNDERGROUND		133	08-Jul-20	05-Mar-21
FB00000-1000	Hold UFI Meeting with Verizon	1	08-Jul-20	08-Jul-20
FB00000-1010	Prepare Red-Line/Conceptual Relocation Design	30	09-Jul-20	19-Aug-20
FB00000-1020	Verizon Submits PE Estimate	30	20-Aug-20	01-Oct-20
FB00000-1030	Review/Approve PE Estimate	5	02-Oct-20	08-Oct-20
FB00000-1040	Verizon Completes Utility Design	60	09-Oct-20	12-Jan-21
FB00000-1050	Approve Utility Design	5	13-Jan-21	19-Jan-21
FB00000-1060	Verizon Performs Relocation at Route 60 WB	5	20-Jan-21	28-Jan-21
FB00000-1070	Verizon Performs Relocation at Route 60 EB	5	29-Jan-21	08-Feb-21
FB00000-1080	Verizon Performs Overhead Relocation at Route 60 WB	5	01-Mar-21	05-Mar-21
COX COMMUNICATIONS		133	08-Jul-20	05-Mar-21
FC00000-1000	Hold UFI Meeting with Cox	1	08-Jul-20	08-Jul-20
FC00000-1010	Prepare Red-Line/Conceptual Relocation Design	30	09-Jul-20	19-Aug-20
FC00000-1020	Cox Submits PE Estimate	30	20-Aug-20	01-Oct-20
FC00000-1030	Review/Approve PE Estimate	5	02-Oct-20	08-Oct-20
FC00000-1040	Cox Completes Utility Design	60	09-Oct-20	12-Jan-21
FC00000-1050	Approve Utility Design	5	13-Jan-21	19-Jan-21
FC00000-1060	Cox Performs Overhead Relocation at Route 60 WB	5	01-Mar-21	05-Mar-21
CONSTRUCTION		443	08-Jun-20	29-Jun-22
PRE-CONSTRUCTION, SUBMITTALS and MATERIAL PROCUREMENT		407	08-Jun-20	10-May-22
GA00000-1000	Mobilization/Set Field Office for Construction	15	18-Aug-20	08-Sep-20
GA00000-1010	Initial Survey Controls	5	01-Sep-20	08-Sep-20
MONTHLY PROJECT ADMINISTRATION TASKS		608	10-Sep-20	10-May-22
DESIGN CONSTRUCTION SUPPORT		608	10-Sep-20	10-May-22
SUBMITTALS ROADWAY		257	09-Sep-20	03-Dec-21
GAB0000-1000	Prepare and Submit Intial C-25's / Material SUBMITTALS	7	09-Sep-20	15-Sep-20
GAB0000-1010	VDOT Review & Approve Intial C-25's	21	16-Sep-20	06-Oct-20
GAB0000-1020	Prepare and Submit Shop Drawings for Signal Structures	45	09-Dec-20	17-Feb-21
GAB0000-1030	Review/Approve Shop Drawings for Signal Structures	30	18-Feb-21	19-Mar-21
GAB0000-1040	Fabricate Signal Structures	180	22-Mar-21	03-Dec-21
BRIDGE B-619 (SKIFFES CREEK)		118	24-Dec-20	30-Jul-21
GAC0000-1000	B-619 - Prepare and Submit PCBT Shop Drawings	45	24-Dec-20	04-Mar-21
GAC0000-1010	B-619 - Prepare and Submit SOE Plan	10	24-Dec-20	14-Jan-21
GAC0000-1020	B-619 - Prepare and Submit Pile Shop Drawings	10	24-Dec-20	14-Jan-21
GAC0000-1030	B-619 - Prepare and Submit Rebar Shop Drawings	20	24-Dec-20	28-Jan-21
GAC0000-1040	B-619 - Prepare and Submit SIP Shop Drawings	20	24-Dec-20	28-Jan-21
GAC0000-1050	B-619 - Prepare and Submit Erection Plan	10	24-Dec-20	14-Jan-21
GAC0000-1060	B-619 - Prepare and Submit Bearing Pad Shop Drawings	10	24-Dec-20	14-Jan-21
GAC0000-1070	B-619 - Review/Approve SOE Plan	20	15-Jan-21	03-Feb-21
GAC0000-1080	B-619 - Review/Approve Pile Shop Drawings	20	15-Jan-21	03-Feb-21
GAC0000-1090	B-619 - Review/Approve Erection Plan	20	15-Jan-21	03-Feb-21
GAC0000-1100	B-619 - Review/Approve Bearing Pad Shop Drawings	20	15-Jan-21	03-Feb-21



