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Response to Request for Proposals

I-95 SOUTHBOUND CD LANES - RAPPAHANNOCK RIVER CROSSING

Stafford County/City of Fredericksburg, Virginia

State Project No.: 0095-111-259, P101, R201, C501; 0095-089-741
Federal Project No.: IM-5111(235)
Contract ID Nmber: C00101595DB94

VOLUME I: TECHNICAL PROPOSAL

Submitted By:

SHIRLEY
CONTRACTING COMPANY, LLC

In Association With:

Dewberry®

Attachment 4.0.1.1 - Technical Proposal Checklist

ATTACHMENT 4.0.1.1

I-95 SOUTHBOUND CD LANES – RAPPAHANNOCK RIVER CROSSING PROJECT

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	N/A
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6(Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	N/A
Letter of Submittal	NA	Sections 4.1		Page 1-2
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
Interim Milestone and Final Completion Date(s)	NA	Section 4.1.6	yes	Page 1
Any Unique Milestone dates introduced by the Offeror	NA	Section 4.1.7		Page 1
Proposal Payment Agreement or Waiver of Proposal Payment	Attachment 9.3.1 or 9.3.2	Section 4.1.8	no	N/A
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.9	no	N/A
Commitment to achieving a Ten percent (10%) DBE	NA	Section 4.1.10		Page 2

ATTACHMENT 4.0.1.1

I-95 SOUTHBOUND CD LANES – RAPPAHANNOCK RIVER CROSSING PROJECT

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
participation goal				
Offeror's Qualifications	NA	Section 4.2		Page 3
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 3
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	Page 3
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	Page 3
Design Concept	NA	Section 4.3		Page 4-21
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	Page 5-14
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	Page 14-21
Project Approach	NA	Section 4.4		Page 22-31
Environmental Management	NA	Section 4.4.1	yes	Page 22-26
Utilities	NA	Section 4.4.2	yes	Page 26-29
Geotechnical	NA	Section 4.4.3	yes	Page 29-31
~~Quality Assurance/ Quality Control (QA/QC)~~	~~NA~~	~~Section 4.4.4~~	~~yes~~	

ATTACHMENT 4.0.1.1

I-95 SOUTHBOUND CD LANES – RAPPAHANNOCK RIVER CROSSING PROJECT

TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Construction of Project	NA	Section 4.5		Page 32-57
Sequence of Construction	NA	Section 4.5.1	yes	Page 32-48
Transportation Management Plan	NA	Section 4.5.2	yes	Page 48-57
11" x 17" graphics demonstrating Sequence of Construction and MOT Phasing	NA	Section 4.5.1	yes	Page 49, & 82-85
Disadvantaged Business Enterprises (DBE)	NA	Section 4.6		
Written statement of percent DBE participation	NA	Section 4.6	yes	See Cover Letter
Proposal Schedule	NA	Section 4.7		
Proposal Schedule	NA	Section 4.7	no	N/A
Proposal Schedule Narrative	NA	Section 4.7	no	N/A
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.7	no	N/A

Attachment 3.6 - Form C-78

ATTACHMENT 3.6

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

RFP NO. C00101595DB94

PROJECT NO.: 0095-111-259, P101, R201, C501; 0095-089-741

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 – July 18, 2017 (Date)
2. Cover letter of RFP Addendum #1 – August 25, 2017 (Date)
3. Cover letter of RFP Addendum #2 – September 1, 2017 (Date)
4. Cover letter of RFP Addendum #3 – September 28, 2017 (Date)
5. Cover letter of RFP Addendum #4 – October 23, 2017 (Date)
6. Cover letter of RFP Addendum #5 – October 26, 2017 (Date)
7. Cover letter of RFP Addendum #6 – November 3, 2017 (Date)

SIGNATURE

November 14, 2017
DATE

Daniel E. Clymore
PRINTED NAME

Vice President
TITLE

4.1 - Letter of Submittal

SHIRLEY
CONTRACTING COMPANY, LLC

November 14, 2017

Mr. Suril R. Shah, PE
Alternative Project Delivery Division
Virginia Department of Transportation
1401 East Broad Street
Annex Building, 8th Floor
Richmond, VA 23219

RE: **I-95 Southbound CD Lanes-Rappahannock River Crossing**
Stafford County/City of Fredericksburg, Virginia
Contract ID Number: C00101595DB94
4.1 Letter of Submittal

Dear Mr. Shah:

Shirley Contracting Company, LLC (Shirley), as the Offeror, and Dewberry Consultants LLC (Dewberry), as the Lead Designer, are pleased to submit our Team's Technical Proposal for the I-95 Southbound CD Lanes-Rappahannock River Crossing (the Project). Our Team has experience that is unmatched having been awarded 18 Virginia Department of Transportation (VDOT) design-build projects, valued at more than $1.1 billion. We are committed to providing VDOT and the traveling public with an unequaled level of assurance that the Project will be completed successfully and exceed the priorities established, while limiting risk to VDOT, the public, and stakeholders. We are excited for this opportunity and look forward to continuing our partnership with VDOT.

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 from the date this Technical 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, President/CEO/Manager, Shirley Contracting Company, LLC 8435 Backlick Road, Lorton, VA 22079, 703.550.8100 (P).

4.1.6 - Interim Milestone Date: September 15, 2021
Final Completion Date: July 30, 2022

4.1.7 - Unique Milestone #1: June 15, 2020
Unique Milestone #2: August 16, 2021

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

4.1.9 - Certification of 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 10% 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,

Daniel E. Clymore
Vice President

Attachments:
9.3.1 - Proposal Payment Agreement
4.1.9 - Certification of Debarment

4.2 - Offeror's Qualifications

4.2 Offeror's Qualifications

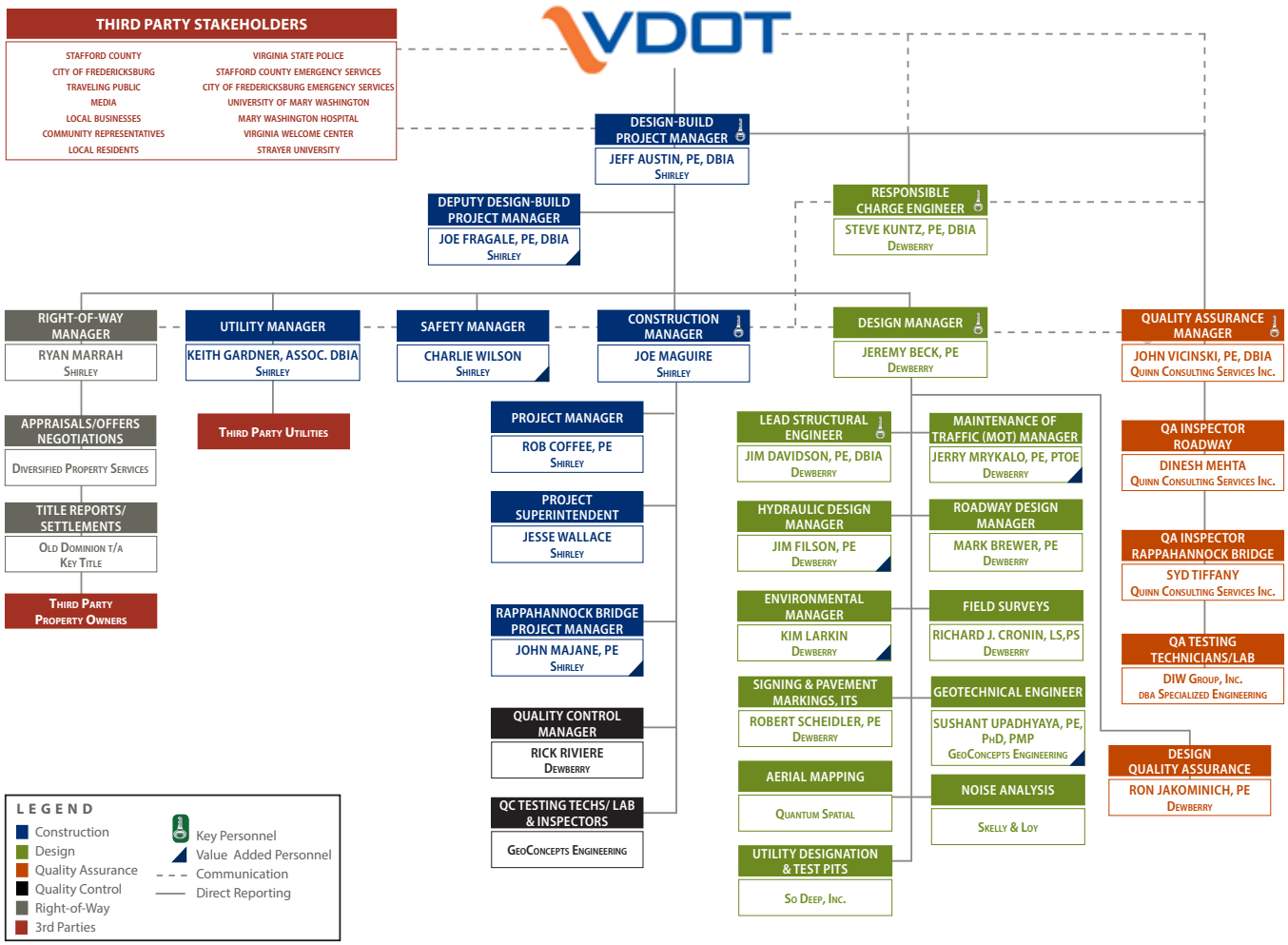
4.2.1 Confirmation

We confirm that the information contained in our Statement of Qualifications (SOQ) remains true and accurate in accordance with Part 1, Section 11.4 except for the following: (1) Ryan Marrah has been assigned as the Right-of-Way Manager for the Project. He replaces Gary Christensen who is no longer with the company. This change was approved by VDOT on October 19, 2017; (2) John Majane, P.E has been assigned as the Rappahannock Bridge Project Manager replacing Jerry Hargis of R.R. Dawson Bridge Company, LLC as they are no longer in business. This change was approved by VDOT on October 16, 2017; (3) Shirley Contracting Company, LLC will self-perform the Rappahannock Bridge construction replacing R.R. Dawson Bridge Company who is no longer in business. This change was also approved by VDOT on October 16, 2017.

4.2.2 Organizational Chart

The 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. The organizational chart has been updated to reflect the change in the Right-of-Way Manager, and Rappahannock River Bridge Project Manager. As there is no change to any functional relationships among the participants since the SOQ submittal, an updated narrative is not required.

Figure 4.2.2.1 - Organizational Chart



4.3 - Design Concept

4.3 Design Concept

Introduction

Our Team's Conceptual Design is based on a complete review of the RFP documents, numerous visits to the Project site, exploration of multiple alternate concepts, interaction with VDOT at our Proprietary Meetings, and direct coordination with the City of Fredericksburg Parks, Recreation & Events staff. The intent of these investigations and conversations ensured that our Team developed a concept and approach which successfully completes each element and addresses the challenges and goals. As a result of this review, our Team has identified numerous enhancements which achieve the following goals:

- Minimize impacts to the traveling public and key stakeholders;
- Reduce environmental impacts, particularly to the Rappahannock River;
- Reduce right-of-way and easement impacts;
- Reduce long-term maintenance costs; and
- Maintain public acceptance and stakeholder communications.

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

- ✓ meets or exceeds all requirements listed in the Design Criteria Table;
- ✓ ensures the limits of construction to include all 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;
- ✓ does not include design elements that require Design Exceptions and/or Design Waivers unless they were identified or included in the RFP or Addendum; and
- ✓ ensures the proposed design elements are not in conflict with the proposed Fred-Ex design as shown on the Public Hearing displays.

Throughout the procurement phase, our Team held weekly meetings to discuss the Project's challenges, present and discuss ideas, incorporate VDOT input received at Proprietary Meetings, and develop solutions which achieved VDOT's project priorities of cost, efficient design, construction, and project approach. These meetings included discipline leads from roadway, structures, hydraulics, geotechnical, environmental, traffic, right-of-way, utilities, scheduling, and construction. As a result, we identified numerous enhancements which are depicted and highlighted in our Volume II – Design Concept and described in Table 1:

Table 1 - Enhancements and Benefits

Feature/Location	Enhancement	Project Benefit
Rappahannock River Bridge (B604)	Reduced total bridge length by 125' and number of piers from eight (per RFP plans) to four	▪ Reduces number of piers while maintaining north channel between existing Piers five and six of existing southbound bridge ▪ Ensures no impacts to the Scout/Embry Dam/ Rappahannock Canal Trail ▪ Accommodates Cannon Ridge-Ferry Farm Trail ▪ Minimizes scour potential to existing piers ▪ Reduces length of temporary causeway ▪ Minimizes duration of construction in the river ▪ Reduces long-term inspection and maintenance cost

Feature/Location	Enhancement	Project Benefit
Northbound I-95 Bridge over Route 17	Design and construct ultimate five-lane bridge	▪ Eliminates need for future bridge widening ▪ Minimizes future impacts to traffic on I-95 and Route 17 associated with bridge widening ▪ Avoids partial demolition of new bridge that would otherwise be required for future northbound CD construction ▪ Avoids installation of a temporary bridge ▪ Eliminates I-95 northbound crossover ▪ Limits Route 17 bridge construction to two stages
Route 17 under I-95	Adjusted vertical profile of I-95 to avoid lowering of Route 17	▪ Avoids impacts to multiple utilities on Route 17 ▪ Avoids impacts to existing bridge foundations which would have precluded staged reconstruction of I-95 bridges ▪ Avoids splitting traffic, improving safety on Route 17
Bridges over Route 17 Foundations	Maximize re-use of existing foundation elements	▪ Minimizes extent and duration of work within the Route 17 median, beneath I-95 ▪ Avoids risk associated with removal of exisiting foundations (piles) ▪ Allows for consistent pier column spacing
Horizontal Alignment of Southbound I-95 Collector Distributor (CD) Lanes	Shift horizontal alignment immediately upstream and downstream of the existing I-95/Route 3 loop ramp weave area	▪ Avoids reconstruction of existing Route 3 interchange ramps ▪ Allows for optimized drainage between the southbound CD and General Purpose (GP) lanes ▪ Reduces impervious area, allowing for reduction of stormwater management facilities ▪ Lengthens southbound auxillary lane from Route 3 by 120’
Stormwater Management	Reduced number of stormwater management facilities from 28 to eight	▪ Eliminates all right-of-way (fee) acquisition ▪ Minimizes environmental impacts ▪ Reduces future maintenance costs
Vertical Profile of Southbound I-95 General Purpose Lanes	Adjust vertical profile (varies 0 to 5’)	▪ Reduces excavation in the median of I-95 ▪ Balances earthwork between the southern terminus and Rappahannock River, between the Rappahannock River and Route 17, and between Route 17 and the northern terminus ▪ Reduces construction truck traffic on I-95 and Route 17
Vertical Profile of Southbound I-95 CD Lanes	Utilize “K” Value for 65 mph immediately upstream and downstream of the bridge over Route 17	▪ Reduces proposed bridge pier heights ▪ Reduces pavement reconstruction limits on I-95 ▪ Minimizes reconstruction of existing Route 17 interchange ramps
Access to Rappahannock River Bridge Piers south of “main” channel	Coordinated access with the City of Fredericksburg using existing gravel access road beneath existing bridges	▪ Maintains the main channel for recreational users ▪ Reduces wetland, stream, and species impacts ▪ Avoids challenging access modifications in the median of I-95 south of the Rappahannock River bridge ▪ Reduces trucks entering/exiting workzone directly from I-95 ▪ Establishes positive partnership with key project stakeholder

4.3.1 Conceptual Roadway Plans

Construction of the improvements associated with the Project will provide new southbound GP lanes from approximately 1.3 miles south of Route 3 (Exit 130) to approximately 1.5 miles north of Route 17 (Exit 133), including new bridges over the Rappahannock River and Route 17. This capacity and operational improvement will be created through construction of new lanes in the median of I-95 and conversion of the existing southbound lanes to CD lanes. Additionally, the northbound I-95 bridge over Route 17

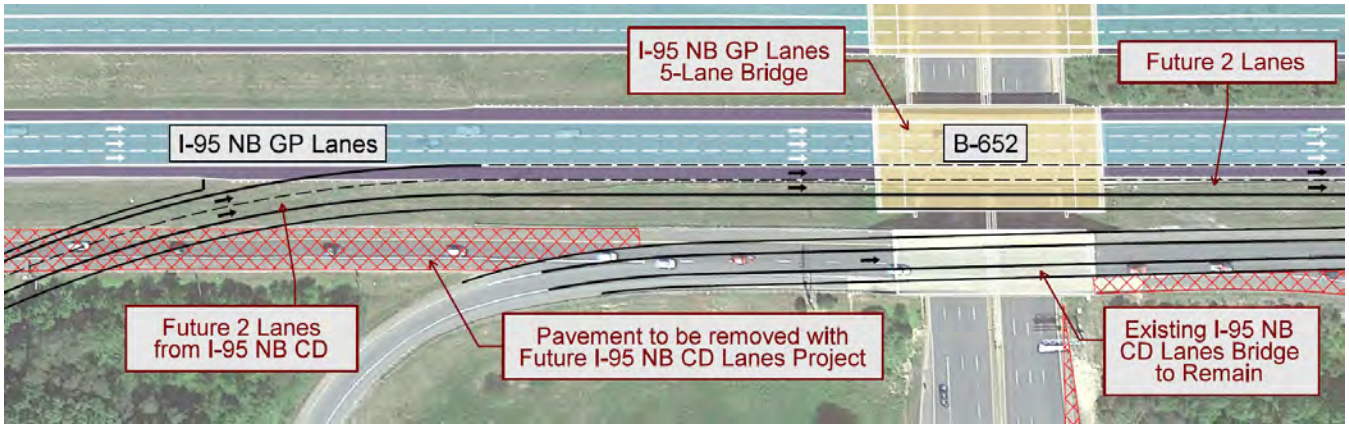
will be replaced. Lastly, optional elements (Option #1) may be incorporated, which will accommodate the future extension of the I-95 Express Lanes (Fred-Ex) while minimizing reconstruction of elements completed as part of this Project. Shoulder width Design Waivers and the concrete median barrier type Design Exception identified in the RFP have been incorporated into our Conceptual Design. No additional Design Waivers and/or Exceptions will be required by our Team's Design Concept.

(a) General Geometry

Improvements to the southbound GP and CD lanes of I-95 will be completed in accordance with Rural Principal Arterial (GS-1) criteria utilizing a 75 mph design speed for the GP lanes and a 65 mph design speed for the CD lanes. Following completion, southbound I-95 will consist of three GP lanes and vary between two or three CD lanes, each 12' in width. Paved right shoulders along both the GP and CD lanes will be 10' in width, while the paved left shoulders will be 4' in width along the GP lanes and 10' in width along the CD lanes, except in locations identified in Section 4.1.3.(d). A physical barrier separation between the GP and CD lanes will be provided, and where barriers are located adjacent to the shoulders, the paved shoulder width will be increased by 2' to provide the required usable shoulder widths. Auxiliary lanes on the CD roadway at each interchange ramp will be provided in conformance with the RFP Conceptual Design.

Northbound I-95 improvements will be completed to provide a new northbound bridge over Route 17, maintaining a three-lane typical section consisting of 12' travel lanes and 10' paved shoulders. Consistent with the southbound improvements, shoulder widths will be increased by 2' where guardrail or barrier protection is required. In developing our sequence of construction approach, our Team recognized that either a temporary bridge or three-staged construction would be required to complete the removal and replacement of the northbound I-95 bridge over Route 17. Staging construction to shift the northbound lanes temporarily onto the future southbound GP bridge presented schedule challenges and would have required a significant temporary diversion of the northbound lanes resulting in high-costs for temporary paving and/or construction and demolition of a temporary bridge. ***Recognizing VDOT's ultimate plan to provide a five-lane northbound bridge over Route 17, our Team is committing to building the ultimate five-lane bridge as part of our concept, exceeding the RFP requirements.*** Construction of the five-lane bridge, as depicted in Figure 4.3.1.1, allows our Team to eliminate a median crossover and the need for VDOT to remove a portion of the bridge in the future to facilitate widening. Ultimately, completing the five-lane bridge will reduce impacts to the traveling public on both I-95 and Route 17. More detailed discussion of our approach can be found in Section 4.5.1.

Figure 4.3.1.1 - Bridge B652 Will Accomodate Future Lanes For I-95 Northbound CD Lanes



Improvements to the interchange ramps include minor realignments to the southbound entrance and exit ramps associated with the realignment of I-95 and reconfiguration of the existing travel lanes, and widening ramp A from Route 17 to be a two-lane ramp. Ramp widths vary from 16' for a single lane ramp to 24' for dual-lane ramps, and minimum 4' and 8' paved shoulder widths will be provided on the left and right sides of the ramps respectively. Ramp design speeds vary from 30 mph (loop ramps) to 50 mph (Route 3 Ramp A) depending on the geometry of the ramp, whether the ramp is a loop or an "outer" ramp, and the location of the ramp (higher speeds near the I-95 terminals and lower speeds at the Route 17 terminals).

Improvements to Route 17 consist of widening at the approach to the ramp to southbound I-95 to provide an additional 12' wide auxiliary lane. Widening improvements on Route 17 will be completed based on the 45 mph design speed, including gore modifications at the southbound Route 17 diverge to the southbound I-95 entrance ramp.

Finally, Option #1 improvements have been accounted for in our design concept and consist of the elements described in Table 2:

Table 2 - Option #1 Improvements

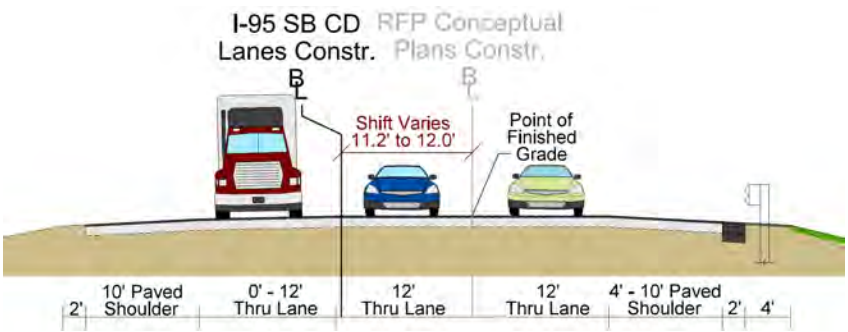
Item	Element	Description
A-1	Southbound I-95 Express Lanes to Southbound I-95 GP Acceleration Lane	12' wide acceleration lane and auxiliary lane taper and all guardrail, drainage, and traffic control elements associated with the entrance ramp
A-2	Southbound I-95 CD Lanes	Physical barrier separation of lanes for traffic destined for Route 3 or Route 17, including paved shoulders, gore modifications, and all associated drainage and traffic control elements
A-3	Southbound I-95 CD Lanes Bridge over Route 17 (B606)	Additional widening to accommodate the width and concrete barrier associated with Item A-2
A-4	Southbound I-95 CD Lanes/Route 17 Loop Ramp Tie-Ins	Additional pavement widening, reconstruction, and ramp gore modifications to accommodate improvements associated with Item A-2
A-5	Southbound I-95 CD Lane Widening for Route 17 On-Ramp	Horizontal adjustment and widening of the acceleration lane, taper, and entrance gore necessary for the entrance ramp from eastbound Route 17 to southbound I-95 CD lanes
A-6	ITS Conduits across Northbound I-95 GP Bridge Over Route 17 (B652)	Installation of two 4" diameter conduits and junction boxes within the existing I-95 median for future use by the Fred-Ex Project

Our Volume II - Design Concept provides graphic displays for each of the items described above, as well as curve data and design speed information for each geometric element. Items to be incorporated as part of Option #1 are labeled according to the item number provided in Table 2.

(b) Horizontal Alignments

The horizontal alignments proposed by our Team for the southbound and northbound GP lanes are consistent with the RFP concept, except for minor adjustments to the southbound GP alignment based on shoulder adjustments which will increase the separation to the northbound GP lanes. Our Team has also optimized the alignment of the southbound CD lanes, ***reducing the limits of***

Figure 4.3.1.2 - Optimized Alignment of CD Lanes



reconstruction of the existing interchange ramps and avoiding the need to install BPPS adjacent to the existing Route 3 bridge piers next to the southbound CD lanes. This adjustment, as discussed in our Proprietary Meetings and depicted in Figure 4.3.1.2, also allows us to retain the existing pavement at the end of the southbound entrance ramp, ***providing over 120' of additional acceleration length.*** Our Team's modification of the southbound CD lane alignment also allows for demolition of existing pavement between the southbound GP and CD lanes near the Route 3 interchange which reduces the stormwater management needs, as is described in more detail in Section 4.3.1.(e). Finally, this adjustment has also allowed our Team to optimize barrier and drainage configurations between the CD and GP lanes, resulting in reduced long-term maintenance costs.

The horizontal geometry of Route 17 is consistent with the RFP and will match existing conditions. Ramp horizontal geometry has been developed based on the geometry of I-95, Route 17, existing ramps, and is compliant with GS-R standards including gore improvements and details. ***Based on our Team's enhanced horizontal alignment of the southbound CD lanes, realignment of the Route 3 ramps have been avoided.***

The inclusion of Option #1 elements, if authorized, will not change the geometry of the I-95 improvements described above. Widening of pavement to incorporate Option #1 will be completed adjacent to the other improvements along the southbound lanes of I-95. Modifications to the ramp geometry will be necessary to accommodate the additional pavement and barrier widths along the southbound I-95 CD lanes, however the ramp geometry will be adjusted in a manner which will maintain the required design speeds and be fully compliant with GS-R criteria.

(c) Maximum Grades

Maximum proposed grades for each roadway alignment are identified in Table 3. Grades proposed for the southbound I-95 GP lanes and the northbound I-95 GP lanes have been developed to meet the 75 mph design speed criteria. At the terminals of the southbound CD lanes, "spline" grades will be developed to minimize reconstruction of the existing lanes and ensure a smooth transition to/from the existing travel lanes to the proposed lanes. Proposed grades for the southbound CD lanes have also been developed in a manner to limit the amount of full-depth reconstruction of the existing pavement. Immediately north and south of the bridge over Route 17, the vertical profile for the southbound CD lanes meets requirements for a 65 mph facility, reducing the asphalt build-up and full-depth replacement on existing I-95, minimizing the height of the Route 17 CD lanes bridge abutments (while still providing the required clearance), and limiting the amount of work required to connect the proposed CD lanes to the existing Route 17 ramps. This will provide VDOT with an economical design achieving the RFP requirements while minimizing impacts to the public.

Table 3 - Maximum Vertical Grades

Road	Maximum Profile Grade (%)	
	Maximum Allowable Per RFP	Proposed Design
Mainlines		
Southbound I-95 CD Lanes	4.00	1.95
Southbound I-95 GP Lanes	4.00	3.18
Route 17	7.00	1.50 (Approx.)
Interchange Ramps		
Route 17 Ramp A	6.0	3.85 (Approx.)
Route 17 Loop Ramp A	Not Specified	4.15
Route 17 Ramp B	Not Specified	2.73
Route 17 Loop Ramp B	Not Specified	3.50
Route 3 Ramp A	4.0	**No improvements required due to our unique design concept for the southbound CD lanes**
Route 3 Loop Ramp A	7.0	
Route 3 Ramp B	Not Specified	
Route 3 Loop Ramp B	7.0	

The profiles for the southbound CD and GP lanes and the northbound GP lanes have been developed to eliminate adjustment to the Route 17 profile for the following reasons:

- Avoids multiple utility impacts and relocation needs;
- Avoids impacts to the existing bridge foundations; and
- Avoids long-term, multi-lane closures and/or splitting of lanes on Route 17.

Vertical profiles for the connections to the existing interchange ramps have been developed based on existing ramp profiles and ensuring proper transitions to and from the proposed improvements on I-95.

(d) Typical Sections

The southbound I-95 CD lanes typical section will be provided in accordance with the RFP and generally consist of three travel lanes. Auxiliary lanes along the CD roadway, when required, will be 12' wide. Paved left and right shoulders adjacent to the CD lanes will be 10' in width. In areas where two CD lanes will be provided, the paved left shoulder will be 4' in width (6' in width with barrier) as depicted in Figure 4.3.1.3.

The southbound I-95 GP lanes typical section will consist of three travel lanes. Paved right shoulders adjacent to the GP lanes will be 10' in width. Paved left shoulders adjacent to the GP lanes will be 4' in width, as identified in the RFP (Design Waiver No. 1).

Figure 4.3.1.3 - Typical Section of Southbound GP and CD Lanes

Ramp typical sections consist of either a single or dual lane ramp, as depicted on our Volume II – Design Concept and consistent with RFP Conceptual Plans. Paved right shoulders will be 8' in width, and paved left shoulders will be 4' in width. ***Based on our Team's optimization of the southbound I-95 CD lanes, realignment of the Route 3 interchange ramps have been avoided.*** The existing ramps will be milled and overlaid to the extent of the improvements shown in the RFP Conceptual Plans.

Similar to the RFP Conceptual Plan, our Team's Route 17 typical section will consist of four-lanes in each direction. From Sanford Drive to I-95, two eastbound right turn lanes will be provided to accommodate traffic destined for southbound I-95 via the improved two-lane ramp. Paved right shoulders adjacent to Route 17 within the limits of widening will be 8' in width. Beneath the I-95 overpass bridges, the I-95 bridge piers and BPPS will be provided in the median, matching the RFP configuration.

Based on an analysis of the sequence of construction, availability of materials, and construction costs, our Team will utilize the pavement sections identified as RFP *Alternative 1: Standard Flexible Pavement.* Following completion of the geotechnical investigations, our Team will complete pavement design calculations to ensure the proposed section is adequate based on project CBR values and projected traffic volumes. Areas of asphalt overlay and variable depth overlays will be minimized during development of

final vertical profiles. In accordance with the RFP, where asphalt build-up will exceed 2", milling of the existing pavement will not be performed. Where 2" or less build-up is required to achieve finished grades, the pavement will be milled and overlaid.

Based on our Team's enhancements to the southbound CD lane alignment and refined vertical profiles, no retaining walls are anticipated to be necessary. Standard barriers, including bifurcated barrier up to 3' in vertical elevation difference, will be used between the southbound CD and GP lanes depending on the horizontal and vertical separation between the roadway segments. Discussion of the bridge elements is included in Section 4.3.2.

(e) Conceptual Hydraulic and Stormwater Management Design

Drainage

Our Team began by thoroughly reviewing the existing culvert assessment report. In addition to structural and condition assessments completed by VDOT, we completed conceptual drainage computations based on our unique design concept to determine which existing pipes are hydraulically adequate to be used as part of the final drainage systems. Based on the RFP requirements, the existing conditions identified in the assessment reports and our conceptual hydraulic analysis, we have developed a conceptual drainage design which either replaces or repairs existing culverts and drainage facilities that will become a functional element of the proposed drainage design, or identifies facilities that can be utilized "as is". Our Team's conceptual drainage design is shown on our Volume II – Design Concept.

Due to the bifurcated nature of the existing I-95 median and the variable width between the proposed GP and CD lanes, several drainage configurations will be used throughout the corridor. Between the southbound I-95 GP and CD lanes, roadside ditches and culverts, grate drop inlets, barrier inlets, manholes, and junction boxes will be used to convey flow, while minimizing roadway crossings and recognizing existing drainage divides and drainage patterns. Roadside ditches and culverts will be used to the maximum extent possible between the southbound I-95 GP lanes and existing northbound I-95 GP lanes. This takes advantage of the existing space, while limiting the amount of infrastructure within the area reserved for the future extension of Fred-Ex. With our design, we have reduced over 3,000 LF of storm sewer as compared to the RFP preliminary drainage design, ***reducing long-term maintenance costs for VDOT.***

Following NTP, a comprehensive review of overall hydrologic and hydraulic development necessary for the Project will be conducted to document flood hazards, environmental constraints, permit requirements, local conditions, and construction and maintenance needs. Additional drainage surveys and data collection will be completed in support of this detailed analysis and to ascertain topography, channel characteristics, hydrologic data, basin characteristics, precipitation, flood data, high-water information, existing structure data, environmental data, fish and wildlife, vegetation, sinkholes, and water quantity/quality issues. Our Team will develop a Hydrologic and Hydraulic Analysis Report to summarize the hydrologic and hydraulic criteria, methodology utilized, and to compile and document information, conclusions, and recommendations related to the proposed drainage design.

Stormwater Management

In accordance with the RFP, stormwater management (SWM) will be designed in accordance with Virginia Department of Environmental Quality (DEQ) II-C Criteria. Our concept provides numerous benefits as outlined in Figure 4.3.1.4, and has been developed to address the following project requirements:

Water Quality: Our innovative stormwater design eliminates all proposed right-of-way impacts and reduces the maintenance needs associated with the RFP bio-retention stormwater management (SWM) concept. We accomplished this by optimizing the BMP types and locations to maximize pollutant removal efficiency.

While the RFP SWM concept utilized 28 BMPs (26 bio-retentions and two retention ponds), our Team optimized the design to require only five BMPs (three retention ponds and two extended detention enhanced ponds) for the base concept and three additional extended detention enhanced ponds for Option #1. In addition to reducing the quantity of BMPs as compared to the RFP concept, ***our design eliminates the use of expensive soil media that needs to be replaced every five years, resulting in reduced long-term maintenance costs for VDOT.*** The avoidance of this soil media also avoids maintenance concerns associated with high groundwater in the vicinity of the SWM facilities.

Figure 4.3.1.4- Stormwater Management Enhancements

In addition to using facilities which require less intensive maintenance, our Team eliminated facilities which required large property acquisitions and associated environmental impacts. ***This enhancement eliminates the acquisition of all the fee right-of-way identified in the RFP documents, a reduction of 2.8 acres.*** Not only will this reduce project costs to VDOT, but also simplifies the right-of-way process, streamlines and accelerates the limited access (L/A) modification process with the Commonwealth Transportation Board (CTB), reduces schedule and cost risk, and avoids environmental and utility impacts. Finally, it ensures all SWM facilities can be constructed early in the project schedule, independent of the right-of-way process.

Water Quantity: Within the Project limits there are approximately 19 locations where concentrated flow leaves the site area that will be analyzed per MS-19 criteria. The proposed BMP's will be utilized to address erosion and capacity requirements, and will also manage the amount of runoff being directed to existing off-site BMP facilities.

Option #1: The increased impervious area associated with the Option #1 will increase the amount of impervious surface area within the Project area. This additional impervious area increases the Project's water quality removal requirement by approximately 12 lbs/yr, requiring the construction of three additional extended detention enhanced BMPs to meet water quality treatment requirements. As with the base option, project outfalls will be analyzed utilizing MS-19 criteria.

Hydrologic and Hydraulics Analysis (H&HA)

There are three major crossings, including two triple box culverts and a bridge crossing over the Rappahannock River. Each of these locations may require a Hydrology and Hydraulic Analysis (H&HA). The new southbound I-95 GP lanes bridge over the Rappahannock River requires a HEC-RAS model with hydrology calculations. Since the bridge is located in a Zone A Federal Emergency Management Agency (FEMA) floodplain, the allowable water surface increase is up to 1' and a scour analysis utilizing HEC-18 will be required. As described in Section 4.3.2, our Team's bridge concept reduces the number of piers from eight for the RFP concept to four, reducing potential impacts to the floodplain and scour concerns. Based on our unique concept, we determined the proposed bridge will create a rise of approximately 0.3' to the 100-year water surface, well within the tolerances set by VDOT for a FEMA Zone A floodplain. During design, our Team will coordinate with VDOT and the City of Fredericksburg to determine if a Conditional Letter of Map Revision (CLOMR) is necessary to document the minor rise in the 100-year water surface elevation. Should a CLOMR be required, our Team will complete the Letter of Map Revision (LOMR) at the conclusion of construction to document the as-built conditions.

In addition to H&HA, our Team has also completed a preliminary scour analysis for our unique bridge concept. Based on our proposed pier locations and configurations, the scour analysis indicates a potential for 17' of scour for the 500-year event. This would place the scour depth at approximately elevation 32, however, scour will be limited to elevation 44 to 45 based on the RQD > 50% (Rock Quality Designation greater than 50%) per geotechnical investigations completed for the original bridges and additional borings completed in 2016. Based on our preliminary analysis, our proposed bridge configuration has no adverse effects on scour at the existing bridges.

The final hydraulic element is the temporary causeway required for access to the bridge piers during construction. As is described in more detail in Section 4.5.1, we have developed an efficient causeway design that ***minimizes impacts to the Rappahannock River and reduces the need to cross the main channel,*** representing a significant environmental benefit to the Project. Our temporary causeway maintains a 170' wide opening for channel navigation, allowing full river access through the Project during construction and meeting all VDOT causeway design requirements. This approach provides for safety and ease in navigation for users of the Rappahannock River, including kayaking, tubing and canoeing. Culverts will be placed under the southern portion of the causeway to convey additional flow, and will be physically restricted in a way to limit risk to the public but allow small debris passage. (See Section 4.5.2 for details).

(f) Proposed Right of Way Limits

All of the proposed roadway improvements are located within existing right-of-way. ***With our Team's unique stormwater management solution described above, we have eliminated all right-of-way impacts (approximatley 2.8 acres).*** Permanent and temporary easements, similar to the RFP concept, are unavoidable for completion of slope tie-ins and drainage improvements. Modifications to the existing limited access (L/A) line will be necessary just south of the Route 17 interchange due to the widening of the southbound entrance ramp from Route 17; however, this L/A line adjustment is completely within existing right-of-way, and therefore can be processed through the CTB early in the design phase. Our Volume II - Design Concept highlights areas where right-of-way was eliminated by our unique stormwater and roadway improvement concept.

(g) Proposed Utility Impacts

A key project benefit of our concept is the avoidance of lowering the profile of Route 17 to provide the required vertical clearance under I-95, therby eliminating numerous utility impacts. Because of this, there are only minor impacts to existing utilities as identified in Table 4 and described in more detail in Section 4.4.2.

Table 4 - Proposed Utility Impacts

Utility Description	Approximate Location	Potential Conflict	Relocation Plan
OVERHEAD POWER/COMMUNICATION LINES			
Comcast *(on Dominion Poles)*	I-95 Station 2590+00	Potential substandard vertical clearance to new southbound GP lanes	Relocate to new overhead span or underground conduit
Comcast *(on Dominion Poles)*	I-95 Station 2501+00	Potential substandard vertical clearance to new southbound GP lanes	Relocate to new overhead span or underground conduit
UNDERGROUND POWER/COMMUNICATION LINES			
Verizon	I-95 Station 2607+00	Conflict with proposed Route 17 south bridge abutments	Relocate in-kind

Consistent with all of our projects, our design approach is always to avoid utility conflicts as a first priority. Where conflicts are unavoidable, limits of relocations are minimized to the maximum extent possible.

Final design of soundwalls will account for existing utilities, ensuring post locations and foundations avoid conflicts with existing utilities.

(h) Soundwall Locations

In accordance with the RFP requirements and noise analysis previously completed by VDOT, we have accounted for the design and construction of Noise Barrier AA located along southbound I-95 between Cowan Boulevard and Fall Hill Avenue in order to mitigate noise impacts to the new multi-story development (The Hamptons – Common Noise Environment (CNE) AA). This soundwall is expected to have an exposed wall area of 21,997 SF and will be located at an offset from I-95 such that barrier or guardrail protection is not required. Final design details will ensure that positive drainage is maintained along both sides of the soundwall. Following development of detailed designs and finalizing the horizontal alignments and vertical profiles of the proposed southbound CD and GP lanes, our Team will complete the final noise analysis. Based on our updated analysis during the procurement phase, no modifications to the length, height, or exposed area of the soundwall are anticipated.

(i) Lighting

Our Team has assessed the existing lighting system and will provide replacement lighting as required by the RFP. Lighting will include signal mast arm mounted lighting at the Route 17/Sanford Drive/South Gateway Drive intersection and new overhead sign lighting per the requirements of VDOT IIM-TE-380. All luminaires will be LED and designed in accordance with IES RP-8 criteria utilizing AGI32 photometric design software. Our proposed lighting is graphically depicted within our Volume II - Design Concept.

We have already completed an underbridge lighting warrant investigation per AASHTO criteria for the proposed bridges over Route 17, including the five-lane northbound GP lane bridge. Per AASHTO criteria, it is recommended that the need for underbridge lighting be evaluated when the underpass length-to-height ratio exceeds approximately 10:1. The southbound bridges (combined) will have a ratio of less than 9:1 while the proposed five-lane northbound bridge will have a ratio of less than 6:1. Based on these findings, underbridge lighting is not warranted on Route 17.

(j) Guardrail and Barrier

Anticipated locations for guardrail, concrete barrier, and Bridge Pier Protection System (BPPS) elements are identified in our Volume II – Design Concept. Each of these devices have been identified ensuring proper protection from roadside hazards or obstructions which can't be eliminated or avoided. In accordance with RFP requirements, new guardrail or existing guardrail that is disturbed by the Project will utilize the new Manual for Assessing Safety Hardware (MASH) standard details and equipment. Offsets from the edge of traveled way to face of guardrail and/or concrete barrier will be in accordance with MASH practices. In addition to increasing offset to the face of guardrail as required by standards, asphalt curb may also be required to avoid erosion concerns in areas of tall fill slopes. Our Team has already evaluated the need for asphalt curb and associated additional paving per MC-4 standards and we have accounted for this additional impervious area in our stormwater management strategy and design.

(k) Locations of Mill and Overlay/Build-Up of Existing/New Pavement

Locations of mill and overlay/build-up of existing and new pavement are shown in our Volume II – Design Concept. Based on our Team's Proprietary Meeting #2 discussions with VDOT and updates provided in RFP Addendum #4, our Team has made slight adjustments to the vertical profiles to achieve appropriate bridge clearances and to properly tie-in with adjacent ramps and mainline pavement elevations. As described previously, design enhancements incorporated by our Team along the southbound lanes of I-95 have avoided the need to reconstruct the ramps at the Route 3 interchange. Accordingly, we are able to mill

and overlay those facilities as opposed to full depth reconstruction. This represents an ***improvement to the RFP concept by reducing temporary traffic shifts associated with pavement reconstruction, thereby reducing impacts to the traveling public and reducing costs.***

Recognizing that mapping provided with the RFP is not to be used for final design, limits of mill and overlay/build-up will be finalized following completion of design quality mapping.

(l) Other Key Project Features

In order to construct the new bridge over the Rappahannock River, construction access will be required from the river. Recognizing the geographic obstacles to accessing the southern bank of the River, and in an effort to reduce impacts, our Team investigated multiple alternate access routes. After numerous site visits, it became apparent that access to the south bank from the median of I-95 is not practical due to steep slopes and high rock elevations. In addition, access to the southern bank from the outside shoulder of the southbound lanes is also not desirable due to the steep slopes. The third option considered is the existing gravel access road to the southern bank through the City of Fredericksburg property. In order to assess the feasibility of this option for construction equipment and material access, our Team initiated two very productive meetings with the City of Fredericksburg Parks, Recreation & Events staff to discuss the potential to use the existing gravel road via Wicklow Drive to access the southern bank, as shown in Figure 4.3.1.5. During these meetings, we discussed the benefits of using the existing road and whether or not temporary improvements needed for construction access could be used by the City in a permanent condition to provide improved recreational access to the river. We conveyed our intent to continuously coordinate with the City and not interrupt their recreational lands, to restore any disturbed areas, facilitate and promote public outreach, and adhere to NEPA commitments. The City appreciated our outreach and advance coordination, and indicated that no other Offeror's had approached them regarding the Project. Based on our successful early coordination, we believe use of the existing gravel access road represents the best and least impact access to the southern bank. Following NTP, coordination will continue with completion of detailed surveys and mapping to further develop the access route.