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

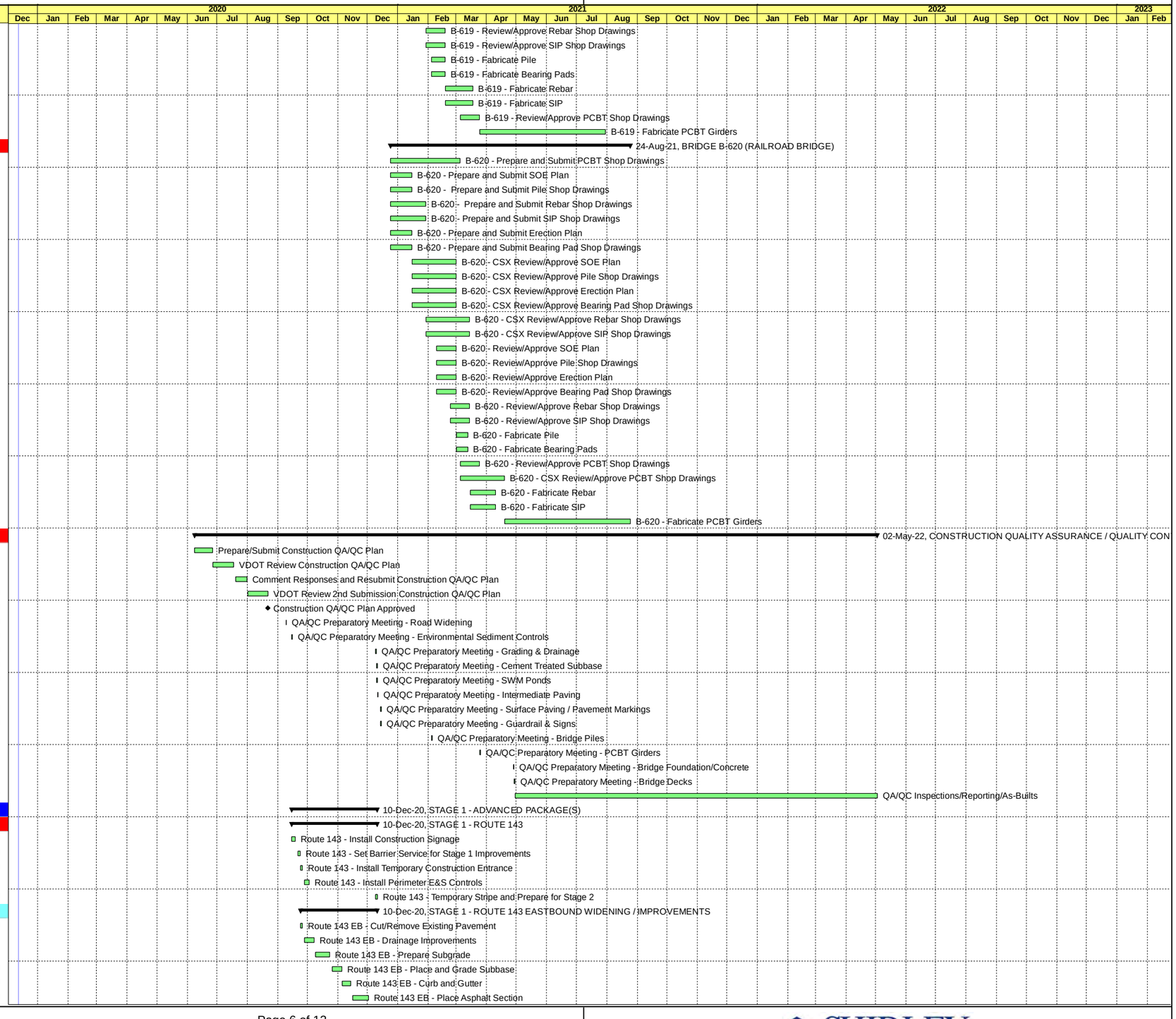
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
GAC0000-1110	B-619 - Review/Approve Rebar Shop Drawings	20	29-Jan-21	17-Feb-21
GAC0000-1120	B-619 - Review/Approve SIP Shop Drawings	20	29-Jan-21	17-Feb-21
GAC0000-1130	B-619 - Fabricate Pile	10	04-Feb-21	17-Feb-21
GAC0000-1140	B-619 - Fabricate Bearing Pads	10	04-Feb-21	17-Feb-21
GAC0000-1150	B-619 - Fabricate Rebar	20	18-Feb-21	17-Mar-21
GAC0000-1160	B-619 - Fabricate SIP	20	18-Feb-21	17-Mar-21
GAC0000-1170	B-619 - Review/Approve PCBT Shop Drawings	20	05-Mar-21	24-Mar-21
GAC0000-1180	B-619 - Fabricate PCBT Girders	90	25-Mar-21	30-Jul-21
BRIDGE B-620 (RAILROAD BRIDGE)		133	24-Dec-20	24-Aug-21
GAD0000-1000	B-620 - Prepare and Submit PCBT Shop Drawings	45	24-Dec-20	04-Mar-21
GAD0000-1010	B-620 - Prepare and Submit SOE Plan	10	24-Dec-20	14-Jan-21
GAD0000-1020	B-620 - Prepare and Submit Pile Shop Drawings	10	24-Dec-20	14-Jan-21
GAD0000-1030	B-620 - Prepare and Submit Rebar Shop Drawings	20	24-Dec-20	28-Jan-21
GAD0000-1040	B-620 - Prepare and Submit SIP Shop Drawings	20	24-Dec-20	28-Jan-21
GAD0000-1050	B-620 - Prepare and Submit Erection Plan	10	24-Dec-20	14-Jan-21
GAD0000-1060	B-620 - Prepare and Submit Bearing Pad Shop Drawings	10	24-Dec-20	14-Jan-21
GAD0000-1070	B-620 - CSX Review/Approve SOE Plan	45	15-Jan-21	28-Feb-21
GAD0000-1080	B-620 - CSX Review/Approve Pile Shop Drawings	45	15-Jan-21	28-Feb-21
GAD0000-1090	B-620 - CSX Review/Approve Erection Plan	45	15-Jan-21	28-Feb-21
GAD0000-1100	B-620 - CSX Review/Approve Bearing Pad Shop Drawings	45	15-Jan-21	28-Feb-21
GAD0000-1110	B-620 - CSX Review/Approve Rebar Shop Drawings	45	29-Jan-21	14-Mar-21
GAD0000-1120	B-620 - CSX Review/Approve SIP Shop Drawings	45	29-Jan-21	14-Mar-21
GAD0000-1130	B-620 - Review/Approve SOE Plan	20	09-Feb-21	28-Feb-21
GAD0000-1140	B-620 - Review/Approve Pile Shop Drawings	20	09-Feb-21	28-Feb-21
GAD0000-1150	B-620 - Review/Approve Erection Plan	20	09-Feb-21	28-Feb-21
GAD0000-1160	B-620 - Review/Approve Bearing Pad Shop Drawings	20	09-Feb-21	28-Feb-21
GAD0000-1170	B-620 - Review/Approve Rebar Shop Drawings	20	23-Feb-21	14-Mar-21
GAD0000-1180	B-620 - Review/Approve SIP Shop Drawings	20	23-Feb-21	14-Mar-21
GAD0000-1190	B-620 - Fabricate Pile	10	01-Mar-21	12-Mar-21
GAD0000-1200	B-620 - Fabricate Bearing Pads	10	01-Mar-21	12-Mar-21
GAD0000-1210	B-620 - Review/Approve PCBT Shop Drawings	20	05-Mar-21	24-Mar-21
GAD0000-1220	B-620 - CSX Review/Approve PCBT Shop Drawings	45	05-Mar-21	18-Apr-21
GAD0000-1230	B-620 - Fabricate Rebar	20	15-Mar-21	09-Apr-21
GAD0000-1240	B-620 - Fabricate SIP	20	15-Mar-21	09-Apr-21
GAD0000-1250	B-620 - Fabricate PCBT Girders	90	19-Apr-21	24-Aug-21
CONSTRUCTION QUALITY ASSURANCE / QUALITY CONTROL PROCESS		401	08-Jun-20	02-May-22
GAE0000-1000	Prepare/Submit Construction QA/QC Plan	15	08-Jun-20	26-Jun-20
GAE0000-1010	VDOT Review Construction QA/QC Plan	21	27-Jun-20	17-Jul-20
GAE0000-1020	Comment Responses and Resubmit Construction QA/QC Plan	10	20-Jul-20	31-Jul-20
GAE0000-1030	VDOT Review 2nd Submission Construction QA/QC Plan	21	01-Aug-20	21-Aug-20
GAE0000-1040	Construction QA/QC Plan Approved	0		21-Aug-20
GAE0000-1050	QA/QC Preparatory Meeting - Road Widening	1	09-Sep-20	09-Sep-20
GAE0000-1060	QA/QC Preparatory Meeting - Environmental Sediment Controls	1	15-Sep-20	15-Sep-20
GAE0000-1070	QA/QC Preparatory Meeting - Grading & Drainage	1	09-Dec-20	09-Dec-20
GAE0000-1080	QA/QC Preparatory Meeting - Cement Treated Subbase	1	10-Dec-20	10-Dec-20
GAE0000-1090	QA/QC Preparatory Meeting - SWM Ponds	1	10-Dec-20	10-Dec-20
GAE0000-1100	QA/QC Preparatory Meeting - Intermediate Paving	1	11-Dec-20	11-Dec-20
GAE0000-1110	QA/QC Preparatory Meeting - Surface Paving / Pavement Markings	1	14-Dec-20	14-Dec-20
GAE0000-1120	QA/QC Preparatory Meeting - Guardrail & Signs	1	14-Dec-20	14-Dec-20
GAE0000-1130	QA/QC Preparatory Meeting - Bridge Piles	1	04-Feb-21	04-Feb-21
GAE0000-1150	QA/QC Preparatory Meeting - PCBT Girders	1	25-Mar-21	25-Mar-21
GAE0000-1140	QA/QC Preparatory Meeting - Bridge Foundation/Concrete	1	28-Apr-21	28-Apr-21
GAE0000-1160	QA/QC Preparatory Meeting - Bridge Decks	1	29-Apr-21	29-Apr-21
GAE0000-1170	QA/QC Inspections/Reporting/As-Builts	250	30-Apr-21	02-May-22
STAGE 1 - ADVANCED PACKAGE(S)		53	15-Sep-20	10-Dec-20
STAGE 1 - ROUTE 143		53	15-Sep-20	10-Dec-20
GBA0000-1000	Route 143 - Install Construction Signage	4	15-Sep-20	18-Sep-20
GBA0000-1010	Route 143 - Set Barrier Service for Stage 1 Improvements	2	21-Sep-20	23-Sep-20
GBA0000-1020	Route 143 - Install Temporary Construction Entrance	2	24-Sep-20	25-Sep-20
GBA0000-1030	Route 143 - Install Perimeter E&S Controls	5	28-Sep-20	02-Oct-20
GBA0000-1040	Route 143 - Temporary Stripe and Prepare for Stage 2	2	09-Dec-20	10-Dec-20
STAGE 1 - ROUTE 143 EASTBOUND WIDENING / IMPROVEMENTS		47	24-Sep-20	10-Dec-20
GBA1000-1000	Route 143 EB - Cut/Remove Existing Pavement	2	24-Sep-20	25-Sep-20
GBA1000-1010	Route 143 EB - Drainage Improvements	8	28-Sep-20	07-Oct-20
GBA1000-1020	Route 143 EB - Prepare Subgrade	10	09-Oct-20	23-Oct-20
GBA1000-1030	Route 143 EB - Place and Grade Subbase	8	26-Oct-20	04-Nov-20
GBA1000-1040	Route 143 EB - Curb and Gutter	5	05-Nov-20	13-Nov-20
GBA1000-1050	Route 143 EB - Place Asphalt Section	8	16-Nov-20	01-Dec-20



Remaining Level of Effort | Remaining Work | Milestone
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TASK filter: All Activities