Figure 4.3.1.5 - Construction Access utilizing Quarry Road Through City-Owned Recreational Lands

4.3.2 Conceptual Structural Plans

We reviewed the RFP documents and evaluated multiple configurations and alternatives for each bridge. Alternatives studied included span arrangements, abutment locations, and type of superstructure. Based on this analysis, we developed our design approach shown in our Team's Volume II - Design Concept. Our concept features numerous unique, innovative enhancements and benefits shown in Table 5.

Table 5 - Structural Design Enhancements

Feature	Enhancement	Project Benefit
Rappahannock Bridge Superstructure	▪ Reduced total bridge length by 125’	▪ Minimize long-term VDOT maintenance costs due to reduced bridge area
Rappahannock Bridge Piers	▪ Reduce overall number of piers from eight to four; ▪ Reduce number of piers in ordinary high water from four to two	▪ Reduce environmental impacts, particularly during construction by minimizing length of causeway required in the river ▪ Reduce maintenance and inspection costs
I-95 Northbound Bridge over Route 17	▪ Construct the ultimate five-lane bridge section (compared to three-lane bridge shown in the RFP)	▪ Facilitates construction of new northbound bridge in two stages without requiring a temporary bridge or median crossover ▪ Delivers a finished structure that is ready to carry two planned future lanes of I-95 without the need to further impact traffic on northbound I-95 and Route 17
Route 17 Bridges - Pier Footings	▪ Incorporate existing piles from the existing bridge piers in the median of Route 17	▪ Minimize construction impacts on Route 17 by eliminating the need to extract existing piles or construct drilled shaft foundations

I-95 Southbound GP Lanes over the Rappahannock River (B604)

Our Team considered multiple span configurations for the Rappahannock River Bridge. Alternative span arrangements were evaluated to reduce environmental impacts in the river and improve constructability and access. Based on this analysis, and in accordance with guidance obtained at our Team’s Proprietary Meetings, we chose to utilize an optimized span arrangement which improves constructability and access, as well as reduces the overall length of the bridge. Table 6 shows our Team’s bridge configuration and Figure 4.3.2.1 is a rendering of the proposed completed bridge.

Table 6 - Rappahannock Bridge Configuration

Structure	Roadway Section	Width (out to out)	Length	Abutments	Pier
I-95 Southbound GP Lanes over Rappahannock (B604)	12’ right shoulder 3 – 12’ lanes 6’ left shoulder	57’-4”	1,094’-10” With Spans of 202’-5”, 210’-0”, 240’-0”, 240’-0”, 202’-5”	Virginia Alternate on H-piles behind MSE walls	Hammerhead on spread footings

Figure 4.3.2.1 – Rendering of Completed Bridge B604

Weathering steel plate girders will be utilized for B604. We considered Grade 70 HPS, but found that Grade 50 steel provides the most cost effective girders. Also, lightweight concrete in the deck slab reduces girder size and weight and also reduces foundation size. Bearings will be VDOT standard High Load Multi-Rotational Bearings.

A minimum horizontal clearance of 10’ will be provided between the new structure and existing I-95 southbound bridge, per RFP requirements. We optimized the profile to lower the bridge deck by up to 5’ compared to the RFP concept (less than the 10’ allowed). The low chord of the bridge is over 67’

above the 500-year flood elevation. Scuppers will provide bridge deck drainage ensuring that design storm spread does not encroach into traffic lanes.

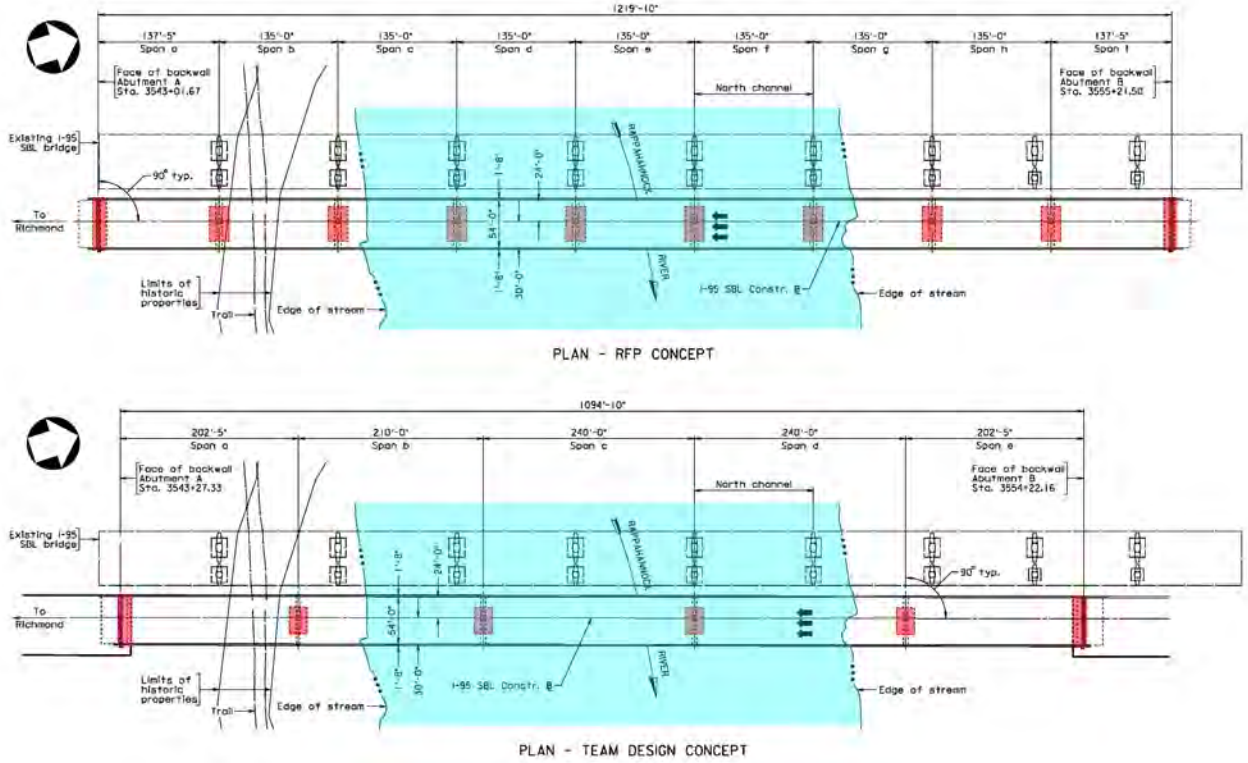
Design Enhancements

Our Team developed a preliminary hydraulic model and analyzed the hydraulic impacts of the alternate span arrangements compared to the RFP concept. The RFP pier locations are aligned with the existing piers on the adjacent I-95 southbound bridge, which restricted the layout to equal spans of 135'. We considered a number of alternative layouts, including spans of 270' in order to reduce the number of piers while still aligning with every other existing pier. However this span configuration was found to result in an inefficient girder design compared to a layout which offset some piers from the existing locations.

With our Team's design, pier locations were selected to provide a five-span bridge with maximum spans of 240', while not encroaching on the north channel of the Rappahannock River, the Rappahannock Navigation Canal and trail, or the historic Rappahannock Canal Locks. No piers are located in the north channel between Piers five and six of the existing I-95 southbound bridge. ***Our Team's proposed layout places only two piers in the water (compared to four in the RFP concept) which minimizes the construction and environmental impacts.*** Figure 4.3.2.2 shows our Team's concept compared to the RFP span arrangement.

Our analysis revealed that our pier configuration has no adverse impact when compared with the RFP concept. Pier scour effects were investigated and found to be limited by the RQD>50% rock located approximately 5' to 6' below the stream bed. The hydraulic model also revealed that we could move in the abutments and shorten the bridge length compared to the RFP concept while remaining outside the 100-year and 500-year water surface elevations. ***Our design concept reduces the overall bridge length from 1,219'-10" to 1,094'-10" (face to face of abutment backwalls), a reduction of 125'.***

Figure 4.3.2.2 – Comparison of Span Arrangement to RFP



Environmental Considerations

Reducing the number of piers in the river, minimizes floodplain and environment impacts during, and after, construction. Construction access is enhanced by the longer spans featured in our design allowing a reduction in the length of causeway needed to construct the bridge. This enhancement minimizes the material temporarily placed in the floodplain and increases the hydraulic opening during construction.

I-95 over Route 17 (B606, B651 and B652)

As with the bridge over the Rappahannock, our Team considered multiple configurations and alternatives in order to develop the most cost effective alternative while minimizing impacts to the traveling public. Weighing numerous factors, we determined that the RFP span configuration is the best way to meet all project requirements and to efficiently complete these bridges.

Since the existing bridges over Route 17 currently have substandard vertical clearance, it is a requirement to attain a minimum vertical clearance of 16'-6". We carefully considered the advantages and disadvantages of raising I-95 or lowering Route 17 to achieve the approximately 2' of additional vertical clearance required. We determined that raising I-95 rather than lowering Route 17 is preferable since it will have less impact on Route 17 traffic and will not require relocation of several existing utilities along Route 17. The challenge of lowering Route 17 and relocating utilities under traffic (while maintaining three-lanes in each direction as required by the RFP) would have a significant adverse impact on Route 17 traffic, which is avoided with our approach. Raising I-95 does not create any additional traffic or utility impacts to I-95 (since the existing bridges are required to be replaced). Our concept utilizes the shallowest Bulb-T section (29") minimizing the amount and length of raising I-95.

Our Team's concept for the Route 17 bridges matches the spans and substructure types shown in the RFP Conceptual Plans. The configuration of each bridge is summarized in Table 7 and Figure 4.3.2.3 is a rendering of the proposed completed bridges.

Table 7 - Route 17 Bridge Configuration

Structure	Roadway Section	Width	Length	Abutments	Pier
I-95 Southbound CD Lanes over Route 17 (B606) **BASE SCOPE**	4 – 12' lanes 2 – 12' shoulders	75'-4"	141'	Full integral on H-piles behind MSE walls	Multi-column on pile footings
I-95 Southbound CD Lanes over Route 17 (B606) **OPTION #1**	4 – 12' lanes 2 – 12' right shoulders 2 – 6' left shoulders 1 – 2' median barrier	89'-4"	141'	Full integral on H-piles behind MSE walls	Multi-column on pile footings
I-95 Southbound GP Lanes over Route 17 (B651)	1 – 12' right shoulder 3 – 12' lanes 1 – 6' left shoulder	57'-4"	141'	Full integral on H-piles behind MSE walls	Multi-column on pile footings
I-95 Northbound GP Lanes over Route 17 (B652)	1 – 12' shoulder 3 – 12' lanes 36' offset to parapet (12' shoulder and 2 future 12' lanes)	87'-4"	141'	Full integral on H-piles behind MSE walls	Multi-column on pile footings

The girders will be PCBT beam sections, with laminated elastomeric bearings. Approach slabs with sleeper pads will be provided at each abutment. A 3" longitudinal joint with Class I joint system will be provided between bridges B606 and B651. The bridge decks for B606 and B652 with widths over 80' shall not be placed in a single pour. 54" tall pier protection BPPS barriers will be provided along Route 17 in accordance with the VDOT Structure & Bridge Manual.

As per the RFP, the MSE wall locations accommodate the RFP typical section of Route 17, and do not need to provide for any future widening of Route 17 under the bridges. MSE walls along Route 17 will feature drystack relief architectural treatment. Load ratings will be performed for the new bridges for the final configuration and for new and existing bridges for all construction stages before placing into service.

I-95 Southbound CD Lanes over Route 17 (B606) Base Scope

New bridge B606 will be constructed in the footprint of the existing I-95 southbound bridge. The new bridge has the same lane and shoulder configuration as the existing bridge. The substandard vertical clearance of the existing bridge is increased to a minimum of 16'-6". MSE walls at the abutments will extend to allow for one future lane to the west of this bridge with pile sleeves provided for future abutment widening.

Figure 4.3.2.3 – Rendering of Completed Bridges B606, B651, and B652

I-95 Southbound CD Lanes over Route 17 (B606) Option #1

For Option #1, the base CD Lane bridge is widened by 14', the lane configuration is modified and a 2' wide median barrier is added. As indicated in the RFP, VDOT will provide an approved Design Exception for use of concrete median barrier BMB-3A which does not meet MASH-adjusted criteria TL-4/5.

I-95 Southbound General Purpose Lanes over Route 17 (B651)

B651 is a new structure to be located to the east of the existing I-95 southbound bridge. The new southbound CD lane bridge (B606) and the new southbound bridge will be separated by the 3" longitudinal joint, sealed with a Class I joint system as required by the RFP. MSE walls at the abutments will extend to allow for one future lane to the east of this bridge with pile sleeves provided for future abutment widening.

I-95 Northbound General Purpose Lanes over Route 17 (B652)

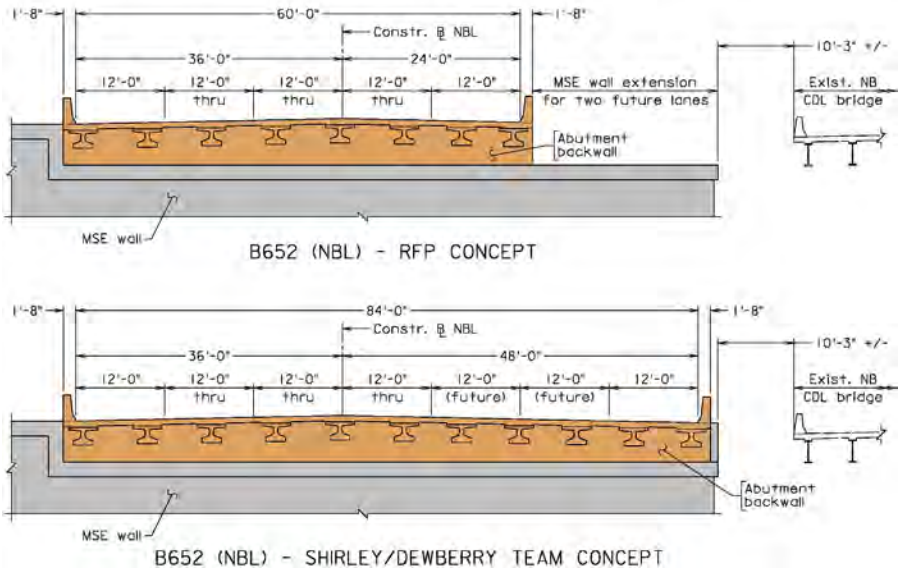
Replacement structure B652 will be constructed in the footprint of the existing I-95 northbound bridge. The existing substandard vertical clearance of the existing bridge is increased to a minimum of 16'-6".

The RFP requires that the MSE walls at the abutments extend to the east of the bridge to accommodate two future lanes planned as part of the northbound CD Lanes Project. One of the benefits of our Team's concept is that we will construct the ultimate five-lane bridge as part of this project in order to minimize impacts on traffic during construction and simplify construction staging. As discussed in our Proprietary Meeting #2, this satisfies the RFP requirement for the MSE walls to be constructed to accommodate two future lanes and no further extension to the east is necessary. If Option #1 is exercised, two - 4" diameter conduits shall be installed under bridge B652. A comparison between the RFP and our proposed bridge is shown in Figure 4.3.2.4.

Design Enhancements

The design challenge for the Route 17 bridges is to develop a construction phasing plan that allows the schedule to be met as well as minimize impact on the traveling public. The sequence of construction developed by our Team allows the bridges over Route 17 to be built in two total stages, minimizing the amount of temporary pavement and number of traffic shifts required on I-95. See Exhibit 4.3.2.1 for Bridge Construction staging. Further discussion of construction sequencing is provided in Sections 4.5.1 and 4.5.2.

Figure 4.3.2.4 – Comparison Of Our Team's B652 Design To RFP Concept



Construction staging for I-95 southbound is aided by the fact that an entirely new structure along a separate alignment is being constructed adjacent to the existing I-95 southbound lanes. This allows the new southbound bridge (B651) to be constructed off-line while maintaining southbound traffic in its present configuration on the existing southbound bridge. Once B651 has been completed, all southbound traffic is shifted off the existing southbound bridge which is then demolished and replaced by the new southbound CD bridge (B606). Constructing B606 in a single stage eliminates the need for partial demolition of the existing southbound bridge deck and piers or adding another construction stage and traffic shift.

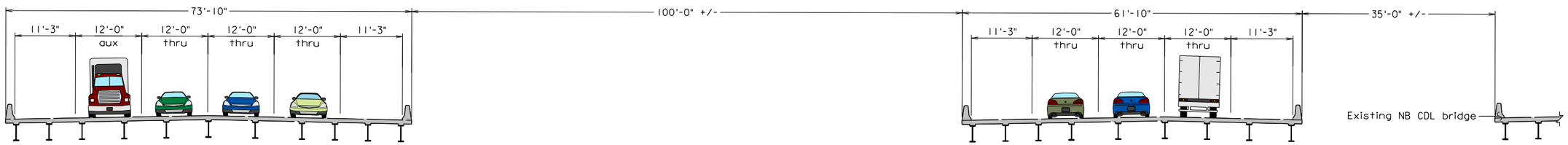
For I-95 northbound, just replacing the existing bridge within the same width and footprint as the existing bridge complicates the construction staging. Our Team considered several options:

- Construct the bridge wide enough to accommodate the temporary lane configuration while minimizing the temporary elements required to be demolished once the new bridge is constructed;
- Construct a median crossover and shift northbound traffic to B651 while building B652, adding another construction stage and extending the duration of impact on I-95; or
- Construct a temporary bridge to carry northbound traffic while demolishing the existing bridge and constructing B652 which would require temporary structures to be removed after construction.

After thoroughly analyzing these options ***our Team will construct the ultimate five-lane section for B652.*** This allows the three-lanes of northbound traffic to be maintained on the partially demolished existing bridge while constructing the eastern half of B652. Then all northbound traffic is shifted to the newly completed portion while finishing the demolition of the existing bridge and constructing the remainder of B652. In the final condition, northbound traffic is returned to its original alignment and ***the deck width is ready to accommodate two future lanes with no additional bridge construction required (see Figure 4.3.1.1 for future configuration).***

Our Team's proposed construction sequence allows for all three bridges over Route 17 to be constructed in two stages, with the added benefit of providing structure width for the two future northbound lanes. Constructing the future lanes of B652 eliminates any need to further impact Route 17 when these lanes are ultimately built and minimizes the future impact of bridge widening on I-95.

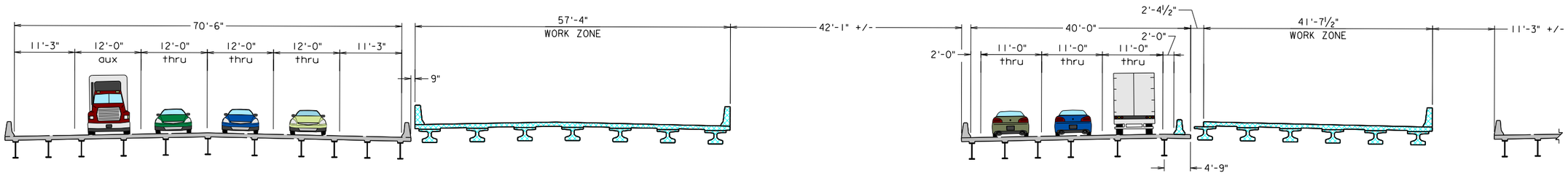
STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	IM-5111(235)	95	0095-111-259	



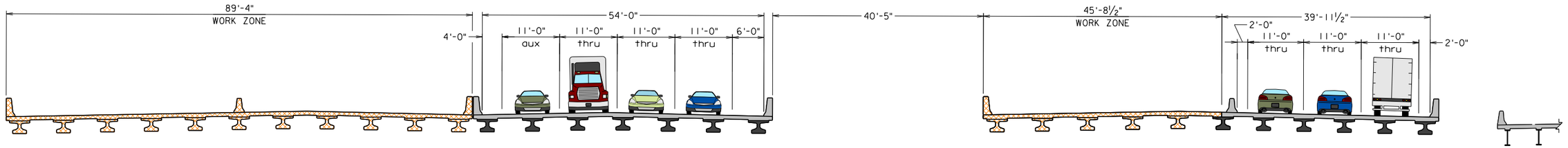
EXISTING SBL

EXISTING NBL

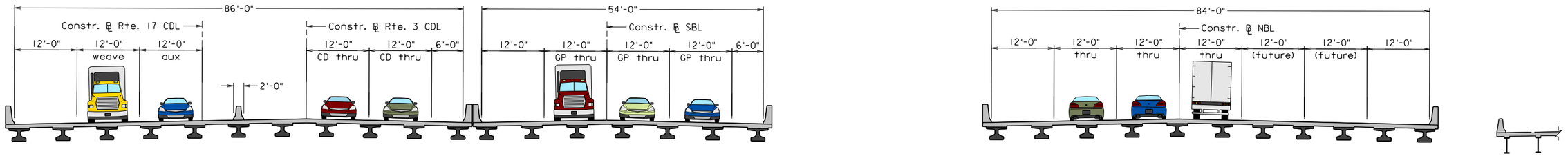
EXISTING BRIDGES



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION



B606 (SB CDL)

B651 (SBL)

B652 (NBL)

FINAL CONSTRUCTION (INCLUDING OPTION 1)

No.	Description	Date
	Revisions	

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

STRUCTURE AND BRIDGE DIVISION

I-95 OVER RTE. 17
BRIDGE CONSTRUCTION PHASING

Designed:	Date	Plan No.	Sheet No.
Drawn:			
Checked:			

Retaining Walls

Other than the MSE walls associated with the bridges, no retaining walls are required in our design concept.

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. The VDOT requirement to utilize low shrinkage concrete and corrosion resistant reinforcing steel greatly reduces maintenance for all proposed bridges. Reducing bridge length, number of spans and piers, use of weathering steel, use of prestressed concrete girders, and providing jointless structures further reduces future maintenance and inspection costs.

Also, our concept for the Rappahannock crossing is 125' shorter than the RFP concept and features half the number of piers and 24 fewer bearings for VDOT to inspect and maintain. ***Overall, our structural concept has eliminated four piers and 7,167 SF of bridge deck that will not need to be inspected or maintained over the service life of the bridge.***

Bridge layouts were chosen with consideration of constructability. Pier locations in the Rappahannock River consider causeway placement and access for equipment, and girder design accounts for shipping limitations and potential erection schemes. Also, structure widths at Route 17 were set to accommodate temporary traffic configurations during construction.

The proposed piers for B606 and B652 in the median of Route 17 are in the same location as the existing center piers. Construction of entirely new foundations would require extracting the existing piles or placing drilled shafts between the existing footings. Either of these options would increase the duration of work in the Route 17 median, and potentially increase impacts to Route 17 traffic. ***To mitigate this risk, our Team proposes to incorporate existing piles into the new pier foundations of B606 and B652.*** See Figure 4.3.2.5 for an example of a typical proposed footing. Final design will be based on an assumed capacity of the existing piles (no greater than the 35 ton capacity listed in the as-built plans) which will be confirmed by pile re-strike during construction after the existing piers are demolished. New piles will be provided to supplement the existing piles to achieve the necessary foundation capacity. Contingency plans for augmenting with additional piles will be developed during the design phase to prevent construction delays in the event that the existing piles are found to have lower capacity than assumed during design.

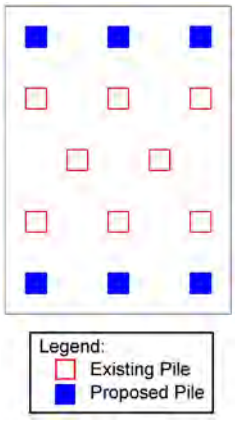


Figure 4.3.2.5 – Typical footing

Major Drainage Structures

There are two major culvert crossings within project limits located at approximately Stations 2420+00 and 2638+00. Neither of these culverts require extension since they extend across entire corridor; however, both locations will require a detailed H&HA report and must adhere to criteria laid out in Chapter 12 of the VDOT Drainage Manual since additional runoff will be directed to each structure. We have performed a preliminary analysis of both crossings and have determined that both meet the applicable freeboard requirements without modifications.

4.4 - Project Approach

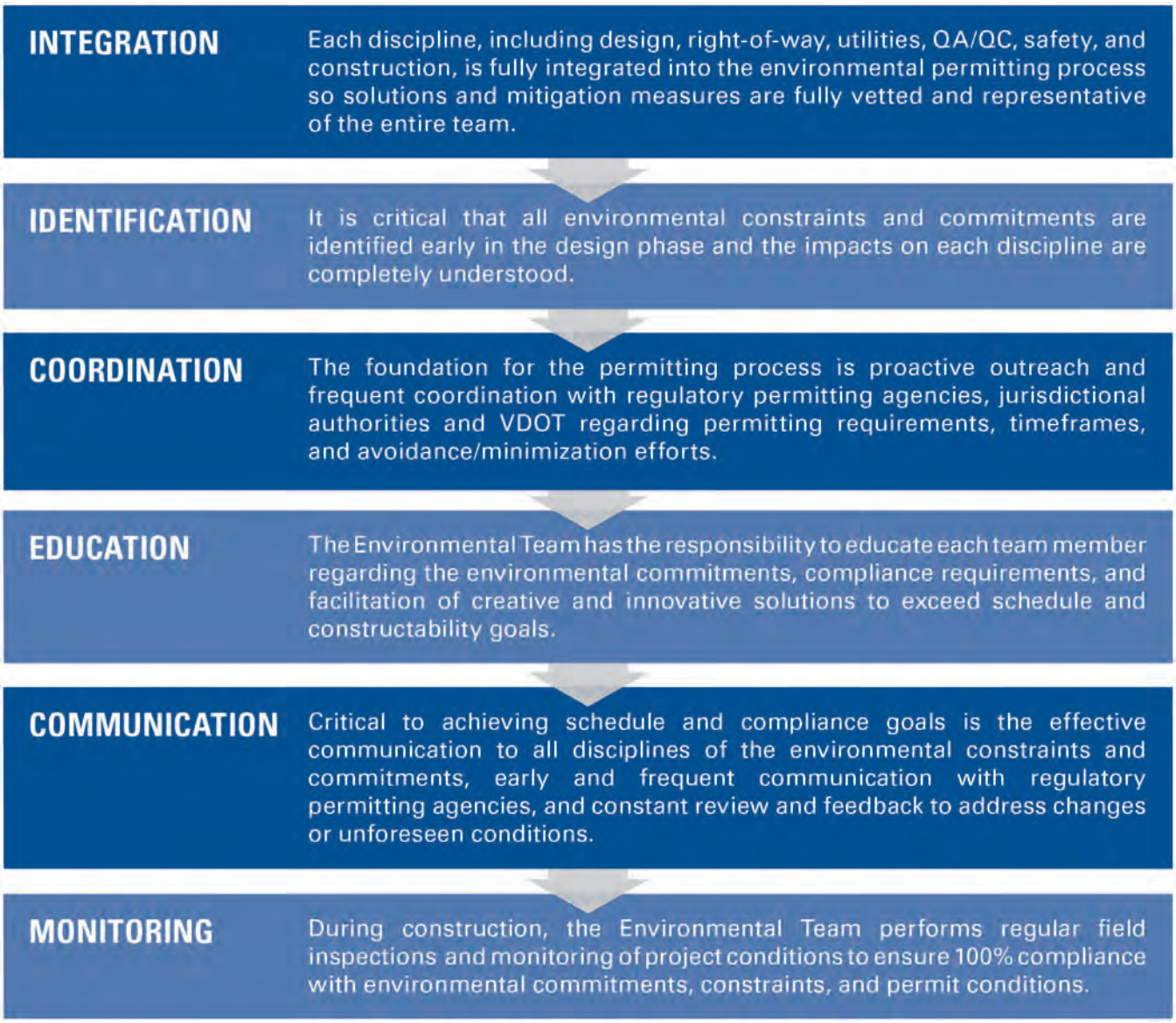
4.4 Project Approach

4.4.1 Environmental Management Approach

Having worked on design-build projects as a Team for over 15 years, Shirley and Dewberry have a thorough understanding of the importance of fully integrating the environmental process throughout all stages of the Project. Beginning in the Technical Proposal stage, we focus on identifying and understanding environmental challenges and constraints, develop solutions to mitigate and/or avoid them, ensure that our schedule and cost accurately encompass the total scope, and lay the groundwork to mitigate the risk of delays and unforeseen conditions. Once the Project is Awarded and we move to the design and permitting stage, these efforts continue with a fully integrated Team effort to avoid and minimize impacts through design, detailed analysis of the actual impacts and their timing, and a closely monitored permitting process. During construction, the Team's focus is on compliance with all permit conditions and avoidance of non-permitted impacts.

Our Team's approach is founded on the principals and objectives described below that minimize environmental risk:

Figure 4.4.1.1 - Integrated Environmental Process

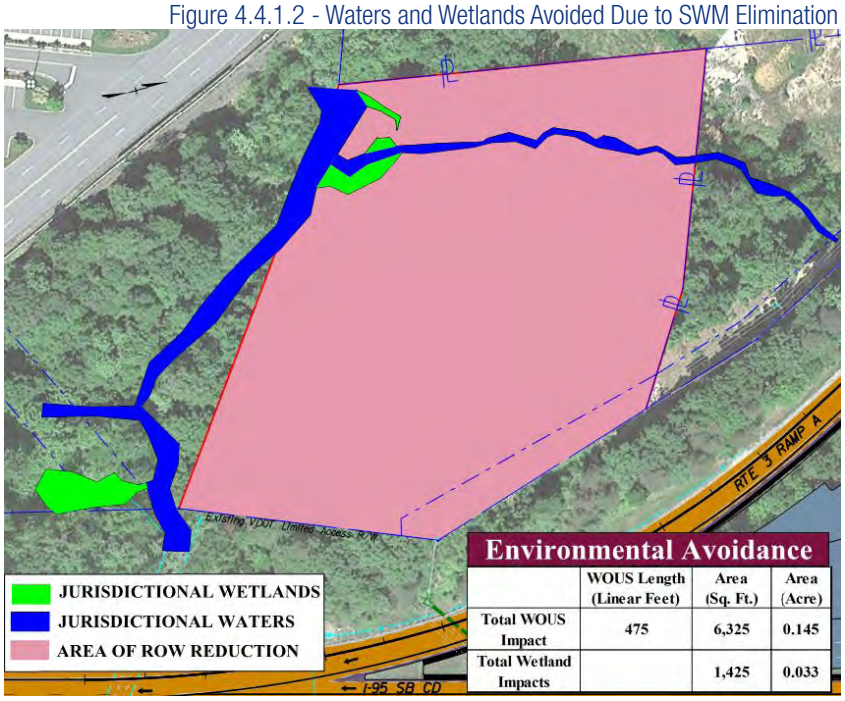


Planned Efforts During Design To Avoid/Minimize Impacts To Environmental Resources

The primary objectives of the Team during the Design phase are the identification of environmental concerns, avoidance and minimization of impacts, and minimizing the risk of schedule delays. As represented by this Technical Proposal, our Team has already completed the following:

1. A thorough review of the RFP, the NEPA document, records research of historic and cultural resources, and all other environmental commitments;
2. Numerous site visits that focused on potential impacts to the Rappahannock River, field verification of existing wetlands and waters, adjacent parks, historic resources, and other Project constraints;
3. Development of our Team's avoidance and minimization measures for the impacts of the temporary causeway needed to construct the Rappahannock River bridge;
4. Development of our concept for the proposed Rappahannock River bridge that minimizes the footprint and impacts to the river by eliminating four piers – resulting in only two piers in the river;
5. Outreach with Fredericksburg City Parks, Recreation & Events to initiate Project coordination and communication efforts with a key stakeholder. Our Team met on two occasions to discuss the Project scope, understand their concerns, and review options for construction access to the River without affecting their resources, operations, or recreational users. Our outreach efforts to them were positively received and productive;
6. Development of our approach to stormwater management that eliminated all RFP impacts to right-of-way (2.8 acres) and approximately 475 feet of stream channel and 0.03 acres of wetland impacts. Figure 4.4.1.2 depicts right-of-way, Waters of the U.S., and wetland avoidance for an eliminated pond near the Route 3 interchange.
7. Creation of our Preliminary CPM that accurately accounts for permit acquisition timeframes, Time-of-Year (TOY) restrictions, and other approval requirements.

Figure 4.4.1.2 - Waters and Wetlands Avoided Due to SWM Elimination



Once the Project is Awarded and we move to the design stage, our Team's approach to environmental management will build on these concepts and continue in much greater detail. Our approach will include:

1. Completion of final design mapping;
2. Delineation and survey of Waters of the U.S. and wetlands;
3. Assessing potential for Recognized Environmental Conditions (REC) and a Phase II Environmental Site Assessment along the ROW adjacent to the property owned by Fredericksburg Lodging, LLC;
4. Coordination with all permitting agencies to discuss impacts, design efforts for avoidance and minimization, permitting requirements, and submittal/approval timeframes;

5. Creation of an Environmental Constraints Map (ECM) that identifies all commitments and constraints and serves as a method to communicate then to all disciplines;
6. Establishment of bi-weekly (at a minimum) Design Meetings. Attended by all Team disciplines, these meetings are a critical part of our integrated effort to develop design, construction, utility and right-of-way solutions that minimize or avoid impacts to environmental resources. These meetings are also crucial to communicating concerns with the entire Team, ensuring that the schedule is maintained, and creating "buy-in" among Team members.
7. Constant integration of Environmental Managers with design engineers as the design progresses;
8. Completion of the Final Noise Abatement Design Report (NADR);
9. Timely acquisition of mitigation, and preparation and submission of all permit applications. Once submitted, the Environmental Team will maintain close coordination with the permitting agencies to answer questions, address concerns, and monitor the status of permit approval; and
10. Throughout the permit process, we will enter permit constraints and commitments into our Environmental Commitment Tracking Database (ECTD). This is communicated with all Team members and is used as a method to track the status of regulatory authorizations and permit approvals, compliance with permit conditions, and tasks required prior to start of construction.

Potential Solutions to Address Recognized Environmental Conditions/Areas of Concern

Table 8 identifies the Project's Recognized Environmental Conditions and Areas of Concern, and our approach and potential solutions for addressing them.

Table 8 - Approach to Address Recognized Environmental Conditions/Areas of Concern

Environmental Resources	Requirements	Method to Limit Risk
Rappahannock River Recreational Access	1. Maintain safe river access at all times for recreational users 2. Provide work zone signage 3. Provide 2-week notice for channel closure 4. Channel closures not to exceed 24 hours or back to back 24 hour periods unless approved by VDOT	▪ Design has reduced the number of piers from eight to four to minimize river impact ▪ Temporary causeway has minimized impacts to channel users by providing 170' main channel opening and directional signage ▪ Continuous coordination and communication with stakeholders ▪ Publish schedule for construction activities in public media and user forums
Trail Access & Recreational Land Restrictions	1. Remain within the prescribed 4(f) impact limits including: • 0.1 acres City Recreational Lands • 0.04 acres Pool Pass Trail • 0.3 acres Scout/Embry/ Rappahannock Canal Trail • 0.2 acres Proposed Cannon Ridge-Ferry Farm Trail Stafford 2. Do not permanently interrupt the continuity of the trail or recreational lands	▪ Proactive early and continuous coordination. Team has held two meetings with the City to date. ▪ Incorporate review times into Project Schedule ▪ Utilize ECM to minimize and avoid trail impacts and remain compliant with the 4(f) document ▪ Provide exclusionary fencing during construction around sensitive resources ▪ Ensure trail passage under overhead work by incorporating canopies and shields as necessary
Hazardous Materials	1. Phase I ESA required for all ROW acquisitions 2. Conduct Phase II ESA on VDOT ROW near Fredericksburg Lodging, LLC 3. Perform lead based paint and asbestos testing for structure demolition and abate or dispose of as required	▪ ***Team's concept design has avoided all ROW acquisition (2.8 acres)*** ▪ Test structures to be demolished upon NTP to ensure necessary lead based paint and asbestos abatement measures are addressed early

Environmental Resources	Requirements	Method to Limit Risk
Threatened and Endangered Species (T&E)	1. Conduct inventories for T&E bats under bridges prior to demolition 2. Protect Freshwater Mussels with TOY for instream work, perform surveys and relocations 3. Account for the following TOY restrictions: a. Green Floater Mussel: 4/15 to 6/15 & 8/15 to 9/30 b. Yellow Lance Mussel: 5/15 to 7/31 c. Dwarf Wedge Mussel: 3/15 to 5/31 & 8/15 to 10/15 d. Anadromous fish (inclusive of the Atlantic Sturgeon): 2/15 to 6/30	▪ Conduct bat survey after NTP and prior to demolition to assess the need for exclusionary netting, and complete additional coordination with USFWS or DGIF ▪ Conduct early Section 7 consultation with USFWS and early coordination with NMFS and other regulatory agencies, building on VDOT prior work. ▪ Schedule construction activities to avoid river work during TOY restrictions ▪ Reduce the number of piers in the river by revising the span arrangement of the Rappahannock River Bridge
Cultural & Historic Resources	1. Avoid permanent and temporary impacts to Channel Lock #1/Minors Lock and the Rappahannock Canal 2. Allow VDHR and consulting parties to review and comment on bridge plans in the area of the Canal 3. Adhere to the 1.6 acre de minimis impact to Fredericksburg I Battlefield, and remain within the prescribed project area	▪ Locate and survey exact limits of the canal in the subsurface impact areas upon NTP ▪ Adjust bridge pier locations to avoid impacts to Canal and Lock. ▪ Utilize ECM to detail the Project limits as cleared by the VDHR and 4(f) document ▪ Environmental compliance staff reviews design submittals to ensure disturbance remains within prescribed limits.
Water Quality Permits	1. Obtain all Water Quality permits and authorizations 2. Provide mitigation for unavoidable wetland and waters impacts 3. Transfer VMRC permit to VDOT at close of project	▪ Detail limits of wetlands and waters of the U.S. in ECM to minimize impacts in design. Monitor to ensure compliance during construction. ▪ Team's design concept for stormwater management avoids impacts to 475' of stream channel and 0.033 acres of wetlands due to SWM concept enhancement ▪ Conduct early coordination to address regulatory agency concerns and comments prior to permit application. ▪ Develop permit documents (including CZMA) upon development of 60% plans to minimize schedule risk. ▪ Re-flag wetland and stream limits prior to construction to maximize avoidance
Noise Impacts	1. Include 21,997 SF of barrier in proposal for CNE barrier AA 2. Complete Final Noise Analysis 3. Prepare and mail certified letters to benefited receptors to ascertain desire for barrier	▪ Complete final NADR ▪ Complete public outreach and survey processes for new barriers, and include appropriate timelines in project schedule ▪ Access new barrier from the roadway shoulder to avoid impacts to private properties

Schedule Integration

Several permits need to be acquired prior to commencement of construction, including:

- Section 404/401 Clean Water Act Permits;
- Virginia Marine Resources Commission (VMRC) Permit; and
- VSMP Permit

As shown in our Preliminary CPM included in Section 4.7, we have accounted for the entire permit acquisition process in our schedule, with the appropriate constraints to the construction activities that impact them. Through our efforts to avoid and mitigate the impacts to these areas, and the early initiation of these permitting activities, we have built an appropriate level of float into our schedule to minimize the risk of delays.

In addition to these permits, there are several Time-Of-Year (TOY) restrictions that will affect the schedule for bridge construction activities in the Rappahannock River. As we developed this Technical Proposal, we focused on these restrictions and sequenced the work to construct the necessary causeway in the river outside of these TOY constraints. Our approach ensures that the TOY restrictions will not impact the Project schedule.

Throughout the Permitting process, our Team closely monitors the status of these permits to ensure that they are tracking for on-time completion. This requires that the Environmental Manager continually update the DBPM regarding permit progress, and to stay in constant communication with the permitting agencies. Should the schedule indicate that activities are falling behind for any reason, the Team will determine the cause and review measures available to correct the schedule slippage. As appropriate, the DBPM and Construction Manager may also review options for resequencing the work to avoid impacting the environmentally sensitive areas, increase manpower and equipment, or explore other measures available to regain schedule progress.

4.4.2 Utilities

One of the most critical elements of a complex design-build project such as this Project is the effective and efficient integration of the utility process into each project discipline. Knowing how much of an impact utilities can have on a project schedule and cost, our Team has expended considerable effort to coordinate with all impacted utility owners. We carefully studied the RFP Conceptual Plans, reviewed utilities in the field, discussed the Project with each impacted utility company, researched available records, and developed our Conceptual Plan and Schedule accordingly. This information has directly impacted our Team's concept, proposed phasing and sequence of work, and has limited the impact to utility owners, reduced the risk of schedule delays, and ensures that the Project will be completed as efficiently as possible. As a result of these efforts, we have reduced the number of conflicts and minimized the schedule and cost risk.

Team Experience

The Shirley Team has successfully managed utilities on numerous design-build projects for VDOT for over 15 years. The key to our success is having the experienced in-house resources, with intimate knowledge of governing bodies' policies and procedures, and positive relationships with each utility owner. Our Utility Team is fully engaged in the design process coordinating with the right-of-way, permitting, construction, and scheduling of all other project disciplines. While coordinating with other project disciplines, our first and highest priority throughout the design and construction phases of the Project will be to completely avoid utility impacts. If conflicts cannot be avoided by design, then we will work diligently with each utility owner to minimize these relocations through a combination of design and/or protection measures that allow the utilities to remain in place. Only as a last resort will we relocate utilities to eliminate conflicts. During construction, our Utility Team remains fully engaged to coordinate relocations between the utility companies and the construction team, ensuring their timely and successful completion.

Our Team has recent experience working closely with the affected utility companies, identified in Table 9, on the I-95/Route 630 Reconstruction and Widening and Route 606 Bridge Replacement Over I-95 with 606 Improvements Design-Build projects. That experience has helped us develop relationships that

resulted in early coordination, and allowed us to modify our design around existing utilities. We expect these relationships will continue to benefit our Team throughout the project.

Approach To Utility Coordination

Our Team will be following the VDOT Utility Relocation Policies and Procedures Manual with regard to the utility scope of work. As discussed above, we have begun activities shown in Table 9, to ensure the success of the utility relocation process, and the following is a general outline of the steps and activities we will perform once the Project is underway:

Table 9 - Approach to Utility Coordination

1	■ Obtain utility designations ■ Review test pit information ■ Identify locations of existing easements
2	■ Provide feedback to design, permitting and right-of-way managers on potential conflicts ■ Develop plans for avoidance of utilities or minimization of utility relocation
3	■ Review plans for avoidance or relocations with utility companies ■ Coordinate with ROW managers on easements that might be needed to accommodate the relocations
4	■ Hold UFI meetings with private utility owners where conflicts exist ■ Establish utility relocation plan, budget and schedule ■ Incorporate relocations into the Project schedule
5	■ Verify each private utility's prior rights ■ Prepare UT-9 forms ■ Finalize pro-rata share budgets and relocation schedules
6	■ Meet with public utilities to finalize avoidance and/or relocation plans ■ Incorporate plans into design documents and submit for approval ■ Obtain necessary right-of-way (easements) for the utility relocations
7	■ Incorporate approved utility relocation plans into the construction schedule ■ Identify utility relocation activities which fall on the critical path ■ Evaluate resources needed to accomplish critical relocations
8	■ Proceed with utility relocations ■ Take immediate action on unforeseen utility conflicts ■ Maintain team approach to achieve quick resolution on unforeseen conditions and other field issues

Specific Utility Impacts

At this stage, the Shirley Team has identified multiple utilities affected by the Project. Listed in Table 10 is a summary of the known utilities, their potential conflicts, and our approach to resolving these conflicts:

Table 10 - Known Utilities and Potential Conflicts

Utility Description	Approximate Location	Potential Conflict	Relocation Plan
OVERHEAD POWER/COMMUNICATION LINES			
Comcast *(on Dominion Poles)*	I-95 Station 2590+00	Potential substandard vertical clearance to new southbound GP lanes	Relocate to new overhead span or underground conduit
Comcast *(on Dominion Poles)*	I-95 Station 2501+00	Potential substandard vertical clearance to new southbound GP lanes	Relocate to new overhead span or underground conduit
UNDERGROUND POWER/COMMUNICATION LINES			
Verizon	I-95 Station 2607+00	Conflict with proposed Route 17 south bridge abutments	Relocate in-kind
Verizon	I-95 Station 2607+00	Potential conflict with lowering Route 17 profile to obtain required clearance	***Conflict Avoided by Raising I-95***

Utility Description	Approximate Location	Potential Conflict	Relocation Plan
WATER			
12" Stafford County Water	I-95 Station 2608+00	Potential conflict with lowering Route 17 profile to obtain required vertical clearance	***Conflict Avoided by Raising I-95***
24" City of Fredericksburg Water	I-95 Station 2494+00	Potential Conflict with Proposed Storm	Design Storm to avoid conflict
SANITARY SEWER			
6" Stafford County SFM	I-95 Station 2607+00	Potential conflict with lowering Route 17 profile to obtain required vertical clearance	***Conflict Avoided by Raising I-95***
18" Stafford Gravity	I-95 Station 2637+00	Not in conflict	To be abandoned
12" City of Fredericksburg Gravity	I-95 Station 2419+00	Potential Conflict with Proposed Storm	Design Storm to avoid conflict
12" City of Fredericksburg Gravity	I-95 Station 2475+00	Not in conflict	Remain in Place
GAS			
4" Columbia Gas of Va.	I-95 Station 2607+00	Potential conflict with lowering Route 17 profile to obtain required vertical clearance	***Conflict Avoided by Raising I-95***
8" Columbia Gas of Va.	I-95 Station 2419+00	Potential Conflict with Proposed Storm	Design Storm to avoid conflict

Mitigation Strategies

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

Our Team has developed a design concept that has avoided several utility impacts along Route 17. Our design provides the vertical clearance over Route 17 by raising the profile of I-95, avoiding all water, sewer, gas, and telecommunication facilities along Route 17. Avoiding these impacts reduces cost and schedule impacts, and reduces the risk of any possible delays. Figure 4.4.2.1 identifies strategies to mitigate delays of utility relocation.

Figure: 4.4.2.1 -
Strategy to Mitigate Delays of Utility Relocation

Schedule and Mitigation of Delays

During the RFP phase, our Team has begun to coordinate with each discipline to develop phasing for each utility relocation, as detailed in Section 4.7. This advanced schedule coordination has been developed through multiple discussions with each utility owner, and historical data developed from our past experience with each owner on multiple design-build projects. Since our Team's concept was able to avoid several utility conflicts, ***we were able to schedule the Project without any utilities on the Critical Path.*** This will allow our Team to phase the Project efficiently, reducing risk of delays to construction.

4.4.3 Geotechnical

Our Team is uniquely qualified to identify and mitigate risks associated with geotechnical aspects of this Project based on our recent exploration and ongoing construction along the I-95 corridor at the I-95/Route 630 Reconstruction and Widening and Route 606 Bridge Replacement Over I-95 with 606 Improvements Design-Build projects. Many of the challenges experienced on those projects, including Potomac Formation soils, acidic soils, and constrained project access, have assisted us in developing our approach to geotechnical exploration and development of solutions for improvements proposed as part of this Project.

The Project alignment is underlain by sands and gravels, Potomac Formation clays, and residual soils of underlying bedrock. Within the limits of the proposed Rappahannock Bridge, depth to bedrock varies from approximately 15' below grade at the abutments to rock outcroppings at the pier locations. This introduces challenges for geotechnical access and will require detailed analysis of rock cores to determine directions of shear planes and weaknesses in the rock layers in order to provide accurate recommendations for foundation designs and rock quality designations for scour calculations.

Recognizing the critical importance of getting into the river to start bridge pier foundation construction prior to time-of-year restrictions going into effect in 2019, our Team has already developed an approach for completing the necessary river borings and achieving access to the boring locations. Our approach was described in our Team's first proprietary meeting with VDOT, and is described in more detail later in this section. The sequence of the subsurface exploration will be coordinated such that the test borings required for design of the bridges and critical slopes will be completed early, allowing design of critical elements to be advanced without impacting the schedule. Site visits have already been completed by our Team to identify critical areas, and preliminary boring locations have been developed through coordination with design and permitting staff, ensuring that appropriate geotechnical information will be collected while avoiding environmentally sensitive areas and recognizing TOY restrictions.

Geotechnical Project Risks

The geotechnical risks for the Project are mainly related to the presence of shallow rock and Potomac Formation fat clays. From the information provided in the RFP Geotechnical Data Report (GDR), compressible fat clays (CH) range in depths of 2' to 30' below existing ground and vary in thickness from 4' to 10'. Detailed information on the risks, potential impacts, and recommended mitigation strategies are presented in the Table 11.

Table 11 - Geotechnical Risks and Mitigation Strategies

Risk Factor	Potential Risk	Modifications & Mitigation
Working within the Vicinity of Existing Structures	▪ Vibration induced settlement during foundation construction ▪ Global stability associated with placement of additional fill material in close proximity to existing bridge foundation elements	▪ Develop foundation designs which avoid or minimize vibrations during installation ▪ Adjust pier layout to avoid construction in close proximity to existing foundation elements ▪ Monitor for vibrations during construction and develop a zone of influence around existing foundations based on a vibration limit of 0.5" per second ▪ Predrill piles to reduce construction vibrations and limit potential for heave
Settlement Under Cowan Boulevard Bridge	▪ Additional load on existing piles due to downdrag ▪ Uneven settlement of southbound GP lane pavement	▪ Excavate soft and compressible soils ▪ Utilize lightweight fill material ▪ Consider ground improvements such as geopiers and a load transfer platform

Risk Factor	Potential Risk	Modifications & Mitigation
Maintaining Existing Structures	▪ Localized liquefaction due to consolidation of soils during pile driving ▪ Vibration impacts to existing foundation elements ▪ Pile heave	▪ Perform preconstruction survey of existing structures and surroundings ▪ Install structural monitoring points ▪ Identify threshold level and action level vibration limits based on conditions of existing structures ▪ Monitor vibrations on existing bridges during pile driving ▪ Pre-bore piles to eliminate vibration concerns ▪ Develop and maintain an instrumentation and monitoring plan, including vibration monitoring, inclinometers, and settlement points ▪ Retrofitting of existing structures if necessary
Scour	▪ Deep scour would require additional excavation of material prior to construction of pier foundations ▪ May adversely impact the existing bridge foundations to remain adjacent to the proposed bridge piers	▪ Adjust pier locations to avoid impacts to existing foundation elements ▪ Complete additional borings at proposed pier locations ▪ Perform additional RQD testing on borings completed at proposed pier foundation locations ▪ Complete additional tests to mimic scour, such as the Slake Durability Test, to determine how existing rock will perform under scouring conditions and evaluate the erodibility index
Unsuitable Pavement Subgrade Materials	▪ Undercuts to eliminate low CBR material could require excessive hauling of material out of the median of I-95, increasing costs and impacts to traffic ▪ Low CBR values could require the pavement section to be increased beyond that identified in the RFP	▪ Based on samples collected by VDOT, 8 of the 19 CBR samples indicated a value below 3.3. Additional CBR and proctor tests will be performed to verify the previous test results and determine more specific limits for low CBR value material ▪ Alternate subgrade stabilization methods, such as soil-cement modification, will be investigated to limit the amount of material which needs to be hauled off-site
Maintaining or Reconstructing Existing Slopes	▪ Inadequate rock slope stability for support of Rappahannock River Bridge abutments ▪ Inadequate slope stability in Potomac Formation clays for support of additional embankment or structure loads	▪ Information collected for rock mass evaluation will be used to identify each set of discontinuities on a stereographic projection to make interpretations on the stability of the intersecting weakness planes. A site visit has already been completed to evaluate the dip and strike ▪ Observe fracture sets to determine if existing slopes are suitable for support of bridge abutments. Based on preliminary analysis, our Team has already adjusted the north abutment location to maintain the required factors of safety ▪ Perform additional laboratory testing to evaluate residual shear strength for Potomac Formation clays ▪ Install temporary groundwater monitoring wells to record long-term groundwater ▪ Perform probabilistic analyses related to shear strength parameters ▪ Incorporate displacement monitoring during construction

Although acidic soils can be a concern along the I-95 corridor within the Project limits, information collected from borings completed as part of the RFP GDR indicate that the locations and depths of acidic soils will not present a problem for either drainage excavations or bridge foundation elements. During our geotechnical exploration program, additional samples will be collected so that corrosion testing for sulfate and chloride can be completed to evaluate the corrosion potential on subsurface and foundation elements.

Rappahannock River Geotechnical Subsurface Exploration Approach

As discussed at our Team's first Proprietary Meeting, completion of additional borings in the Rappahannock River is not expected to cause major concerns based on the equipment and approach our Team intends to use. The condition of the river bed, as shown in Figure 4.4.3.2, consists of relatively shallow waters with periodic rock and earth covered outcroppings which can be used in low-flow times to provide a stable platform for completion of the necessary additional borings. The most important aspect of the additional geotechnical investigations will be initiating these activities very early in the design and survey phase in order to avoid time-of-year restrictions associated with access to and work in the Rappahannock River.

Figure 4.4.3.2 - Rappahannock River Bed Existing Condition during low-flow

Following environmental investigations and surveys in and adjacent to the Rappahannock River, and after submission and approval of the necessary environmental permits, geotechnical equipment will be delivered to the site and access to the additional bridge borings in the Rappahannock River will be obtained from the existing gravel access road along the southern river bank. Timber crane mats (20'x4'x8") will be placed using a CAT Track 380 Excavator (similar to that shown in Figure 4.4.3.3) to establish a stable working platform for the drill rig. Based on the type, quantity, and depth of borings required, we anticipate using a Dietrich D-50 Track Rig, similar to that shown in Figure 4.4.3.4, for the additional Rappahannock River Bridge borings.

Figure 4.4.3.3 - Crane mats will be placed by a CAT Track 380 Excavator to establish a stable boring platform

Once crane mats have been placed, both the excavator and the drill rig will progress into the river simultaneously and parallel to each other. The excavator and drill rig will rest on two crane mats each (four mats total being used at one time), while an additional four mats will be located immediately behind the equipment so that it can be moved to the front and allow both the rig and excavator to progress across the river from one boring to the next. This sequence will start from the southern shoreline and continue until the boring location has been reached. The timber pads will be anchored to the river bottom to adjust for various water depths and surface irregularities. After the boring is completed, the drill rig will demobilize and the mats will be removed in the opposite manner in which they were installed. As described in Sections 4.3.1 and 4.3.2, our Team's unique design concept reduces the number of bridge piers from eight to four, including only two within the limits of the Rappahannock River. Based on the reduction of the number of piers, only four borings need to be completed within the Rappahannock River. We anticipate that borings at each pier will take between two and three days to complete, including one day per pier to adjust crane mats and access the boring site. Based on these durations, we expect that geotechnical work within the Rappahannock River will take no more than two weeks to complete. Prior to initiating the river geotechnical boring program, we will evaluate the weather forecast to select a dry period when low river flows are expected in an effort to minimize delays and the potential for flooding of the mats and/or equipment. Should the need arise to temporarily remove the equipment from the river, it will be staged on the southern river bank until such time that any remaining borings can be completed.

Figure 4.4.3.4 - Dietrich D-50 Track Rig

4.5 - Construction of the Project

4.5 Construction of the Project

4.5.1 Sequence of Construction

Throughout development of our Technical Proposal, our Team focused on means and methods to finish critical stages of work quickly and efficiently. Key elements of our Team's collaborative process included optimizing the sequence of work which allows our Team to achieve the goals of:

- Early completion of the Project achieving the No Excuse Incentive;
- Establishing Unique Milestones to open additional lanes prior to No Excuse Incentive dates;
- Ensuring the safety of the traveling public and workers by minimizing hauling on I-95;
- Providing efficient mobility for the traveling public by minimizing the need for lane closures;
- Effective management of environmental and geotechnical constraints; and
- Proactive stakeholder coordination.

Our Team's Proposal Schedule, presented in Section 4.7, was developed with input from all Project disciplines including design and engineering, permitting, utilities, right-of-way, QA/QC, and construction. We planned for and incorporated numerous enhancements as shown in Table 12 to exceed the above objectives.

Table 12 - Construction Enhancements

Enhancements	Benefits
Partnering with the local community and the City of Fredericksburg to gain access to the B604 Southern Abutment via Quarry Road	▪ Allows access with minimal environmental impacts ▪ Provides the City and community with improved trail access through improvements made by our team at completion ▪ Limits trucks entering/exiting work zone directly from I-95
Scheduling of work to achieve the maximum incentives available for early completion	▪ Allows early completion and opening of new travel lanes for congestion relief
Use of Early Causeway Plan to allow work to commence upon transfer of VDOT permit(s)	▪ Allows critical construction work at the Rappahannock River bridge to begin prior to completion of the full plan set
Logical segmentation of project Work Areas	▪ Allows for focused construction management teams and utilizes the allowable maximum work zone length for efficient staging and sequencing
Adjusted vertical profile for balanced earthwork (in general) and accommodating acidic sulfate soils	▪ Maximizes safety and minimizes traffic disruptions by minimizing hauling across the Rappahannock River & Route 17 ▪ Balancing accommodates capping finished grade acidic sulfate soils with non-acidic soils prior to turf establishment
Early opening of Route 17/I-95 southbound Ramp A to two lanes	▪ Increases safety and enhances traffic flow at the beginning of the 2020 summer travel season ▪ Reduces frustrating lengthy backups on southbound Route 17 approaching the I-95 interchange
Opening the entire length of the I-95 southbound GP lanes simultaneously with the EARLY Interim Milestone	▪ Provides motorists with a minimum of 5 full lanes (3 on GP and at least two on the CD) for the length of the Project ▪ Increases safety by eliminating the temporary transition from the GP lanes to I-95 southbound South of the Route 17 bridges

Unique Milestone #1

Understanding the congestion in the area and the potential to offer relief to the traveling public, our Team is proposing the unique milestone to open the Route 17/I-95 southbound Ramp A to the ultimate two lanes on or before June 15, 2020 offering summer traffic congestion relief. The early opening of the full two lanes is anticipated to alleviate queues on southbound Route 17 that regularly block signalized intersections and business driveways, providing a substantial benefit to the traveling public.

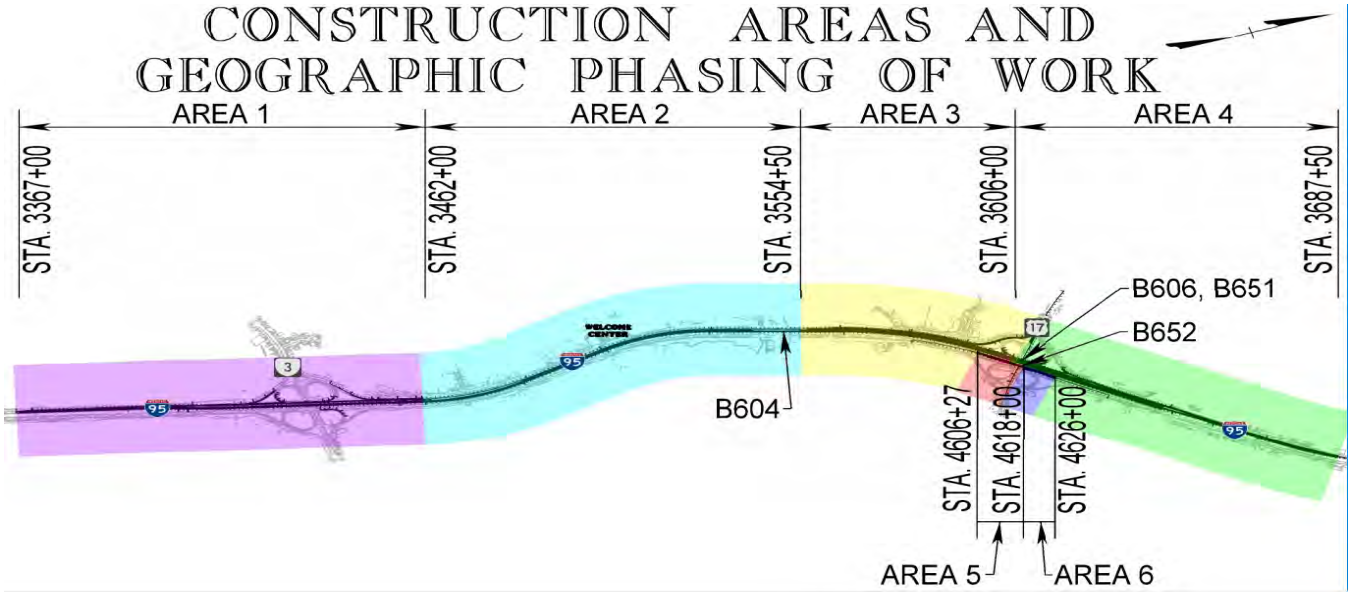
Unique Milestone #2

Minimizing interim impacts to traffic, our Team is proposing the unique milestone to open all three permanent GP lanes and two CD lanes for beneficial use from approximate Station 3594+00 to the southern terminus on or before August 16, 2021 allowing continuous GP lane use for the limits of the project and eliminating a temporary merge for the GP lanes to transition back to the CD lanes near the Rappahannock River bridge (at the southern limit of the Interim Milestone #1). Final surface paving and striping may be completed later, concurrent with the completion of the CD lane tie-in. ***This enhancement provides a minimum of five-lanes from north of the Rappahannock River to the southern project terminus versus the RFP required three-lanes, providing a important operational enhancement in this chronically congested area.***

Project Work Areas

In order to efficiently execute our construction plan for the Project, the Project length has been broken into six major roadway Work Areas as shown in Figure 4.5.1.1. The areas are divided by logical break points that allow for effective construction sequencing. This segmentation was also developed in conjunction with our Maintenance of Traffic Plan (Temporary Traffic Control plan) and are of sufficient scope and size to allow individual construction management teams to oversee the operations. This allows for maximum utilization of resources and oversight of construction activities from a safety and quality perspective.

Figure 4.5.1.1 - Construction Areas and Geographic Phasing of Work



The layout of this project offers the contractor several simultaneous areas of work with the vast majority of the I-95 southbound GP lanes available for construction without restriction. Our schedule is based on employing sufficient forces to work multiple areas simultaneously. Our presence in the area on current VDOT Design-Build projects gives our Team the flexibility to coordinate and share resources efficiently as required. With our sequence of construction, most of the work can be completed in a single stage, with multi-stage construction only required at the bridges over Route 17, at the Route 17 interchange, and the northern and southern CD lanes tie-ins to the GP lanes.

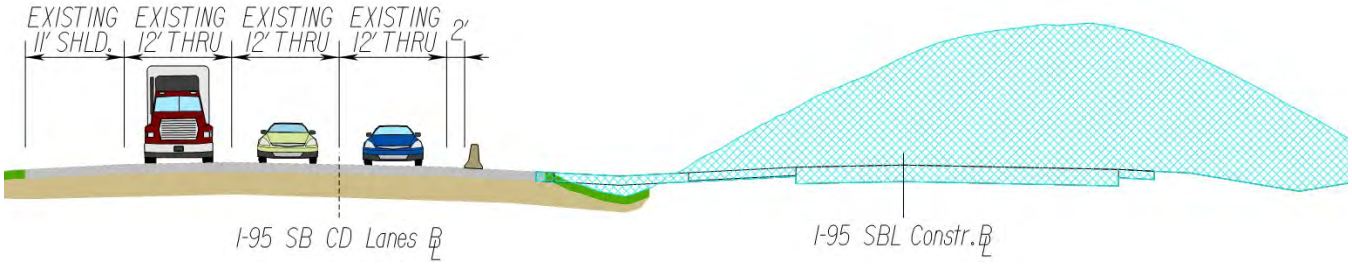
Our Team has developed a sequence of construction for this Project which will exceed the goals of the Project Completion defined in the RFP, while also introducing unique milestones to benefit the traveling public. Our proposed sequence of construction is shown in our Volume II – Design Concept, and uses the following sequence.

Construction Sequence

Organizationally, we will have two major Stages of roadway construction corresponding to our Team's Transportation Management Plan detailed in Section 4.5.2. Each Stage corresponds to a major traffic control sequence as construction activities progress throughout the Project. Along the entire project limits, work in all six Work Areas described above in Figure 4.5.1.1 will be constructed concurrently during each major traffic Stage, with space reserved for emergency pull-offs.

Stage 1 Construction

Figure 4.5.1.2 - Stage 1 Construction - Construct New GP Lanes



Stage 1 consists of constructing the I-95 southbound GP lanes including bridges B604 and B651 and the Phase I widening of I-95 northbound GP Bridge B652 with associated temporary realignment and permanent pavement, as shown in Figure 4.5.1.2.

I-95 Southbound GP Lanes

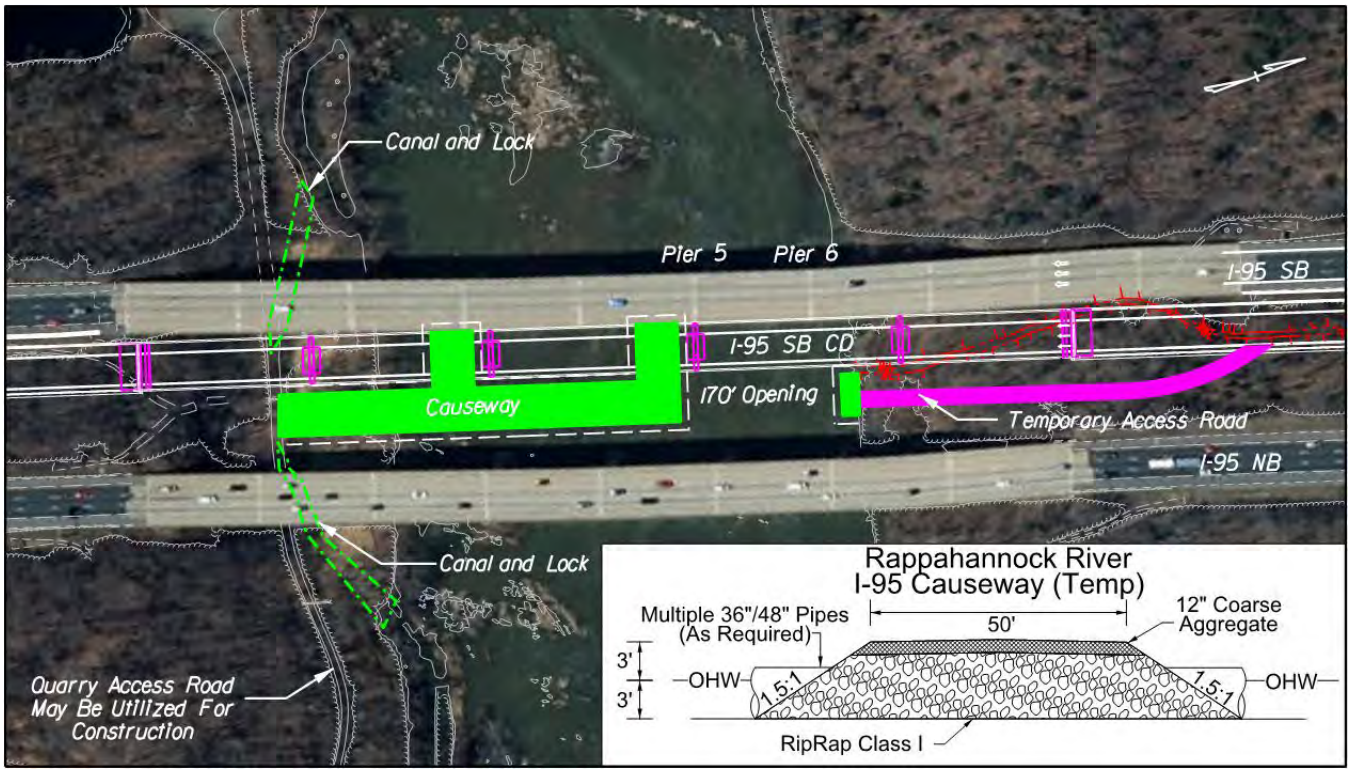
Following the issuance of environmental permits, clearing and grubbing and erosion control activities will begin. Roadway drainage and excavation activities will commence sequentially in all designated Work Areas. All construction run-off will be controlled in Phase 1 erosion and sediment control devices such as check dams, silt logs, sediment traps, and inlet protections for the I-95 southbound GP construction.

Roadway excavation and grading includes stripping of all native topsoil. By modifying the roadway profile, all areas, with the exception of Area 4, have balanced earthwork which minimizes the need to haul on I-95, ***providing safety and traffic operations enhancement.*** Area 4 requires embankment which will be obtained from offsite sources. This operation will also be coordinated to minimize impacts on I-95. In all areas, we have allowed time in our excavation activities to account for the remediation of soft or unsuitable soils as required. Earthwork and storm drainage will continue simultaneously through finished grade, minimizing depth of cut for storm sewer installations. Finished grade will then be fine graded and proof rolled prior to placement of proposed 8" Cement Treated Aggregate (CTA). Installation of underdrain and any required median barriers occurs at this time and asphalt crews will place the 2" Open Graded Drainage Layer (OGDL) followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Finally, 2" of SM-12.5E and SM-12.5A will be placed on mainline and shoulder from the northern terminus to approximate Station 3614+00 with permanent pavement markings, signs, rumble strips and guardrail installed. Surface is terminated at this approximate station to accommodate the temporary loop ramp connections to B651 during the B606 bridge demolition. South of the approximate Station 3614+00 to approximately Station 3595+00, temporary pavement markings will be used for the 11' lane transition on intermediate asphalt. Guardrail and signs will be installed with temporary pavement markings - rumble strips will not be present in the intermediate asphalt transition area. The northern termini of the I-95 southbound GP lanes will be milled/wedged/leveled/overlaid as required with permanent and temporary pavement markings prior introducing traffic. South of Station 3595+00 to the southern project limits, southbound GP lanes construction will continue through Stage 2.

Bridge B604

The I-95 southbound GP lane bridge over the Rappahannock, B604, presents unique challenges due to access, height, length and water features. Initial work requires access to the Rappahannock River to construct the proposed causeway. Access will be gained from the south bank of the Rappahannock using the existing Canal Road owned by the City of Fredericksburg. This requires separate permitting requirements that have been accounted for in the CPM. Additional access will be gained from the north abutment median following clearing and grubbing operations. Once all access has been gained, the proposed causeway may be installed allowing construction access to the bridge pier locations. The causeway will be used to construct the piers in their entirety as well as erecting structural steel. See Figure 4.5.1.3 below for our causeway details, which keeps the main channel open at all times, provides necessary hydraulic capacity (see Section 4.3.1.(e)), and provides continuous safety for river traffic (see "Rappahannock River Traffic" in Section 4.5.2).

Figure 4.5.1.3 - Conceptual Causway Layout



Construction of the causeway and cofferdams have been limited by the CPM calendar to occur only between November 1 and February 15 in accordance with the threatened and endangered species requirements. Immediately upon completion and acceptance of B604, the causeway will be removed in its entirety and within the same TOYR following completion and removal of overhang forms.

Substructure construction commences with the installation of cofferdams at the pier foundation locations and a tremie seal will be placed inside the cofferdams to prohibit water infiltration. Excavation will be performed to plan footing elevation with excess material hauled to the median area, reinforcing steel installed and the footings poured. Columns will be formed and poured in two lifts, cap falsework and reinforcing steel will be installed and the cap poured. Once strength is achieved, cap falsework and formwork will be stripped and removed. The preceding is the standard sequence for each B604 pier. While pier construction is ongoing, abutment construction commences following clearing/grubbing operations and initial abutment excavation for the proposed MSE walls. Piles will be augured and set and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap

elevation at which time the abutment pile cap with bearing pads/anchor bolts and the backwall will be constructed. Following the backwall, the MSE placement will resume to completion with associated moment slabs and the bridge approach slabs. Figure 4.5.1.4 is a conceptual rendering (looking north) of how we will construct the substructure and piers from the causeway without impacting to I-95 traffic.

Figure 4.5.1.4 - Causeway with Open Channels at All Times

Superstructure construction begins with setting the bearings and erecting the structural steel. The structural steel will be erected at night from cranes on the causeway with girders staged on the existing I-95 southbound bridge shoulder. Upon completion of the structural steel, stay-in-place metal decking, Nelson studs, and overhang/edge forms will be installed. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours and the deck will be poured sequentially through completion. Once the bridge deck has attained appropriate strength, the concrete parapets will be poured followed by bridge deck grooving. Finally, the overhang formwork will be removed and permanent pavement marking tape and barrier reflectors will be applied.

Bridge B651

The I-95 southbound GP lane bridge, B651, is new construction adjacent to the existing I-95 southbound bridge. Work will include shoring the existing I-95 southbound bridge and the long term closure of one lane in each direction on Route 17 for pier construction (maintaining three-lanes in each direction during peak hours). Substructure construction will begin with shifting Route 17 lanes to the outside in each direction to allow placement of temporary concrete barrier in the median for pier construction. This traffic shift and temporary barrier will be installed to accommodate B651, B606 and both phases of B652 pier demolition/construction activities.

Once the barrier is in place, pier footing shoring/excavation will commence to planned subgrade installation. Piles will be driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Once a break is achieved to allow superimposed elements, column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork and the columns will be poured. When strength is achieved for stripping and superimposed elements, the column forms will be stripped and cap falsework and formwork installed. Cap reinforcing steel will

be installed and the cap poured including bearing pads/anchor bolts. Once strength is achieved, cap falsework and formwork will be stripped and the piers backfilled to finished grade. Abutment construction commences following clearing/grubbing operations and initial abutment excavation for the proposed MSE walls. Piles will be augured and set and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. Following the integral abutment construction (with Bulb T's), the MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is completed with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Upon completion of the Bulb T installation, stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours. Each span will be poured separately followed by closure pours over the pier and abutments. Once the bridge deck has attained appropriate strength, the concrete parapets will be poured followed by bridge deck grooving. Finally, the overhang formwork will be removed and temporary pavement marking tape and barrier reflectors will be applied to accommodate the Stage 2 configuration of three 11' travel lanes and one 11' auxiliary lane for Route 17 loop ramps (see Section 4.5.2 for detail of this condition and temporary ramp connections). This bridge will be used in an interim phase for I-95 southbound traffic and loop ramp traffic while the existing bridge is demolished and reconstructed as B606. The interim phase will require temporary ramp pavement for both alignment and vertical profile shifts, as detailed in our Volume II - Design Concept, and explained in detail in Section 4.5.2.

Route 17 Temporary Ramp Connectors

An alignment shift using temporary pavement will be constructed in order to divert ramp traffic to the Bridge B651 temporary auxiliary lane during Stage 2. Temporary roadway excavation and grading consists of stripping of all native topsoil. Earthwork and storm drainage will continue simultaneously through finished grade. Finished grade will then be fine graded and proof rolled prior to placement of the temporary pavement section. Asphalt wedge/leveling/milling/overlay will be used as required at the interface with existing I-95 southbound GP lanes. The ramps will receive temporary pavement markings, signs and temporary concrete barrier protection as required.

Route 17/I-95 Southbound Ramp A

The completion of Route 17/I-95 southbound Ramp A is our Team's Unique Milestone #1. Widening of this ramp is broken into "Stage 1A" and "Stage 1B". Stage 1A construction begins with shifting traffic towards the right shoulder and placing temporary concrete barrier along the left shoulder to protect the work zone. Earthwork and storm drainage will commence simultaneously through finished grade, which will then be fine graded and proof rolled prior to placement of proposed 8" CTA. Underdrain will be installed and asphalt crews will place the 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Guardrail will be installed as required along the new pavement.

Stage 1B construction begins with shifting traffic onto Stage 1A widening and placing temporary concrete barrier along the right shoulder. Earthwork and storm drainage commence simultaneously through finished grade which will then be fine graded and proof rolled prior to placement of proposed 8" CTA. Underdrain will be installed and asphalt crews will place the 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of ramp mainline BM-25.0A. 3" of

IM-19.0D will be placed for ramp mainline and shoulder applications. Temporary concrete barrier will be removed and 2" SM-12.5E and SM-12.5A will be placed on ramp mainline and shoulder. All mill/wedge/level/overlay required for Ramp A and Route 17 will be performed in conjunction with the operations. All guardrail, signs and permanent pavement markings will be installed prior to opening in the final configuration on or before the June 15, 2020 Unique Milestone #1 date.

Bridge B652 Stage 1

The I-95 northbound GP lane bridge, B652, requires staged demolition and temporary pavement for interim traffic shifts. Our design and construction approach exceeds the RFP requirements by providing VDOT with a complete superstructure meeting future widening requirements. This approach allows construction of B652 in two phases instead of three. The elimination of the construction phase increases safety, reduces impacts to traffic, and minimize schedule risk providing a value added benefit to VDOT.

Traffic will be shifted slightly left on the existing bridge for temporary bolt-down concrete barrier allowing Phase I demolition (see our Volume II - Design Concept for details). A demolition shield will be installed to protect traffic below and adjacent to the demolition area. For the proposed Phase I demolition, existing concrete parapet and deck sections will be demolished allowing the Phase I construction of Bridge B652.

Temporary concrete barrier protecting the B652 pier along Route 17 is already in place from Bridge B651 initial mobilization. Pier footing shoring/excavation will commence to planned subgrade installation. Piles will be driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork and the columns will be poured. Cap reinforcing steel will be installed and the cap poured including bearing pads/anchor bolts. Cap falsework and formwork will be stripped and the pier backfilled to finished grade. Abutment construction commences following clearing/grubbing operations and initial abutment excavation for the proposed MSE walls. Shoring will be installed to accommodate excavation and construction of the B652 Phase I abutments. Piles will be augured and set with and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. Following the integral abutment construction (with Bulb T's), the MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is completed with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours and the deck will be poured sequentially through completion. Once the bridge deck has attained appropriate strength, the exterior permanent concrete parapet will be poured with temporary bolt down barrier installed on the interior shoulder followed by bridge deck grooving. Finally, the overhang formwork will be removed and temporary pavement marking tape and barrier reflectors will be applied to accommodate the Stage 2 configuration in three 11' travel lanes.

I-95 Northbound GP Lanes Stage 1

Following the issuance of the final environmental permits for the Project, clearing and grubbing and erosion control activities will begin. Roadway drainage and excavation activities will commence simultaneously north and south of the B652 designated work areas including the temporary pavement alignment shift.

In this Stage, an alignment shift (temporary diversion) using temporary pavement will be constructed. Finished grade will be fine graded and proof rolled prior to placement of the Temporary Pavement section. Traffic will run on intermediate asphalt with temporary pavement markings for the Stage 2 lane transition in three 11' lanes. Outside protection for the temporary asphalt transition will be accomplished with temporary concrete barrier.

Traffic Configuration Upon Completion of Stage 1

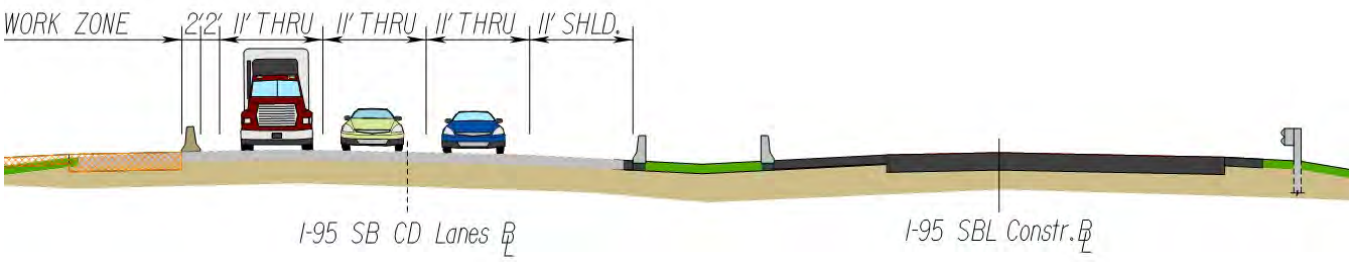
At the completion of Stage 1, I-95 southbound GP lanes from the northern project limits to near Stations 3595+00 will be opened to traffic (including Bridge B651). Bridge B651 will be opened in the temporary configuration with temporary ramp connectors for Route 17 allowing demolition and construction of proposed Bridge B606. By opening the GP lanes immediately south of Bridge B651, we provide ample room (about 2/3 of a mile) for the new GP lanes to cross back over to the existing southbound lanes and for the ramp from southbound Route 17 to merge onto I-95 (See our Volume II - Design Concept for graphic depiction of the crossover location). This sequence provides a notable safety and operations enhancement, by maximizing the number of open lanes north of the Rappahannock River.

I-95 northbound GP lanes will be open on the temporary pavement alignment and cross Route 17 on the portion of the new bridge constructed in Stage 1. This allows for the demolition of the rest of the existing bridge and construction of the remainder of the new Bridge B652 in Stage 2 as well as I-95 northbound pavement reconstruction to accommodate the additional clearance over Route 17.

Stage 2 Construction

I-95 Southbound GP Lanes

Figure 4.5.1.5 - Stage 2 - Construct Auxiliary Lane Tie-In



In Stage 2, full depth reconstruction of I-95 southbound at the Bridge B606 approaches will be completed with proposed 8" CTA base, underdrain, 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Following upon completion of Bridge B606 and when all southbound lanes are in the final configuration, SM-12.5E and SM-12.5A will then be completed on mainline and shoulder from approximate Station 3614+00 to the southern terminus with rumble strips installed. South of Station 3595+00, Stage construction started in Stage 1 will continue into Stage 2.

I-95 Southbound CD Lanes/Ramps, Including Option #1

Construction of the CD lanes primarily proceeds independently from all other work with the exception of the interface with the Route 17 ramps which requires phased construction with B651 and B606 as described herein. Other than the Route 17 ramp interfaces, the CD construction will commence independently and concurrently with the GP construction activities. All CD lanes, with the exception of Route 3/I-95 southbound CD will be completed for the Early "No Excuses" interim milestone.

The Route 17 loop ramp improvements will be constructed to accommodate the ultimate I-95 southbound CD vertical alignment increase. The construction will begin with the intermediate shift to B651 while

B606 is demolished and rebuilt. The traffic will remain on the intermediate B651 shift until the ultimate CD approaches are constructed to B606 and the CD lanes are opened.

CD lane construction begins with shifting existing I-95 southbound toward the median in 11' lanes and setting temporary concrete barrier on the outside shoulder. After clearing and grubbing as required, excavation and grading commences with stripping of all native topsoil prior to regular excavation activities. We have allowed time in our excavation activities to account for the remediation of soft or unsuitable soils as required. Earthwork and storm drainage will continue simultaneously through finished grade minimizing depth of cut for storm sewer installations. Subgrade will then be fine graded and proof rolled prior to placement of proposed 8" CTA. Installation of underdrain and median barriers occur at this time. Asphalt crews will place the 2" OGDL followed by the 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of CD mainline BM-25.0A. 3" of IM-19.0D will be placed for CD mainline and shoulder applications. Finally, 2" of SM-12.5E and SM-12.5A will be placed on CD mainline and shoulder with permanent pavement markings, signs, and guardrail installed.

Full depth reconstruction for portions of the Route 17 loop ramps occurs in conjunction with the I-95 southbound CD lanes north of Route 17. Upon completion of the full depth reconstruction, the temporary loop ramp connectors will be removed and ramp traffic shifted from the temporary Bridge B651 auxiliary lane to its ultimate configuration on Bridge B606. (See our Volume II - Design Concept for details).

Bridge B606, including Option #1

For the proposed demolition, all superstructure elements will be demolished allowing reconstruction of Bridge B606. Temporary concrete barrier protecting the existing B606 pier along Route 17 is already in place from Bridge B651 initial mobilization. Additional demolition shielding will be installed to protect Route 17 traffic from pier demolition debris. The existing pier will be demolished entirely through its concrete foundations. Both abutments will also be demolished through their concrete foundations. Existing piles will be tested for structural capacity. Any additional pier footing shoring/excavation required will commence to planned subgrade installation. Additional piles, if required, will be driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork and the columns will be poured. The column forms will be stripped and cap falsework and formwork installed. Cap reinforcing steel will be installed and the cap poured including bearing pads/anchor bolts. Cap falsework and formwork will be stripped and the pier backfilled to finished grade. Abutment construction commences following demolition activities and any initial excavation required for the proposed MSE walls. Shoring, as required will be installed to accommodate excavation and construction adjacent to the Bridge B651 abutments. Piles will be augured and set with and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. The MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is completed with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours. Each span will be poured separately followed by closure pours over the pier and abutments. Once the bridge deck has attained appropriate strength, the permanent concrete parapet and median barrier will be poured followed

by bridge deck grooving. Finally, the overhang formwork will be removed and permanent pavement markings and barrier reflectors will be applied for the final configuration.

Bridge B652 Stage 2

A demolition shield will be installed to protect traffic below and adjacent to the demolition area. For the proposed demolition, all superstructure elements will be demolished allowing Phase II construction of Bridge B652. Temporary concrete barrier protecting the existing B652 pier along Route 17 is already in place from Bridge B651 initial mobilization. Additional demolition shielding will be installed to protect Route 17 traffic from pier demolition debris. The existing pier will be demolished entirely through its concrete foundations. Both abutments will also be demolished through their concrete foundations. Existing piles will be tested for structural capacity. Any additional pier footing shoring/excavation required will commence to planned subgrade installation. Additional piles, if required, will be augered or driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork and the columns will be poured. The column forms will be stripped and cap falsework and formwork installed. Cap reinforcing steel will be installed and the cap poured including bearing pads/anchor bolts. Cap falsework and formwork will be stripped and the pier backfilled to finished grade. Abutment construction commences following demolition activities and any initial excavation required for the proposed MSE walls. Shoring, as required will be installed to accommodate excavation and construction adjacent to the Phase I Bridge B652 abutments. Piles will be augured and set with and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. Following the integral abutment construction (with Bulb T's), the MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is complete with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours. Each span will be poured separately followed by closure pours over the pier and abutments. Once the bridge deck has attained appropriate strength, the permanent concrete parapet and median barrier will be poured followed by bridge deck grooving. Finally, the overhang formwork will be removed and permanent pavement markings and barrier reflectors will be applied for the final configuration.