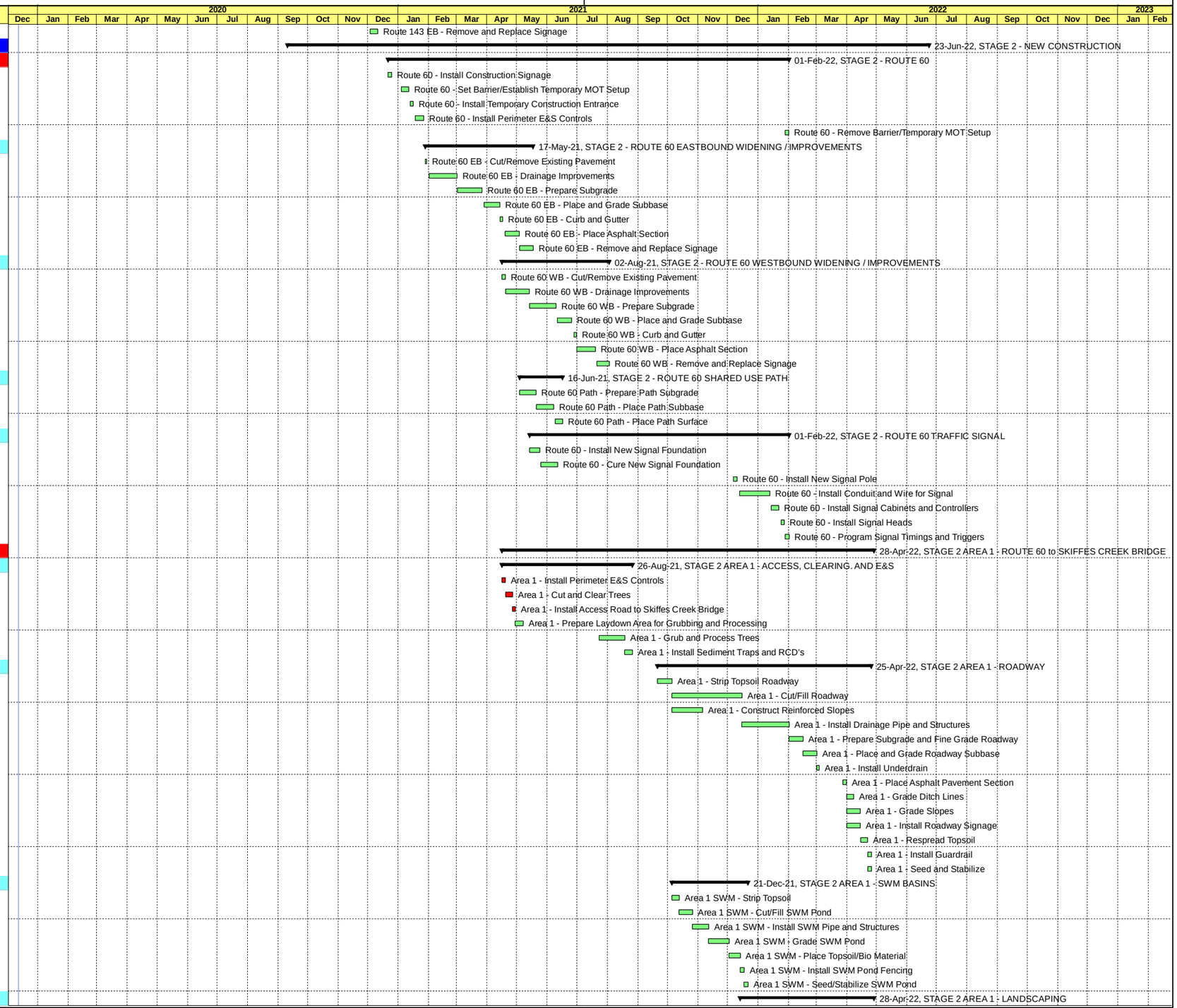
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
GBA1000-1060	Route 143 EB - Remove and Replace Signage	5	03-Dec-20	10-Dec-20
STAGE 2 - NEW CONSTRUCTION		383	10-Sep-20	23-Jun-22
STAGE 2 - ROUTE 60		222	21-Dec-20	01-Feb-22
GCA0000-1000	Route 60 - Install Construction Signage	4	21-Dec-20	24-Dec-20
GCA0000-1010	Route 60 - Set Barrier/Establish Temporary MOT Setup	4	04-Jan-21	11-Jan-21
GCA0000-1020	Route 60 - Install Temporary Construction Entrance	2	13-Jan-21	15-Jan-21
GCA0000-1030	Route 60 - Install Perimeter E&S Controls	5	18-Jan-21	26-Jan-21
GCA0000-1040	Route 60 - Remove Barrier/Temporary MOT Setup	2	28-Jan-22	31-Jan-22
STAGE 2 - ROUTE 60 EASTBOUND WIDENING / IMPROVEMENTS		63	28-Jan-21	17-May-21
GCA1000-1000	Route 60 EB - Cut/Remove Existing Pavement	2	28-Jan-21	29-Jan-21
GCA1000-1010	Route 60 EB - Drainage Improvements	15	01-Feb-21	01-Mar-21
GCA1000-1020	Route 60 EB - Prepare Subgrade	15	02-Mar-21	26-Mar-21
GCA1000-1030	Route 60 EB - Place and Grade Subbase	10	29-Mar-21	13-Apr-21
GCA1000-1040	Route 60 EB - Curb and Gutter	3	14-Apr-21	16-Apr-21
GCA1000-1050	Route 60 EB - Place Asphalt Section	10	19-Apr-21	03-May-21
GCA1000-1060	Route 60 EB - Remove and Replace Signage	8	04-May-21	17-May-21
STAGE 2 - ROUTE 60 WESTBOUND WIDENING / IMPROVEMENTS		63	16-Apr-21	02-Aug-21
GCA2000-1000	Route 60 WB - Cut/Remove Existing Pavement	2	16-Apr-21	19-Apr-21
GCA2000-1010	Route 60 WB - Drainage Improvements	15	20-Apr-21	13-May-21
GCA2000-1020	Route 60 WB - Prepare Subgrade	15	14-May-21	09-Jun-21
GCA2000-1030	Route 60 WB - Place and Grade Subbase	10	11-Jun-21	25-Jun-21
GCA2000-1040	Route 60 WB - Curb and Gutter	3	28-Jun-21	30-Jun-21
GCA2000-1050	Route 60 WB - Place Asphalt Section	10	01-Jul-21	19-Jul-21
GCA2000-1060	Route 60 WB - Remove and Replace Signage	8	21-Jul-21	02-Aug-21
STAGE 2 - ROUTE 60 SHARED USE PATH		25	04-May-21	16-Jun-21
GCA3000-1000	Route 60 Path - Prepare Path Subgrade	10	04-May-21	20-May-21
GCA3000-1010	Route 60 Path - Place Path Subbase	10	21-May-21	07-Jun-21
GCA3000-1020	Route 60 Path - Place Path Surface	5	09-Jun-21	16-Jun-21
STAGE 2 - ROUTE 60 TRAFFIC SIGNAL		146	14-May-21	01-Feb-22
GCA4000-1000	Route 60 - Install New Signal Foundation	6	14-May-21	24-May-21
GCA4000-1010	Route 60 - Cure New Signal Foundation	10	25-May-21	11-Jun-21
GCA4000-1020	Route 60 - Install New Signal Pole	3	07-Dec-21	10-Dec-21
GCA4000-1030	Route 60 - Install Conduit and Wire for Signal	12	13-Dec-21	12-Jan-22
GCA4000-1040	Route 60 - Install Signal Cabinets and Controllers	4	14-Jan-22	21-Jan-22
GCA4000-1050	Route 60 - Install Signal Heads	3	24-Jan-22	27-Jan-22
GCA4000-1060	Route 60 - Program Signal Timings and Triggers	3	28-Jan-22	01-Feb-22
STAGE 2 AREA 1 - ROUTE 60 to SKIFFES CREEK BRIDGE		225	16-Apr-21	28-Apr-22
STAGE 2 AREA 1 - ACCESS, CLEARING. AND E&S		78	16-Apr-21	26-Aug-21
GCB1000-1000	Area 1 - Install Perimeter E&S Controls	2	16-Apr-21	19-Apr-21
GCB1000-1010	Area 1 - Cut and Clear Trees	5	20-Apr-21	26-Apr-21
GCB1000-1020	Area 1 - Install Access Road to Skiffes Creek Bridge	3	26-Apr-21	29-Apr-21
GCB1000-1030	Area 1 - Prepare Laydown Area for Grubbing and Processing	5	29-Apr-21	07-May-21
GCB1000-1040	Area 1 - Grub and Process Trees	15	23-Jul-21	18-Aug-21
GCB1000-1050	Area 1 - Install Sediment Traps and RCD's	5	18-Aug-21	26-Aug-21
STAGE 2 AREA 1 - ROADWAY		129	20-Sep-21	25-Apr-22
GCB2000-1000	Area 1 - Strip Topsoil Roadway	10	20-Sep-21	05-Oct-21
GCB2000-1010	Area 1 - Cut/Fill Roadway	40	05-Oct-21	15-Dec-21
GCB2000-1020	Area 1 - Construct Reinforced Slopes	20	05-Oct-21	05-Nov-21
GCB2000-1030	Area 1 - Install Drainage Pipe and Structures	20	15-Dec-21	01-Feb-22
GCB2000-1040	Area 1 - Prepare Subgrade and Fine Grade Roadway	10	01-Feb-22	15-Feb-22
GCB2000-1050	Area 1 - Place and Grade Roadway Subbase	10	15-Feb-22	01-Mar-22
GCB2000-1060	Area 1 - Install Underdrain	2	01-Mar-22	03-Mar-22
GCB2000-1070	Area 1 - Place Asphalt Pavement Section	4	28-Mar-22	31-Mar-22
GCB2000-1080	Area 1 - Grade Ditch Lines	5	01-Apr-22	07-Apr-22
GCB2000-1090	Area 1 - Grade Slopes	10	01-Apr-22	14-Apr-22
GCB2000-1100	Area 1 - Install Roadway Signage	10	01-Apr-22	14-Apr-22
GCB2000-1110	Area 1 - Respread Topsoil	5	15-Apr-22	21-Apr-22
GCB2000-1120	Area 1 - Install Guardrail	2	22-Apr-22	25-Apr-22
GCB2000-1130	Area 1 - Seed and Stabilize	2	22-Apr-22	25-Apr-22
STAGE 2 AREA 1 - SWM BASINS		44	05-Oct-21	21-Dec-21
GCB3000-1000	Area 1 SWM - Strip Topsoil	4	05-Oct-21	12-Oct-21
GCB3000-1010	Area 1 SWM - Cut/Fill SWM Pond	10	12-Oct-21	26-Oct-21
GCB3000-1020	Area 1 SWM - Install SWM Pipe and Structures	10	26-Oct-21	11-Nov-21
GCB3000-1030	Area 1 SWM - Grade SWM Pond	10	11-Nov-21	02-Dec-21
GCB3000-1040	Area 1 SWM - Place Topsoil/Bio Material	5	02-Dec-21	13-Dec-21
GCB3000-1050	Area 1 SWM - Install SWM Pond Fencing	3	13-Dec-21	17-Dec-21
GCB3000-1060	Area 1 SWM - Seed/Stabilize SWM Pond	2	17-Dec-21	21-Dec-21
STAGE 2 AREA 1 - LANDSCAPING		93	13-Dec-21	28-Apr-22