I-95 Northbound GP Lanes Stage 2

In this Stage, earthwork and storm drainage will continue simultaneously through finished grade minimizing depth of cut for storm sewer installations. Finished grade will then be fine graded and proof rolled prior to placement of the proposed 8" CTA for the permanent GP lane construction. Underdrain will be installed and asphalt crews will place the 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Prior to opening Bridge B652 in its final configuration, 2" of SM-12.5E and SM-12.5A will be placed on Phase I and Phase II mainline and shoulder. Guardrail and signs will be installed with permanent pavement markings and rumble strips. Upon completion of Bridge B652 and the permanent I-95 northbound GP lanes, traffic will be shifted to the ultimate configuration and the temporary alignment asphalt removed.

Soundwall

It is anticipated that a soundwall will be required from approximate I-95 southbound GP Stations 3482+60 - 3494+80 which shall be verified following the noise study. The soundwall if required, will be constructed in conjunction with Area 2 and is not a driving element of work in the schedule.

Final Completion

With the majority of major elements of work completed by the Interim Milestone, Final Completion is limited to completion of the Route 3/I-95 southbound CD lane construction as shown in Figure 4.5.1.5, I-95 southbound GP surface and permanent pavement markings south of the Interim Milestone limits, SWM Facility conversions, turf establishment, and demobilization.

Safety & Operations

It is our Team's number one goal to ensure the safety of the traveling public and the workers on the Project. We fully support VDOT's commitment to safety of the public, safety of its employees, and safety of all project stakeholders, and we plan to align our Team's vision of safety with VDOT's. We expect each and every individual to be involved, empowered, and accountable for project safety. Our safety program will be led by Charlie Wilson, our Safety Manager, who will implement a Project Specific Safety Program and work directly with VDOT personnel. He will also have overall responsibility for ensuring the Project is delivered with a goal of zero incidents.

Safety Approach

Our Team's approach to safety is based on three primary facets each presenting their own safety challenges:

- Construction safety;
- Public/Traffic safety; and
- Incident Management

Construction Safety **-** Each Stage of the Project from earthwork to bridges, from utility installation to soundwalls have distinct safety challenges associated with them. We will work closely with our design partners to finalize a design that incorporates and considers safety elements and fully integrates anticipated construction processes and staging requirements.

Public/Traffic Safety **-** Our Team's Transportation Management Plan, Temporary Traffic Control Plans, and Construction Sequencing have all been developed to provide the safest work zones while attaining the peak operational capacity of the roadway. Following traffic counts at the onset of design, all plans will be adjusted to allow the maximum flow of traffic through the corridor. As detailed in Section 4.5.2, enhanced public safety strategies exceeding VDOT requirements will also be utilized to maximize safety, such as better quality pavement markings, additional PCMS signs, 12' lane widths, and long emergency pull-offs that accommodate vehicle acceleration and deceleration needs. During construction, the VDOT Work Zone Safety Checklist will serve as the minimum standard to assure conformance with the Project's safety requirements, and checks will be performed daily. Our Team is very aware that "Traffic" does not only apply to the vehicles driving through the work zone, but also pedestrian, bicycle, and in this case, kayak/boat traffic. Access to the southern bank of the Rappahannock will be through the existing Canal Road which is also used by bikers and hikers. A dedicated, covered (to protect from potential debris falling from B604) trail will be provided for safe passage to the hikers and bikers - intermittent flagging will be used for any critical crane lifts. Additionally, buoys, signs, and flagging will be used to improve safety for river users and to direct them to the main river channel for safe passage, and intermittent flagging will be used for any critical crane lifts.

Incident Management - As described in Section 4.5.2, incorporation of emergency pull-offs and construction access points at intervals not exceeding one mile will provide our Team the ability to manage traffic incidents should they occur within the work zone. Emergency pull-offs can be used to move disabled vehicles from travel lanes and maintaining a full shoulder along one side of the roadway at all times ensures emergency vehicles and equipment can quickly access the disabled vehicle(s). Emergency contact information will be shared with VDOT prior to construction, and construction staff will coordinate with emergency responders and VDOT staff to remove temporary lane closures in a safe and efficient manner in order to improve traffic flow and reduce impacts to the traveling public. Our Team will also incorporate a robust public outreach strategy which we have described in detail in Section 4.5.2.

Implementation of Safety Controls

Planning

- ***Design -*** A safe design is only safe if it can be constructed safely. Proper allowances will be integrated into our planning for equipment placement, material staging and storage, safe and secure work zones, as well as safe and efficient construction access points and entrances.
- ***Safety by Contract -*** Our Team develops a Project Specific Safety Plan that will also be enforceable by our subcontracts, outlining project safety requirements including: OSHA/VOSH related safety provisions for our subcontractors.
- ***Safe Start Process*** – Everyone working on the Project is required to complete our Safe Start program prior to starting work. Some key aspect of this process include task specific Job Hazard Analyses (JHA), Hazard Communication Plans, and Fitness for Duty Certifications. The Team will meet individually with each subcontractor's onsite field supervision and Project Manager to establish clear safety goals for the Project and expectations from subcontractors.
- ***Utility Strike Prevention*** - Area specific integrated work plans generated by the project Team. Each work plan incorporates a utility overlay for the proposed work area used in the preconstruction meeting and during construction. The preconstruction meeting includes all management personnel and field craft labor to review potential utility risks and develop the safe plan of action. All personnel in the meeting agree to the safe plan of action and sign the work plan document prior to entering the work area. The plan is a living document that will be revised as utilities are relocated and construction progresses.
- ***Worker Orientation*** - All workers must complete safety orientation before entering the jobsite. The site-specific orientation includes a comprehensive review of our Safety and Health Program and safety policies. Hardhat stickers are provided to employees certifying completion of orientation.

Safety Meetings

- ***Safe Plan of Action (SPA) -*** A daily SPA meeting or "Take 5" is our forum to communicate each day's safe work plan to all workers. Each foreman and crew will review their tasks, required tools, potential hazards, and related safe work protocol. During this meeting, all employees will participate in a "stretch and flex" session. Useful in prevention and treatment of soft tissue injuries, including sprains and strains, stretch and flex programs have been proven to enhance balance, coordination and circulation, stretching increases flexibility, which directly translates into reduced risk of injuries.
- ***Superintendent/Foreman Meetings -*** Our Team's superintendents and Safety Manager meet with foremen every week to discuss current safety concerns and the proposed plan to resolve them. The week's area logistics plans are reviewed so all crews are aware of other construction activities. We anticipate VDOT team member involvement in these weekly meetings.
- ***Safety Stand Down Meetings -*** Each month, the Construction Manager and superintendents assemble crews to discuss safety conditions and safety trends. These meetings afford all workers the opportunity to speak directly with the Construction Manager and superintendents. If a safety incident has occurred, the circumstances and future preventative measures are discussed.

Recognition/Reward

- ***Recognition Program -*** This program consists of several tiers for rewarding individuals, crews, and subcontractors who meet and/or exceed criteria such as man hours worked without incident, demonstrating outstanding safety practices or other safety criteria established by the Project Team.

Geotechnical Constraints

The sequence of the subsurface exploration will be coordinated such that the test borings required for design of the bridges and walls will be completed early, allowing 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 and permitting staff, ensuring that appropriate geotechnical information can be collected while avoiding environmentally sensitive areas.

Since our Team will complete the required geotechnical investigations and propose methods for remediation of poor soils along the roadway prior to construction, sequencing of work will be developed to include these geotechnical constraints/soil remediation. Roadway considerations such as unsuitable materials, low CBR value materials, and increased pipe bedding requirements will be identified in the geotechnical report and mitigation measures and recommendations may include practices such as:

- Surcharging;
- Undercut & replacement with suitable material;
- Lime or cement soil stabilization;
- Use of geo-stabilization grids & fabrics; and
- Lightweight fill.

Bridge geotechnical solutions will be based on the concerns of settlement and global stability of new fills at existing and proposed pier and abutment locations, bridge foundation requirements and capacities, negative skin friction exerted on piles during anticipated settlement periods. Other constraints will also be identified in the geotechnical report and completed in conjunction with the appropriate elements and areas of improvement, and are not expected to cause any concerns or impacts to the construction schedule. As indicated in Section 4.7, we have allowed construction time for remediation of poor soils in all activities.

Environmental Impacts

Construction Phase

In order to complete the critical construction elements in advance of the Interim Milestone and our Team's Unique Milestones, several environmental processes need to be initiated immediately following NTP. At the outset of design, our Team will coordinate with the permitting agencies to complete the necessary investigations and field activities so that temporary causeway construction can be completed prior to the TOY restrictions going into effect. Our schedule has accounted for the 60 day duration required in the RFP to transfer the General Permit so that additional geotechnical investigations can be completed for our unique bridge configuration. Supplemental mussel surveys will also be completed to confirm whether or not relocations need to be completed prior to construction of the temporary causeway.

During the construction phase our Team ensures that all permits necessary for the work have been obtained, and the work is completed in compliance with all environmental commitments and permit conditions. Incorporating the permitted impact limits in the ECM and including them on the Project plans along with inspection and monitoring during construction assures the Project will remain in compliance. It is vital for our Team to obtain a determination from the USFWS early in the Project for threatened/endangered species because the TOYR for protected species may drive construction scheduling.

Once plans are finalized and released for construction, the environmental team shifts focus to construction monitoring of the permit and environmental commitments in the field. Prior to the start of construction, our Team will conduct an educational program for the construction staff slated to work on the Project. The educational program will touch on the environmentally sensitive areas of the Project including but not limited to:

- Wetlands and streams;
- Threatened and endangered species;
- Environmental protection, including E&S measures;
- The importance of staying within the approved LOD;
- Archaeological/architectural resources;
- Acidic Sulfate Soils

This program will then transition into the monthly safety meetings where a member of the environmental staff will meet with all construction personnel and discuss any lessons learned from work in the past month, room for improvement, and/or highlight compliance with environmental requirements.

Additionally, prior to the start of construction the original wetland team returns to the field to mark the limits of streams and wetlands at the permitted impact limits. Critical areas are delineated with safety or silt fence to prevent accidental access and prescribed Erosion and Sediment (E&S) control measures are installed in accordance with the plans. During construction, monitoring and inspection is conducted in compliance with all permits, commitments and regulatory requirements.

As construction progresses, our Team ensures E&S control documents are strictly adhered to and the approved Stormwater Pollution Protection Plan (SWPPP) is available for review and is followed. This starts with installation of all Phase I E&S devices such as silt fence, diversion dikes, sediment traps and basins prior to grubbing and grading operations. Our Team ensures stabilization of denuded areas is performed within the required time frames. Most importantly, we dedicate an erosion and sediment maintenance crew to the Project at all times to monitor the site and relieve over-burdened E&S devices, re-install or reinforce existing devices and prepare for forecasted rain and storm events. The crew is led by a foreman carrying the VDOT ESCCC and DEQ Registered Land Disturber credentials. VDOT Forms C-107a and C-107b as well as proper documentation is kept current at all times per DEQ and VDOT regulations.

Right-of-Way Acquisition (ROW)

Similar to permitting, the ROW acquisition process must be well integrated into the design, utility and construction schedules, and started as early as possible. As we developed our schedule and sequence of work, we continually analyzed the affect these disciplines have on public and private properties and our ability to minimize and avoid them. As described on our Team's Design Concept in Section 4.3 and as detailed in our Volume II - Design Concept, we already achieved a significant reduction in right-of-way parcels and total area of acquisitions. Furthermore, our planned construction sequencing has allowed adequate time for all property rights acquisitions. Our plan removes the right-of-way process from the Critical Path of the proposed CPM Schedule.

Staging and Storage Areas

To maximize safety and avoid delays to the schedule, staging and storage areas must be well-planned and integrated into the overall sequence of work. When planning these areas, the objectives are to establish locations that minimize impacts to public traffic, do not create a public nuisance, and are close enough to the work area to avoid production inefficiencies.

Staging areas will be centric to these access points. Where access directly from I-95 is required, access is provided in a safe manner by utilizing the existing shoulder for decelerating and accelerating truck traffic. Staging materials behind and outside the deflection zones of the temporary traffic barriers also serves as convenient areas for items such as storm water pipe/structures and bridge formwork and consumable materials. Construction access is also planned from Route 17 to the I-95 north and south median using the existing Route17 outside shoulders for right-in/right-out traffic.

Public Involvement/Stakeholder Coordination and Government Approvals

To avoid the risk of delays to the schedule due to stakeholder approvals, it is imperative that the Team understand all of the parties that have input, their procedures and timeframes for approval, and the affect they have on sequence of work. We identified stakeholders in our Organization Chart included in Section 4.2, and will refine this list as the Project moves forward.

Immediately after Award, the Team will meet with each stakeholder individually to discuss the Project, understand their issues and concerns, and explain the schedule and sequence of work. Input is incorporated in the schedule based on these discussions, and the schedule will in turn be communicated to them.

We will plan and hold multiple "Pardon Our Dust" meetings with the general public and public safety officials at critical stages of work to communicate project details, our sequence of construction, and the overall schedule. We also use this forum to solicit feedback and establish lines of communication with those affected. As traffic patterns change and the work progresses, it is imperative that we coordinate directly with police, fire and rescue, local schools, and public transportation by establishing points of contact, distributing flyers, and presenting project details directly to them. Traffic changes will be communicated on site through the use of signs and PCMS boards. The Team presents updates to local Homeowners Associations, County governments, local businesses, and other groups. We will also communicate new traffic patterns with the public to the local media in order to reach large audiences.

Mitigating Potential Delays

As described above, our Team has already advanced a number of concepts, plans and procedures for ensuring the Project is completed ahead of schedule without delay. As we develop our schedules, we are constantly focused on issues and concerns that have the potential to create delays and then direct our efforts on mitigating them. At various stages of the Project, we rely on proven methods for creating, monitoring, and maintaining the schedule:

- ***Technical Proposal Stage*** – As the groundwork for the Team's schedule is developed in this Stage, it is critical for all disciplines to have input. Our Team has met on a weekly basis since release of the RFP to discuss issues, create our concept, solicit feedback, and to make schedule adjustments accordingly. The schedule presented in Section 4.7 is the result of this close collaboration and has buy-in from all Team members.
- ***Design Stage*** – As we proceed through the design process, the integration of the various disciplines rises to a higher level. We continue to hold team meetings at a minimum on a weekly basis to provide an over-the-shoulder forum for review, discussion and feedback. During this time period, our formal project schedule is developed and reviewed with VDOT and other stakeholders. Should issues arise or conditions change during design that impact the sequence or completion milestones, the Team reviews schedule options for correction so that these milestones are maintained. Once finalized, it is communicated to each discipline, our construction forces, subcontractors and consultants, and other affected parties and is the basis for the Team's planning efforts moving forward. Throughout this Stage, the approved schedule is monitored, updated and communicated to VDOT by the DBPM to ensure that it remains compliant.

- ***Construction Stage*** – As the Project transitions to construction, the Construction Manager and DBPM closely monitor and update the schedule on a regular basis. The CM ensures the schedule is communicated to the entire Team, including utility companies, QA/QC, government agencies, and others. In addition, shorter, more detailed schedules are created by the construction teams to better aid planning their work. These 2-week and 6-week "look-ahead" schedules allow teams to plan activities on a daily basis and communicate specific tasks and milestones in a direct, concise way. Our Team also utilizes a proprietary "Daily Shift Cost Report" (DSCR) system that tracks the costs for certain critical activities each day and compares them to the budgeted cost. This is an excellent indicator that scheduled production rates are not being achieved and provides the construction team with "real-time" data. Throughout the construction schedule, these schedules and data are monitored and compared to the approved baseline schedule so that delays can be anticipated. Then, the Team evaluates options for avoiding delay or recovering the schedule including re-sequencing the work, adding resources, or re-design of certain features.

4.5.2 TRANSPORTATION MANAGEMENT PLAN

Our Team is dedicated to delivering this Project in a way that sets a new benchmark for the minimization of public impacts for all stakeholders during construction. Our TMP and TTC Plans will be developed with a focus on maximizing safety for the traveling public and construction personnel while minimizing travel delays. To accomplish these safety and mobility goals, we have committed to certain mitigation and communication strategies ***that exceed the requirements of the RFP,*** including:

- Providing full usable right shoulders and left shoulder emergency pull-offs of I-95 southbound;
- Limiting Route 17 bridge construction to two total stages, eliminating crossovers on I-95 and minimizing construction duration;
- Utilizing temporary loop ramp geometry at the Route 17 interchange to maintain access;
- Analyzing existing safety concerns and mitigating them prior to major construction activities;
- Utilizing enhanced safety devices such as higher visibility and wider than required markings;
- Designing all lane shifts for full desirable criteria (twice as long as minimum criteria);
- Maintaining 12' lanes throughout construction for the majority of I-95;
- Minimizing lane closures on I-95 by using crossing roadways for construction access; and
- Enhancing public communication outreach; such as Twitter alerts through social media and additional "Pardon our Dust" meetings.

TMP Philosophy

Our TMP and construction program is aimed at reducing the Project's anticipated impacts to the traveling public and ***exceeding the safety requirements of the RFP.*** Above all, our Team values safety as our highest priority in design and construction. Our TMP will place a particularly heavy focus on eliminating the need for temporary lane closures to the extent possible, as we thoroughly understand the impact that lane closures can have on the already congested I-95.

To meet our high safety and mobility standards, the TTC and TMP plan development will be led by our Maintenance of Traffic Engineer, Jerry Mrykalo, who is a Professional Traffic Operations Engineer and a certified VDOT Work Zone Traffic Control Training Instructor. Jerry was also the lead traffic engineer for the design of the Shirley Team's I-95/Route 630 Reconstruction and Widening and Route 606 Bridge Replacement Over I-95 with 606 Improvements Design-Build projects, allowing him to understand the unique safety and mobility considerations of the I-95 corridor in the Fredericksburg District. As an additional enhancement that ***exceeds the requirements of the RFP*** and demonstrates our commitment to safety, our design engineers have completed our in-house Work Zone Traffic Control Training Program and are all VDOT certified in the development of TTC and TMP plans.

Sequencing of Work

As introduced in Section 4.5.1, the Project will be segmented into six areas (Areas 1 - 6), each of which has unique construction and temporary traffic control features. For each of the six Work Areas, we have developed area-specific and bridge-specific temporary traffic control strategies as highlighted on Exhibit 4.5.2.1. The typical sections on this exhibit depict the innovative phasing that we will use to safely maintain all lanes during construction based on the unique project challenges.

Utilizing the construction stages and sub-stages as explained in Section 4.5.1 allows our Team to efficiently construct the Project while minimizing impacts to existing traffic. We have carefully studied numerous options for the construction staging, resulting in the development of a plan that minimizes the need for temporary lane closures and maximizes the maintenance of shoulder areas while also allowing for the continuous protection of Critical Path elements such as the bridges at Route 17 and the Rappahannock River. This detailed and up-front planning also allows our Team to provide regular "breaks" in work areas along the left shoulder of existing southbound I-95, where 1,320' long emergency pull-off shoulder areas will be introduced. These pull-offs will be located every 1-mile, even if not used as a construction access point, ***exceeding the requirements of the RFP.*** This thoughtful planning allows our Team to deliver the important safety and mobility features listed below that ***exceed the requirements of the RFP.*** Details of these enhancements and specific areas that will be utilized are depicted on Exhibit 4.5.2.1.

- ✓ Providing a full paved right shoulder for incident management;
- ✓ Providing wider lanes than required on I-95 southbound;
- ✓ Allowing for the continuous operation of all ramps; and
- ✓ Providing I-95 left shoulder emergency pull-offs.

Traffic Control Details

As shown on Exhibit 4.5.2.1, our Team has developed a temporary traffic control strategy that minimizes stakeholder impacts. Upon Project Award, we will begin the design of the Type B, Category IV TMP and will develop site-specific Temporary Traffic Control (TTC) plans. The TTC plans 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 also recognizes common shortfalls with TTC in work zones, and we are committed to avoiding these conditions with carefully designed site specific TTC plans. For example, we will ensure that barrier ends and impact attenuators are flared as far away from traffic as possible. We also thoroughly understand the importance of avoiding "abrupt" lane shifts meeting only minimum lengths on high speed/high volume freeways such as I-95. Technical highlights of our proposal are as follows:

I-95 & Interchange Ramps (Including Option #1)

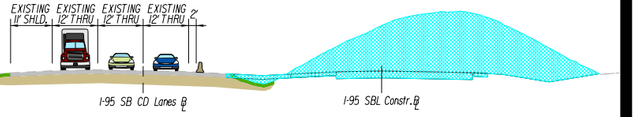
- No planned long-term lane closures or temporary detours;
- Time of day restrictions will follow Part 2, Section 2.10.3. Temporary lane closures are anticipated for night time paving, placement of traffic barriers, delivery of materials, and bridge work;
- Temporary 30 minute maximum full stoppages on I-95 during overnight hours are only expected for overhead sign work and opening of new alignments;
- No flagging operations are anticipated;
- 12' wide I-95 thru lanes maintained throughout the majority of the project, ***exceeding the requirements of the RFP,*** with 11' wide lanes across the Route 17 bridges, at the northern and southern tie-ins, and in the Option #1 area; and

SHIRLEY CONTRACTING COMPANY, LLC
Dewberry

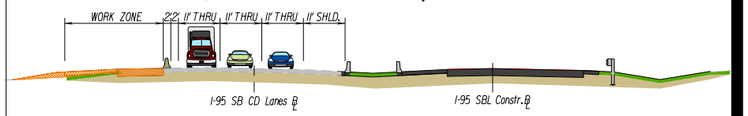
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, PE-101, RW-201, C-501 0095-089-741, PE-101, C-501	

MEDIAN AND OUTSIDE WORK

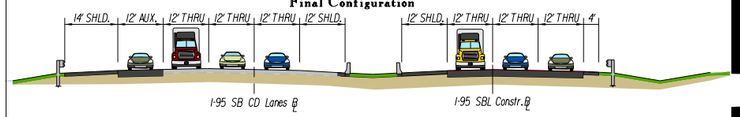
STAGE 1 - Construct New GP Lanes



STAGE 2 - Construct Auxiliary lane tie-in

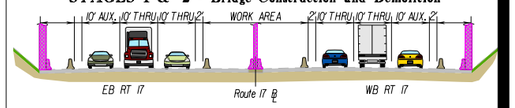


Final Configuration

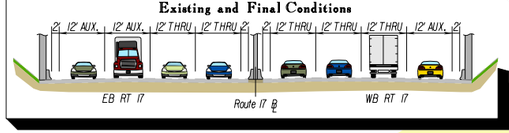


ROUTE 17

STAGES 1 & 2 - Bridge Construction and Demolition



Existing and Final Conditions



OUTSIDE WORK ONLY

STAGES 1 & 2 - Construct Outside Widening

Final Configuration

RAPPAHANNOCK RIVER BRIDGE

STAGES 1 & 2 - Construct I-95 SB GP Bridge

Final Configuration

MEDIAN WORK ONLY

STAGES 1 & 2 - Construct New GP Lanes

I-95 BRIDGE OVER ROUTE 17

STAGE 1 - Construct SB GP Bridge & Portion of NB Bridge

STAGE 2 - Reconstruct SB Bridge & Complete NB Bridge

Final Configuration

LEGEND

- Area 1
- Area 2
- Area 3
- Area 4
- Area 5
- Area 6

PROJECT	SHEET NO.
0095-111-259 0095-089-741	

- All temporary traffic shifts will be designed to meet full posted speed on I-95, double the minimum length required by the Virginia Work Area Protection Manual.

Route 17

- No long term lane closures planned and no temporary detours planned, except for along Route 17 where single lane closures will be utilized for excavation of the existing roadway associated with median pier construction;
- Time of day restrictions will follow Part 2, Section 2.10.3 of the RFP;
- Temporary 30 minute maximum full stoppages on Route 17 during overnight hours are only expected for overhead bridge work;
- No flagging operations are anticipated;
- Minimum 11' wide lanes will be maintained (10' wide lanes on Route 17 under I-95).

Speed Limits During Construction

Our Team has taken the proactive step of already completing an analysis utilizing VDOT's TE-350 to determine the appropriate posted speed limit during construction. Based on this analysis, we recommend maintaining the existing posted speed limit of 65 mph on I-95 for the following reasons:

- All temporary geometry and lane shifts will meet the standards for the full posted speed limit, ***exceeding the requirements of the RFP***;
- Full 12' lane widths will be maintained on I-95 throughout most of the work zone length while proposed new GP lanes are under construction; and
- Research has proven that lowering speed limits where geometric conditions do not require the reduction degrades safety.

Also, we anticipate maintaining the existing 45 mph posted speed limit on Route 17 given that temporary geometry will meet the standards for the full posted speed limit. These recommendations will be discussed with VDOT's Traffic Engineering staff, and we understand that the final determination will be made in coordination with the Fredericksburg 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 maximize safety, minimize public impacts, and minimize schedule risk. By carefully studying these elements, our Team has devised the following unique solutions:

1. Maintenance of Full Lane Width and a Continuous Right Shoulder

Providing 12' lanes and a full usable shoulder during construction of the new GP lanes provides an important mobility and safety enhancement to the traveling public. As depicted in Figure 4.5.2.1, our Team will perform the southbound median construction without shifting lanes on I-95 southbound, maintaining the full existing 12' lane width south of Route 17 (approximately 85% of project length) and a full continuous right shoulder. This enhancement maintains standard lane widths and a full shoulder for vehicle breakdown, emergency access, and police enforcement without blocking a thru lane. Furthermore, the avoidance of shifting traffic eliminates an estimated 25 lane closures associated with re-striping.

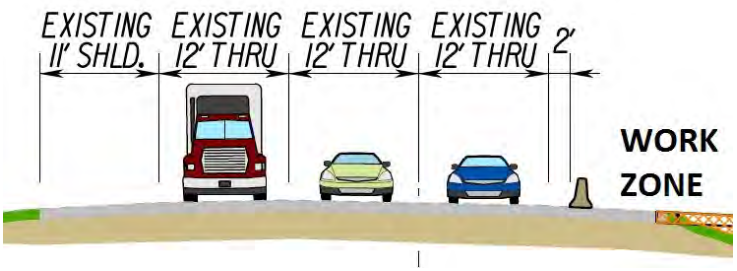


Figure 4.5.2.1 - Maintenance of full existing lane widths and full right shoulder on southbound I-95 during Stage 1 median work.

2. Maintenance of I-95 over Route 17 and Associated Ramp Movements

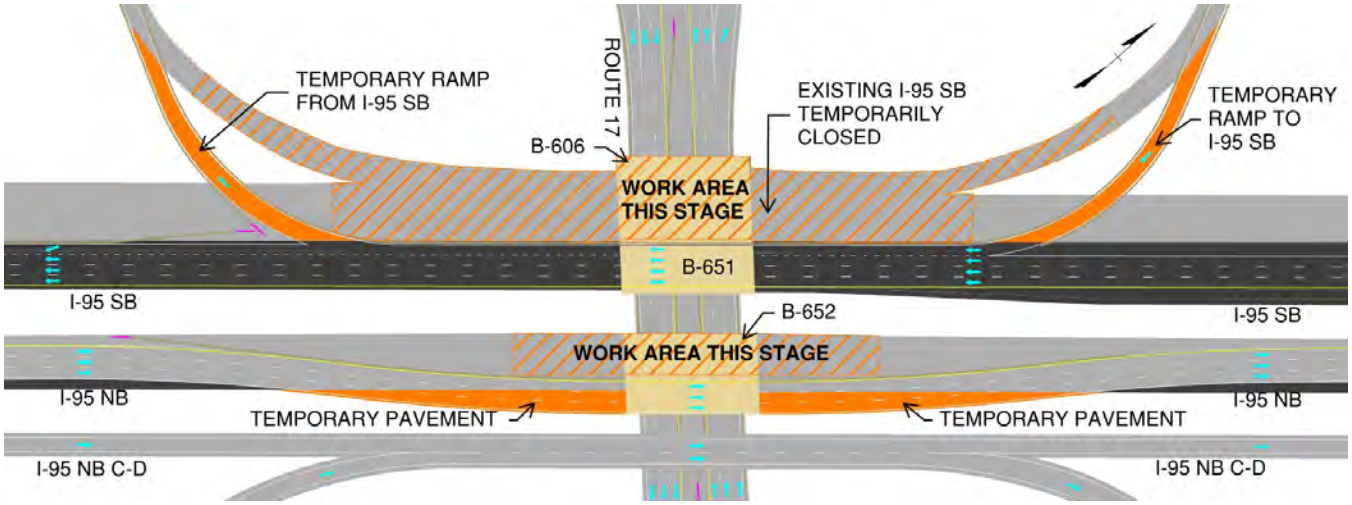
As detailed in Figure 4.5.2.2, our Team has developed a strategy that allows for the new bridge and the reconstruction of both I-95 bridges over Route 17 to take place in a total of two stages. This innovative sequencing limits construction duration and eliminates the need for temporary crossovers for the northbound lanes, providing an important safety and mobility enhancement for the traveling public.

To accomplish this, the new southbound GP bridge construction (entire bridge) and Stage 1 of the northbound I-95 bridge reconstruction will take place concurrently, outside of existing traffic. For the northbound bridge, Stage 1 of reconstruction will take place without the need to shift traffic off of the existing bridge and without the need to construct a temporary bridge, as this Stage includes the construction of the future fourth and fifth lanes associated with the planned I-95 northbound CD Lanes project (see Section 4.3.2 for further explanation of this bridge). This ***exceeds the requirements of the RFP*** by providing VDOT with the full-width desired bridge and eliminating the need for bridge work and the associated lane closures during this future northbound CD Lanes project.

Upon completion of this initial Stage, the southbound lanes will be switched onto the new southbound bridge with all ramp movements maintained as depicted in Figure 4.5.2.2, and the northbound lanes will be switched onto the Stage 1 widening with a gradual lane shift that maintains the full "desirable" lane shift lengths for the posted speed of 65 mph.

This two stage reconstruction accelerates the completion of bridge work, minimizes public impacts, and has the significant added benefit of providing VDOT with the full five-lane northbound bridge. Furthermore, our approach minimizes the risk that schedule delays will impact the completion of the Interim Milestone. Finally, it minimizes lane closures otherwise needed for the construction and demolition of temporary bridges or a temporary crossover for northbound traffic.

Figure 4.5.2.2 - Stage 2 of Bridge Construction at Route 17



For the loop ramps at Route 17, our Team has developed a solution that allows for the continuous operation of these ramps while also avoiding the need for multiple traffic switches. During reconstruction of the existing I-95 southbound bridge, all traffic will utilize the newly constructed bridge via temporary loop ramp connections (shown in orange on Figure 4.5.2.2). This figure shows how these ramps will operate during Stage 2 construction, where the same "Type B" weave as the existing condition will be maintained during reconstruction for ramp entering from and exiting to Route 17 Business. With this design, traffic will not be subjected to a new exiting or entering travel pattern, eliminating the potential for driver confusion and ultimately maximizing safety. Also, we the use of the temporary ramps limits the

reconstruction of the existing bridge to one single stage, allowing for a more desirable structural design (eliminating a girder that would be required for multi-stage construction) and a shorter construction duration (limiting the duration of work along Route 17 under the bridges).

3. Overheight Detection System Maintenance

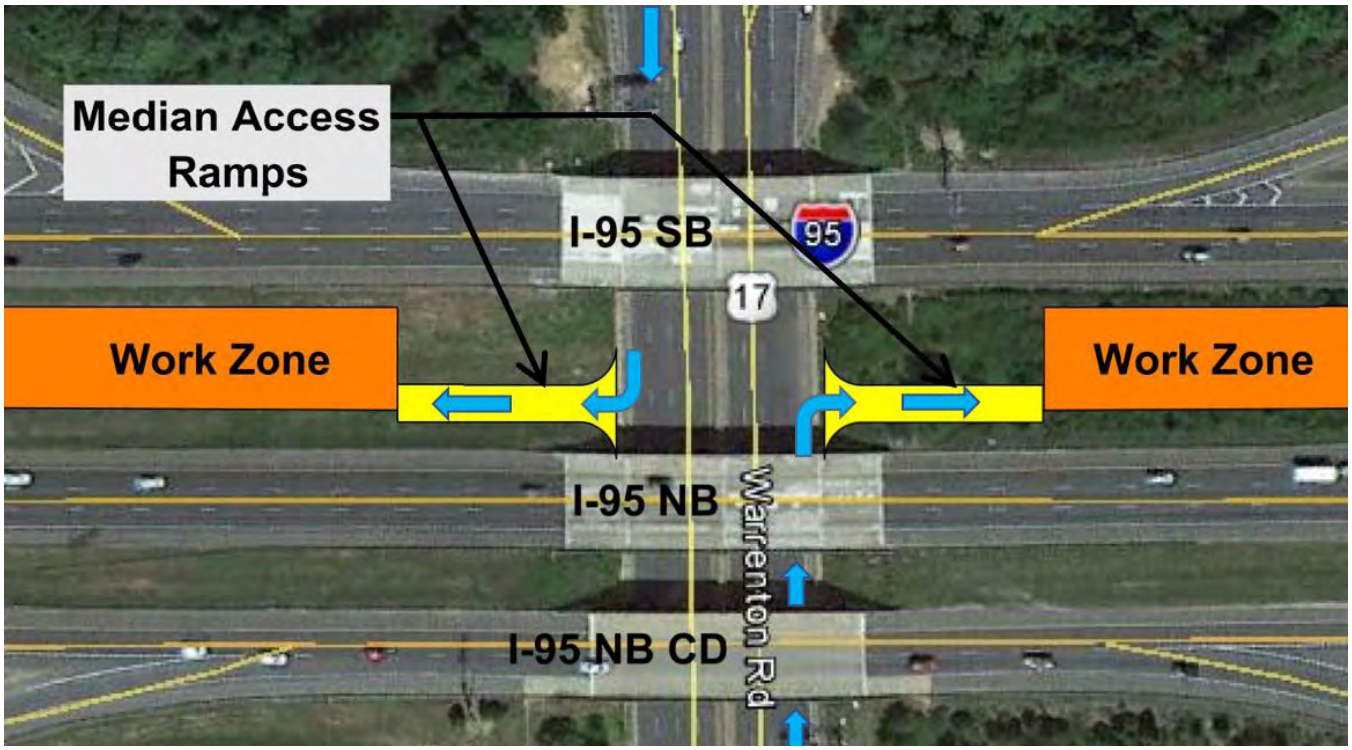
We recognize the important role of the over-height vehicle detection and alarm system in protecting the low-clearance bridges over Route 17, and therefore have developed a plan for the continuous maintenance of this critical system. For I-95 southbound during Stage 2 when all traffic is on the new GP lanes, this system will be temporarily relocated, recalibrated, and tested ensuring continuous operation. In addition, the existing dynamic message signs, in combination with temporary PCMS, will be maintained to provide the critical warning messages to over-height truck drivers and direct them to alternate route.

Figure 4.5.2.3 - Existing Overheight Detection System will be relocated and maintained.

4. Construction Access

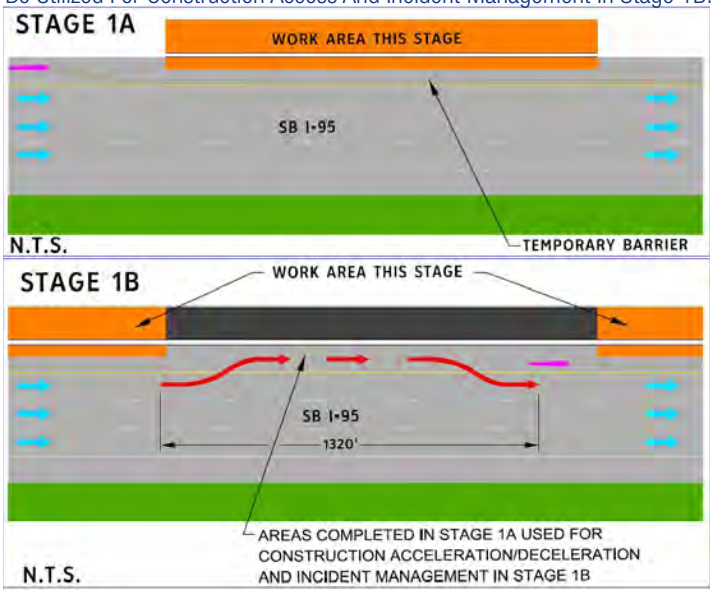
As discussed in the previous section regarding posted speed limit reductions, differences in speeds between vehicles is a leading cause of crashes. During construction we recognize the potential for the creation of speed differentials when construction vehicles enter and exit the median work areas. To mitigate this condition and potential for crashes, our Team plans to utilize temporary access points from the lower speed crossing roadways (Route 17) to reduce the amount of construction traffic entering the work zone directly from I-95. This direct access provides a significant safety benefit while also providing a mobility benefit for public traffic. A concept view of this access point is shown in Figure 4.5.2.4 and will be coordinated with VDOT for implementation.

Figure 4.5.2.4 - Construction Access Points Directly Into The Median



In areas where direct access to the median from I-95 is necessary for Stage 1 construction, we will provide full 1,320' acceleration/ deceleration lengths for trucks meeting AASHTO requirements to maximize safety and minimize impacts to public traffic, as shown in Figure 4.5.2.5. This avoids trucks having to slow in the left lane (fast lane), or the necessity for temporary lane closures for access. Our proposed 1,320' long openings will be spaced at 1-mile maximum intervals, to be utilized as vehicular emergency pull-offs as an added benefit. Also, enhanced warning signs will be installed in advance of these locations, which will also be coordinated with local emergency responders to ensure swift response to any incidents.

Figure 4.5.2.5 - Areas Where Shoulder Work Is Completed In Stage 1A Will Be Utilized For Construction Access And Incident Management In Stage 1B.



5. Adjacent Project Coordination (Fred-Ex, Route 3 Safety Improvements)

Our Team recognizes the importance of project coordination with adjacent projects under construction as overlapping construction activities can cause potential schedule and project completion delays, additional travel delays, and public frustrations if not carefully coordinated. While this project is under construction, Fred-Ex and Route 3 Safety Improvements Projects are also expected to have work zones along I-95. In order to ensure activities are fully coordinated, our Team commits to provide a project coordination liaison who will establish and hold bi-weekly coordination meetings to work directly with VDOT, designers, and contractors from the other projects, and other third parties to ensure construction is coordinated.

6. Rappahannock River Traffic

We recognize the Rappahannock River requires specific attention given the waterway has to remain open to traffic, such as kayaking, rafting and canoing. While developing this proposal, we made a significant effort in formulating measures to ensure river user safety and access. As depicted in Figures 4.5.2.6 and 4.5.2.7, our Team plans to utilize a combination of floating buoys and warning signs to direct river users through the defined main channel for safe passage under the bridge crossings and away from construction activities. **Investigation and**

Figure 4.5.2.6 -Conceptual sign for safe water passage

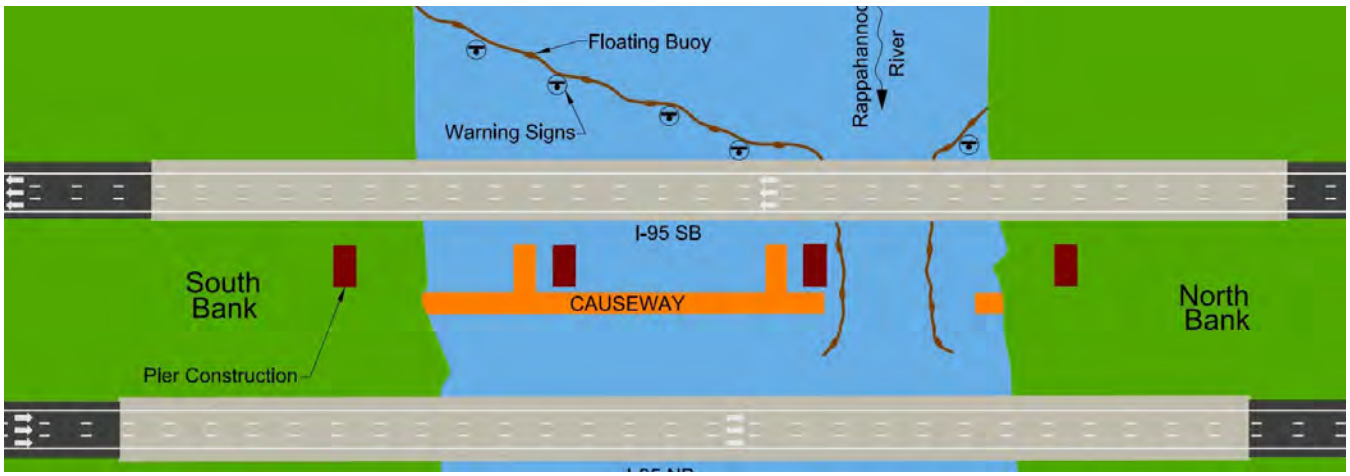


Figure 4.5.2.7 - Rappahannock River Traffic Will Be Directed To The Main Channel Using A Buoy System And Signing

Mitigation of Existing Safety Issues

Our Team has performed an investigation of existing crash statistics and safety concerns within the Project limits and have already developed approaches to mitigate these risks. ***Our Team will surpass the RFP requirements by employing site-specific impact management strategies in order to maximize safety.*** As shown in Figure 4.5.2.8, the high traffic volume and congestion have contributed to a high amount of crashes since 2010. Many of our proposed safety improvements detailed in this figure will be installed prior to major construction activities, as we intend to enhance public safety even though the permanent improvements are still in the final design phase.

Figure 4.5.2.8 - Results Of Our Corridor Safety And Crash Analysis With Proposed Enhancement Measures.

In addition to installing these enhancements on the existing roadway prior to construction, the following safety improvements will be utilized throughout construction stages, such as:

- The use of tighter than required channelizing device spacing for increased work zone delineation and improved safety;
- Use of wider than required lane lines for increased delineation of lane shifts;
- Full continuous temporary raised pavement markers with installation of all temporary markings, as shown in Figure 4.5.2.9 for increased lane alignment and visibility, especially at night and during wet pavement conditions (only required at lane shifts per the Work Area Protection Manual);

Figure 4.5.2.9 - Raised Pavement Markers

- 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;
- Use of lane shifts a full 2X longer than the required minimum shift on I-95 to avoid “abrupt” shifts for the high speed, high volume traffic. Use of this “forgiving geometry” is expected to reduce potential side-swipe and run-off-road crashes.

Lane Closure Optimization

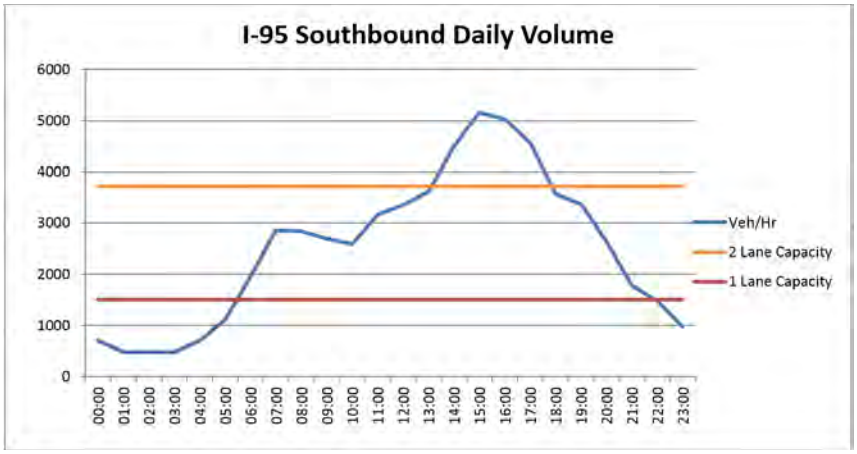
When full construction starts, lane closure impact minimization will be critical when working along I-95. Our temporary traffic control strategy puts an emphasis on eliminating the need for temporary lane closures to the greatest extent possible.

Also, as it is anticipated that construction will be underway for the adjacent Fred-Ex project and the Route 3 Safety Improvements project during some stages of construction, all operations will be fully coordinated to ensure that there will be no conflicting traffic controls and that operations are minimized. For example, if both projects require a lane closure for work at the Project interface, work will be accomplished during a single closure as opposed to two separate closures, having a recognizable benefit to the traveling public.

To coordinate and communicate temporary traffic operations and lane closures, our Construction Team is trained and proficient in VDOT's LCAMS system for temporary lane closure management, which allows our Team the advantage of being able to check our proposed lane closures versus planned construction and maintenance activities by others to ensure conflicts do not exist, providing a measurable benefit.

To achieve the goals of maximizing safety and minimizing travel delays, we will collect updated 24-hour volume information along I-95 as an initial design activity. We recognize that the lane closure restriction times listed in Section 2.10.3 are to be followed, but we also recognize the impact that lane closures can have on the already congested I-95 and we recognize that constantly changing traffic volumes may now be different than previously collected volumes.

Figure 4.5.2.10 - 2017 Daily Volumes Chart for I-95 SB in Stafford County



To show our commitment, we already performed this traffic analysis utilizing the most recent available traffic data, which was counted earlier this year in Stafford County. Figure 4.5.2.10 shows results on this preliminary 24-hour analysis. From this our Team has determined which hours the temporary lane closures may cause traffic backups and delays. This undesirable condition occurs when I-95 traffic volumes (shown with blue line) exceed the capacity of the remaining open travel lane(s) (shown with red horizontal line for a single lane capacity and orange for a two lane capacity).

This analysis will be updated by our Team during final design once new 2018 data within the Project limits is available, and will be used to validate the lane closure schedule in Section 2.10.3 to ensure unintended delays will not occur due to possible recent changes in traffic patterns. Seasonal variations will also be considered, such as the impact of summer travel. Furthermore, our Team commits to recounting traffic mid-way through construction to validate lane closure hours to ensure mobility impacts are minimized, providing a benefit that exceeds the RFP requirements. We can also utilize this data in development of the TMP to ensure construction activities that require lane closures occur during the hours of lowest volume. For example, this hour-by-hour analysis will allow activities of a short duration, such as overhead sign erection, to occur during the hours of lowest volume within the longer allowable overnight lane closure window, providing a safety and travel time benefit that exceeds the RFP requirements.

Project Stakeholders

Our Team recognizes that proactive communication with all project stakeholders is essential. As with any large scale transportation project, some inconvenience is unavoidable, but our Team's goal is to minimize these impacts. We have proactively identified project stakeholders and have developed specific innovative communication and mitigation strategies that exceed project requirements. These include our commitment to use additional PCMS for motorist guidance, committing to hold additional "Pardon our Dust" meetings, and utilizing enhanced safety devices. Stakeholders, their potential impacts, and our planned communication and mitigation strategies are detailed in Table 13 on the following page.

Table 13 - Planned Stakeholder Communications and Mitigation Strategies

Stakeholders	Impacts	Communication/Mitigation Strategies
Traveling Public	**Base:** Minimal travel time delays for temporary operations **Option 1:** Minimal travel time delays along I-95	▪ Hold a minimum of 3 "Pardon Our Dust" meetings for the general public, public safety officials, and other stakeholders prior to implementing major traffic pattern switches ▪ PCMS Signs will be utilized for public notices ▪ Will provide VDOT with content for social media ▪ Encouragement for public to follow project Twitter feed ▪ This outreach can include media blitzes, postings, mailing, and special sign installations
Friends of the Rappahannock & Water Traffic	**Base:** Minimal water restriction in the vicinity of I-95 bridges	▪ Enhanced signs and buoy system for water traffic; ▪ Water Causeways and Water Crossing Route clearly delineated/defined
Local Residents	**Base & Option 1:** Possible construction noise and activities close to their property	▪ Coordination of construction activities with residential groups via notification and "Pardon Our Dust" meetings ▪ Access to all properties maintained at all times ▪ Encouragement for residents to follow project Twitter feed
Schools Stafford County City of Fredericksburg Mary Washington University Strayer University	**Base & Option 1:** Potential delays to school buses / transportation services	▪ Coordination of construction activities with school staff; ▪ No lane closures during school operating hours when possible; ▪ Advance notification of traffic pattern changes
Police, Fire & Rescue Stafford Fire-Rescue Stafford Co Sheriff Fredericksburg Fire Fredericksburg Police	**Base & Option 1:** Potential response time impact	▪ Advance notification of temporary lane restrictions and changes to traffic patterns; ▪ Representatives will be notified of approved lane closure requests; ▪ Pre-switch emergency responder meetings for response planning
Bus Transit Services	**Base & Option 1:** Potential impacts to bus transit routes	▪ Notifications of work will be sent to transit operators in advance of traffic switches
Mary Washington Hospital	**Base & Option 1:** Potential delays accessing hospital or confusion in route to hospital	▪ No Long-term lane closures on hospital access routes ▪ Maintaining blue "H" signing for hospital at all times

Stakeholders	Impacts	Communication/Mitigation Strategies
Virginia Welcome Center	**Base & Option 1:** Potential confusion in access route to welcome center	▪ Access to and Signing for Virginia Welcome Center maintained at all times
Adjacent Projects Fred Ex Safety Improvements at Route 3	**Base & Option 1:** Possible conflicting I-95 construction operations	▪ Utilization of a liaison to coordinate construction activities and avoid conflicts ▪ Bi-weekly coordination meetings ▪ Coordination of lane closures to minimize public impacts ▪ Coordinating public outreach to deliver a uniform, consistent message to drivers along I-95

4.7 - Proposal Schedule

4.7 Proposal Schedule

4.7.1 Proposal Schedule

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

4.7.2 Proposal Schedule Narrative

Shirley has reviewed in detail the Project and schedule requirements of the RFP and has developed a Proposal Schedule outlining our plan to successfully manage all phases of this design-build contract. The schedule has been optimized to deliver the Base Contract and Option #1 in the shortest amount of time possible while meeting the requirements of the RFP, minimizing impacts to the traveling public and stakeholders, protecting the environment, and ensuring motorist's and worker's safety.

Our Team plans to execute and deliver the work required for ***"Interim Milestone 1" by August 16, 2021*** and earn the full $500,000.00 "No Excuse" Incentive offered in the RFP. Additionally, our Team is committing to two Unique Milestones over and above the Contract requirements. ***Unique Milestone #1*** will open the two lane Route 17/I-95 southbound Ramp for beneficial use to the traveling public by ***June 15, 2020,*** and ***Unique Milestone #2*** will open the ultimate southbound GP lanes for the entire length of the Project by ***August 16, 2021***. ***Our Team also plans to deliver the Project by the May 1, 2022 Early Completion Deadline*** and earn the full $1,800,000 "No Excuses" incentive offered in the RFP.

A summary of the Contract and Schedule Milestones are shown in Table 14:

Table 14 - Contract and Schedule Milestones

Contract and Schedule Milestones	Date
Notice of Intent to Award	December 28, 2017
Anticipated CTB Approval/Notice of Award	January 9, 2018
Design-Build Contract Execution	February 16, 2018
Notice to Proceed	February 21, 2018
Scope Validation (120 Days)	June 20, 2018
UNIQUE MILESTONE #1	June 15, 2020
UNIQUE MILESTONE #2	August 16, 2021
Interim Milestone 1 Maximum "No Excuse" Incentive	August 16, 2021
Contract Interim Milestone 1	September 15, 2021
Final Completion Maximum "No Excuse" Incentive	May 1, 2022
Contract Final Completion	July 30, 2022

Work Breakdown Structure

In order to deliver the Project on time, 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 relationship and activity durations amongst the milestones, scope validation period, design, public involvement, environmental permitting, right-of-way acquisition, utility relocation, construction and project management disciplines. All elements of the design-build process are captured under these Level 1 tasks and are briefly described below:

A. ***Project Milestones:*** Provided for easy review of the Milestone dates and project status.

B. ***Design Phase:*** Includes preliminary engineering services, plan development, QA/QC reviews, submittal milestones, and reviews by VDOT, FHWA and other regulatory agencies, and plan

approval. This section includes a second level WBS to differentiate the type of design submission including Geotechnical Investigations, Roadway, Bridge and Utility designs.

C. Public Involvement/Public Relations: Includes milestones for planned public involvement, meetings, updates to the Office of Public Affairs for major traffic switches, and updates to the VDOT project specific website.

D. Environmental Permitting: Includes wetland and stream delineations, jurisdictional determination, permit management and preparation, mitigation, and permit submissions, reviews and approvals. Initial efforts will focus on the Corps of Engineers Individual Permit, Department of Environmental Quality General Permit, LD-445/VSMP Permit, and the SWPPP.

E. Right-of-way Acquisition/Easement Acquisition: This section of the WBS is used to monitor the acquisition of right-of-way and easements for the project including title searches, appraisals and appraisal reviews, offers, negotiations, and settlements.

F. Utility Relocations: Includes activities for UFI meetings, preparation of preliminary engineering (PE) estimates, approval of PE estimates, utility relocation design, approval of the utility design, and utility relocation construction. The utility relocations are separated into a second level WBS group by utility owner.

G. Construction: Includes all components of roadway and bridge construction as well as MOT, construction access, drainage, etc. The Construction section of the schedule is segmented by area of construction dividing the construction activities into groups of work packages that can be easily tracked to monitor construction progress and ensure on-time completion.

A complete outline of the WBS Structure for the Project is shown below:

I95RRC I-95 Southbound CD Lanes - Rappahannock River Crossing

I95RRC.1 PROJECT MILESTONES

I95RRC.1.1 Milestones

I95RRC.1.1.1 Schedule Submissions

I95RRC.1.2 Scope Validation

I95RRC.2 DESIGN PHASE

I95RRC.2.1 Preliminary Design

I95RRC.2.1.1 Geotechnical Investigation and Reports

I95RRC.2.1.1.1 Roadway

I95RRC.2.1.1.2 B606 B651 B652

I95RRC.2.1.1.3 B604

I95RRC.2.1.2 Noise Analysis

I95RRC.2.2 Roadway / Retaining Walls / Soundwall Plans

I95RRC.2.3 Causeway Plan

I95RRC.2.4 Bridge Plans

I95RRC.2.4.1 Rappahannock River Bridge B604

I95RRC.2.4.2 I-95 SB CD Over Route 17 B606

I95RRC.2.4.3 I-95 SB GP Over Route 17 B651

I95RRC.2.4.4 I-95 NB GP Over Route 17 B652

I95RRC.2.5 Waterline / Sanitary Sewer Relocation Plans

I95RRC.3 PUBLIC INVOLVEMENT / PUBLIC RELATIONS

I95RRC.4 ENVIRONMENTAL PERMITTING

I95RRC.4.1 Joint Permit Application

I95RRC.4.4 Joint Permit Application - Causeway

I95RRC.4.2 SWPPP / LD-445

I95RRC.5 RIGHT-OF-WAY / EASEMENT ACQUISITIONS

I95RRC.6 UTILITY RELOCATIONS

I95RRC.6.1 Comcast Overhead Relocation

I95RRC.6.1.1 Verizon Underground Relocation

I95RRC.8 CONSTRUCTION

I95RRC.801 GENERAL

I95RRC.801.500 Preconstruction

I95RRC.801.501 Primary Construction Submittals

I95RRC.801.502 Preconstruction QA/QC Process

I95RRC.801.503 Primary Construction Materials

I95RRC.810 AREA 1 GP I-95SB 3462+00 - 3367+00

I95RRC.810.1 Area 1 CD I-95SB 3412+75 - 3367+00

I95RRC.810.2 SWM B

I95RRC.810.3 SWM C

I95RRC.810.4 SWM G - Option 1

I95RRC.810.5 SWM H - Option 1

I95RRC.810.6 SWM J - Option 1

I95RRC.815 AREA 2 GP I-95SB 3554+50 - 3462+00

I95RRC.825 AREA 3 GP I-95SB 3606+00 - 3554+50

I95RRC.825.1 RT17/I-95SB Ramp 10+00 - 48+64.89 w/Option 1

I95RRC.825.2 Bridge B604

I95RRC.825.3 SWM F

I95RRC.850 AREA 4 GP I-95SB 3687+50 - 3606+00 w/Option 1

I95RRC.850.1 Bridge B651

I95RRC.850.2 Bridge B606 w/Option 1

I95RRC.850.3 Area 4 CD I-95SB 3687+50 - 3608+00

I95RRC.850.4 Area 4 CD I-95SB 2604+00 - 2606+75 W/Ramps w/Option 1

I95RRC.850.5 Area 4 CD I-95SB 2608+00 - 2611+50 W/Ramps w/Option 1

I95RRC.850.7 SWM E

I95RRC.875 AREA 5 GP I-95NB 4606+27 - 4618+00

I95RRC.875.3 I95 NB GP Phase I

I95RRC.875.1 Bridge B652 Phase I

I95RRC.875.2 Bridge B652 Phase II

I95RRC.875.4 I-95 NB GP Phase II

I95RRC.900 AREA 6 GP I-95NB 4618+00 - 4626+00

I95RRC.900.1 I-95 NB GP Phase I

I95RRC.900.2 I-95 NB GP Phase II

I95RRC.900.3 SWM D

Calendars

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

Global Calendar - All calendars are based on 8 hour workdays and include the following holidays:

- New Years Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving Day
- Christmas Day

CALENDAR 1

5-Day Workweek with Holidays

Used for all design, construction, and administrative activities that are unaffected by weather.

CALENDAR 2

7-Day Workweek

Assigned to activities that have durations based on calendar days instead of work days; i.e., VDOT's 21 calendar day review duration.

CALENDAR 3

5-Day Workweek with Holidays Winter Impact

Assigned to activities that are anticipated to be impacted during the winter due to moisture or temperature, such as earthwork and concrete operations.

CALENDAR 4

Winter Shut Down

DEC 15 – MAR 15

Assigned to activities that are anticipated to be shut down during the winter, such as asphalt paving and pavement markings. This calendar contains no working days from December 15 to March 15.

CALENDAR 5

BTOY Restrictions

APR 15 – SEPT 15

Assigned to applicable clearing activities in accordance with the Northern Long-Eared Bat clearing restrictions. This calendar prohibits clearing from April 15 to September 15 annually.

CALENDAR 6

Waterway Restrictions

NOV 1 – FEB 15

Assigned to applicable B604 and causeway activities accounting for endangered water species restrictions. This calendar requires all "water disturbing" work to be performed between November 1 and February 15.

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/public relations, environmental permitting, ROW acquisition, utility relocation and construction. The sequencing of all disciplines was developed by considering the construction phasing of operations and determining the longest path to project completion with all factors considered including manpower, subcontractors, materials, design, environmental constraints and most importantly, public and workforce safety.

Design Phase

The design phase includes preparation, QA/QC reviews, and submission of roadway and bridge plans at multiple stages of the design process with a 21-calendar day activity for VDOT review after each submission. Also included are reviews for FHWA and other regulatory agencies necessary. The design phase also includes activities for the completion of surveys, H&HA, utility designations, test pits, utility relocation plans, and geotechnical investigations, including a 90-calendar day activity for VDOT's review of the geotechnical report prior to submission of the final roadway, bridge and noise barrier plans. Our Team will begin the design phase immediately upon execution of the Design-Build Contract to get an early start on identification of ROW impacts, maintenance of traffic, and roadway plans. All roadway, bridge, and noise wall plans will be approved by January 29, 2019.

Public Involvement/Public Relations

The public involvement/public relations schedule includes submitting our Emergency Contact List and List of Affected Stakeholders upon Notice to Proceed, holding citizen information meetings during the design phase, public information "Pardon our Dust" meetings at the start of construction, at the opening of B651 for the Interim Milestone, at the opening of B604 for Unique Milestone #2 and other schedule milestones. We will also provide updates to the Office of Public Affairs and additional specific group meetings as necessary. The schedule includes the major milestone activities for the Public Information meetings and major traffic changes. However, there are many other public involvement activities that our Team will perform, including meeting with local businesses and affected property owners, attending meetings with homeowners associations, local government representatives, and community groups, and providing information for regular updates at progress meetings and weekly lane closure plans.

Environmental Permitting

Environmental Permitting will begin upon NTP with the completion of wetland delineations, stream assessments, and jurisdictional determinations. All environmental permitting necessary will be completed by February 14, 2019 ahead of the planned start of the construction and the utility relocations which will take place within the Project limits that are impacted by environmental permitting.

Right-of-Way Acquisition

The administration of the ROW or easement acquisitions will start upon 1st submission of roadway plans with start of title searches and appraisals for the affected properties. These activities required for acquisition of the necessary easements include title searches, preparation of fair market value appraisals, appraisal reviews by the independent review appraiser, VDOT review and approval of the appraisals, preparation and delivery of offers to the affected property owners, negotiations with the property owners, and settlements, and relocation assistance, if necessary. The ROW/Easement acquisition process is scheduled to be completed by August 21, 2019.

Utility Relocations

To simplify and track the utility relocations on the Project, we have created a work breakdown structure that groups the utility relocation activities by the utility owner. Within each utility owner group, we have

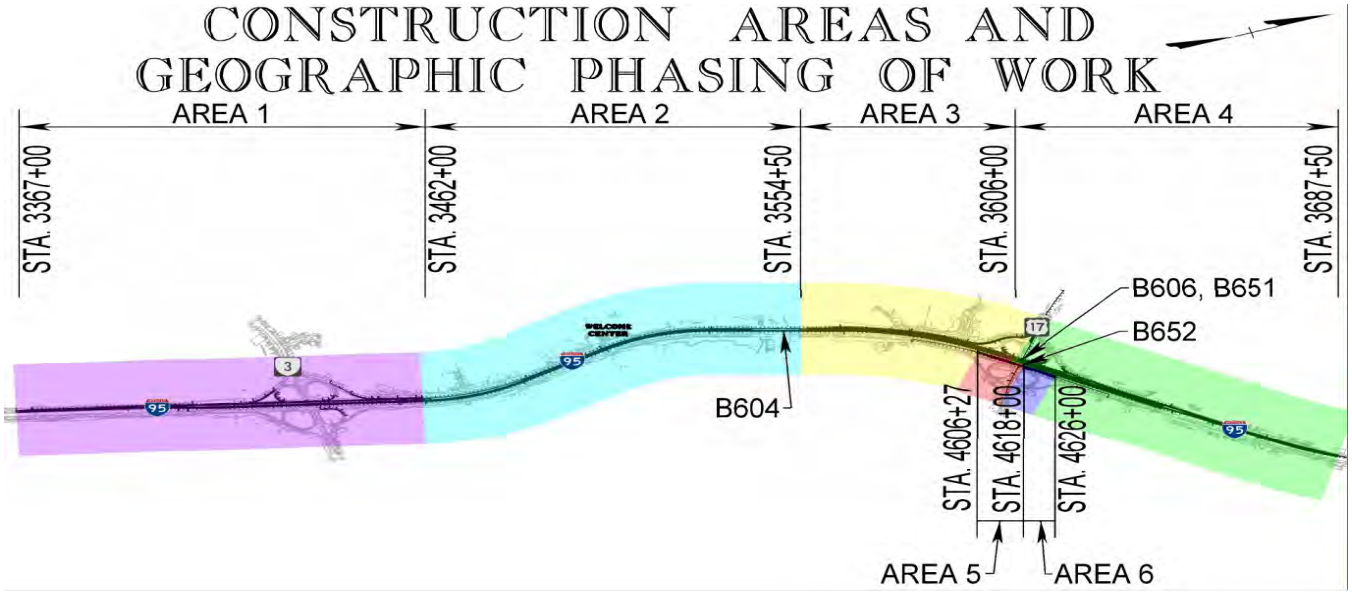
included activities for holding the Utility Field Investigation (UFI) meeting, followed by preparation of the Preliminary Engineering (PE) estimates by the utility owner, approval of the PE estimate, design of the utility relocation, and construction of the relocation area. Although we have already met with each individual utility company to discuss the proposed relocations and prior rights, the utility relocation schedule starts with formal UFI meetings in August 2018 following completion of all utility test pits. This will enable our Team to confirm and adjust our list of utility conflicts based on the field test pit data prior to holding the formal UFI meeting. We will continue this early coordination of utilities throughout the Design Phase of the Project to ensure that the Roadway Plans are coordinated with the utility relocation plans. The utility relocations are anticipated to be completed prior to impacting construction operations and avoiding potential for delays.

Construction

Geography and Construction Staging/Project Work Areas

In order to efficiently execute our construction plan for the Project, the Project length has been broken into six major roadway Work Areas as shown in Figure 4.7.1.1. The areas are divided by logical break points that allow for effective construction sequencing. This segmentation was also developed in conjunction with our Maintenance of Traffic Plan (Temporary Traffic Control plan) and are of sufficient scope and size to allow individual construction management teams to oversee the operations. This allows for maximum utilization of resources and maximum oversight of construction activities from a safety and quality perspective.

Figure 4.7.1.1 - Construction Areas and Geographic Phasing of Work



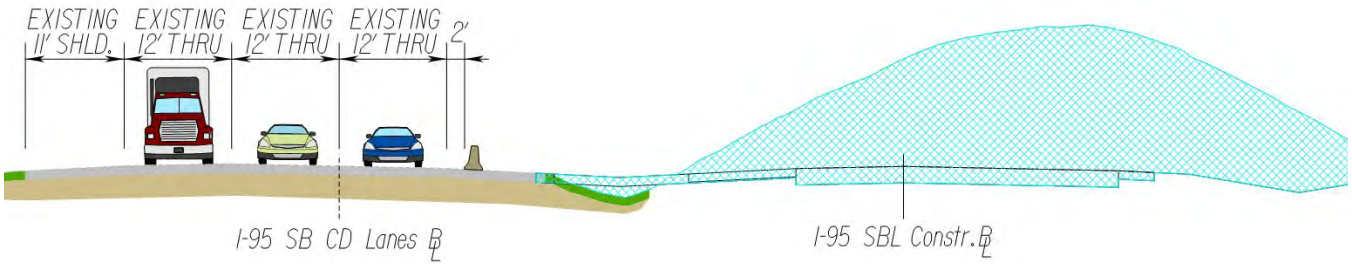
The layout of this project offers the contractor several simultaneous areas of work with the vast majority of the I-95 southbound GP lanes available for construction without restriction. Our schedule is based on employing sufficient forces to work multiple areas simultaneously. With our sequence of construction, most of the work can be completed in a single stage, with multi-stage construction only required at the bridges over Route 17, at the Route 17 interchange, and the northern and southern CD lanes tie-ins to the GP lanes.

Construction Sequence

Organizationally, we will have two major Stages of roadway construction corresponding to our Team's Transportation Management Plan detailed in Section 4.5.2. Each Stage corresponds to a major traffic control sequence as construction activities progress throughout the Project. Along the entire project limits, work in all six Work Areas described above in Figure 4.7.1.1 will be constructed concurrently during each major traffic Stage, with space reserved for emergency pull-offs.

Stage 1 Construction

Figure 4.7.1.2 - Stage 1 Construction - Construct New GP Lanes



Stage 1 consists of constructing the I-95 southbound GP lanes including bridges B604 and B651 and the Phase I widening of I-95 northbound GP Bridge B652 with associated temporary realignment and permanent pavement, as shown in Figure 4.7.1.2.

I-95 Southbound GP Lanes

Following the issuance of environmental permits, clearing and grubbing and erosion control activities will begin. Roadway drainage and excavation activities will commence sequentially in all designated Work Areas. All construction run-off will be controlled in Phase 1 erosion and sediment control devices such as check dams, silt logs, sediment traps, and inlet protections for the I-95 southbound GP construction.

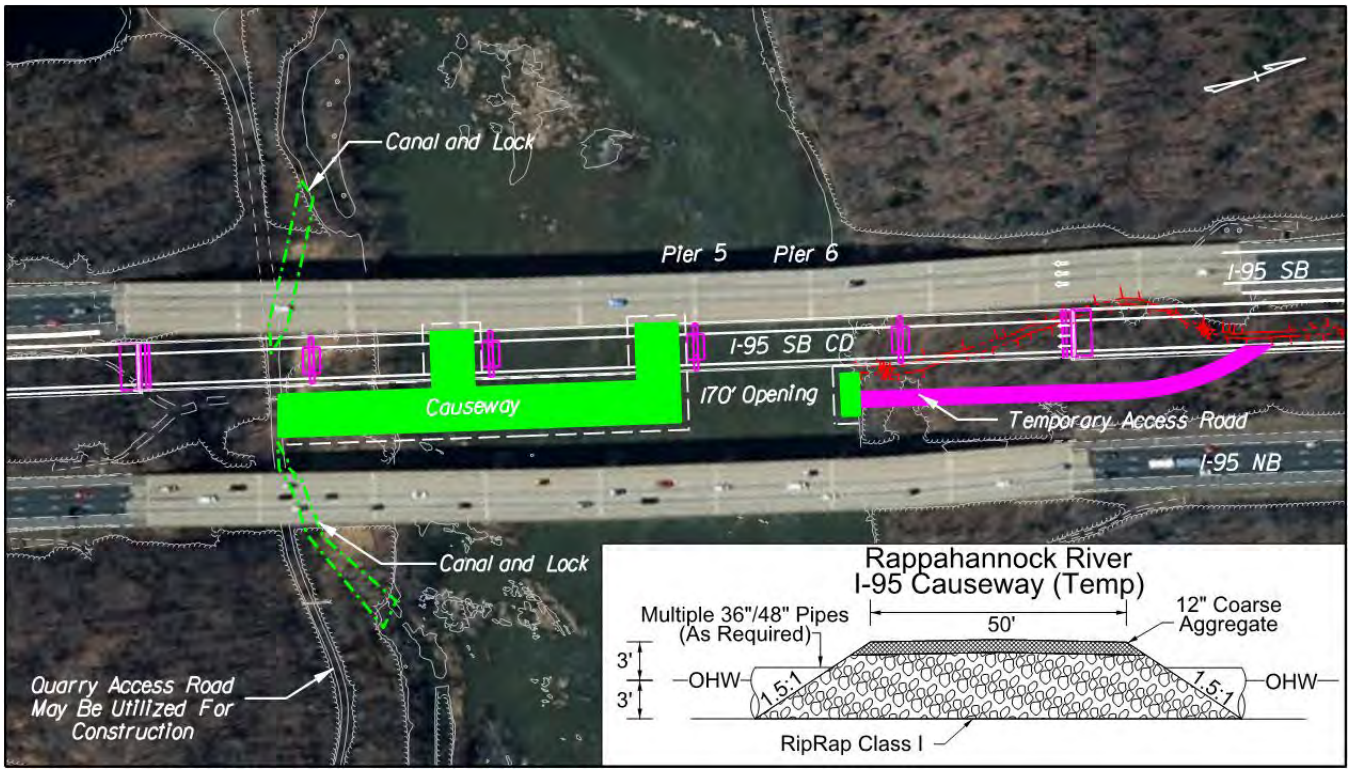
Roadway excavation and grading includes stripping of all native topsoil. By modifying the roadway profile, all areas, with the exception of Area 4, have balanced earthwork which minimizes the need to haul on I-95, ***providing safety and traffic operations enhancement.*** Area 4 requires embankment which will be obtained from offsite sources. This operation will also be coordinated to minimize impacts on I-95. In all areas, we have allowed time in our excavation activities to account for the remediation of soft or unsuitable soils as required. Earthwork and storm drainage will continue simultaneously through finished grade, minimizing depth of cut for storm sewer installations. Finished grade will then be fine graded and proof rolled prior to placement of proposed 8" Cement Treated Aggregate (CTA). Installation of underdrain and any required median barriers occurs at this time and asphalt crews will place the 2" Open Graded Drainage Layer (OGDL) followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Finally, 2" of SM-12.5E and SM-12.5A will be placed on mainline and shoulder from the northern terminus to approximate Station 3614+00 with permanent pavement markings, signs, rumble strips and guardrail installed. Surface is terminated at this approximate station to accommodate the temporary loop ramp connections to B651 during the B606 bridge demolition. South of the approximate Station 3614+00 to approximately Station 3595+00, temporary pavement markings will be used for the 11' lane transition on intermediate asphalt. Guardrail and signs will be installed with temporary pavement markings - rumble strips will not be present in the intermediate asphalt transition area. The northern termini of the I-95 southbound GP lanes will be milled/wedged/leveled/overlaid as

required with permanent and temporary pavement markings prior introducing traffic. South of Station 3595+00 to the southern project limits, southbound GP lanes construction will continue through Stage 2.

Bridge B604

The I-95 southbound GP lane bridge over the Rappahannock, B604, presents unique challenges due to access, height, length and water features. Initial work requires access to the Rappahannock River to construct the proposed causeway. Access will be gained from the south bank of the Rappahannock using the existing Canal Road owned by the City of Fredericksburg. This requires separate permitting requirements that have been accounted for in the CPM. Additional access will be gained from the north abutment median following clearing and grubbing operations. Once all access has been gained, the proposed causeway may be installed allowing construction access to the bridge pier locations. The causeway will be used to construct the piers in their entirety as well as erecting structural steel. See Figure 4.7.1.3 below for our causeway details, which keeps the main channel open at all times, provides necessary hydraulic capacity (see Section 4.3.1.(e)), and provides continuous safety for river traffic (see "Rappahannock River Traffic" in Section 4.5.2).

Figure 4.7.1.3 - Conceptual Causway Layout



Construction of the causeway and cofferdams have been limited by the CPM calendar to occur only between November 1 and February 15 in accordance with the threatened and endangered species requirements. Immediately upon completion and acceptance of B604, the causeway will be removed in its entirety and within the same TOYR following completion and removal of overhang forms.

Substructure construction commences with the installation of cofferdams at the pier foundation locations and a tremie seal will be placed inside the cofferdams to prohibit water infiltration. Excavation will be performed to plan footing elevation with excess material hauled to the median area, reinforcing steel installed and the footings poured. Columns will be formed and poured in two lifts, cap falsework and reinforcing steel will be installed and the cap poured. Once strength is achieved, cap falsework and formwork will be stripped and removed. The preceding is the standard sequence for each B604 pier. While

pier construction is ongoing, abutment construction commences following clearing/grubbing operations and initial abutment excavation for the proposed MSE walls. Piles will be augured and set and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts and the backwall will be constructed. Following the backwall, the MSE placement will resume to completion with associated moment slabs and the bridge approach slabs. Figure 4.7.1.4 is a conceptual rendering (looking north) of how we will construct the substructure and piers from the causeway without impacting to I-95 traffic.

Figure 4.7.1.4 - Causeway with Open Channels at All Times

Superstructure construction begins with setting the bearings and erecting the structural steel. The structural steel will be erected at night from cranes on the causeway with girders staged on the existing I-95 southbound bridge shoulder. Upon completion of the structural steel, stay-in-place metal decking, Nelson studs, and overhang/edge forms will be installed. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours and the deck will be poured sequentially through completion. Once the bridge deck has attained appropriate strength, the concrete parapets will be poured followed by bridge deck grooving. Finally, the overhang formwork will be removed and permanent pavement marking tape and barrier reflectors will be applied.

Bridge B651

The I-95 southbound GP lane bridge, B651, is new construction adjacent to the existing I-95 southbound bridge. Work will include shoring the existing I-95 southbound bridge and the long-term closure of one lane in each direction on Route 17 for pier construction (maintaining three-lanes in each direction during peak hours). Substructure construction will begin with shifting Route 17 lanes to the outside in each direction to allow placement of temporary concrete barrier in the median for pier construction. This traffic shift and temporary barrier will be installed to accommodate B651, B606, and both Phases of B652 pier demolition/construction activities.

Once the barrier is in place, pier footing shoring/excavation will commence to planned subgrade installation. Piles will be driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Once a break is achieved to allow superimposed elements, column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork

and the columns will be poured. When strength is achieved for stripping and superimposed elements, the column forms will be stripped and cap falsework and formwork installed. Cap reinforcing steel will be installed and the cap poured including bearing pads/anchor bolts. Once strength is achieved, cap falsework and formwork will be stripped and the piers backfilled to finished grade. Abutment construction commences following clearing/grubbing operations and initial abutment excavation for the proposed MSE walls. Piles will be augured and set and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. Following the integral abutment construction (with Bulb T's), the MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is completed with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Upon completion of the Bulb T installation, stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours. Each span will be poured separately followed by closure pours over the pier and abutments. Once the bridge deck has attained appropriate strength, the concrete parapets will be poured followed by bridge deck grooving. Finally, the overhang formwork will be removed and temporary pavement marking tape and barrier reflectors will be applied to accommodate the Stage 2 configuration of three 11' travel lanes and one 11' auxiliary lane for Route 17 loop ramps (see Section 4.5.2 for detail of this condition and temporary ramp connections). This bridge will be used in an interim phase for I-95 southbound traffic and loop ramp traffic while the existing bridge is demolished and reconstructed as B606. The interim phase will require temporary ramp pavement for both alignment and vertical profile shifts, as detailed in our Volume II - Design Concept, and explained in detail in Section 4.5.2.

Route 17 Temporary Ramp Connectors

An alignment shift using temporary pavement will be constructed in order to divert ramp traffic to the Bridge B651 temporary auxiliary lane during Stage 2. Temporary roadway excavation and grading consists of stripping of all native topsoil. Earthwork and storm drainage will continue simultaneously through finished grade. Finished grade will then be fine graded and proof rolled prior to placement of the temporary pavement section. Asphalt wedge/leveling/milling/overlay will be used as required at the interface with existing I-95 southbound GP lanes. The ramps will receive temporary pavement markings, signs and temporary concrete barrier protection as required.

Route 17/I-95 Southbound Ramp A

The completion of Route 17/I-95 southbound Ramp A is our Team's Unique Milestone #1. Widening of this ramp is broken into "Stage 1A" and "Stage 1B". Stage 1A construction begins with shifting traffic towards the right shoulder and placing temporary concrete barrier along the left shoulder to protect the work zone. Earthwork and storm drainage will commence simultaneously through finished grade, which will then be fine graded and proof rolled prior to placement of proposed 8" CTA. Underdrain will be installed and asphalt crews will place the 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Guardrail will be installed as required along the new pavement.

Stage 1B construction begins with shifting traffic onto Stage 1A widening and placing temporary concrete barrier along the right shoulder. Earthwork and storm drainage commence simultaneously through finished grade which will then be fine graded and proof rolled prior to placement of proposed 8" CTA. Underdrain will be installed and asphalt crews will place the 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder

aggregate will be placed and compacted following the installation of ramp mainline BM-25.0A. 3" of IM-19.0D will be placed for ramp mainline and shoulder applications. Temporary concrete barrier will be removed and 2" SM-12.5E and SM-12.5A will be placed on ramp mainline and shoulder. All mill/wedge/level/overlay required for Ramp A and Route 17 will be performed in conjunction with the operations. All guardrail, signs and permanent pavement markings will be installed prior to opening in the final configuration on or before the June 15, 2020 Unique Milestone #1 date.

Bridge B652 Stage 1

The I-95 northbound GP lane bridge, B652, requires staged demolition and temporary pavement for interim traffic shifts. Our design and construction approach exceeds the RFP requirements by providing VDOT with a complete superstructure meeting future widening requirements. This approach allows construction of B652 in two phases instead of three. The elimination of the construction phase increases safety, reduces impacts to traffic, and minimize schedule risk providing a value added benefit to VDOT.

Traffic will be shifted slightly left on the existing bridge for temporary bolt-down concrete barrier allowing Phase I demolition (see our Volume II - Design Concept for details). A demolition shield will be installed to protect traffic below and adjacent to the demolition area. For the proposed Phase I demolition, existing concrete parapet and deck sections will be demolished allowing the Phase I construction of Bridge B652.

Temporary concrete barrier protecting the B652 pier along Route 17 is already in place from Bridge B651 initial mobilization. Pier footing shoring/excavation will commence to planned subgrade installation. Piles will be driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork and the columns will be poured. Cap reinforcing steel will be installed and the cap poured including bearing pads/anchor bolts. Cap falsework and formwork will be stripped and the pier backfilled to finished grade. Abutment construction commences following clearing/grubbing operations and initial abutment excavation for the proposed MSE walls. Shoring will be installed to accommodate excavation and construction of the B652 Phase I abutments. Piles will be augured and set with and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. Following the integral abutment construction (with Bulb T's), the MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is completed with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours and the deck will be poured sequentially through completion. Once the bridge deck has attained appropriate strength, the exterior permanent concrete parapet will be poured with temporary bolt down barrier installed on the interior shoulder followed by bridge deck grooving. Finally, the overhang formwork will be removed and temporary pavement marking tape and barrier reflectors will be applied to accommodate the Stage 2 configuration in three 11' travel lanes.

I-95 Northbound GP Lanes Stage 1

Following the issuance of the final environmental permits for the Project, clearing and grubbing and erosion control activities will begin. Roadway drainage and excavation activities will commence simultaneously north and south of the B652 designated work areas including the temporary pavement alignment shift.

In this Stage, an alignment shift (temporary diversion) using temporary pavement will be constructed. Finished grade will be fine graded and proof rolled prior to placement of the Temporary Pavement section. Traffic will run on intermediate asphalt with temporary pavement markings for the Stage 2 lane transition in three 11' lanes. Outside protection for the temporary asphalt transition will be accomplished with temporary concrete barrier.

Traffic Configuration Upon Completion of Stage 1

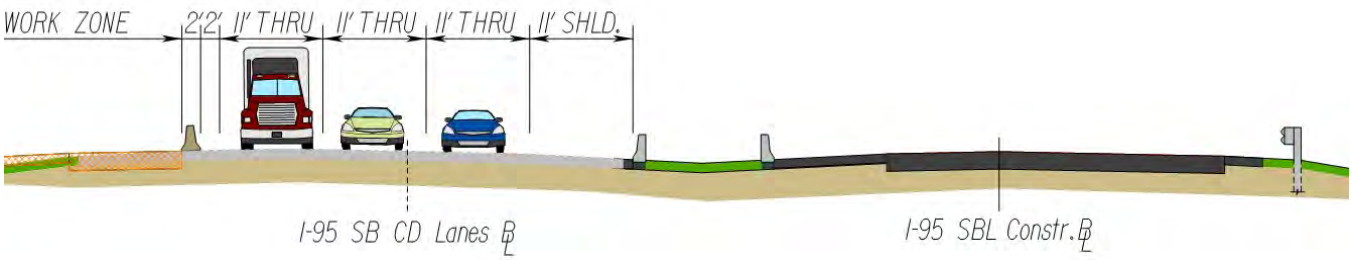
At the completion of Stage 1, I-95 southbound GP lanes from the northern project limits to near Stations 3595+00 will be opened to traffic (including Bridge B651). Bridge B651 will be opened in the temporary configuration with temporary ramp connectors for Route 17 allowing demolition and construction of proposed Bridge B606. By opening the GP lanes immediately south of Bridge B651, we provide ample room (about 2/3 of a mile) for the new GP lanes to cross back over to the existing southbound lanes and for the ramp from southbound Route 17 to merge onto I-95 (See our Volume II - Design Concept for graphic depiction of the crossover location). This sequence provides a notable safety and operations enhancement, by maximizing the number of open lanes north of the Rappahannock River.

I-95 northbound GP lanes will be open on the temporary pavement alignment and cross Route 17 on the portion of the new bridge constructed in Stage 1. This allows for the demolition of the rest of the existing bridge and construction of the remainder of the new Bridge B652 in Stage 2 as well as I-95 northbound pavement reconstruction to accommodate the additional clearance over Route 17.

Stage 2 Construction

I-95 Southbound GP Lanes

Figure 4.7.1.5 - Stage 2 - Construct Auxiliary Lane Tie-In



In Stage 2, full depth reconstruction of I-95 southbound at the Bridge B606 approaches will be completed with proposed 8" CTA base, underdrain, 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Following upon completion of Bridge B606 and when all southbound lanes are in the final configuration, SM-12.5E and SM-12.5A will then be completed on mainline and shoulder from approximate Station 3614+00 to the southern terminus with rumble strips installed. South of Station 3595+00, Stage construction started in Stage 1 will continue into Stage 2.

I-95 Southbound CD Lanes/Ramps, Including Option #1

Construction of the CD lanes primarily proceeds independently from all other work with the exception of the interface with the Route 17 ramps which requires phased construction with B651 and B606 as described herein. Other than the Route 17 ramp interfaces, the CD construction will commence independently and concurrently with the GP construction activities. All CD lanes, with the exception of Route 3/I-95 southbound CD will be completed for the Early "No Excuses" interim milestone.

The Route 17 loop ramp improvements will be constructed to accommodate the ultimate I-95 southbound CD vertical alignment increase. The construction will begin with the intermediate shift to B651 while B606 is demolished and rebuilt. The traffic will remain on the intermediate B651 shift until the ultimate CD approaches are constructed to B606 and the CD lanes are opened.

CD lane construction begins with shifting existing I-95 southbound toward the median in 11' lanes and setting temporary concrete barrier on the outside shoulder. After clearing and grubbing as required, excavation and grading commences with stripping of all native topsoil prior to regular excavation activities. We have allowed time in our excavation activities to account for the remediation of soft or unsuitable soils as required. Earthwork and storm drainage will continue simultaneously through finished grade minimizing depth of cut for storm sewer installations. Subgrade will then be fine graded and proof rolled prior to placement of proposed 8" CTA. Installation of underdrain and median barriers occur at this time. Asphalt crews will place the 2" OGDL followed by the 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of CD mainline BM-25.0A. 3" of IM-19.0D will be placed for CD mainline and shoulder applications. Finally, 2" of SM-12.5E and SM-12.5A will be placed on CD mainline and shoulder with permanent pavement markings, signs, and guardrail installed.

Full depth reconstruction for portions of the Route 17 loop ramps occurs in conjunction with the I-95 southbound CD lanes north of Route 17. Upon completion of the full depth reconstruction, the temporary loop ramp connectors will be removed and ramp traffic shifted from the temporary Bridge B651 auxiliary lane to its ultimate configuration on Bridge B606. (See our Volume II - Design Concept for details).