Remaining Level of Effort | Remaining Work | Milestone

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TASK filter: All Activities

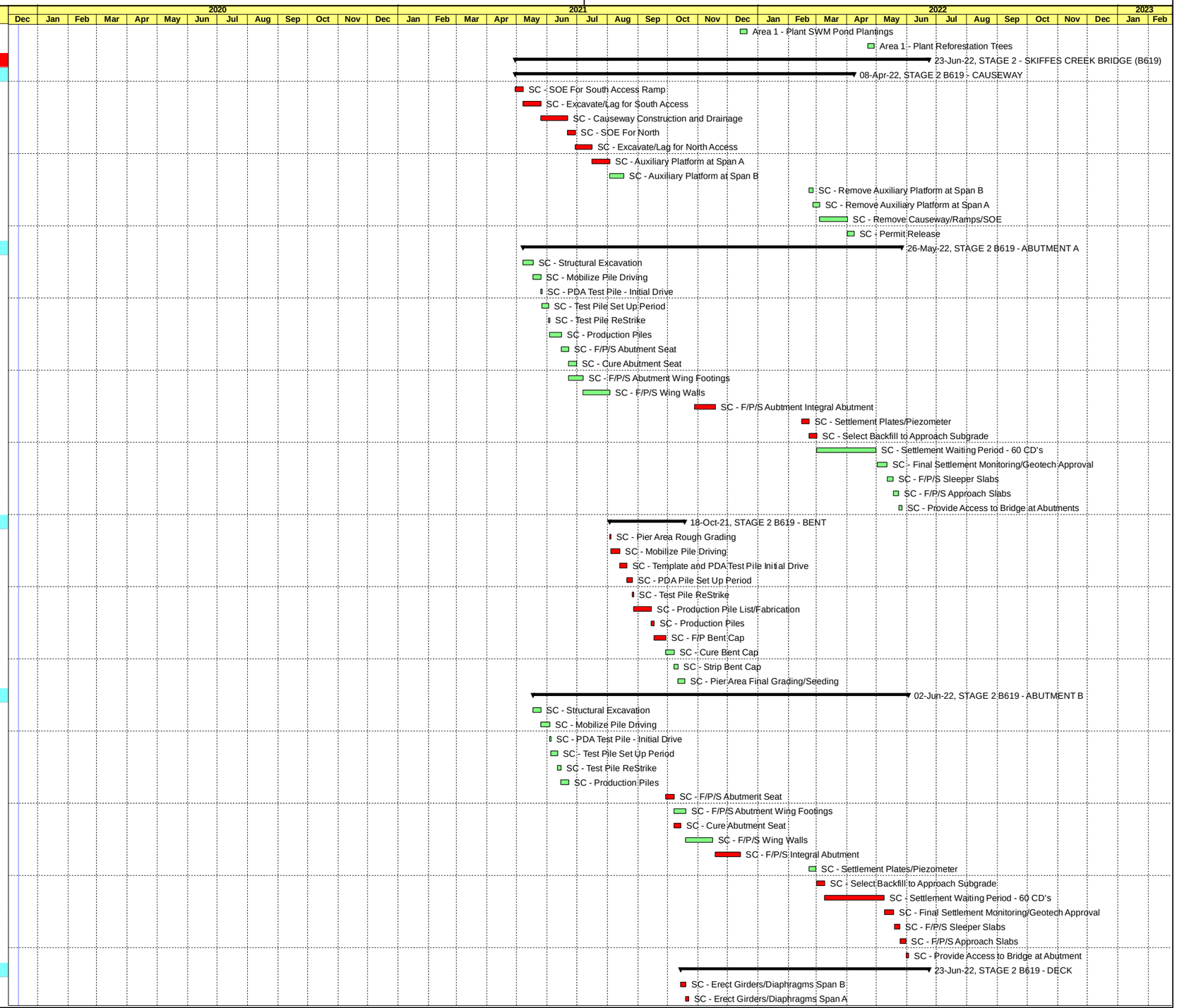
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
GCB4000-1000	Area 1 - Plant SWM Pond Plantings	5	13-Dec-21	20-Dec-21
GCB4000-1010	Area 1 - Plant Reforestation Trees	5	22-Apr-22	28-Apr-22
STAGE 2 - SKIFFES CREEK BRIDGE (B619)		256	29-Apr-21	23-Jun-22
STAGE 2 B619 - CAUSEWAY		202	29-Apr-21	08-Apr-22
GCC1000-1000	SC - SOE For South Access Ramp	5	29-Apr-21	07-May-21
GCC1000-1010	SC - Excavate/Lag for South Access	10	07-May-21	25-May-21
GCC1000-1020	SC - Causeway Construction and Drainage	15	25-May-21	21-Jun-21
GCC1000-1030	SC - SOE For North	5	21-Jun-21	29-Jun-21
GCC1000-1040	SC - Excavate/Lag for North Access	10	29-Jun-21	16-Jul-21
GCC1000-1050	SC - Auxiliary Platform at Span A	10	16-Jul-21	03-Aug-21
GCC1000-1060	SC - Auxiliary Platform at Span B	8	03-Aug-21	17-Aug-21
GCC1000-1070	SC - Remove Auxiliary Platform at Span B	4	21-Feb-22	25-Feb-22
GCC1000-1080	SC - Remove Auxiliary Platform at Span A	5	25-Feb-22	04-Mar-22
GCC1000-1090	SC - Remove Causeway/Ramps/SOE	20	04-Mar-22	01-Apr-22
GCC1000-1100	SC - Permit Release	5	01-Apr-22	08-Apr-22
STAGE 2 B619 - ABUTMENT A		231	07-May-21	26-May-22
GCC2000-1000	SC - Structural Excavation	5	07-May-21	17-May-21
GCC2000-1010	SC - Mobilize Pile Driving	5	17-May-21	25-May-21
GCC2000-1020	SC - PDA Test Pile - Initial Drive	1	25-May-21	26-May-21
GCC2000-1030	SC - Test Pile Set Up Period	3	26-May-21	02-Jun-21
GCC2000-1040	SC - Test Pile ReStrike	1	02-Jun-21	03-Jun-21
GCC2000-1050	SC - Production Piles	6	03-Jun-21	15-Jun-21
GCC2000-1060	SC - F/P/S Abutment Seat	5	15-Jun-21	22-Jun-21
GCC2000-1070	SC - Cure Abutment Seat	5	22-Jun-21	30-Jun-21
GCC2000-1080	SC - F/P/S Abutment Wing Footings	8	22-Jun-21	07-Jul-21
GCC2000-1090	SC - F/P/S Wing Walls	16	07-Jul-21	03-Aug-21
GCC2000-1100	SC - F/P/S Aubtment Integral Abutment	12	28-Oct-21	18-Nov-21
GCC2000-1110	SC - Settlement Plates/Piezometer	5	14-Feb-22	21-Feb-22
GCC2000-1120	SC - Select Backfill to Approach Subgrade	6	21-Feb-22	01-Mar-22
GCC2000-1130	SC - Settlement Waiting Period - 60 CD's	60	01-Mar-22	30-Apr-22
GCC2000-1140	SC - Final Settlement Monitoring/Geotech Approval	8	02-May-22	11-May-22
GCC2000-1150	SC - F/P/S Sleeper Slabs	4	12-May-22	17-May-22
GCC2000-1160	SC - F/P/S Approach Slabs	4	18-May-22	23-May-22
GCC2000-1170	SC - Provide Access to Bridge at Abutments	3	24-May-22	26-May-22
STAGE 2 B619 - BENT		47	03-Aug-21	18-Oct-21
GCC3000-1000	SC - Pier Area Rough Grading	1	03-Aug-21	04-Aug-21
GCC3000-1010	SC - Mobilize Pile Driving	5	04-Aug-21	13-Aug-21
GCC3000-1020	SC - Template and PDA Test Pile Initial Drive	5	13-Aug-21	20-Aug-21
GCC3000-1030	SC - PDA Pile Set Up Period	3	20-Aug-21	26-Aug-21
GCC3000-1040	SC - Test Pile ReStrike	1	26-Aug-21	27-Aug-21
GCC3000-1050	SC - Production Pile List/Fabrication	10	27-Aug-21	14-Sep-21
GCC3000-1060	SC - Production Piles	3	14-Sep-21	17-Sep-21
GCC3000-1070	SC - F/P Bent Cap	7	17-Sep-21	29-Sep-21
GCC3000-1080	SC - Cure Bent Cap	5	29-Sep-21	07-Oct-21
GCC3000-1090	SC - Strip Bent Cap	2	07-Oct-21	11-Oct-21
GCC3000-1100	SC - Pier Area Final Grading/Seeding	5	11-Oct-21	18-Oct-21
STAGE 2 B619 - ABUTMENT B		231	17-May-21	02-Jun-22
GCC4000-1000	SC - Structural Excavation	5	17-May-21	25-May-21
GCC4000-1010	SC - Mobilize Pile Driving	5	25-May-21	03-Jun-21
GCC4000-1020	SC - PDA Test Pile - Initial Drive	1	03-Jun-21	04-Jun-21
GCC4000-1030	SC - Test Pile Set Up Period	3	04-Jun-21	11-Jun-21
GCC4000-1040	SC - Test Pile ReStrike	1	11-Jun-21	14-Jun-21
GCC4000-1050	SC - Production Piles	6	14-Jun-21	22-Jun-21
GCC4000-1060	SC - F/P/S Abutment Seat	5	29-Sep-21	07-Oct-21
GCC4000-1070	SC - F/P/S Abutment Wing Footings	8	07-Oct-21	19-Oct-21
GCC4000-1080	SC - Cure Abutment Seat	5	07-Oct-21	14-Oct-21
GCC4000-1090	SC - F/P/S Wing Walls	16	19-Oct-21	15-Nov-21
GCC4000-1100	SC - F/P/S Integral Abutment	12	18-Nov-21	13-Dec-21
GCC4000-1110	SC - Settlement Plates/Piezometer	5	21-Feb-22	28-Feb-22
GCC4000-1120	SC - Select Backfill to Approach Subgrade	6	01-Mar-22	09-Mar-22
GCC4000-1130	SC - Settlement Waiting Period - 60 CD's	60	09-Mar-22	08-May-22
GCC4000-1140	SC - Final Settlement Monitoring/Geotech Approval	8	09-May-22	18-May-22
GCC4000-1150	SC - F/P/S Sleeper Slabs	4	19-May-22	24-May-22
GCC4000-1160	SC - F/P/S Approach Slabs	4	25-May-22	30-May-22
GCC4000-1170	SC - Provide Access to Bridge at Abutment	3	31-May-22	02-Jun-22
STAGE 2 B619 - DECK		156	14-Oct-21	23-Jun-22
GCC5000-1000	SC - Erect Girders/Diaphragms Span B	3	14-Oct-21	19-Oct-21
GCC5000-1010	SC - Erect Girders/Diaphragms Span A	3	19-Oct-21	22-Oct-21



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

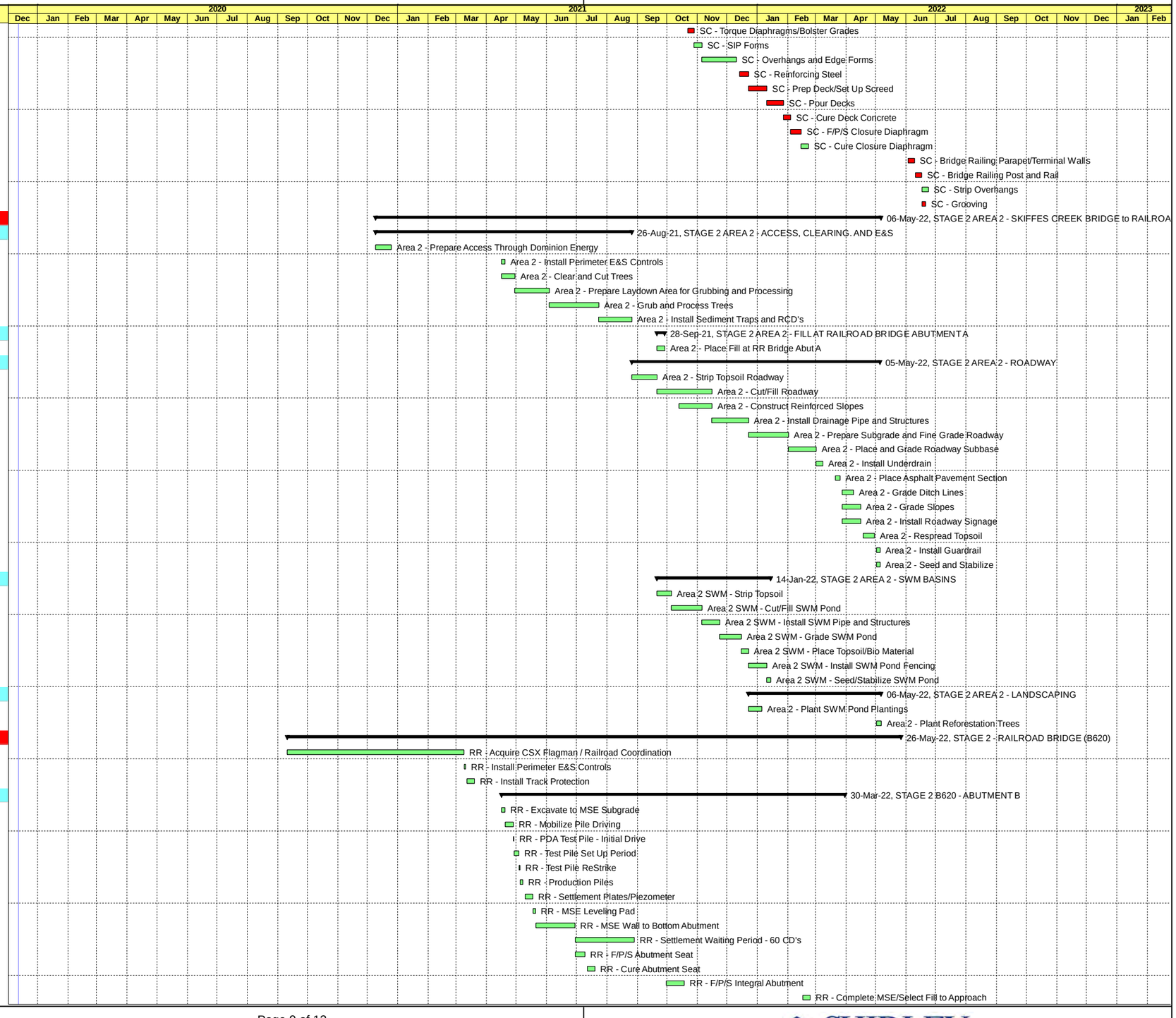
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
GCC5000-1020	SC - Torque Diaphragms/Bolster Grades	3	22-Oct-21	28-Oct-21
GCC5000-1030	SC - SIP Forms	5	28-Oct-21	05-Nov-21
GCC5000-1040	SC - Overhangs and Edge Forms	18	05-Nov-21	10-Dec-21
GCC5000-1050	SC - Reinforcing Steel	6	13-Dec-21	22-Dec-21
GCC5000-1060	SC - Prep Deck/Set Up Screed	4	22-Dec-21	10-Jan-22
GCC5000-1070	SC - Pour Decks	8	10-Jan-22	27-Jan-22
GCC5000-1080	SC - Cure Deck Concrete	5	27-Jan-22	03-Feb-22
GCC5000-1090	SC - F/P/S Closure Diaphragm	7	03-Feb-22	14-Feb-22
GCC5000-1100	SC - Cure Closure Diaphragm	5	14-Feb-22	21-Feb-22
GCC5000-1110	SC - Bridge Railing Parapet/Terminal Walls	5	03-Jun-22	09-Jun-22
GCC5000-1120	SC - Bridge Railing Post and Rail	5	10-Jun-22	16-Jun-22
GCC5000-1130	SC - Strip Overhangs	5	17-Jun-22	23-Jun-22
GCC5000-1140	SC - Grooving	2	17-Jun-22	20-Jun-22
STAGE 2 AREA 2 - SKIFFES CREEK BRIDGE to RAILROAD BRIDGE		296	09-Dec-20	06-May-22
STAGE 2 AREA 2 - ACCESS, CLEARING, AND E&S		143	09-Dec-20	26-Aug-21
GCD1000-1000	Area 2 - Prepare Access Through Dominion Energy	10	09-Dec-20	24-Dec-20
GCD1000-1010	Area 2 - Install Perimeter E&S Controls	2	16-Apr-21	19-Apr-21
GCD1000-1020	Area 2 - Clear and Cut Trees	10	16-Apr-21	29-Apr-21
GCD1000-1030	Area 2 - Prepare Laydown Area for Grubbing and Processing	20	29-Apr-21	03-Jun-21
GCD1000-1040	Area 2 - Grub and Process Trees	35	03-Jun-21	23-Jul-21
GCD1000-1050	Area 2 - Install Sediment Traps and RCD's	20	23-Jul-21	26-Aug-21
STAGE 2 AREA 2 - FILL AT RAILROAD BRIDGE ABUTMENT A		5	20-Sep-21	28-Sep-21
GCD2000-1000	Area 2 - Place Fill at RR Bridge Abut A	5	20-Sep-21	28-Sep-21
STAGE 2 AREA 2 - ROADWAY		152	26-Aug-21	05-May-22
GCD3000-1000	Area 2 - Strip Topsoil Roadway	15	26-Aug-21	20-Sep-21
GCD3000-1010	Area 2 - Cut/Fill Roadway	35	20-Sep-21	15-Nov-21
GCD3000-1020	Area 2 - Construct Reinforced Slopes	20	13-Oct-21	15-Nov-21
GCD3000-1030	Area 2 - Install Drainage Pipe and Structures	20	15-Nov-21	22-Dec-21
GCD3000-1040	Area 2 - Prepare Subgrade and Fine Grade Roadway	15	22-Dec-21	01-Feb-22
GCD3000-1050	Area 2 - Place and Grade Roadway Subbase	20	01-Feb-22	01-Mar-22
GCD3000-1060	Area 2 - Install Underdrain	5	01-Mar-22	08-Mar-22
GCD3000-1070	Area 2 - Place Asphalt Pavement Section	5	21-Mar-22	25-Mar-22
GCD3000-1080	Area 2 - Grade Ditch Lines	10	28-Mar-22	08-Apr-22
GCD3000-1090	Area 2 - Grade Slopes	15	28-Mar-22	15-Apr-22
GCD3000-1100	Area 2 - Install Roadway Signage	15	28-Mar-22	15-Apr-22
GCD3000-1110	Area 2 - Respread Topsoil	10	18-Apr-22	29-Apr-22
GCD3000-1120	Area 2 - Install Guardrail	4	02-May-22	05-May-22
GCD3000-1130	Area 2 - Seed and Stabilize	4	02-May-22	05-May-22
STAGE 2 AREA 2 - SWM BASINS		61	20-Sep-21	14-Jan-22
GCD4000-1000	Area 2 SWM - Strip Topsoil	10	20-Sep-21	05-Oct-21
GCD4000-1010	Area 2 SWM - Cut/Fill SWM Pond	20	05-Oct-21	05-Nov-21
GCD4000-1020	Area 2 SWM - Install SWM Pipe and Structures	10	05-Nov-21	23-Nov-21
GCD4000-1030	Area 2 SWM - Grade SWM Pond	10	23-Nov-21	15-Dec-21
GCD4000-1040	Area 2 SWM - Place Topsoil/Bio Material	5	15-Dec-21	22-Dec-21
GCD4000-1050	Area 2 SWM - Install SWM Pond Fencing	4	22-Dec-21	10-Jan-22
GCD4000-1060	Area 2 SWM - Seed/Stabilize SWM Pond	2	10-Jan-22	14-Jan-22
STAGE 2 AREA 2 - LANDSCAPING		92	22-Dec-21	06-May-22
GCD5000-1000	Area 2 - Plant SWM Pond Plantings	5	22-Dec-21	05-Jan-22
GCD5000-1010	Area 2 - Plant Reforestation Trees	5	02-May-22	06-May-22
STAGE 2 - RAILROAD BRIDGE (B620)		363	10-Sep-20	26-May-22
GCE0000-1000	RR - Acquire CSX Flagman / Railroad Coordination	180	10-Sep-20	08-Mar-21
GCE0000-1010	RR - Install Perimeter E&S Controls	2	09-Mar-21	10-Mar-21
GCE0000-1020	RR - Install Track Protection	5	12-Mar-21	19-Mar-21
STAGE 2 B620 - ABUTMENT B		204	16-Apr-21	30-Mar-22
GCE1000-1000	RR - Excavate to MSE Subgrade	2	16-Apr-21	19-Apr-21
GCE1000-1010	RR - Mobilize Pile Driving	5	20-Apr-21	27-Apr-21
GCE1000-1020	RR - PDA Test Pile - Initial Drive	1	28-Apr-21	28-Apr-21
GCE1000-1030	RR - Test Pile Set Up Period	3	29-Apr-21	03-May-21
GCE1000-1040	RR - Test Pile ReStrike	1	04-May-21	04-May-21
GCE1000-1050	RR - Production Piles	2	05-May-21	07-May-21
GCE1000-1060	RR - Settlement Plates/Piezometer	5	10-May-21	17-May-21
GCE1000-1070	RR - MSE Leveling Pad	2	18-May-21	20-May-21
GCE1000-1080	RR - MSE Wall to Bottom Abutment	23	21-May-21	29-Jun-21
GCE1000-1090	RR - Settlement Waiting Period - 60 CD's	60	30-Jun-21	28-Aug-21
GCE1000-1100	RR - F/P/S Abutment Seat	6	30-Jun-21	09-Jul-21
GCE1000-1110	RR - Cure Abutment Seat	5	12-Jul-21	19-Jul-21
GCE1000-1120	RR - F/P/S Integral Abutment	12	30-Sep-21	18-Oct-21
GCE1000-1130	RR - Complete MSE/Select Fill to Approach	6	16-Feb-22	23-Feb-22