Bridge B606, including Option #1

For the proposed demolition, all superstructure elements will be demolished allowing reconstruction of Bridge B606. Temporary concrete barrier protecting the existing B606 pier along Route 17 is already in place from Bridge B651 initial mobilization. Additional demolition shielding will be installed to protect Route 17 traffic from pier demolition debris. The existing pier will be demolished entirely through its concrete foundations. Both abutments will also be demolished through their concrete foundations. Existing piles will be tested for structural capacity. Any additional pier footing shoring/excavation required will commence to planned subgrade installation. Additional piles, if required, will be driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork and the columns will be poured. The column forms will be stripped and cap falsework and formwork installed. Cap reinforcing steel will be installed and the cap poured including bearing pads/anchor bolts. Cap falsework and formwork will be stripped and the pier backfilled to finished grade. Abutment construction commences following demolition activities and any initial excavation required for the proposed MSE walls. Shoring, as required will be installed to accommodate excavation and construction adjacent to the Bridge B651 abutments. Piles will be augured and set with and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. The MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is completed with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours. Each span will be poured separately followed by closure pours over the pier and abutments. Once the bridge deck has

attained appropriate strength, the permanent concrete parapet and median barrier will be poured followed by bridge deck grooving. Finally, the overhang formwork will be removed and permanent pavement markings and barrier reflectors will be applied for the final configuration.

Bridge B652 Stage 2

A demolition shield will be installed to protect traffic below and adjacent to the demolition area. For the proposed demolition, all superstructure elements will be demolished allowing Phase II construction of Bridge B652. Temporary concrete barrier protecting the existing B652 pier along Route 17 is already in place from Bridge B651 initial mobilization. Additional demolition shielding will be installed to protect Route 17 traffic from pier demolition debris. The existing pier will be demolished entirely through its concrete foundations. Both abutments will also be demolished through their concrete foundations. Existing piles will be tested for structural capacity. Any additional pier footing shoring/excavation required will commence to planned subgrade installation. Additional piles, if required, will be augered or driven, reinforcing steel installed and footings poured. Footings will be backfilled to top of footing prior to column construction. Column reinforcing steel will be placed and column forms erected with through bolt inserts for the cap formwork and the columns will be poured. The column forms will be stripped and cap falsework and formwork installed. Cap reinforcing steel will be installed and the cap poured including bearing pads/anchor bolts. Cap falsework and formwork will be stripped and the pier backfilled to finished grade. Abutment construction commences following demolition activities and any initial excavation required for the proposed MSE walls. Shoring, as required will be installed to accommodate excavation and construction adjacent to the Phase I Bridge B652 abutments. Piles will be augured and set with and leveling pads excavated and poured prior to MSE placement. MSE placement will commence up to pile cap elevation at which time the abutment pile cap with bearing pads/anchor bolts will be constructed. Following the integral abutment construction (with Bulb T's), the MSE placement will resume to completion with associated moment slabs and the bridge sleeper pad/approach slabs. Substructure work is complete with restoration of Route 17 and placement of permanent protective concrete barrier along the abutment MSE walls and both sides of the pier.

Superstructure construction begins with setting the bearings and erecting the Bulb T beams. The Bulb T's will be erected by cranes under lane closure on Route 17 and will be performed at night. Stay-in-place metal decking will be installed followed by overhang/edge forms. Reinforcing steel will be placed continuously through the deck with bulkheads partitioning the individual deck pours. Each span will be poured separately followed by closure pours over the pier and abutments. Once the bridge deck has attained appropriate strength, the permanent concrete parapet and median barrier will be poured followed by bridge deck grooving. Finally, the overhang formwork will be removed and permanent pavement markings and barrier reflectors will be applied for the final configuration.

I-95 Northbound GP Lanes Stage 2

In this stage, earthwork and storm drainage will continue simultaneously through finished grade minimizing depth of cut for storm sewer installations. Finished grade will then be fine graded and proof rolled prior to placement of the proposed 8" CTA for the permanent GP lane construction. Underdrain will be installed and asphalt crews will place the 2" OGDL followed by 6" of BM-25.0A. 21-B shoulder aggregate will be placed and compacted following the installation of mainline BM-25.0A. 3" of IM-19.0D will be placed for mainline and shoulder applications. Prior to opening Bridge B652 in its final configuration, 2" of SM-12.5E and SM-12.5A will be placed on Phase I and Phase II mainline and shoulder. Guardrail and signs will be installed with permanent pavement markings and rumble strips. Upon completion of Bridge B652 and the permanent I-95 northbound GP lanes, traffic will be shifted to the ultimate configuration and the temporary alignment asphalt removed.

Soundwall

It is anticipated that a soundwall will be required from approximate I-95 southbound GP Stations 3482+60 - 3494+80 which shall be verified following the noise study. The soundwall if required, will be constructed in conjunction with Area 2 and is not a driving element of work in the schedule.

Final Completion

With the majority of major elements of work completed by the Interim Milestone, Final Completion is limited to completion of the Route 3/I-95 southbound CD lane construction as shown in Figure 4.7.1.5, I-95 southbound GP surface and permanent pavement markings south of the Interim Milestone limits, SWM Facility conversions, turf establishment, and demobilization.

Critical Path

The Project's Critical Path generally runs through the design and construction of the bridges, associated roadways and necessary permitting. As shown below, the path begins with Notice of Intent to Award and Notice to Proceed. The path then runs through critical administrative items including design survey, mapping and flood plain studies, and then continues through 1st submission roadway design and the Joint Permit Application (JPA) process. Next, construction of the Abutment A causeway for Bridge B604 allows construction to begin on Abutment A. The path continues through B604 with both abutments, structural steel and superstructure. The Critical Path then moves to enabling work in Area 4 GP to initiate construction on Bridge B651 and Bridge B606. The path then continues through the construction of B651, then B606 with final paving and roadway finish items completing on Area 4 GP and Area 4 CD when B606 is opened to traffic. The Critical Path then follows a similar path for Bridge B652. Enabling work for the B652 abutments initiate the Area 5 GP construction including the initial temporary traffic shift for Phase I. The path then moves through installation of the demo shield, Phase I B652 demolition and Phase I reconstruction. Following completion of the approach slabs, portions of the permanent I-95 northbound GP roadway is completed to the bridge in addition to a temporary pavement transition to shift I-95 northbound GP traffic to the Phase I bridge. Following the shift, the path runs through the Phase II B652 demolition and reconstruction to completion. Once roadwork and bridge construction is complete, the Critical Path runs through the final paving and pavement markings, and concludes with the final inspection/punchlist process.

Our introduction of Unique Milestone #1 also results in the asphalt and finish work for Route 17/I-95 southbound Ramp A being shown as critical in the schedule.

A complete outline of the Critical Path is shown below and included in our Volume II - Design Concept:

I95RRC I-95 Southbound CD Lanes - Rappahannock River Crossing

I95RRC.1 PROJECT MILESTONES

I95RRC.1.1 Milestones

PD10240,Notice of Intent To Award
PD10270,Notice To Proceed (Hold Pt)
PD10320,Notice to Commence Construction (Hold Pt)
PD10325,Interim Milestone Inspections/Punch List
PD10330,Contract Interim Milestone Maximum "No Excuses" Milestone
PD10340,Interim Milestone No Excuses Daily Reduction
PD10500,Unique Milestone #1 - US17/I-95 SB Ramp A Widening Open to Beneficial Use (Hold Pt)
PD10510,Unique Milestone #2 - I-95SB GP Lanes [3606+50 - Southern Terminus] Open to Beneficial Use
PD11120,Final Completion Max "No Excuses" Milestone

PD11125,Final Completion No Excuses Daily Reduction
PD12000,Final Completion (Hold Pt)

I95RRC.2 DESIGN PHASE

I95RRC.2.1 Preliminary Design
DES10040,Supplemental Field Survey / Drainage Inventory
DES10045,Aerial Mapping
DES10070,Flood Plain Study

I95RRC.2.2 Roadway / Retaining Walls / Soundwall Plans
DES12000,Prepare Roadway Plans / H&HA
DES12020,Design-Builder Perform Constructability Review Roadway Plans / H&HA
DES12040,Design QA/QC Review Roadway Plans / H&HA (1st Submission)
DES12050,Submit Roadway Plans / H&HA (1st Submission)
DES12060,VDOT Review / Comment (1st Submission Roadway Plans / H&HA)

I95RRC.4 ENVIRONMENTAL PERMITTING

I95RRC.4.1 Joint Permit Application
ENV10070,Wetland Delineations - Surveys & Flagging
ENV10080,COE Jurisdictional Determination
ENV10090,Prepare Joint Permit Application
ENV10100,Submit Joint Permit Application
ENV10110,Agency Review of JPA
ENV10120,JPA Approved
ENV10130,Purchase Wetland and Stream Mitigation Credits

I95RRC.8 CONSTRUCTION

I95RRC.8.801.502 Preconstruction QA/QC Process
PQP10000,Preparation Meeting - Maintenance of Traffic/Pavement Markings
PQP10010,Preparation Meeting - Clearing & Grubbing

I95RRC.8.825 AREA 3 GP I-95SB 3606+00 - 3554+50
A311600,Place SM-12.5A Shoulder Surface Asphalt
A311700,Place SM-12.5E Surface Asphalt
A311900,Install Guardrail
A312000,Install Pavement Markings
A312010,Ready for Traffic

I95RRC.8.825.1 RT17/I-95SB Ramp 10+00 - 48+64.89 w/Option 1
A3UMII10500,Place OGDL
A3UMII10600,Place BM-25.0A Base Asphalt
A3UMII10700,Place/Compact 21-B Shoulder Aggregate
A3UMII10800,Place IM-19.0D Intermediate Shoulder Asphalt
A3UMII10900,Place IM-19.0D Intermediate Asphalt
A3UMII11000,Place SM-12.5A Shoulder Surface Asphalt
A3UMII11100,Place SM-12.5E Surface Asphalt
A3UMII11110,Mill/Wedge/Overlay Tie-Ins
A3UMII11200,Install Guardrail
A3UMII11300,Install Permanent Pavement Markings
A3UMII11400,Remove Temporary Barrier
A3UMII11500,Shift Traffic

I95RRC.8.825.2 Bridge B604
A3RC10000,Construct Causeway Abutment A
A3RC70000,Excavate Abutment A
A3RC70010,Excavate/Pour MSE Leveling Pads Abutment A

A3RC70100,Excavate Abutment B
A3RC70110,Excavate/Pour MSE Leveling Pads Abutment B
A3RC70200,Install Pile Abutment A
A3RC70300,Install Pile Abutment B
A3RC70400,Construct Abutment A MSE Wall
A3RC70500,Construct Abutment B MSE Wall
A3RC70600,F/R/P/S Abutment A Pile Cap
A3RC70610,F/R/P/S Abutment A Backwall
A3RC70700,F/R/P/S Abutment B Pile Cap
A3RC70710,F/R/P/S Abutment B Backwall
A3RC70800,Erect Structural Steel and Diaphragms
A3RC71000,Install SIP Forms
A3RC71100,Install Shear Studs
A3RC71200,Install Overhang/Edge Forms
A3RC71300,Install Superstructure Reinforcing Steel
A3RC71400,Install Bulkheads
A3RC71500,Pour/Cure Bridge Deck
A3RC71600,Slip Form Parapet
A3RC71800,F/R/P/S Buried Approach Slab Abutment A
A3RC72000,F/R/P/S Buried Approach Slab Abutment B
A3RC72600,Bridge Deck Grooving
A3RC72700,Permanent Bridge Pavement Markings
A3RC72800,Bridge Safety Inspection
A3RC72900,Ready for Traffic
I95RRC.8.850 AREA 4 GP I-95SB 3687+50 - 3606+00 w/Option 1
A4-10000,Flag limits of clearing
A4-10010,Install Construction Access
A4-10020,Install Initial Erosion & Sediment Controls
A4-10030,Clearing & Grubbing
A4-10160,Place SM-12.5E Surface Asphalt
A4-10180,Install Guardrail
A4-10190,Install Pavement Markings
A4-10200,Ready for Traffic
I95RRC.8.850.1 Bridge B651
BR10050,Excavate Abutments A & B
BR10100,Excavate/Pour MSE Leveling Pads Abutments A & B
BR10200,Install Pile Abutment A
BR10300,Install Pile Abutment B
BR10400,Construct Abutment A MSE Wall
BR10410,Construct Abutment B MSE Wall
BR10420,F/R/P/S Abutment A Pile Cap
BR10430,F/R/P/S Abutment B Pile Cap
BR10440,Erect Bulb T Beams and Diaphragms
BR10450,F/P/R/S Integral Backwall Abutment A
BR10455,F/R/P/S Integral Backwall Abutment B
BR10460,Install SIP Forms
BR10470,Install Overhang/Edge Forms
BR10480,Install Superstructure Reinforcing Steel
BR10490,Install Bulkheads

BR10500,Pour/Cure Bridge Deck
BR10510,Slip Form Parapet
BR10520,F/R/P/S Sleeper Pad Abutment A
BR10530,F/R/P/S Approach Slab Abutment A
BR10540,F/R/P/S Sleeper Pad Abutment B
BR10550,F/R/P/S Approach Slab Abutment B
BR10560,Strip Superstructure
BR10630,Bridge Safety Inspection
BR10640,Ready for Traffic

I95RRC.8.850.2 Bridge B606 w/Option 1
BR6061030,Install Demolition Shield
BR6061040,Demo Existing B606
BR6061050,Set Temporary Barrier/MOT US-17
BR6061060,Excavate/Shore Pier 1 Foundations
BR6061065,Install Pile - Pier 1
BR6061070,F/R/P/S Pier 1 Footings
BR6061080,F/R/P/S Pier 1 Columns
BR6061090,F/R/P/S Pier 1 Cap
BR6061100,Excavate Abutments A & B
BR6061110,Excavate/Pour MSE Leveling Pads Abutments A & B
BR6061120,Install Pile Abutment A
BR6061130,Install Pile Abutment B
BR6061140,Construct Abutment A MSE Wall
BR6061150,Construct Abutment B MSE Wall
BR6061160,F/R/P/S Abutment A Pile Cap
BR6061170,F/R/P/S Abutment B Pile Cap
BR6061180,Erect Bulb T Beams and Diaphragms
BR6061190,F/P/R/S Integral Backwall Abutment A
BR6061200,F/R/P/S Integral Backwall Abutment B
BR6061210,Install SIP Forms
BR6061220,Install Overhang/Edge Forms
BR6061230,Install Superstructure Reinforcing Steel
BR6061240,Install Bulkheads
BR6061250,Pour/Cure Bridge Deck
BR6061260,Slip Form Parapet
BR6061270,F/R/P/S Sleeper Pad Abutment A
BR6061280,F/R/P/S Approach Slab Abutment A
BR6061290,F/R/P/S Sleeper Pad Abutment B
BR6061300,F/R/P/S Approach Slab Abutment B

I95RRC.8.850.4 Area 4 CD I-95SB 2604+00 - 2606+75 W/Ramps w/Option 1
A480150,Place SM-12.5A Shoulder Surface Asphalt
A480160,Place SM-12.5E Surface Asphalt
A480180,Install Guardrail
A480190,Install Pavement Markings
A480200,Ready for Traffic

I95RRC.8.850.5 Area 4 CD I-95SB 2608+00 - 2611+50 W/Ramps w/Option 1
A490150,Place SM-12.5A Shoulder Surface Asphalt
A490160,Place SM-12.5E Surface Asphalt
A490180,Install Guardrail

A490190,Install Pavement Markings
A490200,Ready for Traffic
I95RRC.8.875 AREA 5 GP I-95NB 4606+27 - 4618+00
I95RRC.8.875.3 I95 NB GP Phase I
A5PI10000,Flag limits of clearing
A5PI10100,Install Construction Access
A5PI10200,Install Initial Erosion & Sediment Controls
A5PI11500,Place SM-12.5A Shoulder Surface Asphalt
A5PI11600,Place SM-12.5E Surface Asphalt
A5PI11650,Place Temporary Transition Asphalt
A5PI11800,Install Guardrail
A5PI11900,Install Pavement Markings
A5PI11910,Ready for Traffic
I95RRC.8.875.1 Bridge B652 Phase I
A312030,Set Temporary Barrier I-95 NB
A312040,Install Temporary Pavement Markings
A312050,Shift Traffic
A312060,Install Demolition Shield
A312070,Demo Phase I Existing B652
A510000,Set Temporary Barrier/MOT US-17
A510100,Excavate/Shore Pier 1 Foundations
A510110,Install Pile - Pier 1
A510200,F/R/P/S Pier 1 Footings
A510300,F/R/P/S Pier 1 Columns
A510400,F/R/P/S Pier 1 Cap
A510500,Excavate Abutments A & B
A510600,Excavate/Pour MSE Leveling Pads Abutments A & B
A510700,Install Pile Abutment A
A510800,Install Pile Abutment B
A510900,Construct Abutment A MSE Wall
A511000,Construct Abutment B MSE Wall
A511100,F/R/P/S Abutment A Pile Cap
A511200,F/R/P/S Abutment B Pile Cap
A511300,Erect Bulb T Beams and Diaphragms
A511400,F/P/R/S Integral Backwall Abutment A
A511500,F/R/P/S Integral Backwall Abutment B
A511600,Install SIP Forms
A511700,Install Overhang/Edge Forms
A511800,Install Superstructure Reinforcing Steel
A511900,Install Bulkheads
A512000,Pour/Cure Bridge Deck
A512100,Slip Form Parapet
A512200,F/R/P/S Sleeper Pad Abutment A
A512300,F/R/P/S Approach Slab Abutment A
A512400,F/R/P/S Sleeper Pad Abutment B
A512500,F/R/P/S Approach Slab Abutment B
A513400,Ready for Traffic
I95RRC.8.875.2 Bridge B652 Phase II
A5II10000,Shift Temporary Barrier I-95 NB

A5II10100,Install Temporary Pavement Markings
A5II10200,Shift Traffic
A5II10300,Install Demolition Shield
A5II10400,Demo Phase II Existing B652
A5II10500,Set Temporary Barrier/MOT US-17
A5II10600,Excavate/Shore Pier 1 Foundations
A5II10610,Install Pile - Pier 1
A5II10700,F/R/P/S Pier 1 Footings
A5II10800,F/R/P/S Pier 1 Columns
A5II10900,F/R/P/S Pier 1 Cap
A5II11000,Excavate Abutments A & B
A5II11100,Excavate/Pour MSE Leveling Pads Abutments A & B
A5II11200,Install Pile Abutment A
A5II11300,Install Pile Abutment B
A5II11400,Construct Abutment A MSE Wall
A5II11500,Construct Abutment B MSE Wall
A5II11600,F/R/P/S Abutment A Pile Cap
A5II11700,F/R/P/S Abutment B Pile Cap
A5II11800,Erect Bulb T Beams and Diaphragms
A5II11900,F/P/R/S Integral Backwall Abutment A
A5II12000,F/R/P/S Integral Backwall Abutment B
A5II12100,Install SIP Forms
A5II12200,Install Overhang/Edge Forms
A5II12300,Install Superstructure Reinforcing Steel
A5II12400,Install Bulkheads
A5II12500,Pour/Cure Bridge Deck
A5II12600,Slip Form Parapet
A5II12700,F/R/P/S Sleeper Pad Abutment A
A5II12800,F/R/P/S Approach Slab Abutment A
A5II12900,F/R/P/S Sleeper Pad Abutment B
A5II13000,F/R/P/S Approach Slab Abutment B
A5II13100,Strip Superstructure
A5II13200,Backfill Pier 1
A5II13300,Slip Barrier US-17 Abutment A
A5II13400,Slip Barrier US-17 Abutment B
A5II13500,Slip Barrier US-17 Pier 1
A5II13900,Ready for Traffic
I95RRC.8.900 AREA 6 GP I-95NB 4618+00 - 4626+00
I95RRC.8.900.1 I-95 NB GP Phase I
A6PI11500,Place SM-12.5A Shoulder Surface Asphalt
A6PI11600,Place SM-12.5E Surface Asphalt
A6PI11610,Place Temporary Transition Asphalt
A6PI11800,Install Guardrail
A6PI11900,Install Pavement Markings
A6PI11910,Ready for Traffic

Project Controls

Through our experience delivering major design-build roadway projects ahead of schedule, Shirley has developed proven scheduling protocols to govern the development, implementation, progress tracking,

and recovery of the CPM schedule through all of the Project phases. These efforts will minimize the risk of schedule delays and ensure completion by all early completion incentives and milestones.

Schedule Development

For any design-build project it is imperative that the Project Team develop a detailed CPM schedule that considers the interrelationships between all of the design-build disciplines. This is especially important on a project with complex MOT requirements that must be integrated into the design and construction sequencing. The Shirley Team has developed the Proposal Schedule that includes a WBS to clearly delineate the tasks of each discipline manager, including Design, Permitting, ROW, Utilities, and Construction. Our schedule also demonstrates our plan to achieve the maximum early completion incentives.

Each discipline manager was responsible for producing a schedule to govern their own work and provide insight into how their schedule activities affect and are affected by activities in other disciplines. Once each manager prepared their individual schedule, schedule development meetings were held by the DBPM. These meetings were attended by all discipline managers to review each individual schedule and integrate them into the overall project CPM Schedule. These meetings ensure that:

- The work packages within each discipline are comprehensive enough to define the work with no activities omitted;
- The work packages are integrated within each discipline and between disciplines to generate a clearly defined project Critical Path, confirm that the Critical Path makes sense, and that the schedule shows that the Project will complete on-time or ahead of schedule;
- Each discipline manager understands the schedules of the other disciplines and how their work interrelates with the other disciplines;
- Each discipline manager understands how his work affects the Critical Path of the Project and the priorities of the DBPM and the other discipline managers; and
- The schedule meets the requirements of the Contract.

These meetings have enabled the Shirley Team to create a detailed Proposal Schedule that has been jointly prepared by and agreed to by all of the discipline managers, providing realistic expectations of the schedule of work to be completed by all team members and third parties.

Throughout the design phase of the Project as more detailed plans are developed and utility conflicts are verified through test pitting, these meetings will continue to further develop the Proposal Schedule into the more detailed Baseline CPM Schedule. This schedule can then be utilized by all Team members to plan and track the progress of their work. It will be submitted to VDOT for review and approval and utilized during the planning phases for utilities, permitting, ROW, design, and subcontractor/supplier scope and purchasing. Specific milestone dates from the CPM schedule will be written into subcontracts and purchase orders, making them contractually responsible for meeting schedule deadlines.

Procedures For Monitoring and Reporting Schedule Progress to Ensure Timely Project Completion

The key to effectively monitoring schedule progress is maintaining efficient communication between the discipline managers, resulting in constant coordination and schedule feedback. From the NTP date through the completion of design activities, our Team, at a minimum will hold weekly Design Coordination Meetings that are run by the DBPM and attended by all of the discipline managers. Design Coordination Meetings have been a crucial tool on the other design-build projects by facilitating face-to-face communication between the discipline managers. For each Design Coordination Meeting, the DBPM will review the CPM Schedule and identify all activities that were scheduled for completion the previous week or are planned for the next two weeks. During the meeting, the Project Team discusses the status of progress since the

last meeting with actual dates for completed activities; critical completion dates for future activities; the addition or deletion of schedule activities as the design evolves (for example the identification of a new utility impact or the ability to design around a planned utility relocation); the impact of revised schedule dates on other activities and disciplines; identification of ways to advance the schedule ahead of the planned completion or mitigate schedule delays; and general design review, constructability, and determination of means and methods.

After each weekly meeting, the DBPM will update the CPM schedule and forward copies of an updated "look-ahead" schedule to each of the discipline managers identifying the critical dates agreed to during the weekly design meeting. This process continues throughout the design, permitting, and ROW phases to ensure that there is no slippage to the start of the utility relocation and construction phases of the Project.

During the utility relocation and construction phases of the Project, the DBPM, Superintendent, Designer of Record, QA Manager, QC Manager, and VDOT will continue to meet weekly for a Construction Progress Meeting to coordinate necessary QA, QC, Independent Assurance (IA) and Independent Verification (IV) inspections. At each meeting the Superintendent will review the work performed during the previous week and outline the schedule activities that will be performed during the following two weeks.

In addition to weekly schedule meetings with the VDOT, our Team will also prepare and submit monthly schedule updates for review and approval by VDOT, including the narrative of the schedule modifications, updated activities, project issues affecting the schedule, and a description of the Critical Path with updated schedule milestones. These daily, weekly, and monthly reviews of production rates, activity durations, and overall schedule status will enable our Team to identify and mitigate potential schedule delays to ensure early completion.

Key Scheduling Assumptions

- Environmental permitting agencies will accept VDOT's RFP avoidance and minimization efforts taken in the RFP phase as sufficient to process permit 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 per 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.
- Generally Finish-Start relationships are primarily used as much as possible to create logical flow of the work in one particular area.

Appendix

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_17, 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 November 1, 2016 Request for Qualifications ("RFQ") and was invited to submit proposals in response to a Request for Proposals ("RFP") for the **I-95 Southbound CD Lanes – Rappahannock River Crossing Project, Project No. 0095-111-259, P101, R201, C501** ("Project"), under a design-build contract with VDOT ("Design-Build Contract"); and

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

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

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

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

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

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

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

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

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

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

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

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

9. Miscellaneous.

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

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

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

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

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

of the Commonwealth of Virginia.

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

VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

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

By: _____

Name: Daniel E. Clymore

Title: Vice President

Attachment 11.8.6(a)(b) - Debarment Forms

ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

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	11/14/17 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.: 0095-111-259, P101, R201, C501; 0095-089-741

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.

Dave McKinney 10/19/17 Executive Vice President

Signature Date Title

Dewberry Consultants LLC

Name of Firm

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

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

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.

Elizabeth H Quinn November 17, 2017 President
Signature Date Title

Quinn Consulting Services, Inc.
Name of Firm

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

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

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

	10/30/2017	VP of Business Development
Signature	Date	Title

Specialized Engineering
Name of Firm

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

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

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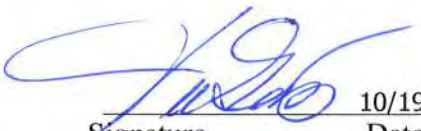

Signature	10/19/17 Date	President Title

GeoConcepts Engineering, Inc.
Name of Firm

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

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

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

Signature	Date	Title
	10.19.17	Treasurer

Kelly and Lay, Inc
Name of Firm

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

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

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

W. J. McKeague 10/19/2017 — 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.: 0095-111-259, P101, R201, C501; 0095-089-741

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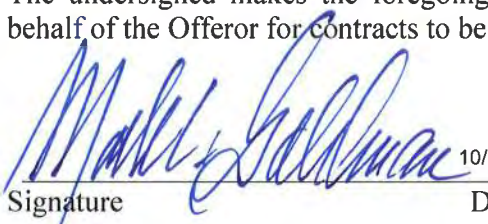

Signature	10/19/2017 Date	Manager Title

So-Deep, Inc.
Name of Firm

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

Project No.: 0095-111-259, P101, R201, C501; 0095-089-741

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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. Drobosh 10/30/2017 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.: 0095-111-259, P101, R201, C501; 0095-089-741

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

Signature | 10.27.17 Date | Vice President Title

OLD Dominion Settlements, Inc. Trading as Key Title.
Name of Firm

Response to Request for Proposals

I-95 SOUTHBOUND CD LANES - RAPPAHANNOCK RIVER CROSSING

Stafford County/City of Fredericksburg, Virginia

State Project No.: 0095-111-259, P101, R201, C501; 0095-089-741
Federal Project No.: IM-5111(235)
Contract ID Nmber: C00101595DB94

VOLUME II: DESIGN CONCEPT

Submitted By:

SHIRLEY
CONTRACTING COMPANY, LLC

In Association With:

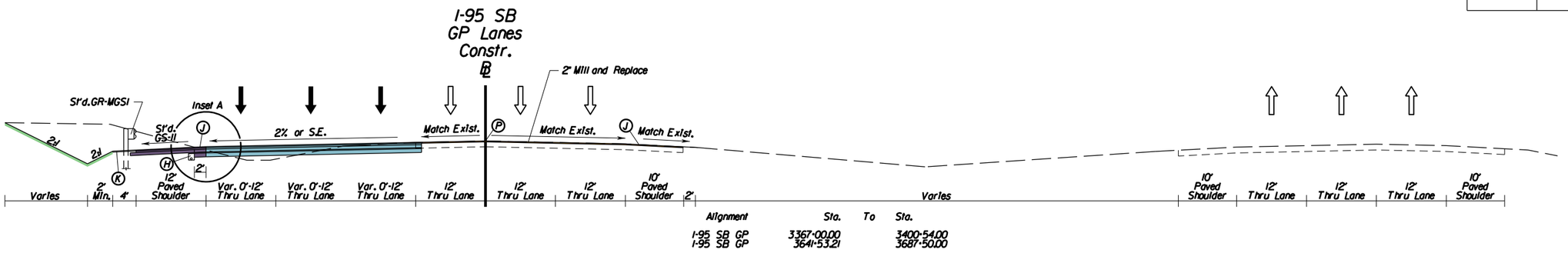
Dewberry®

4.3.1 - Conceptual Roadway Plans

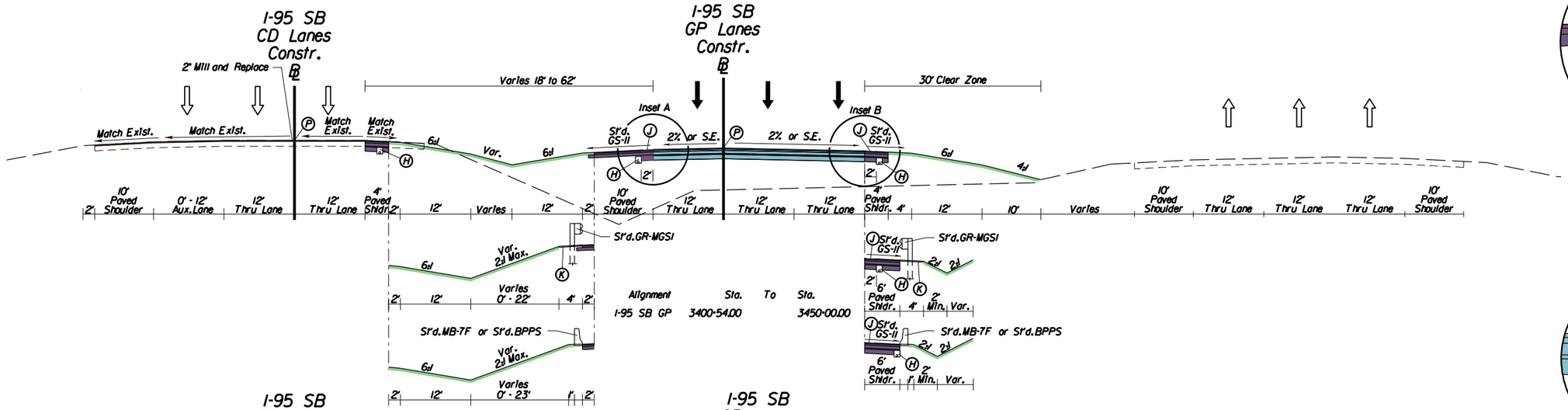
TYPICAL SECTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259 P101,R201,C501 0095-089-741, P101,C501	2A(1)

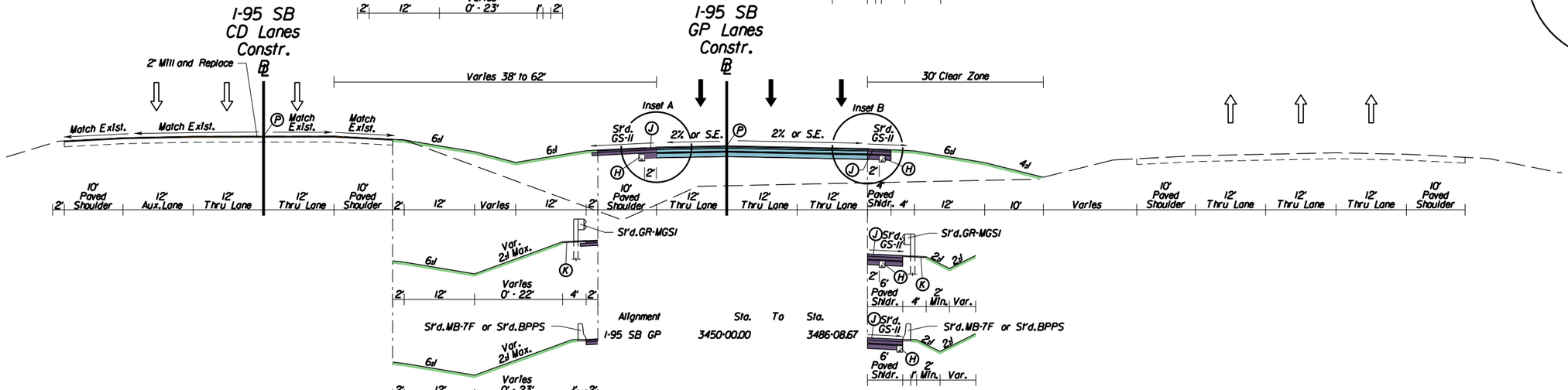
SHIRLEY CONTRACTING COMPANY, LLC
Dewberry



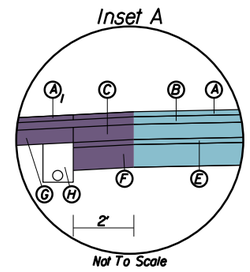
Alignment	Sta.	To	Sta.
I-95 SB GP	3367+00.00		3400+54.00
I-95 SB GP	3641+53.21		3687+50.00

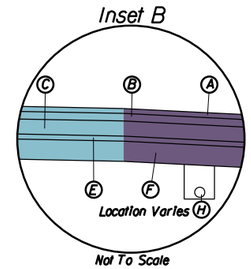


Alignment	Sta.	To	Sta.
I-95 SB GP	3400+54.00		3450+00.00



Alignment	Sta.	To	Sta.
I-95 SB GP	3450+00.00		3486+08.67





LEGEND

- (A) Surface Course, Asphalt Concrete, Type SM-12.5E @ 220 Lbs/SY (2")
- (A)1 Surface Course, Asphalt Concrete, Type SM-12.5A @ 220 Lbs/SY (2")
- (B) Intermediate Course, Asphalt Concrete, Type IM-19.0D @ 330 Lbs/SY (3")
- (C) Base Course, 6" Asphalt Concrete, Type BM-25.0A
- (D) Base Course, 7.5" Asphalt Concrete, Type BM-25.0A
- (E) 2" Stabilized Open-Graded Drainage Layer (OGDL)
- (F) 8" Cement-Stabilized Aggr. Base Material, Type I, No. 21A (CTA) Pugmill Mixed with 4% Cement by Weight
- (G) 6" Aggr. Base Material, Type I, No. 21B, Extended 1' Beyond Edge of Shoulder
- (H) Pavement Underdrain, St'd. UD-4
- (J) Continuous Groove Shoulder Rumble Strips, St'd. RS-1
- (K) Pavement Under Guardrail, St'd. MC-4
- (P) Profile Grade Line (PGL)

- Proposed Full Depth Pavement
- Proposed Full Depth Shoulder
- Proposed Milling and Overlay
- Fred-Ex Scope Elements (Option "1")

SCALE	PROJECT	SHEET NO.
0 10' 20'	0095-111-259 0095-089-741	2A(1)

TYPICAL SECTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259 P101,R201,C501 0095-089-741, P101,C501	2A(2)

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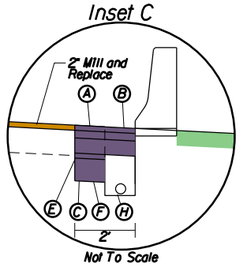

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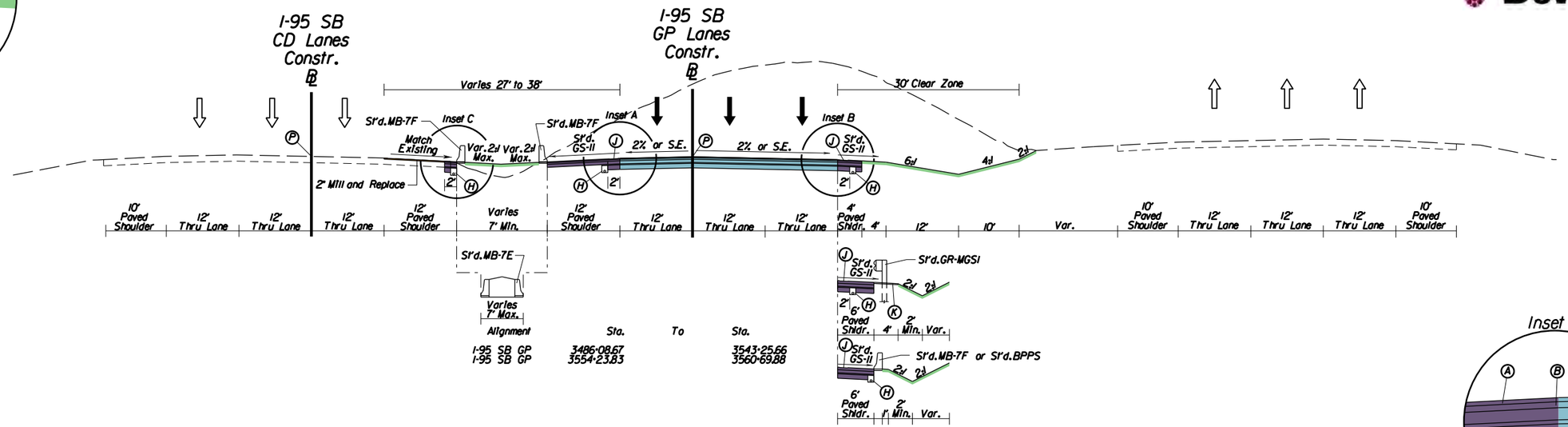

Alignment	Sta.	To	Sta.
I-95 SB GP	3486+08.67		3543+25.66
I-95 SB GP	3554+23.83		3560+69.88

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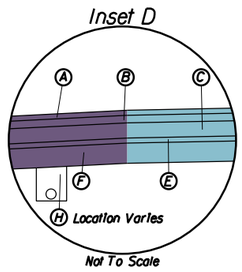

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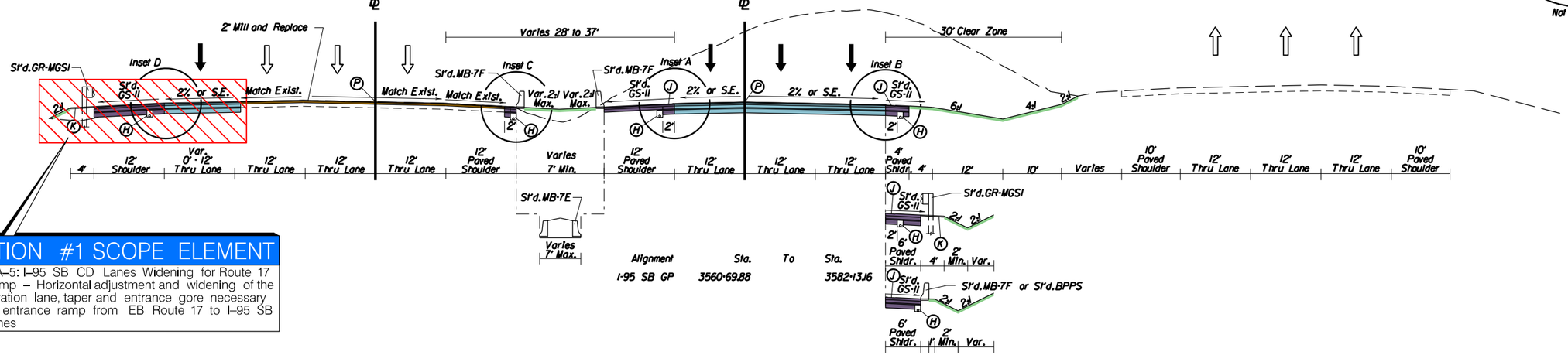

Alignment	Sta.	To	Sta.
I-95 SB GP	3560+69.88		3582+13.16

OPTION #1 SCOPE ELEMENT

Item A–5: I–95 SB CD Lanes Widening for Route 17 On–Ramp – Horizontal adjustment and widening of the acceleration lane, taper and entrance gore necessary for the entrance ramp from EB Route 17 to I–95 SB CD lanes

LEGEND

- (A) Surface Course, Asphalt Concrete, Type SM-12.5E @ 220 Lbs/SY (2")
- (A)1 Surface Course, Asphalt Concrete, Type SM-12.5A @ 220 Lbs/SY (2")
- (B) Intermediate Course, Asphalt Concrete, Type IM-19.0D @ 330 Lbs/SY (3")
- (C) Base Course, 6" Asphalt Concrete, Type BM-25.0A
- (D) Base Course, 7.5" Asphalt Concrete, Type BM-25.0A
- (E) 2" Stabilized Open-Graded Drainage Layer (OGDL)
- (F) 8" Cement-Stabilized Aggr. Base Material, Type I, No. 21A (CTA) Pugmill Mixed with 4% Cement by Weight
- (G) 6" Aggr. Base Material, Type I, No. 21B, Extended 1' Beyond Edge of Shoulder
- (H) Pavement Underdrain, St'd. UD-4
- (J) Continuous Groove Shoulder Rumble Strips, St'd. RS-1
- (K) Pavement Under Guardrail, St'd. MC-4
- (P) Profile Grade Line (PGL)

- Proposed Full Depth Pavement
- Proposed Full Depth Shoulder
- Proposed Milling and Overlay
- Fred-Ex Scope Elements (Option #1)

SCALE	PROJECT	SHEET NO.
0 10' 20'	0095-111-259 0095-089-741	2A(2)

TYPICAL SECTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259 P101,R201,C501 0095-089-741, P101,C501	2A(3)

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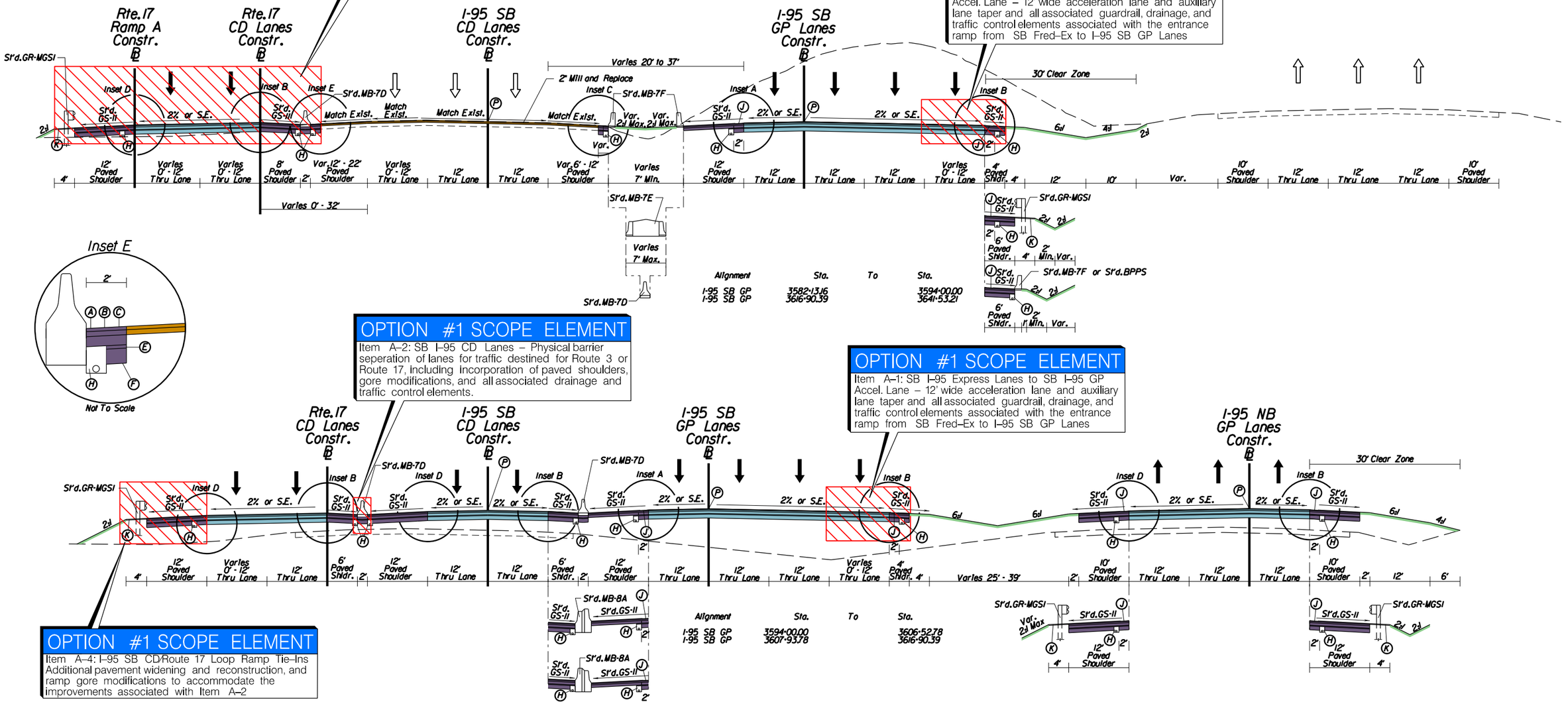
OPTION #1 SCOPE ELEMENT
Item A–5: I–95 SB CD Lanes Widening for Route 17 On–Ramp – Horizontal adjustment and widening of the acceleration lane, taper and entrance gore necessary for the entrance ramp from EB Route 17 to I–95 SB CD lanes

OPTION #1 SCOPE ELEMENT
Item A–1: SB I–95 Express Lanes to SB I–95 GP Accel. Lane – 12' wide acceleration lane and auxiliary lane taper and all associated guardrail, drainage, and traffic control elements associated with the entrance ramp from SB Fred–Ex to I–95 SB GP Lanes



OPTION #1 SCOPE ELEMENT
Item A–2: SB I–95 CD Lanes – Physical barrier seperation of lanes for traffic destined for Route 3 or Route 17, including incorporation of paved shoulders, gore modifications, and all associated drainage and traffic control elements.