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

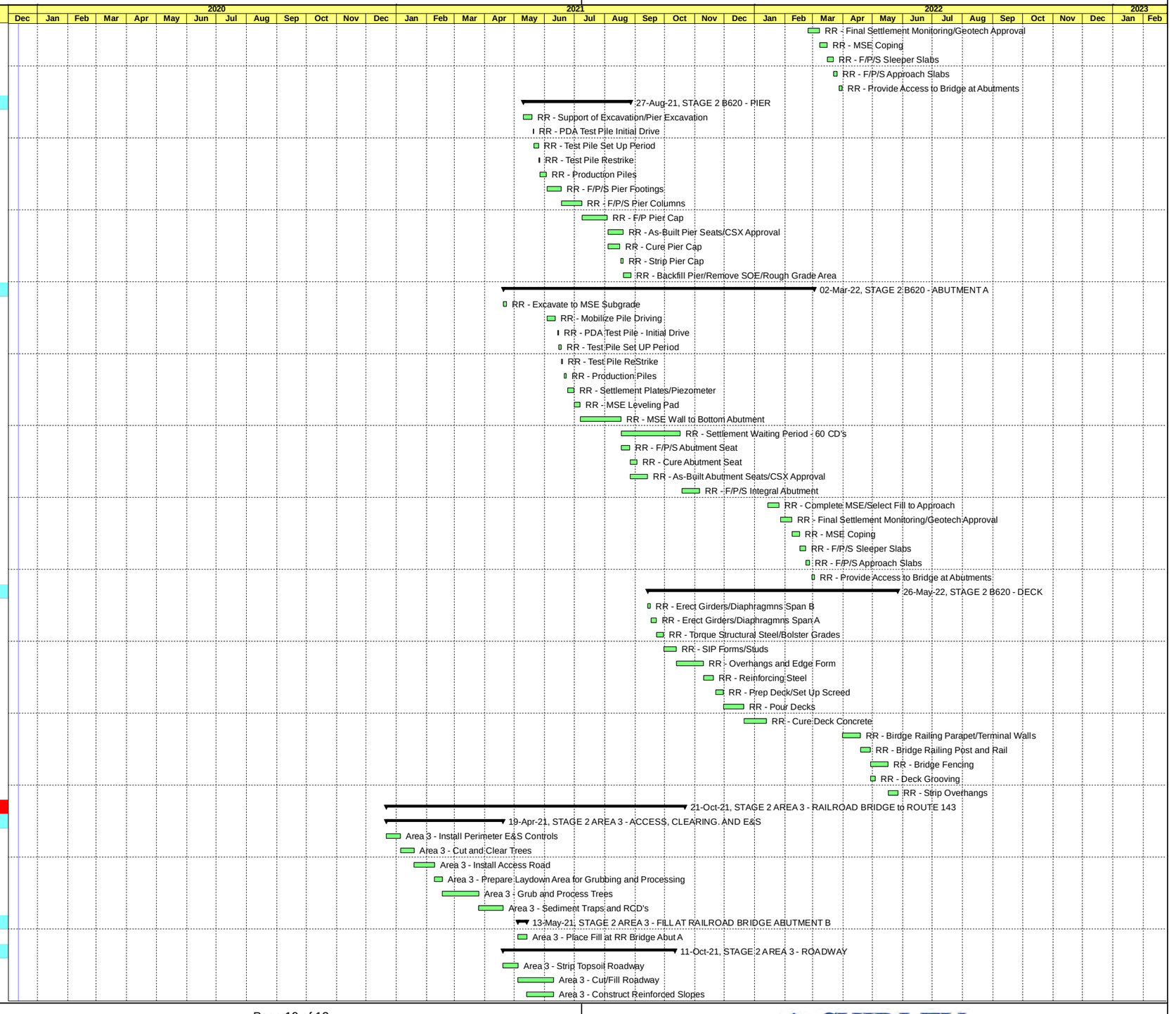
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
GCE1000-1140	RR - Final Settlement Monitoring/Geotech Approval	8	24-Feb-22	07-Mar-22
GCE1000-1150	RR - MSE Coping	6	08-Mar-22	15-Mar-22
GCE1000-1160	RR - F/P/S Sleeper Slabs	4	16-Mar-22	21-Mar-22
GCE1000-1170	RR - F/P/S Approach Slabs	4	22-Mar-22	25-Mar-22
GCE1000-1180	RR - Provide Access to Bridge at Abutments	3	28-Mar-22	30-Mar-22
STAGE 2 B620 - PIER		65	10-May-21	27-Aug-21
GCE2000-1000	RR - Support of Excavation/Pier Excavation	6	10-May-21	18-May-21
GCE2000-1010	RR - PDA Test Pile Initial Drive	1	20-May-21	20-May-21
GCE2000-1020	RR - Test Pile Set Up Period	3	21-May-21	25-May-21
GCE2000-1030	RR - Test Pile Restrike	1	26-May-21	26-May-21
GCE2000-1040	RR - Production Piles	3	27-May-21	02-Jun-21
GCE2000-1050	RR - F/P/S Pier Footings	9	03-Jun-21	17-Jun-21
GCE2000-1060	RR - F/P/S Pier Columns	12	18-Jun-21	08-Jul-21
GCE2000-1070	RR - F/P Pier Cap	15	09-Jul-21	03-Aug-21
GCE2000-1080	RR - As-Built Pier Seats/CSX Approval	10	04-Aug-21	19-Aug-21
GCE2000-1090	RR - Cure Pier Cap	7	04-Aug-21	16-Aug-21
GCE2000-1100	RR - Strip Pier Cap	3	17-Aug-21	19-Aug-21
GCE2000-1110	RR - Backfill Pier/Remove SOE/Rough Grade Area	5	20-Aug-21	27-Aug-21
STAGE 2 B620 - ABUTMENT A		182	20-Apr-21	02-Mar-22
GCE3000-1000	RR - Excavate to MSE Subgrade	2	20-Apr-21	22-Apr-21
GCE3000-1010	RR - Mobilize Pile Driving	5	03-Jun-21	11-Jun-21
GCE3000-1020	RR - PDA Test Pile - Initial Drive	1	14-Jun-21	14-Jun-21
GCE3000-1030	RR - Test Pile Set UP Period	3	15-Jun-21	17-Jun-21
GCE3000-1040	RR - Test Pile ReStrike	1	18-Jun-21	18-Jun-21
GCE3000-1050	RR - Production Piles	2	21-Jun-21	22-Jun-21
GCE3000-1060	RR - Settlement Plates/Piezometer	5	24-Jun-21	30-Jun-21
GCE3000-1070	RR - MSE Leveling Pad	2	01-Jul-21	06-Jul-21
GCE3000-1080	RR - MSE Wall to Bottom Abutment	25	07-Jul-21	17-Aug-21
GCE3000-1090	RR - Settlement Waiting Period - 60 CD's	60	18-Aug-21	16-Oct-21
GCE3000-1100	RR - F/P/S Abutment Seat	6	18-Aug-21	26-Aug-21
GCE3000-1110	RR - Cure Abutment Seat	5	27-Aug-21	02-Sep-21
GCE3000-1120	RR - As-Built Abutment Seats/CSX Approval	10	27-Aug-21	13-Sep-21
GCE3000-1130	RR - F/P/S Integral Abutment	12	19-Oct-21	05-Nov-21
GCE3000-1140	RR - Complete MSE/Select Fill to Approach	6	14-Jan-22	25-Jan-22
GCE3000-1150	RR - Final Settlement Monitoring/Geotech Approval	8	27-Jan-22	07-Feb-22
GCE3000-1160	RR - MSE Coping	6	08-Feb-22	15-Feb-22
GCE3000-1170	RR - F/P/S Sleeper Slabs	4	16-Feb-22	21-Feb-22
GCE3000-1180	RR - F/P/S Approach Slabs	4	22-Feb-22	25-Feb-22
GCE3000-1190	RR - Provide Access to Bridge at Abutments	3	28-Feb-22	02-Mar-22
STAGE 2 B620 - DECK		157	14-Sep-21	26-May-22
GCE4000-1000	RR - Erect Girders/Diaphragmns Span B	3	14-Sep-21	16-Sep-21
GCE4000-1010	RR - Erect Girders/Diaphragmns Span A	3	17-Sep-21	22-Sep-21
GCE4000-1020	RR - Torque Structural Steel/Bolster Grades	5	23-Sep-21	29-Sep-21
GCE4000-1030	RR - SIP Forms/Studs	8	30-Sep-21	12-Oct-21
GCE4000-1040	RR - Overhangs and Edge Form	18	13-Oct-21	09-Nov-21
GCE4000-1050	RR - Reinforcing Steel	6	10-Nov-21	19-Nov-21
GCE4000-1060	RR - Prep Deck/Set Up Screed	4	22-Nov-21	29-Nov-21
GCE4000-1070	RR - Pour Decks	11	30-Nov-21	20-Dec-21
GCE4000-1080	RR - Cure Deck Concrete	7	21-Dec-21	12-Jan-22
GCE4000-1090	RR - Birdge Railing Parapet/Terminal Walls	13	31-Mar-22	18-Apr-22
GCE4000-1100	RR - Bridge Railing Post and Rail	8	19-Apr-22	28-Apr-22
GCE4000-1110	RR - Bridge Fencing	12	29-Apr-22	16-May-22
GCE4000-1120	RR - Deck Grooving	3	29-Apr-22	03-May-22
GCE4000-1130	RR - Strip Overhangs	8	17-May-22	26-May-22
STAGE 2 AREA 3 - RAILROAD BRIDGE to ROUTE 143		173	21-Dec-20	21-Oct-21
STAGE 2 AREA 3 - ACCESS, CLEARING. AND E&S		61	21-Dec-20	19-Apr-21
GCF1000-1000	Area 3 - Install Perimeter E&S Controls	5	21-Dec-20	04-Jan-21
GCF1000-1010	Area 3 - Cut and Clear Trees	10	05-Jan-21	18-Jan-21
GCF1000-1020	Area 3 - Install Access Road	10	18-Jan-21	08-Feb-21
GCF1000-1030	Area 3 - Prepare Laydown Area for Grubbing and Processing	5	08-Feb-21	16-Feb-21
GCF1000-1040	Area 3 - Grub and Process Trees	20	16-Feb-21	25-Mar-21
GCF1000-1050	Area 3 - Sediment Traps and RCD's	15	25-Mar-21	19-Apr-21
STAGE 2 AREA 3 - FILL AT RAILROAD BRIDGE ABUTMENT B		5	04-May-21	13-May-21
GCF2000-1000	Area 3 - Place Fill at RR Bridge Abut A	5	04-May-21	13-May-21
STAGE 2 AREA 3 - ROADWAY		104	19-Apr-21	11-Oct-21
GCF3000-1000	Area 3 - Strip Topsoil Roadway	10	19-Apr-21	04-May-21
GCF3000-1010	Area 3 - Cut/Fill Roadway	20	04-May-21	09-Jun-21
GCF3000-1020	Area 3 - Construct Reinforced Slopes	15	13-May-21	09-Jun-21