OPTION #1 SCOPE ELEMENT
Item A–1: SB I–95 Express Lanes to SB I–95 GP Accel. Lane – 12' wide acceleration lane and auxiliary lane taper and all associated guardrail, drainage, and traffic control elements associated with the entrance ramp from SB Fred–Ex to I–95 SB GP Lanes

OPTION #1 SCOPE ELEMENT
Item A–4: I–95 SB CD/Route 17 Loop Ramp Tie–Ins Additional pavement widening and reconstruction, and ramp gore modifications to accommodate the improvements associated with Item A–2

LEGEND

- (A) Surface Course, Asphalt Concrete, Type SM-12.5E @ 220 Lbs/SY (2")
- (A)1 Surface Course, Asphalt Concrete, Type SM-12.5A @ 220 Lbs/SY (2")
- (B) Intermediate Course, Asphalt Concrete, Type IM-19.0D @ 330 Lbs/SY (3")
- (C) Base Course, 6" Asphalt Concrete, Type BM-25.0A
- (D) Base Course, 7.5" Asphalt Concrete, Type BM-25.0A
- (E) 2" Stabilized Open-Graded Drainage Layer (OGDL)
- (F) 8" Cement-Stabilized Aggr. Base Material, Type I, No. 21A (CTA) Pugmill Mixed with 4% Cement by Weight
- (G) 6" Aggr. Base Material, Type I, No. 21B, Extended 1' Beyond Edge of Shoulder
- (H) Pavement Underdrain, St'd. UD-4
- (J) Continuous Groove Shoulder Rumble Strips, St'd. RS-1
- (K) Pavement Under Guardrail, St'd. MC-4
- (P) Profile Grade Line (PGL)

Proposed Full Depth Pavement
Proposed Full Depth Shoulder
Proposed Milling and Overlay
Fred-Ex Scope Elements (Option #1)

SCALE	PROJECT	SHEET NO.
0 10' 20'	0095-111-259 0095-089-741	2A(3)

TYPICAL SECTIONS

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259 P101,R201,C501 0095-089-741, P101,C501	2A(4)

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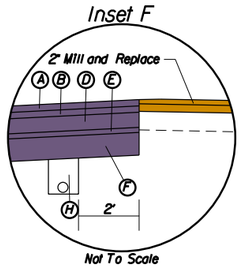
Inset F



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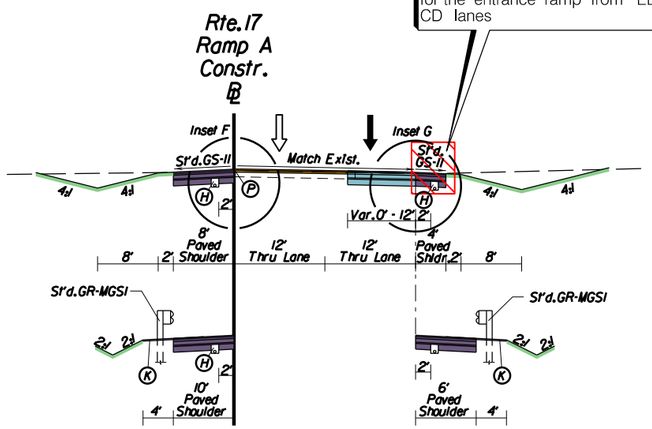
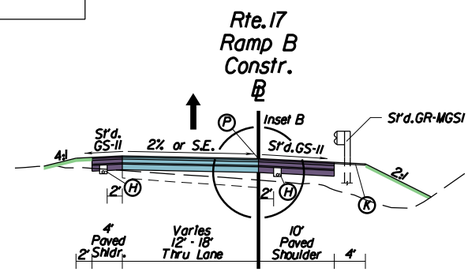
OPTION #1 SCOPE ELEMENT
Item A–5: I–95 SB CD Lanes Widening for Route 17 On–Ramp – Horizontal adjustment and widening of the acceleration lane, taper and entrance gore necessary for the entrance ramp from EB Route 17 to I–95 SB CD lanes

Rte.17 Ramp A Constr. ℄



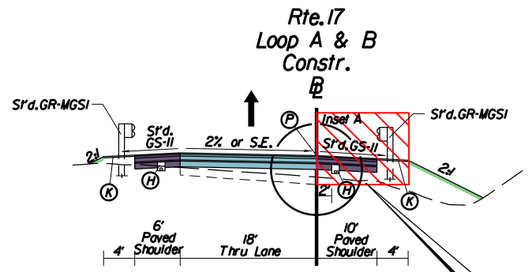
Alignment	Sta.	To	Sta.
Route 17 Ramp A	10+00.00		44+99.13

Rte.17 Ramp B Constr. ℄



Alignment	Sta.	To	Sta.
Route 17 Ramp B	80+00.00		85+12.49

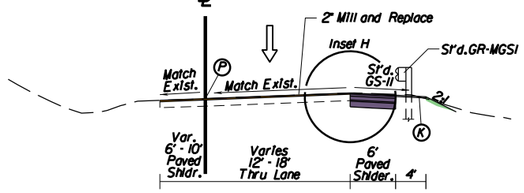
Rte.17 Loop A & B Constr. ℄



Alignment	Sta.	To	Sta.
Route 17 Loop Ramp A	60+00.00		63+85.09
Route 17 Loop Ramp B	70+00.00		74+18.37

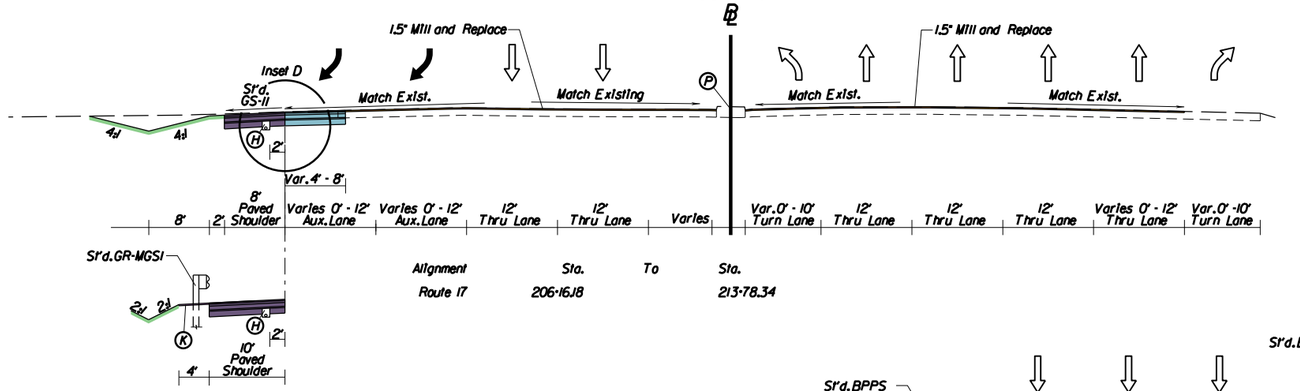
OPTION #1 SCOPE ELEMENT
Item A–4: I–95 SB CD/Route 17 Loop Ramp Tie–Ins Additional pavement widening and reconstruction, and ramp gore modifications to accommodate the improvements associated with Item A–2

Rte.3 Ramp A & Loop Ramp A Constr. ℄



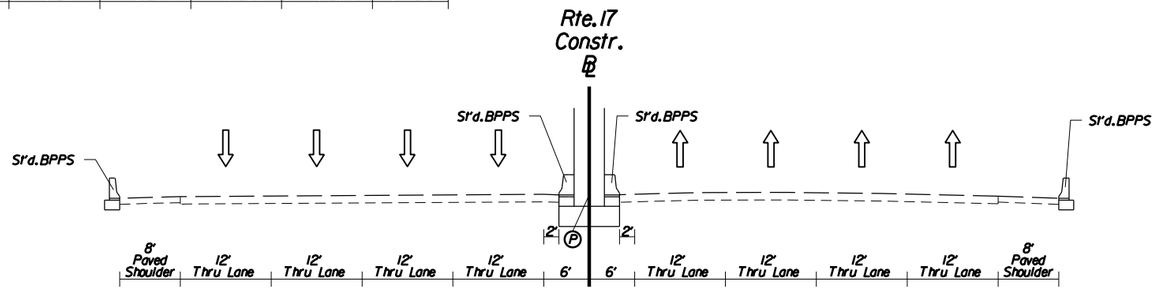
Alignment	Sta.	To	Sta.
Route 3 Ramp A	107+03.56		116+10.79
Route 3 Loop Ramp A	302+01.30		307+05.71

Rte.17 Constr. ℄



Alignment	Sta.	To	Sta.
Route 17	206+16.18		213+78.34

Rte.17 Constr. ℄



Alignment	Sta.	To	Sta.
Route 17	196+67.18		200+92.71

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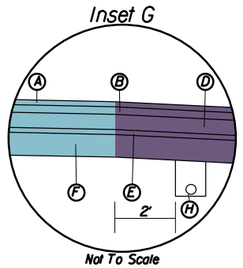

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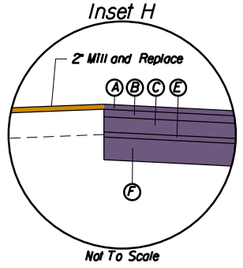

Not To Scale

LEGEND

- (A) Surface Course, Asphalt Concrete, Type SM-12.5E @ 220 Lbs/SY (2")
- (A)' Surface Course, Asphalt Concrete, Type SM-12.5A @ 220 Lbs/SY (2")
- (B) Intermediate Course, Asphalt Concrete, Type IM-19.0D @ 330 Lbs/SY (3")
- (C) Base Course, 6" Asphalt Concrete, Type BM-25.0A
- (D) Base Course, 7.5" Asphalt Concrete, Type BM-25.0A
- (E) 2" Stabilized Open-Graded Drainage Layer (OGDL)
- (F) 8" Cement-Stabilized Aggr. Base Material, Type I, No. 21A (CTA) Pugmill Mixed with 4% Cement by Weight
- (G) 6" Aggr. Base Material, Type I, No. 21B, Extended 1' Beyond Edge of Shoulder
- (H) Pavement Underdrain, Sf'd.UD-4
- (J) Continuous Groove Shoulder Rumble Strips, Sf'd.RS-1
- (K) Pavement Under Guardrail, Sf'd.MC-4
- (P) Profile Grade Line (PGL)

- Proposed Full Depth Pavement
- Proposed Full Depth Shoulder
- Proposed Milling and Overlay
- Fred-Ex Scope Elements (Option "1)

SCALE	PROJECT	SHEET NO.
0 10' 20'	0095-111-259 0095-089-741	2A(4)

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	3

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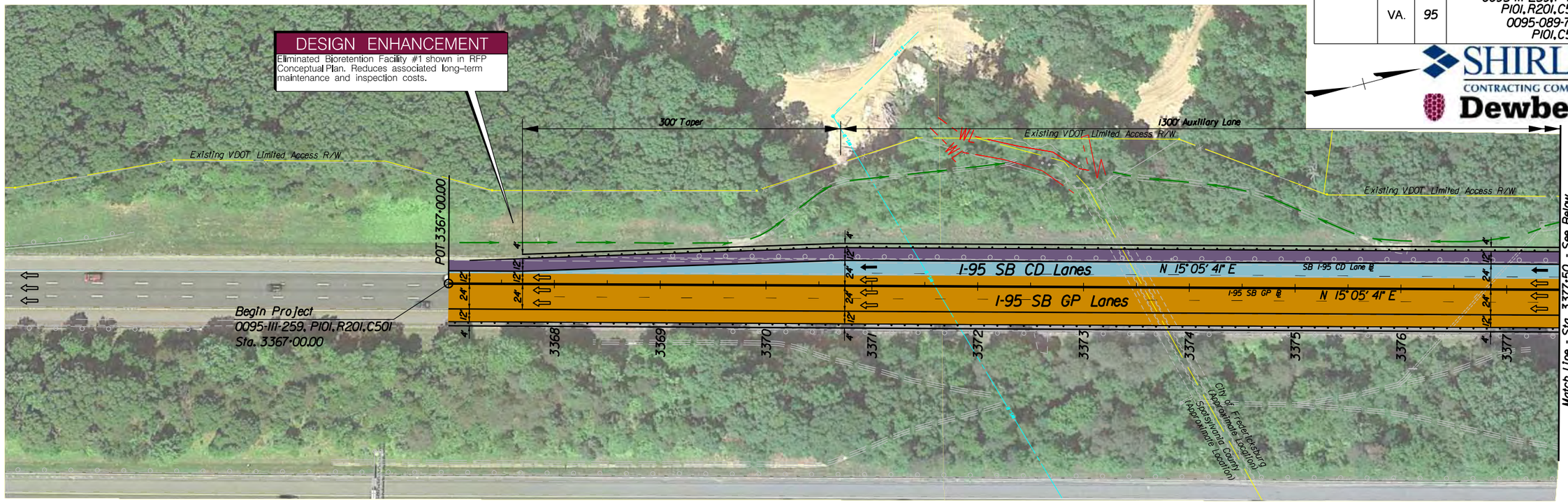

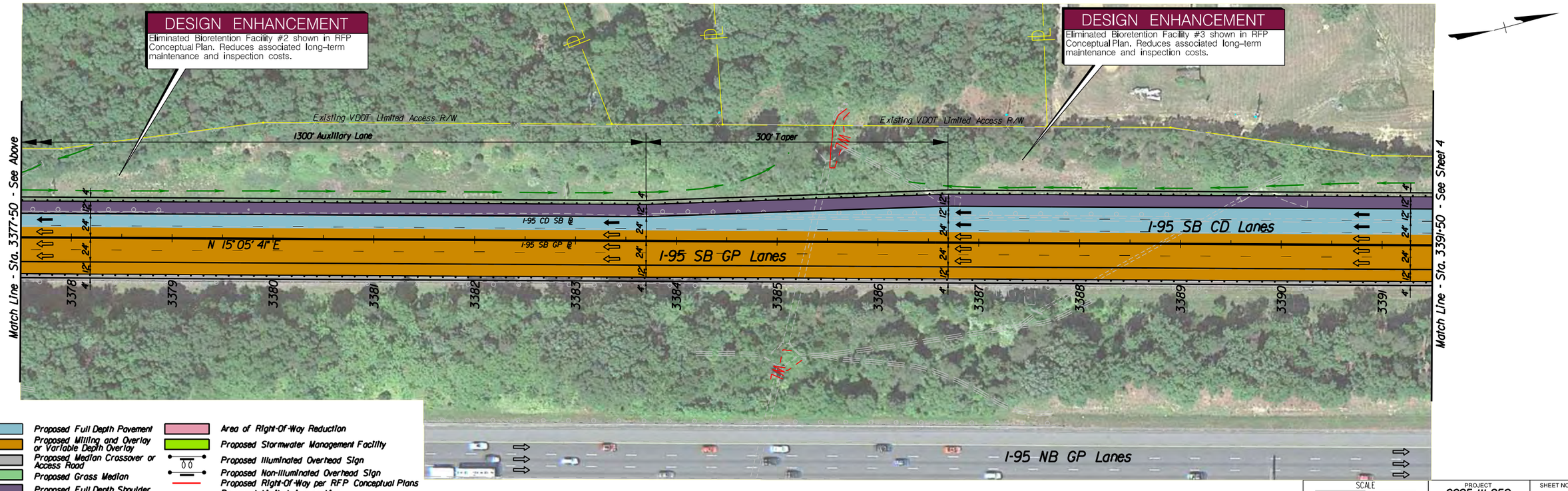

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	3

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	4

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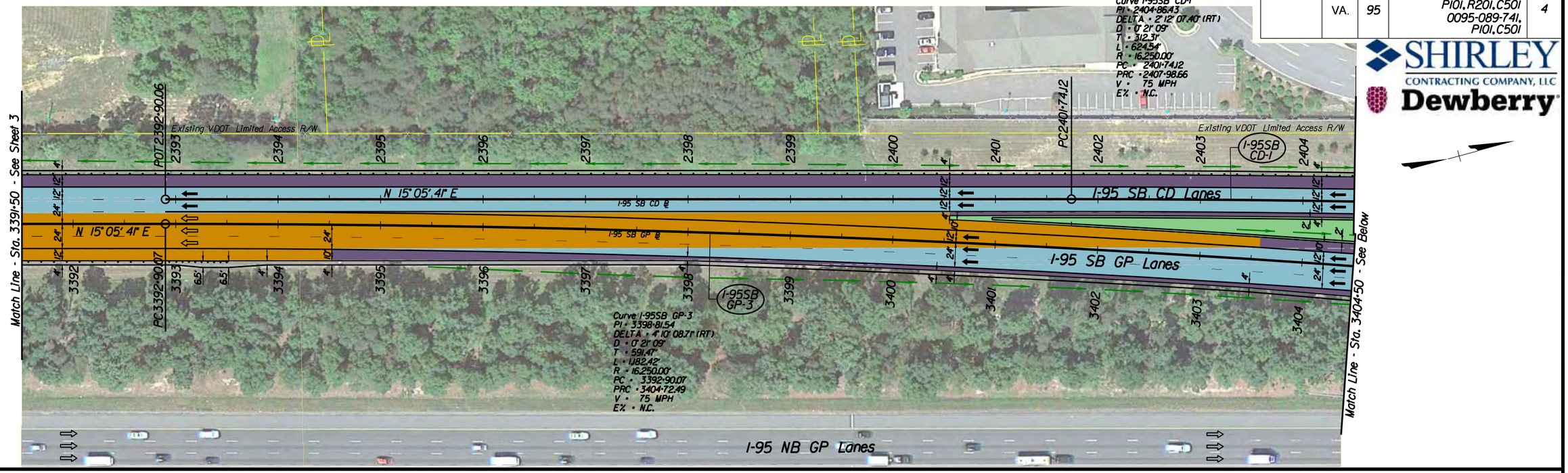

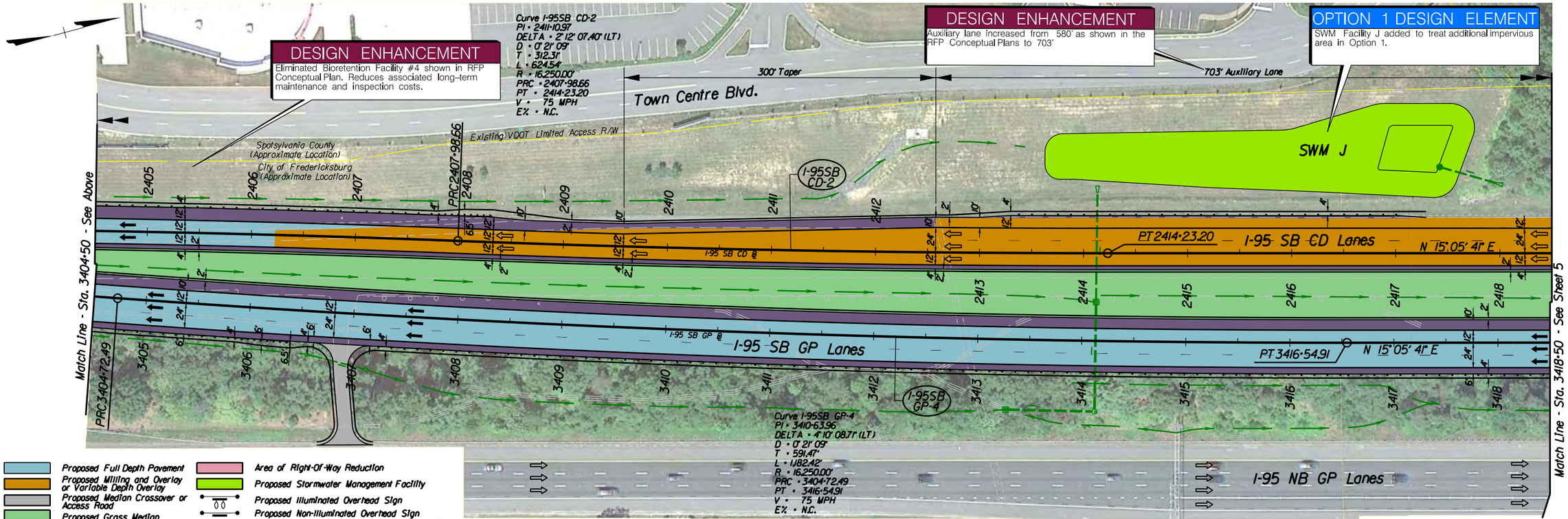

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	4

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	5

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DESIGN ENHANCEMENT
Eliminated Retention Basin A as shown in RFP Conceptual Plans reducing right-of-way acquisition, wetland impacts and stream impacts.

Curve RTE 3 A-1
PI = 108+48.39
DELTA = 16° 31' 21.50" (LT)
D = 05° 36' 22"
T = 148.39'
L = 294.72'
R = 1,022.00'
PC = 107+00.00
PCC = 109+94.72
V = 55 MPH
E% = 8%

Curve RTE 3 A-2
PI = 111+71.61
DELTA = 26° 12' 15.88" (LT)
D = 07° 32' 20"
T = 176.89'
L = 347.59'
R = 760.00'
PCC = 109+94.72
PT = 113+42.31
V = 50 MPH
E% = 8%

Curve RTE 3 LP-A-4
PI = 307+14.40
DELTA = 22° 06' 24.01" (RT)
D = 26° 19' 20"
T = 42.52'
L = 83.98'
R = 217.70'
PCC = 306+71.88
PT = 307+55.86
V = 30 MPH
E% = EXISTING (APPROX.7.7%)

Curve RTE 3 LP-A-2
PI = 304+41.55
DELTA = 44° 07' 50.12" (RT)
D = 26° 19' 06"
T = 88.25'
L = 167.68'
R = 217.70'
PCC = 303+53.30
PCC = 305+20.98
V = 30 MPH
E% = EXISTING (APPROX.8%)

Curve RTE 3 LP-A-3
PI = 305+98.95
DELTA = 35° 33' 56.14" (RT)
D = 23° 34' 12"
T = 77.97'
L = 150.89'
R = 243.09'
PCC = 305+20.98
PCC = 306+71.88
V = 30 MPH
E% = EXISTING (APPROX.8%)

Curve RTE 3 LP-A-1
PI = 302+77.63
DELTA = 13° 00' 22.30" (RT)
D = 8° 33' 23"
T = 76.33'
L = 152.00'
R = 669.62'
PC = 302+01.30
PCC = 303+53.30
V = 40 MPH
E% = EXISTING (APPROX.7.3%)

DESIGN ENHANCEMENT
Proposed Stormwater Management Facility C eliminates multiple small Stormwater Management facilities and eliminates the need for right-of-way acquisition required for Retention Basin A.

DESIGN ENHANCEMENT
Shifted I-95 SB CD baseline to eliminate realignment and full-depth reconstruction of Route 3 Loop Ramp A

DESIGN ENHANCEMENT
Eliminated Bioretention Facility #6 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

OPTION #1 SCOPE ELEMENT
Stormwater Management Facility G added to treat additional impervious area from Option #1.

DESIGN ENHANCEMENT
Demolition of existing pavement increases infiltration and reduces the amount of water that needs to be treated by Stormwater Management facilities.

DESIGN ENHANCEMENT
Eliminated Bioretention Facility #7 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

SWM C

SWM G

Spotsylvania County (Approximate Location)
City of Fredericksburg (Approximate Location)

Existing VDOT Limited Access R/W

703' Auxiliary Lane

PC107+00.00

PCC109+94.72

PT113+42.31

PT116+28.83

PT307+55.86

PCC306+71.88

PCC305+20.98

PCC303+53.30

PC302+01.30

Rte.3 Ramp A @ N 27° 37' 56" W

Rte.3 Loop A

I-95 SB CD Lanes — I-95 SB CD @ N 15° 05' 41" E

I-95 SB GP Lanes — I-95 SB GP @ N 15° 05' 41" E

I-95 NB GP Lanes

RTE 3 A-1

RTE 3 A-2

RTE 3 LP-A-4

RTE 3 LP-A-3

RTE 3 LP-A-2

RTE 3 LP-A-1

Match Line - Sta. 3418+50 - See Sheet 4

Match Line - Sta. 3432+50 - See Sheet 6

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	5

Std.GR-MGS3 — Std.GR-MGS1 — Std.GR-MGS4

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	6

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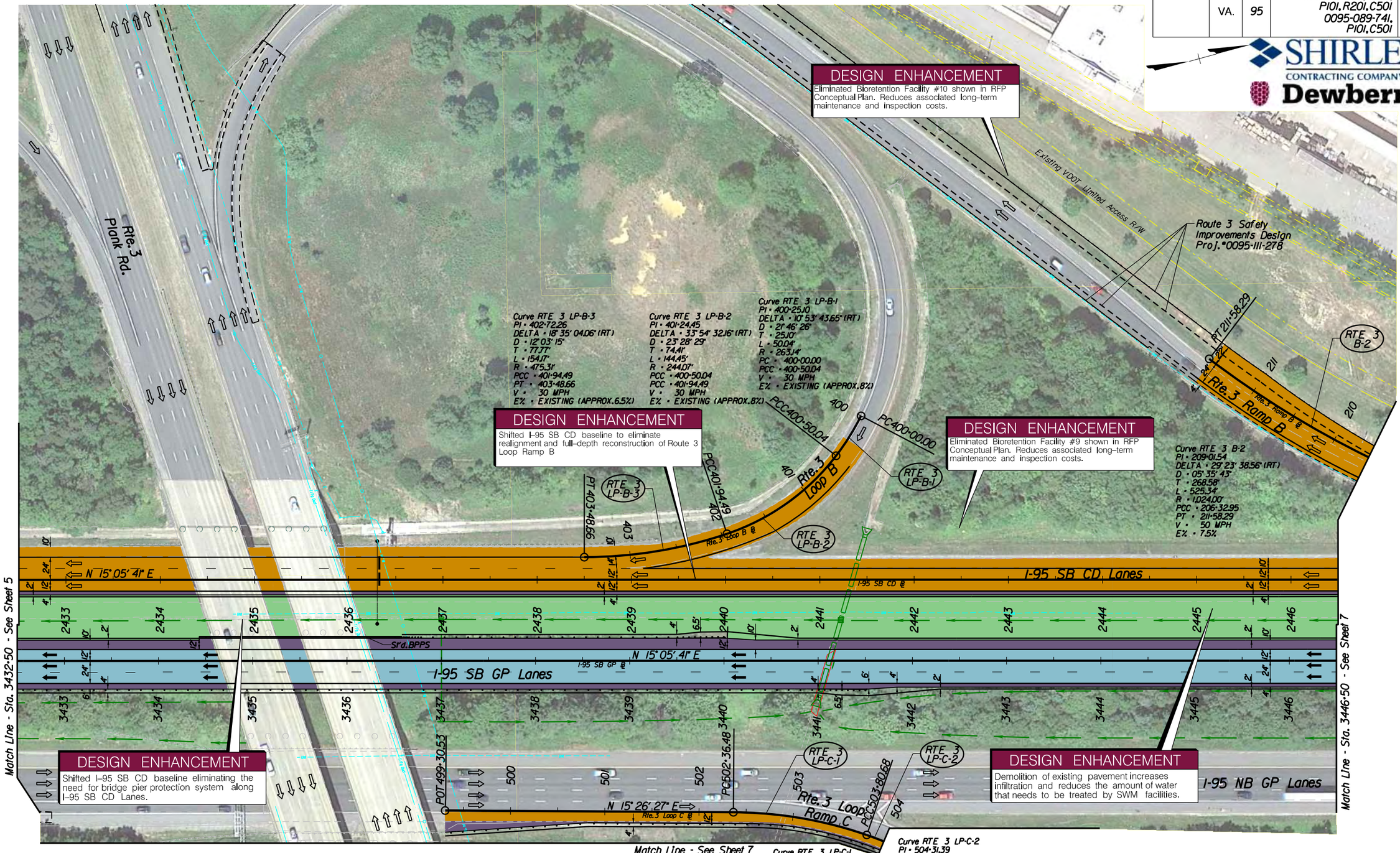

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	6

REVISED

STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	7

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DESIGN ENHANCEMENT

Eliminated Bioretention Facility #11 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

DESIGN ENHANCEMENT

Demolition of existing pavement increases infiltration and reduces the amount of water that needs to be treated by Stormwater Management Facilities.

Curve RTE 3 B-1
PI = 205+54.34
DELTA = 07° 53' 09.20" (RT)
D = 05° 00' 27"
T = 78.87'
L = 157.48'
R = 1,144.21'
PC = 204+75.47
PCC = 206+32.95
V = 50 MPH
E% = 7.2%

Curve I-95SB CD-3
PI = 2453+70.81
DELTA = 1° 33' 25.33" (RT)
D = 0° 21' 09"
T = 220.81'
L = 441.60'
R = 16,250.00'
PC = 2451+50.00
PRC = 2455+91.60
V = 75 MPH
E% = N.C.

Curve I-95SB CD-4
PI = 2458+12.42
DELTA = 1° 33' 25.37" (LT)
D = 0° 21' 09"
T = 220.82'
L = 441.60'
R = 16,250.00'
PRC = 2455+91.60
PT = 2460+33.20
V = 75 MPH
E% = N.C.

Existing VDOT Limited Access R/W

Match Line - Sta. 3446+50 - See Sheet 6

Match Line - Sta. 3459+50 - See Sheet 8

Rte.3 Ramp B

N 15° 05' 41" E

I-95 SB CD Lanes

I-95 SB GP Lanes

I-95 NB GP Lanes

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

Match Line - See Sheet 6

OPTION #1 SCOPE ELEMENT

Stormwater Management Facility H added to treat additional impervious area from Option #1.

SWM H

Rte.3 Plank Rd.

DESIGN ENHANCEMENT

Relocated Detention Basin B shown from RFP Conceptual Plans, avoiding potential stream and wetlands impacts.

SWM B

Curve RTE 3 LP-C-3
PI = 505+83.20
DELTA = 48° 46' 54.63" (RT)
D = 25° 26' 51"
T = 102.09'
L = 191.70'
R = 225.15'
PCC = 504+81.11
PCC = 506+72.80
V = 30 MPH
E% = EXISTING (APPROX. 8%)

Rte.3 Loop Ramp C

PCC506+72.80

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	7

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	8

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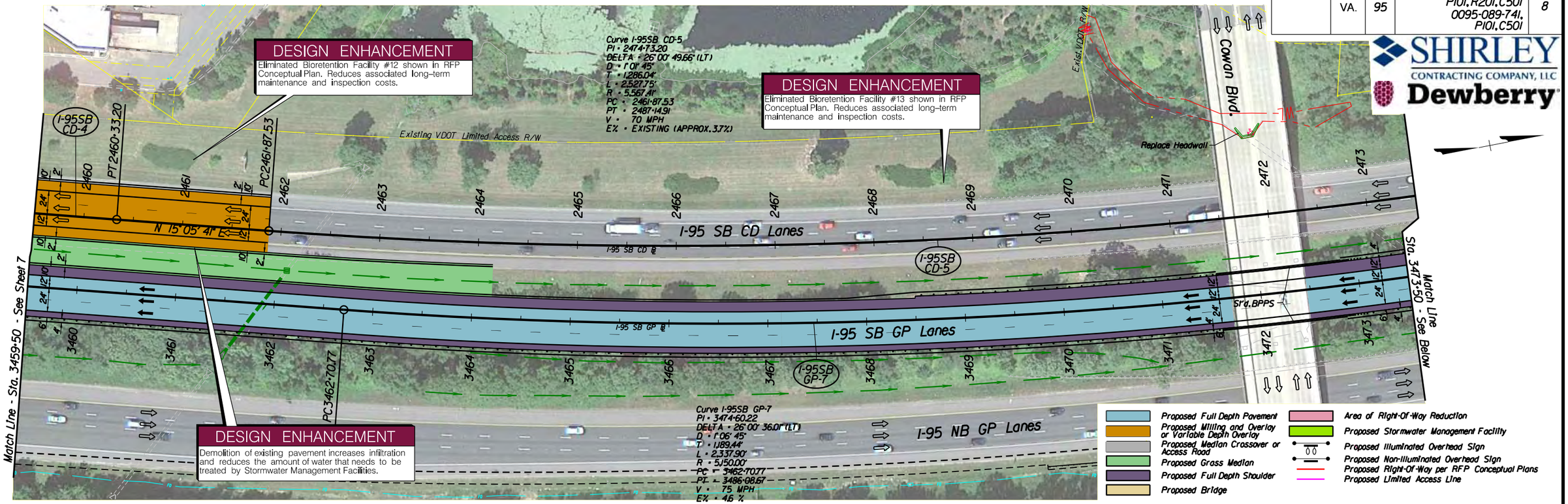
Dewberry



SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	8

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	9

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Existing VDOT Limited Access R/W

End Noise Barrier AA (Approx. Location)

1200' Noise Barrier

Fall Hill Ave.

I-95 SB CD Lanes

I-95 SB CD ℄

N 10° 54' 55" W

I-95 SB GP ℄

I-95 SB GP Lanes

I-95 NB GP Lanes

Match Line - Sta. 3488+25 - See Sheet 8

Match Line - Sta. 3502+50 - See Below

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #14 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

Curve I-95SB CD-6
PI = 2520+64.90
DELTA = 28° 36' 55.00" (RT)
D = 1° 04' 34"
T = 1,358.08'
L = 2,659.47'
R = 5,325.00'
PC = 2507+06.82
PT = 2533+66.29
V = 60 MPH
E% = EXISTING (APPROX. 3%)

PC2507+06.82

Virginia Welcome Center

I-95SB CD-6

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #15 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

PC3508+03.16

I-95SB GP-10

Curve I-95SB GP-10
PI = 3520+83.46
DELTA = 28° 36' 55.00" (RT)
D = 1° 08' 29"
T = 1,280.29'
L = 2,507.14'
R = 5,020.00'
PC = 3508+03.16
PT = 3533+10.31
V = 75 MPH
E% = 4.6 %

DESIGN ENHANCEMENT

Optimized drainage layout from station 2503+50 to 2518+00. Eliminating 1200' of storm sewer pipe

Match Line - Sta. 3502+50 - See Above

Match Line - Sta. 3517+50 - See Sheet 10

Existing VDOT Limited Access R/W

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE 0 50' 100'

PROJECT	SHEET NO.
0095-111-259 0095-089-741	9

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	10

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Existing VDOT Limited Access R/W

Existing VDOT Limited Access R/W per Plans 0095-089-109

Replace Headwall

I-95 SB CD Lanes

I-95 SB CD @

I-95 SB GP @

I-95 SB GP Lanes

I-95SB CD-6

I-95SB GP-10

I-95 NB GP Lanes

Match Line - Sta. 3517+50 - See Sheet 9

Match Line - Sta. 3529+50 - See Below

Replace Headwall

Existing VDOT Limited Access R/W

PT 2533+66.29

PT 3533+10.31

N 17° 42' 00" E

Match Line - Sta. 3529+50 - See Above

Match Line - Sta. 3542+50 - See Sheet 11

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	10

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	11

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Existing VDOT Limited Access R/W

Quarry Rd.

Stafford County (Approximate Location)
City of Fredericksburg (Approximate Location)

Rappahannock River

DESIGN ENHANCEMENT
Reduced overall number of piers from eight to four, and spans from nine to five. Reduces the number of piers in the water from four to two, minimizing environmental impacts in the Rappahannock River

2543 2544 2545 2546 2547 2548 2549 2550 2551 2552 2553 2554 2555 2556 2557

N 17° 42' 00" E

I-95 SB CD Lanes

I-95 SB CD ℄

10' Min.

10' Min.

I-95 SB GP ℄

N 17° 42' 00" E

B-604

I-95 SB GP Lanes

Match Line - Sta. 3554+50 - See Sheet 10

3543 3544 3545 3546 3547 3548 3549 3550 3551 3552 3553 3554 3555 3556 3557

Match Line - Sta. 3557+50 - See Below

DESIGN ENHANCEMENT
Adjusted Pier 1 location while avoiding the Rappahannock Canal and the Rappahannock Canal Lock #1/Minor's Lock

DESIGN ENHANCEMENT
Lowered profile across B-604 reducing the height of the piers and abutments

DESIGN ENHANCEMENT
Decreased length of bridge. Reduces long-term maintenance and inspection costs

Prop. Level Spreader

Prop. Level Spreader

I-95 NB GP Lanes

Existing VDOT Limited Access R/W

300' Taper

3000' Auxiliary Lanes

OPTION #1 SCOPE ELEMENT
Item A-5: I-95 SB CD Lane Widening for Route 17 On-Ramp – Horizontal adjustment and widening of the acceleration lane, taper and entrance gore necessary for the entrance ramp from EB Route 17 to I-95 SB CD lanes

PC2563+88.20

2558 2559 2560 2561 2562 2563 2564 2565 2566 2567 2568 I-95SB CD-7 2569 2570 2571

N 17° 42' 00" E

I-95 SB CD Lanes

I-95 SB CD ℄

Curve I-95SB CD-7
PI = 2571+95.74
DELTA = 10° 32' 00.1" (RT)
D = 0° 39' 15"
T = 807.54'
L = 1,610.53'
R = 8,760.40'
PC = 2563+88.20
PCC = 2579+98.73
V = 65 MPH
E% = EXISTING (APPROX. 2.2%)

N 17° 42' 00" E

I-95 SB GP ℄

I-95 SB GP Lanes

Match Line - Sta. 3557+50 - See Above

3558 3559 3560 3561 3562 3563 3564 3565 3566 3567 3568 3569 I-95SB GP-13 3570 3571

PC3564+77.43

Curve I-95SB GP-13
PI = 3582+48.99
DELTA = 23° 59' 05.00" (RT)
D = 0° 41' 13"
T = 1,771.56'
L = 3,491.23'
R = 8,340.00'
PC = 3564+77.43
PT = 3599+68.66
V = 75 MPH
E% = 2.9 %

DESIGN ENHANCEMENT
Optimized drainage layout from station 2565+00 to 2580+00. Eliminating 1000' of storm sewer pipe

I-95 NB GP Lanes

Match Line - Sta. 3571+50 - See Sheet 12

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	11

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	12

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Dewberry

OPTION #1 SCOPE ELEMENT

Item A–5: I–95 SB CD Lanes Widening for Route 17 On–Ramp – Horizontal adjustment and widening of the acceleration lane, taper and entrance gore necessary for the entrance ramp from EB Route 17 to I–95 SB CD Lanes

Curve RTE 17 A-1
PI • 18+73.67
DELTA • 8° 41' 20.2" (RT)
D • 0° 58' 30" PC • 14+22.03
T • 451.64' PCC • 23+23.54
L • 901.51' V • 65 MPH
R • 5,877.00' E% • 3.2 %

Existing VDOT Limited Access R/W

3000' Auxiliary Lanes

Existing Limited Access Line

POT 10+00.00

RTE 17 A-1

I-95SB CD-7

Proposed L/A Line

Riverside Pkwy.