Remaining Level of Effort | Remaining Work | Milestone
Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

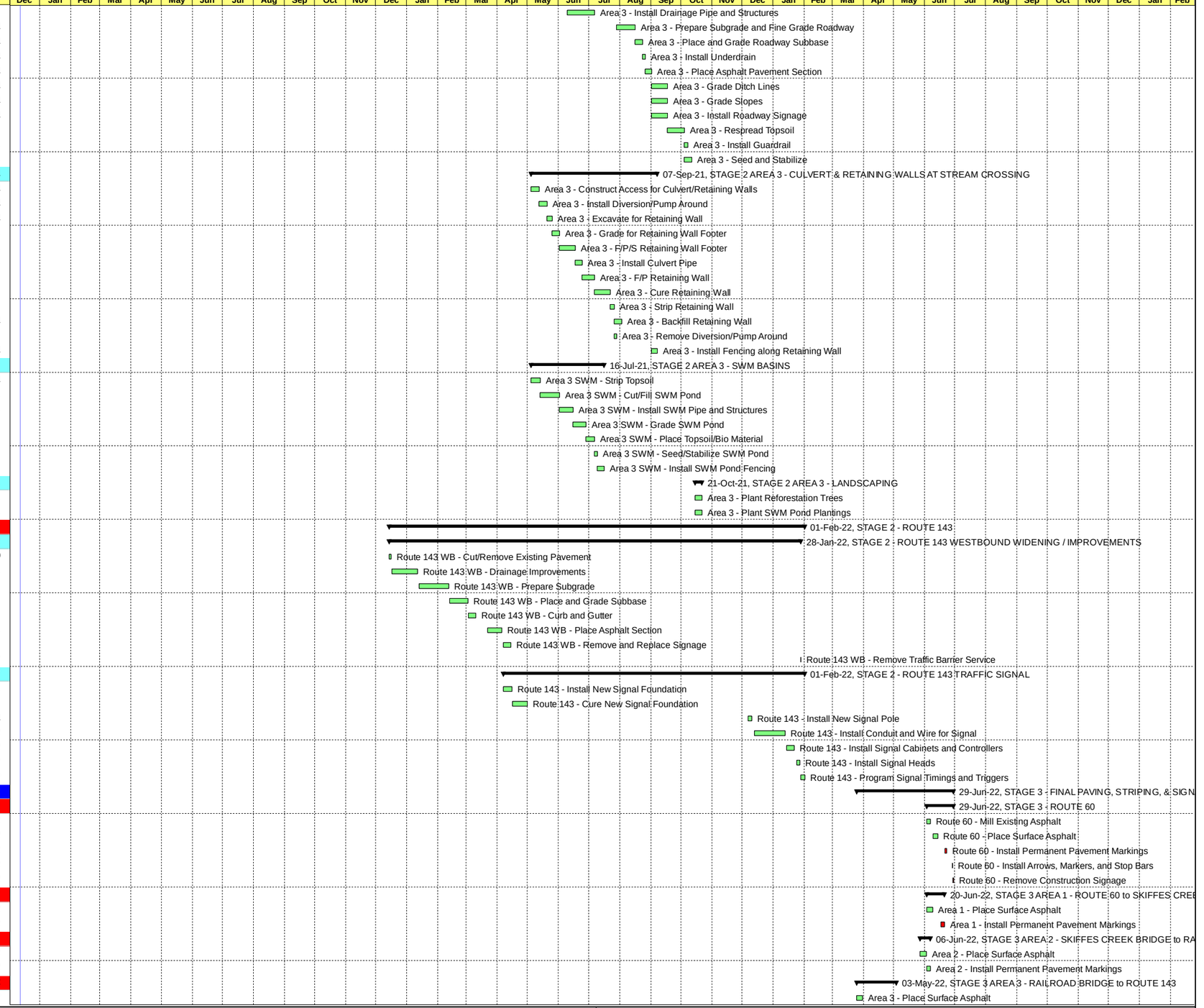
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
GCF3000-1030	Area 3 - Install Drainage Pipe and Structures	15	09-Jun-21	06-Jul-21
GCF3000-1040	Area 3 - Prepare Subgrade and Fine Grade Roadway	10	28-Jul-21	16-Aug-21
GCF3000-1050	Area 3 - Place and Grade Roadway Subbase	5	16-Aug-21	23-Aug-21
GCF3000-1060	Area 3 - Install Underdrain	2	23-Aug-21	26-Aug-21
GCF3000-1070	Area 3 - Place Asphalt Pavement Section	4	26-Aug-21	01-Sep-21
GCF3000-1080	Area 3 - Grade Ditch Lines	10	01-Sep-21	17-Sep-21
GCF3000-1090	Area 3 - Grade Slopes	10	01-Sep-21	17-Sep-21
GCF3000-1100	Area 3 - Install Roadway Signage	10	01-Sep-21	17-Sep-21
GCF3000-1110	Area 3 - Respread Topsoil	10	17-Sep-21	04-Oct-21
GCF3000-1120	Area 3 - Install Guardrail	2	04-Oct-21	07-Oct-21
GCF3000-1130	Area 3 - Seed and Stabilize	4	04-Oct-21	11-Oct-21
STAGE 2 AREA 3 - CULVERT & RETAINING WALLS AT STREAM CROSSING		73	04-May-21	07-Sep-21
GCF4000-1000	Area 3 - Construct Access for Culvert/Retaining Walls	4	04-May-21	12-May-21
GCF4000-1010	Area 3 - Install Diversion/Pump Around	5	12-May-21	20-May-21
GCF4000-1020	Area 3 - Excavate for Retaining Wall	3	20-May-21	25-May-21
GCF4000-1030	Area 3 - Grade for Retaining Wall Footer	3	25-May-21	01-Jun-21
GCF4000-1040	Area 3 - F/P/S Retaining Wall Footer	10	01-Jun-21	17-Jun-21
GCF4000-1050	Area 3 - Install Culvert Pipe	4	17-Jun-21	24-Jun-21
GCF4000-1060	Area 3 - F/P Retaining Wall	6	24-Jun-21	06-Jul-21
GCF4000-1070	Area 3 - Cure Retaining Wall	10	06-Jul-21	22-Jul-21
GCF4000-1080	Area 3 - Strip Retaining Wall	2	22-Jul-21	26-Jul-21
GCF4000-1090	Area 3 - Backfill Retaining Wall	4	26-Jul-21	02-Aug-21
GCF4000-1100	Area 3 - Remove Diversion/Pump Around	2	26-Jul-21	28-Jul-21
GCF4000-1110	Area 3 - Install Fencing along Retaining Wall	3	01-Sep-21	07-Sep-21
STAGE 2 AREA 3 - SWM BASINS		42	04-May-21	16-Jul-21
GCF5000-1000	Area 3 SWM - Strip Topsoil	5	04-May-21	13-May-21
GCF5000-1010	Area 3 SWM - Cut/Fill SWM Pond	10	13-May-21	01-Jun-21
GCF5000-1020	Area 3 SWM - Install SWM Pipe and Structures	8	01-Jun-21	15-Jun-21
GCF5000-1030	Area 3 SWM - Grade SWM Pond	8	15-Jun-21	28-Jun-21
GCF5000-1040	Area 3 SWM - Place Topsoil/Bio Material	4	28-Jun-21	06-Jul-21
GCF5000-1050	Area 3 SWM - Seed/Stabilize SWM Pond	3	06-Jul-21	09-Jul-21
GCF5000-1060	Area 3 SWM - Install SWM Pond Fencing	4	09-Jul-21	16-Jul-21
STAGE 2 AREA 3 - LANDSCAPING		5	15-Oct-21	21-Oct-21
GCF6000-1000	Area 3 - Plant Reforestation Trees	5	15-Oct-21	21-Oct-21
GCF6000-1010	Area 3 - Plant SWM Pond Plantings	5	15-Oct-21	21-Oct-21
STAGE 2 - ROUTE 143		226	14-Dec-20	01-Feb-22
STAGE 2 - ROUTE 143 WESTBOUND WIDENING / IMPROVEMENTS		224	14-Dec-20	28-Jan-22
GCG1000-1000	Route 143 WB - Cut/Remove Existing Pavement	2	14-Dec-20	15-Dec-20
GCG1000-1010	Route 143 WB - Drainage Improvements	10	17-Dec-20	11-Jan-21
GCG1000-1020	Route 143 WB - Prepare Subgrade	15	13-Jan-21	11-Feb-21
GCG1000-1030	Route 143 WB - Place and Grade Subbase	10	12-Feb-21	02-Mar-21
GCG1000-1040	Route 143 WB - Curb and Gutter	5	03-Mar-21	10-Mar-21
GCG1000-1050	Route 143 WB - Place Asphalt Section	10	22-Mar-21	05-Apr-21
GCG1000-1060	Route 143 WB - Remove and Replace Signage	5	07-Apr-21	14-Apr-21
GCG1000-1070	Route 143 WB - Remove Traffic Barrier Service	1	28-Jan-22	28-Jan-22
STAGE 2 - ROUTE 143 TRAFFIC SIGNAL		169	07-Apr-21	01-Feb-22
GCG2000-1000	Route 143 - Install New Signal Foundation	6	07-Apr-21	15-Apr-21
GCG2000-1010	Route 143 - Cure New Signal Foundation	10	16-Apr-21	30-Apr-21
GCG2000-1020	Route 143 - Install New Signal Pole	3	07-Dec-21	10-Dec-21
GCG2000-1030	Route 143 - Install Conduit and Wire for Signal	12	13-Dec-21	12-Jan-22
GCG2000-1040	Route 143 - Install Signal Cabinets and Controllers	4	14-Jan-22	21-Jan-22
GCG2000-1050	Route 143 - Install Signal Heads	3	24-Jan-22	27-Jan-22
GCG2000-1060	Route 143 - Program Signal Timings and Triggers	3	28-Jan-22	01-Feb-22
STAGE 3 - FINAL PAVING, STRIPING, & SIGNAGE		69	25-Mar-22	29-Jun-22
STAGE 3 - ROUTE 60		19	03-Jun-22	29-Jun-22
GDA0000-1000	Route 60 - Mill Existing Asphalt	2	03-Jun-22	06-Jun-22
GDA0000-1010	Route 60 - Place Surface Asphalt	3	09-Jun-22	13-Jun-22
GDA0000-1020	Route 60 - Install Permanent Pavement Markings	2	21-Jun-22	22-Jun-22
GDA0000-1030	Route 60 - Install Arrows, Markers, and Stop Bars	1	28-Jun-22	28-Jun-22
GDA0000-1040	Route 60 - Remove Construction Signage	1	29-Jun-22	29-Jun-22
STAGE 3 AREA 1 - ROUTE 60 to SKIFFES CREEK BRIDGE		12	03-Jun-22	20-Jun-22
GDB0000-1000	Area 1 - Place Surface Asphalt	4	03-Jun-22	08-Jun-22
GDB0000-1010	Area 1 - Install Permanent Pavement Markings	2	17-Jun-22	20-Jun-22
STAGE 3 AREA 2 - SKIFFES CREEK BRIDGE to RAILROAD BRIDGE		7	27-May-22	06-Jun-22
GDC0000-1000	Area 2 - Place Surface Asphalt	5	27-May-22	02-Jun-22
GDC0000-1010	Area 2 - Install Permanent Pavement Markings	2	03-Jun-22	06-Jun-22
STAGE 3 AREA 3 - RAILROAD BRIDGE to ROUTE 143		28	25-Mar-22	03-May-22
GDD0000-1000	Area 3 - Place Surface Asphalt	4	25-Mar-22	30-Mar-22



Remaining Level of Effort | Remaining Work | Milestone

Actual Work | Critical Remaining Work | Summary

TASK filter: All Activities

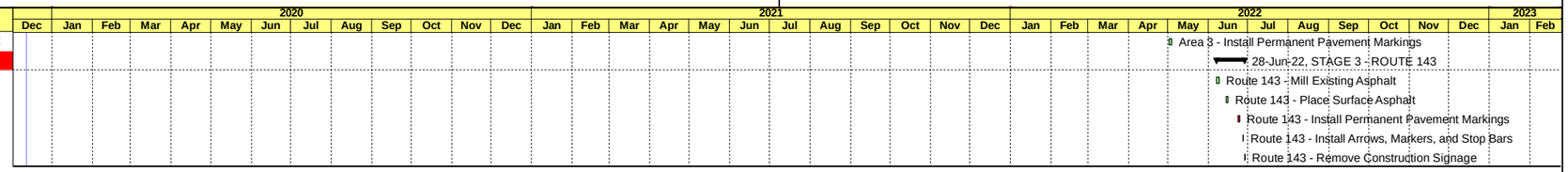
SHIRLEY CONTRACTING COMPANY, LLC

SKIFFES CREEK CONNECTOR
C00100200DB104

4.6.1 PROPOSAL SCHEDULE

11-05-2019

Activity ID	Activity Name	Original Duration	Start	Finish
GDD0000-1010	Area 3 - Install Permanent Pavement Markings	2	02-May-22	03-May-22
STAGE 3 - ROUTE 143		16	07-Jun-22	28-Jun-22
GDE0000-1000	Route 143 - Mill Existing Asphalt	2	07-Jun-22	08-Jun-22
GDE0000-1010	Route 143 - Place Surface Asphalt	2	14-Jun-22	15-Jun-22
GDE0000-1020	Route 143 - Install Permanent Pavement Markings	2	23-Jun-22	24-Jun-22
GDE0000-1030	Route 143 - Install Arrows, Markers, and Stop Bars	1	27-Jun-22	27-Jun-22
GDE0000-1040	Route 143 - Remove Construction Signage	1	28-Jun-22	28-Jun-22



Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

TASK filter: All Activities

SHIRLEY CONTRACTING COMPANY, LLC