Rte.17 Ramp A

Rte.17 Ramp A,B

N 25° 21' 49" E

PCC2579+98.73

I-95 SB CD Lanes

I-95 SB CD ℄

I-95 SB GP Lanes

I-95 SB GP ℄

I-95SB GP-13

I-95SB CD-8

Match Line - Sta. 3557+50 - See Sheet 11

Match Line - Sta. 3585+50 - See Below

Curve I-95SB CD-8
PI • 2584+63.76
DELTA • 6° 19' 01.90" (RT)
D • 0° 40' 48"
T • 465.03'
L • 929.13'
R • 8,427.00'
PCC • 2579+98.73
PCC • 2589+27.85
V • 60 MPH
E% • EXISTING (APPROX. 2%)

I-95 NB GP Lanes

I-95 NB GP ℄

I-95NB GP-2

PCC4590+65.49

Existing VDOT Limited Access R/W

Curve RTE 17 A-2
PI • 25+61.30
DELTA • 3° 31' 41.30" (RT)
D • 0° 44' 32" PCC • 23+23.54
T • 237.76' PRC • 27+98.91
L • 475.38' V • 65 MPH
R • 7,720.00' E% • 2.5 %

OPTION #1 SCOPE ELEMENT

Item A–5: I–95 SB CD Lanes Widening for Route 17 On–Ramp – Horizontal adjustment and widening of the acceleration lane, taper and entrance gore necessary for the entrance ramp from EB Route 17 to I–95 SB CD Lanes

Increased shoulder widths to appropriately match the shoulder width criteria of the I-95 SB CD Lanes including the 2' offset for the guardrail

Existing R/W

Curve RTE 17 A-3
PI • 31+32.01
DELTA • 45° 12' 39.78" (LT)
D • 7° 09' 43" PRC • 27+98.91
T • 333.10' PT • 34+30.18
L • 631.27' V • 50 MPH
R • 800.00' E% • 8.0 %

Match Line - See Sheet 14 - Sta. 32+50

RTE 17 A-2

RTE 17 A-3

RTE 17 CD-1

RTE 17 CD-2

Curve RTE17 CD-1
PI • 1003+75.89
DELTA • 0° 35' 12.94" (RT)
D • 0° 45' 38" PC • 1002+71.55
T • 104.34' PT • 1004+80.22
L • 208.67' V • 65 MPH
R • 7,534.00' E% • 2.5 %

Srd.MB-7D

PCC23+23.54

PCC2589+27.85

POT 1000+00.00

PC1002+71.55

PCC1004+80.22

PT 2598+80.64

PT 3599+68.66

PT 4609+39.68

N 38° 05' 53" E

N 41° 41' 05" E

Rte.17 CD Lanes

Rte.17 CD ℄

I-95 SB CD Lanes

I-95 SB GP Lanes

I-95SB CD-8

I-95SB GP-13

I-95SB CD-9

I-95 NB GP Lanes

I-95NB GP-2

Match Line - Sta. 3585+50 - See Above

Match Line - Sta. 3600+50 - See Sheet 13

Curve I-95NB GP-2
PI • 4600+07.29
DELTA • 14° 01' 26.87" (RT)
D • 0° 44' 54" PCC • 4590+65.49
T • 941.80' PT • 4609+39.68
L • 1,874.19' V • 55 MPH
R • 7,657.03' E% • EXISTING (APPROX. 2%)

Curve I-95SB CD-9
PI • 2594+04.86
DELTA • 7° 08' 02.98" (RT)
D • 0° 44' 56" PCC • 2589+27.85
T • 477.01' PT • 2598+80.64
L • 952.79' V • 65 MPH
R • 7,652.00' E% • 2.5 %

Curve RTE17 CD-2
PI • 1007+05.35
DELTA • 0° 59' 58.65" (RT)
D • 0° 26' 39" PC • 1004+80.22
T • 225.13' PT • 1009+30.43
L • 450.21' V • 65 MPH
R • 12,900.00' E% • N.C.

I-95 NB CD Lanes

Proposed Full Depth Pavement
Proposed Milling and Overlay or Variable Depth Overlay
Proposed Median Crossover or Access Road
Proposed Grass Median
Proposed Full Depth Shoulder
Proposed Bridge
Area of Right-Of-Way Reduction
Proposed Stormwater Management Facility
Proposed Illuminated Overhead Sign
Proposed Non-Illuminated Overhead Sign
Proposed Right-Of-Way per RFP Conceptual Plans
Proposed Limited Access Line

SCALE 0 50' 100'

PROJECT	SHEET NO.
0095-111-259 0095-089-741	12

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	13

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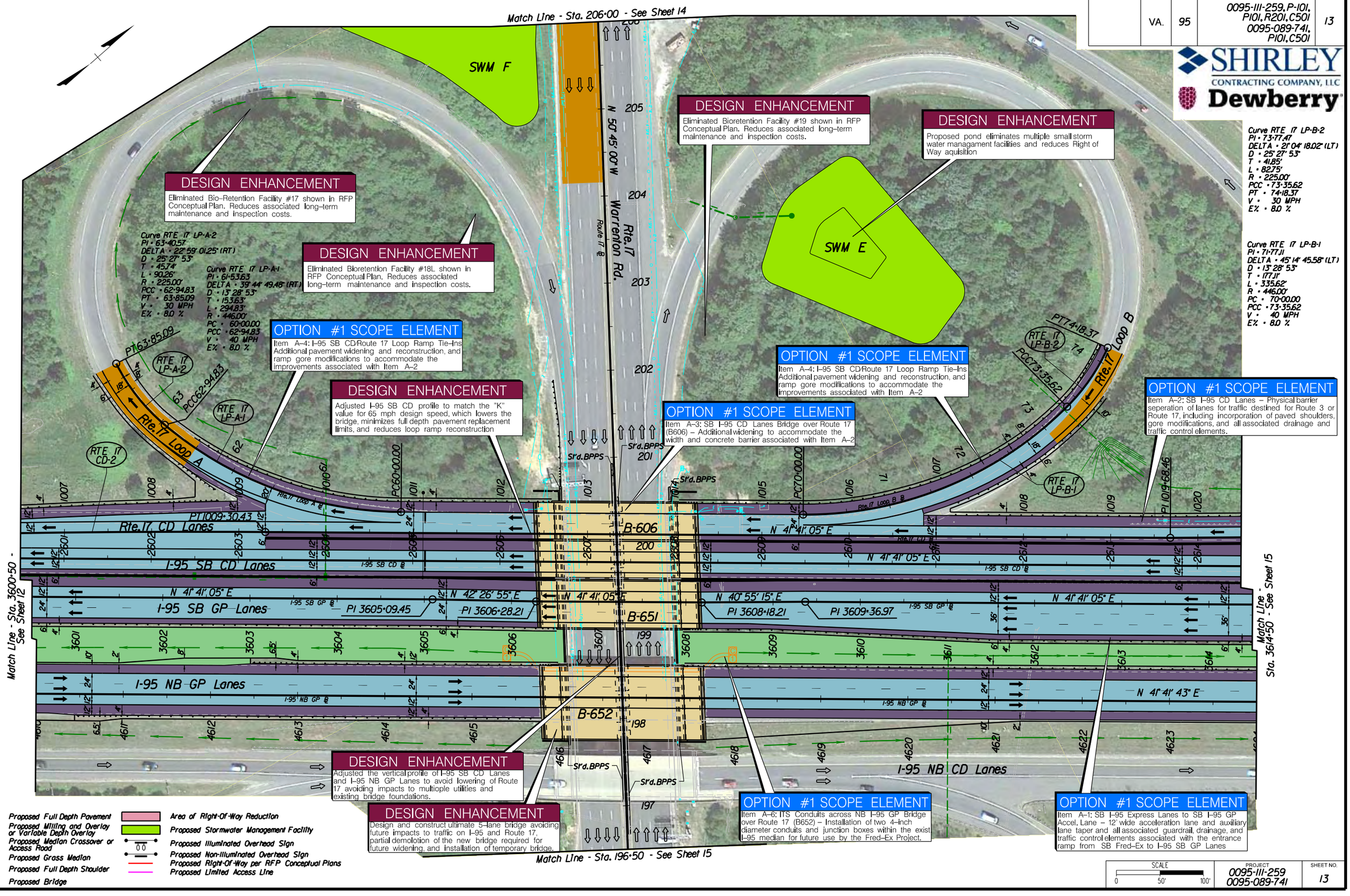

Proposed Full Depth Pavement
Proposed Milling and Overlay or Variable Depth Overlay
Proposed Median Crossover or Access Road
Proposed Grass Median
Proposed Full Depth Shoulder
Proposed Bridge
Area of Right-Of-Way Reduction
Proposed Stormwater Management Facility
Proposed Illuminated Overhead Sign
Proposed Non-Illuminated Overhead Sign
Proposed Right-Of-Way per RFP Conceptual Plans
Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	13

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	14

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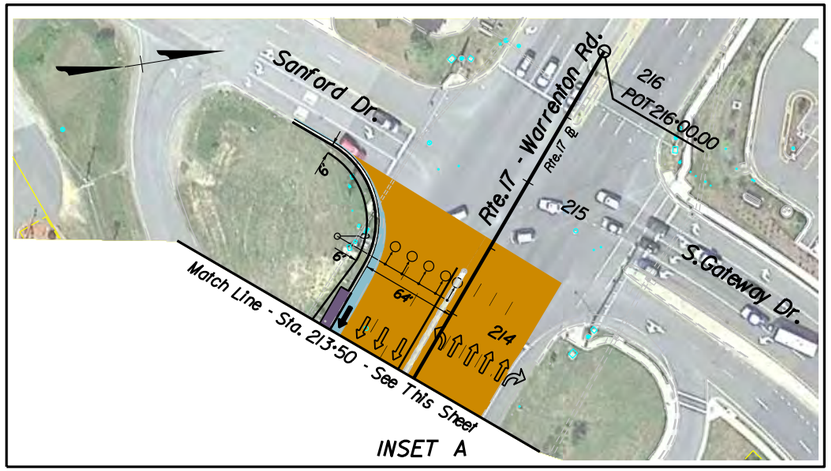
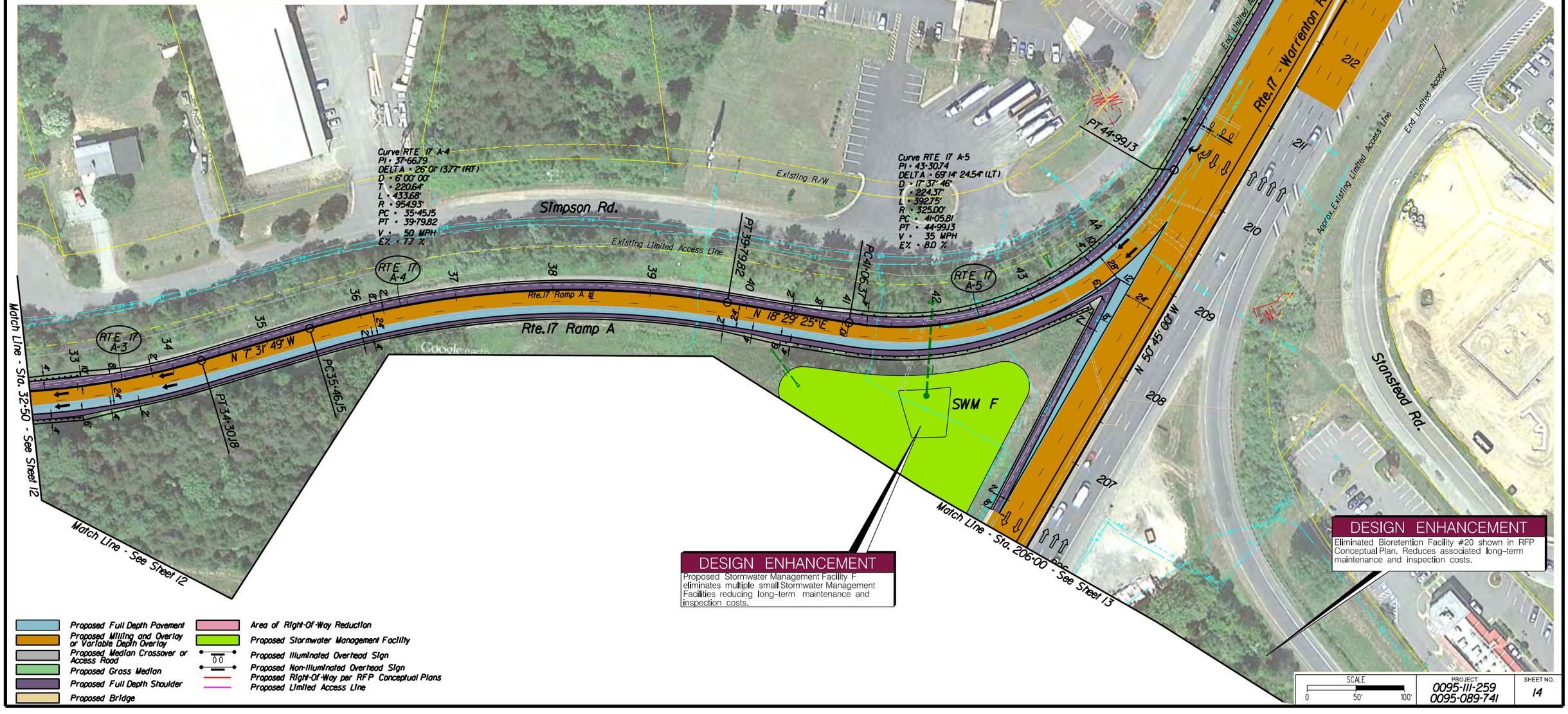


INSET A



DESIGN ENHANCEMENT

Proposed Stormwater Management Facility F eliminates multiple small Stormwater Management Facilities reducing long-term maintenance and inspection costs.

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #20 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	14

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	15

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PT 85+12.49

Curve RTE 17 B-1
PI = 82+66.42
DELTA = 38° 38' 09.76" (RT)
D = 07° 32' 20"
T = 266.42'
L = 512.49'
R = 760.00'
PC = 80+00.00
PT = 85+12.49
V = 50 MPH
E% = 8.0 %

RTE 17 B-1

Rte.17 Ramp B

OPTION #1 SCOPE ELEMENT

Item A–2: SB I–95 CD Lanes – Physical barrier seperation of lanes for traffic destined for Route 3 or Route 17, including incorporation of paved shoulders, gore modifications, and all associated drainage and traffic control elements.

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #20 shown in RFP Conceptual Plan. Reduces associated long–term maintenance and inspection costs.

OPTION #1 SCOPE ELEMENT

Item A–2: SB I–95 CD Lanes – Physical barrier seperation of lanes for traffic destined for Route 3 or Route 17, including incorporation of paved shoulders, gore modifications, and all associated drainage and traffic control elements.

Existing VDOT Limited Access R/W

355' Auxiliary Lane

505' Taper

PC 80+00.00

PI 1030+18.56

PI 1030+95.42

PC 1034+55.29

Rte.17 CD Lanes

N 40° 55' 15" E

N 41° 41' 05" E

N 43° 37' 02" E

RTE 17 CD-3

I-95 SB CD Lanes

I-95 SB GP Lanes

I-95 NB GP Lanes

POT 4630+00.00

Match Line - Sta. 36+4.50 - See Sheet 15

Match Line - Sta. 3629+50 - See Sheet 16

OPTION #1 SCOPE ELEMENT

Item A–1: SB I–95 Express Lanes to SB I–95 GP Accel. Lane – 12' wide acceleration lane and auxiliary lane taper and all associated guardrail, drainage, and traffic control elements associated with the entrance ramp from SB Fred–Ex to I–95 SB GP Lanes

Curve RTE 17 CD-3
PI = 1040+17.31
DELTA = 03° 47' 13.28" (RT)
D = 00° 20' 13"
T = 562.02'
L = 1123.63'
R = 17,000.00'
PC = 1034+55.29
PT = 1045+78.92
V = 65 MPH
E% = N.C.

DESIGN ENHANCEMENT

Proposed Stormwater Management Facility D eliminates multiple small Stormwater Managament Facilities, reduces right of way aquisition, and eliminates Bioretention Facility #20R

Match Line - Sta. 196+50 - See Sheet 13

Rte.17 Warrenton Rd.

N 50° 45' 00" W

Route 17 NB

SWM D

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #16 shown in RFP Conceptual Plan. Reduces associated long–term maintenance and inspection costs.

Existing VDOT Limited Access R/W

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #18R shown in RFP Conceptual Plan. Reduces associated long–term maintenance and inspection costs.

PT 195+31.28

PC 192+73.64

RTE 17 2

Curve RTE 17 2
PI = 194+02.49
DELTA = 2° 57' 08.2" (RT)
D = 1° 08' 45"
T = 128.85'
L = 257.64'
R = 5,000.00'
PCC = 192+73.64
PT = 195+31.28

- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	15

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REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	16

Curve I-95SB CD-10
PI = 2634+58.29
DELTA = 2° 24' 25.49" (LT)
D = 0° 20' 12"
T = 357.40'
L = 714.70'
R = 17,012.00'
PC = 2631+00.89
PRC = 2638+15.59
V = 65 MPH
E% = N.C.

OPTION #1 SCOPE ELEMENT

Item A-2: SB I-95 CD Lanes – Physical barrier seperation of lanes for traffic destined for Route 3 or Route 17, including incorporation of paved shoulders, gore modifications, and all associated drainage and traffic control elements.

Existing VDOT Limited Access R/W

Curve I-95SB CD-11
PI = 2641+72.48
DELTA = 2° 24' 25.49" (RT)
D = 0° 20' 14"
T = 356.90'
L = 713.69'
R = 16,988.00'
PRC = 2638+15.59
PT = 2645+29.28
V = 65 MPH
E% = N.C.

505' Taper

RTE 17 CD-3

I-95SB CD-10

Replace Headwall

PT1045+78.92

I-95SB CD-11

PC2631+00.89

Rte.17 CD Lanes

I-95 SB CD Lanes

PRC2638+15.59

Rte.17 CD ℄

I-95 SB CD ℄

N 41° 41' 05" E

I-95 SB GP Lanes

SB I-95 ℄

PC3635+98.99

Match Line - Sta. 3629+50 - See Sheet 15

Match Line - Sta. 3644+50 - See Below

I-95 NB GP Lanes

I-95 NB GP ℄

DESIGN ENHANCEMENT

Optimized drainage layout from station 3612+00 to 3636+50. Eliminating 1000' of storm sewer pipe

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #23 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

I-95 NB CD Lanes

OPTION #1 SCOPE ELEMENT

Item A-1: SB I-95 Express Lanes to SB I-95 GP Accel. Lane – 12' wide acceleration lane and auxiliary lane taper and all associated guardrail, drainage, and traffic control elements associated with the entrance ramp from SB Fred-Ex to I-95 SB GP Lanes

I-95SB GP-6

Curve I-95SB GP-6
PI = 3641+12.55
DELTA = 3° 27' 38.41" (LT)
D = 0° 20' 13"
T = 513.56'
L = 1,026.80'
R = 17,000.00'
PC = 3635+98.99
PRC = 3646+25.79
V = 75 MPH
E% = N.C.

Existing VDOT Limited Access R/W

Existing VDOT Limited Access R/W

DESIGN ENHANCEMENT

Eliminated Bioretention Facility #24 shown in RFP Conceptual Plan. Reduces associated long-term maintenance and inspection costs.

1000' Minimum

PT 2645+29.28

PT 2660+59.30

I-95 SB CD Lanes

I-95 SB GP Lanes

N 41° 41' 05" E

Match Line - Sta. 3644+50 - See Above

Match Line - Sta. 3659+50 - See Sheet 17

I-95SB GP-6

PRC3646+25.79

I-95SB GP-7

Curve I-95SB GP-7
PI = 3651+39.35
DELTA = 3° 27' 38.41" (RT)
D = 0° 20' 13"
T = 513.56'
L = 1,026.80'
R = 17,000.00'
PRC = 3646+25.79
PT = 3656+52.60
V = 75 MPH
E% = N.C.

PT 3656+52.60

I-95 NB GP Lanes

Proposed Full Depth Pavement
Proposed Milling and Overlay or Variable Depth Overlay
Proposed Median Crossover or Access Road
Proposed Grass Median
Proposed Full Depth Shoulder
Proposed Bridge
Area of Right-Of-Way Reduction
Proposed Stormwater Management Facility
Proposed Illuminated Overhead Sign
Proposed Non-Illuminated Overhead Sign
Proposed Right-Of-Way per RFP Conceptual Plans
Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	16

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	17

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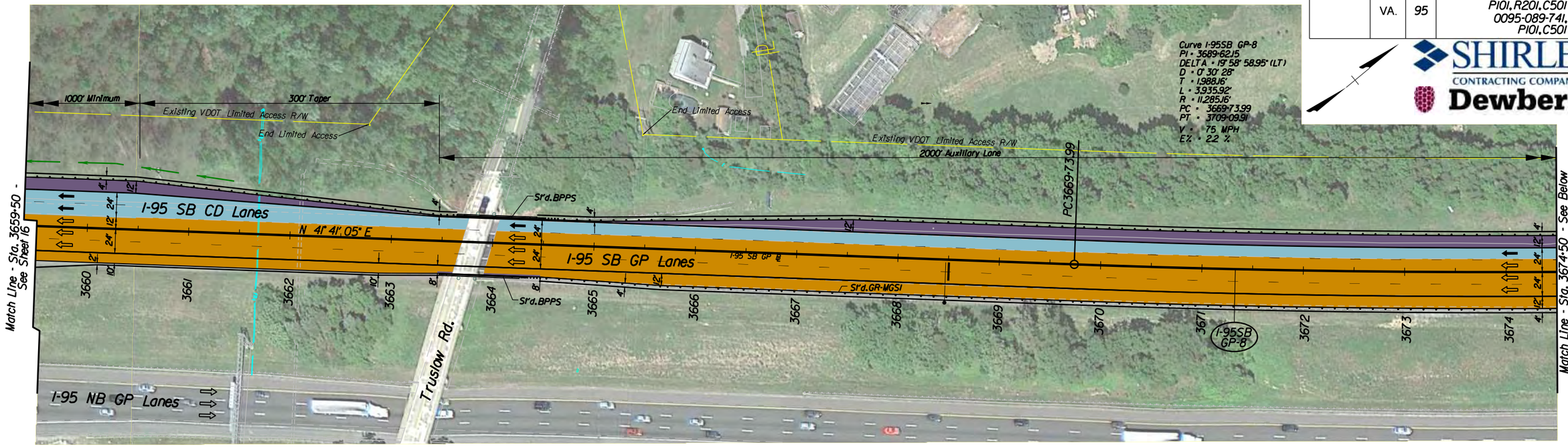
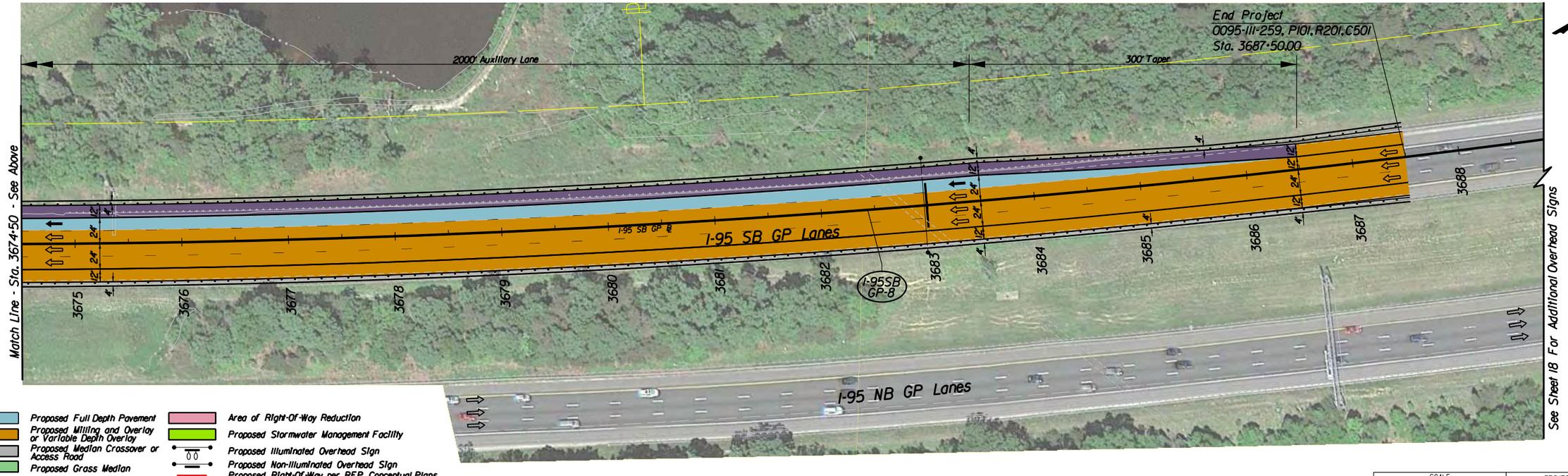
Dewberry





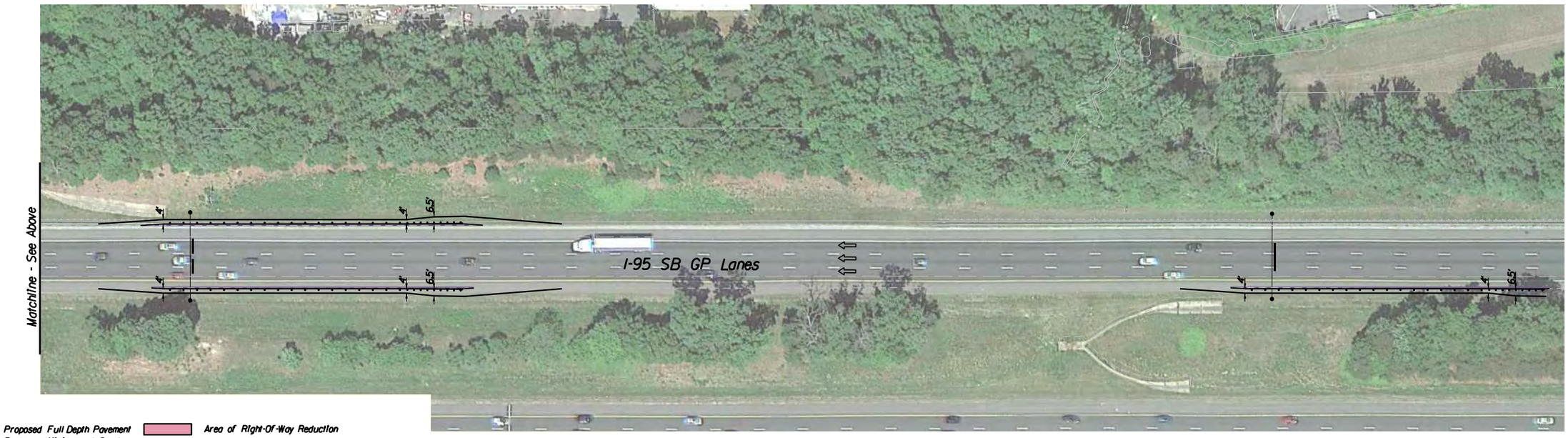
- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	17

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	18

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry



- Proposed Full Depth Pavement
- Proposed Milling and Overlay or Variable Depth Overlay
- Proposed Median Crossover or Access Road
- Proposed Grass Median
- Proposed Full Depth Shoulder
- Proposed Bridge
- Area of Right-Of-Way Reduction
- Proposed Stormwater Management Facility
- Proposed Illuminated Overhead Sign
- Proposed Non-Illuminated Overhead Sign
- Proposed Right-Of-Way per RFP Conceptual Plans
- Proposed Limited Access Line

SCALE	PROJECT	SHEET NO.
0 50' 100'	0095-111-259 0095-089-741	18

4.3.2 - Conceptual Structural Plans

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	IM-5111(235)	95	0095-111-259, B604	1
NBIS Number: 000000000030871			UPC No. 101595		
Federal Oversight Code: FO			FHWA Construction and Scour Code:		

DESIGN EXCEPTION(S):

GENERAL NOTES:

Width: 54'-0" face-to-face of curbs.

Span layout: 202'-5" - 210' - 240' - 240' - 202'-5"
continuous steel plate girder spans

Capacity: HL-93 loading.

Drainage area: 1.595 sq. mi.

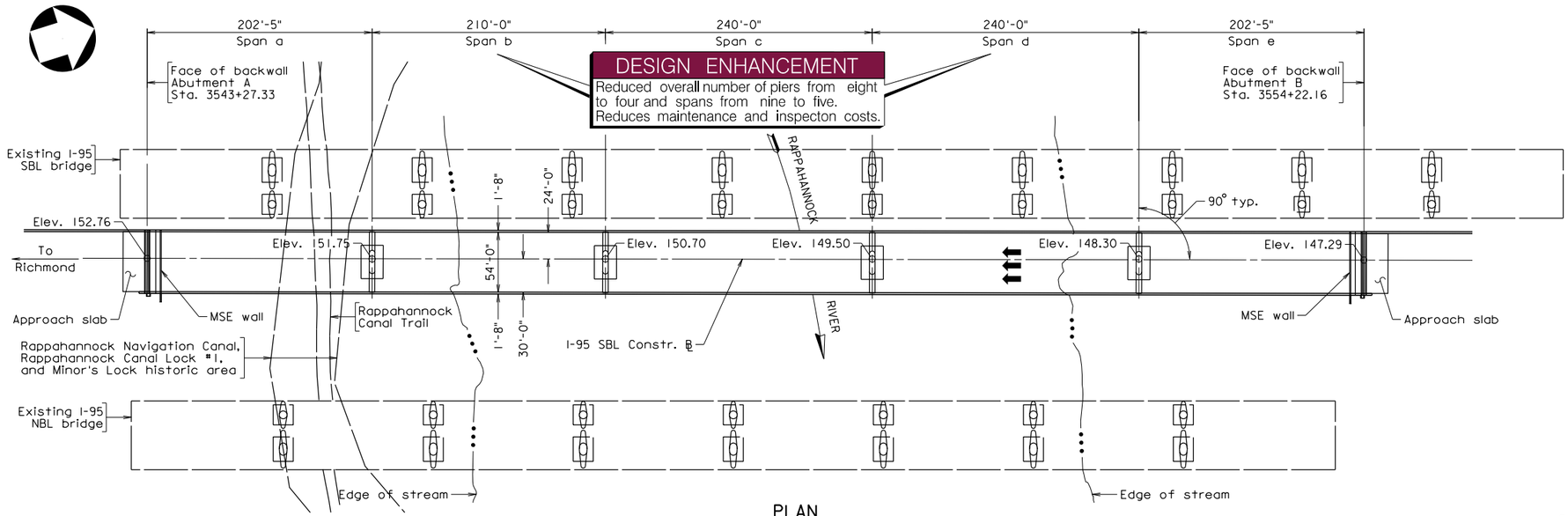
Specifications:

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

Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; and VDOT Modifications.

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

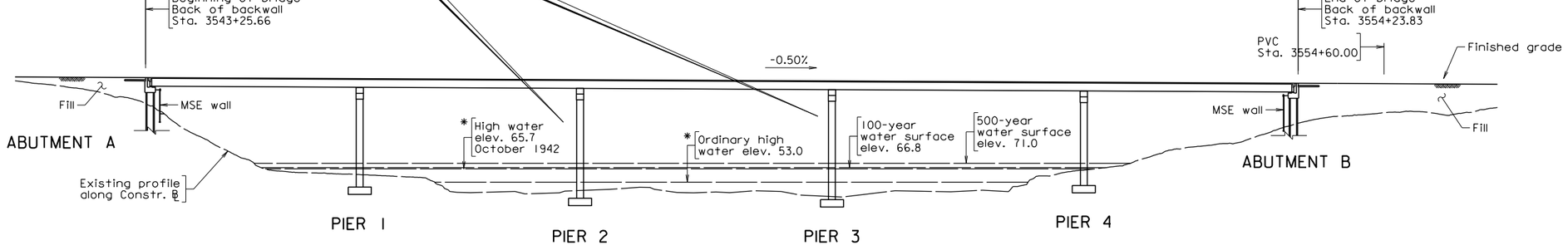
These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.



PLAN

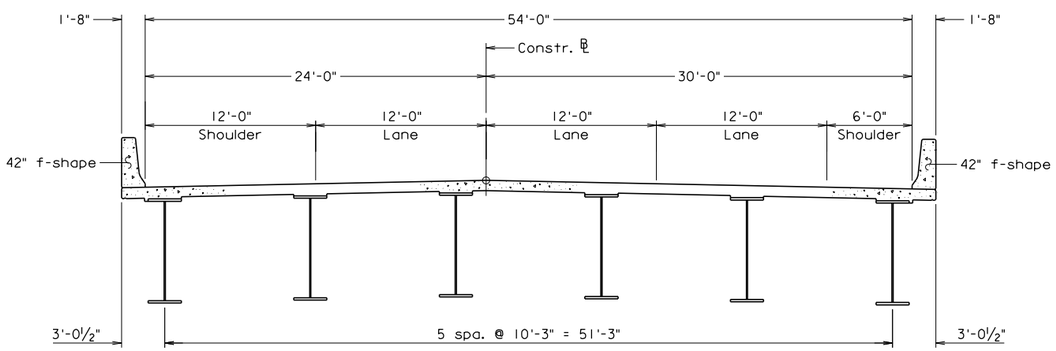
DESIGN ENHANCEMENT
Reduced number of piers in water from four to two. Minimizes environmental impacts in Rappahannock River.

DESIGN ENHANCEMENT
Decreased length of bridge. Reduces long-term maintenance and inspection costs.

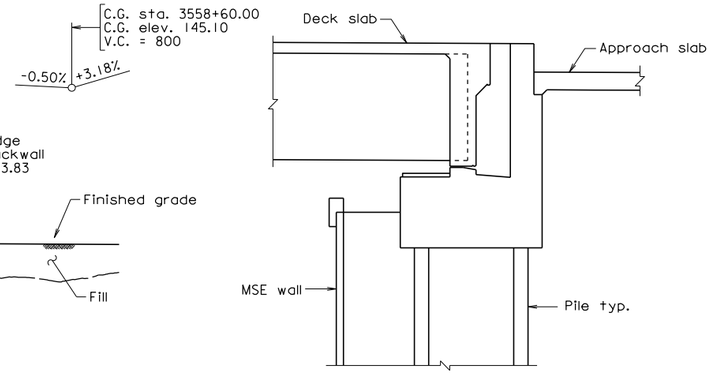


*Elevations taken from 1980 mainline bridge plans (156-04a)

DEVELOPED SECTION ALONG CONSTR. ℄



TRANSVERSE SECTION
Scale 3/16" = 1'-0"



ABUTMENT SECTION
Not to scale

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED BRIDGE ON

I-95 SBL OVER RAPPAHANNOCK RIVER
STAFFORD CO. - 1.2 MI. S. OF RTE. 17
PROJ. 0095-111-259, B604

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

Table of Revisions

PLANS BY:	Dewberry
COORDINATED:	
SUPERVISED:	
DESIGNED:	J. Ross Burhouse
DRAWN:	John P. Doulis
CHECKED:	

Scale: 1" = 60' unless otherwise noted

Recommended for Approval: _____ Date
Developer's Designee

Approved: _____ Date
Chief Engineer

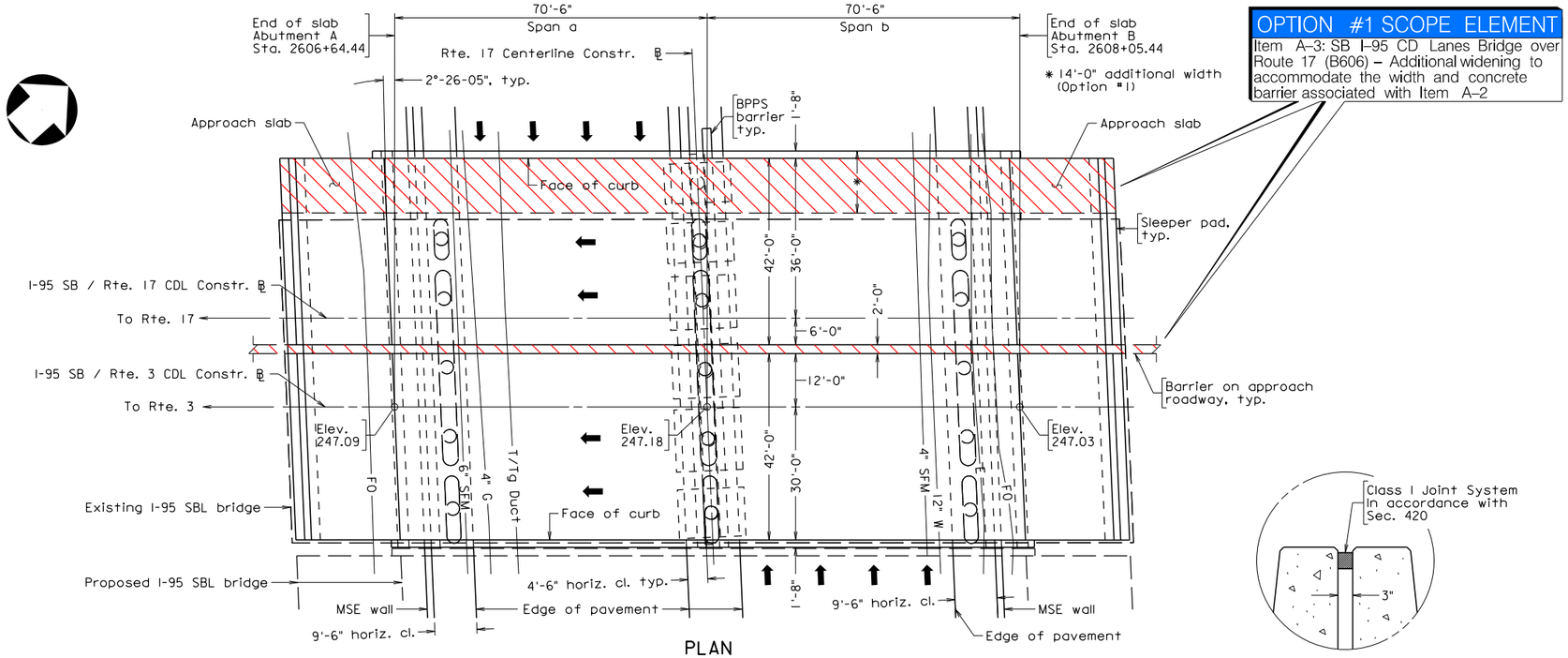
Date: November, 2017

299-97

Sheet 1 of 1

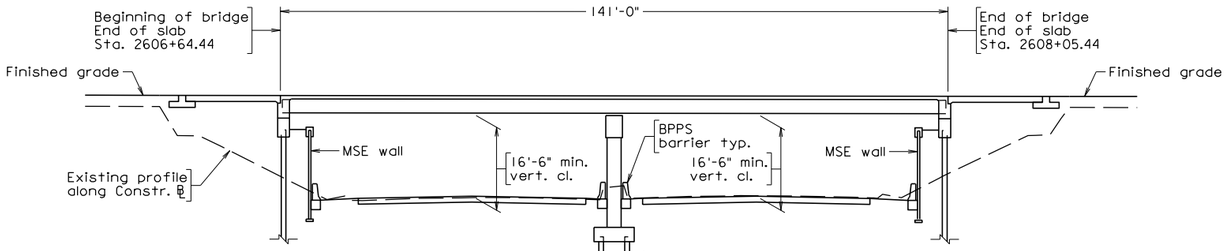
b604_Rappahannock_GP&E.dgn

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	IM-5111(235)	95	0095-111-259, B606	1
NBIS Number: 000000000030872			UPC No. 101595		
Federal Oversight Code: FO			FHWA Construction and Scour Code:		



PLAN

JOINT SEAL DETAIL
Not to scale

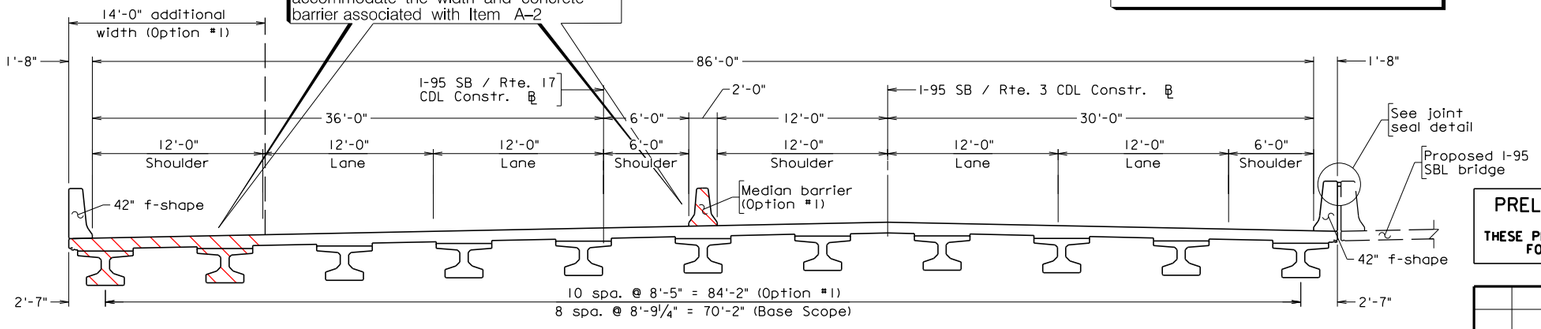


ABUTMENT A PIER ABUTMENT B

DEVELOPED SECTION ALONG CONSTR. ℄
Note: utilities not shown in section

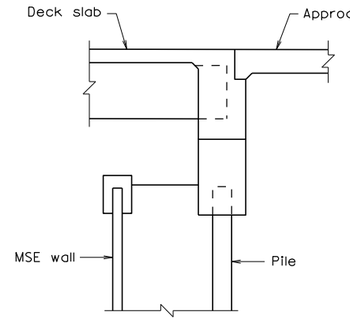
OPTION #1 SCOPE ELEMENT
Item A–3: SB I–95 CD Lanes Bridge over Route 17 (B606) – Additional widening to accommodate the width and concrete barrier associated with Item A–2

DESIGN ENHANCEMENT
Incorporate existing piles into pier foundation. Minimizes construction impacts on Route 17.



TRANSVERSE SECTION
Scale 3/16" = 1'-0"

Scale: 1/16" = 1'-0" unless otherwise noted



ABUTMENT SECTION
Not to scale

DESIGN EXCEPTION(S):

Use of concrete median barrier BMB-3A where project data requires MASH-adjusted criteria TL-4/5. Approval by State Structural and Bridge Engineer is pending.

GENERAL NOTES:

Width: 86'-0" face-to-face of curbs (Option #1).
72'-0" face-to-face of curbs (Base Scope).

Span layout: 70'-6" - 70'-6" prestressed concrete bulb-T beam spans continuous for live load

Capacity: HL-93 loading.

Specifications:

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

Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; 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.

Bridge No. of existing bridge is 2000. Plan No. are 156-05 and 258-51.

The existing structure is designated a Type B structure in accordance with Sec. 411.

Architectural treatment on MSE walls shall be drystack with 2" relief.

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED BRIDGE ON
I-95 SB CDL OVER RTE. 17
(REPLACES I-95 SBL OVER RTE. 17)
STAFFORD CO. - 1.1 MI. S. OF RTE. 652
PROJ. 0095-111-259, B606

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS
Table of Revisions

PLANS BY:	Dewberry
COORDINATED:	
SUPERVISED:	
DESIGNED:	J. Ross Burhouse
DRAWN:	John P. Doulis
CHECKED:	

Recommended for Approval: _____ Developer's Designee _____ Date

Approved: _____ Chief Engineer _____ Date

300-00

Date: November, 2017

Sheet 1 of 1

b606_SB-CD_over_Rte-17_GP&E.dgn

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	IM-5111(235)	95	0095-089-741, B651	1
NBIS Number: 000000000030872			UPC No. 110595		
Federal Oversight Code: FO			FHWA Construction and Scour Code:		

DESIGN EXCEPTION(S):

None

GENERAL NOTES:

Width: 54'-0" face-to-face of curbs.

Span layout: 70'-6" - 70'-6" prestressed concrete bulb-T beam spans continuous for live load

Capacity: HL-93 loading.

Specifications:

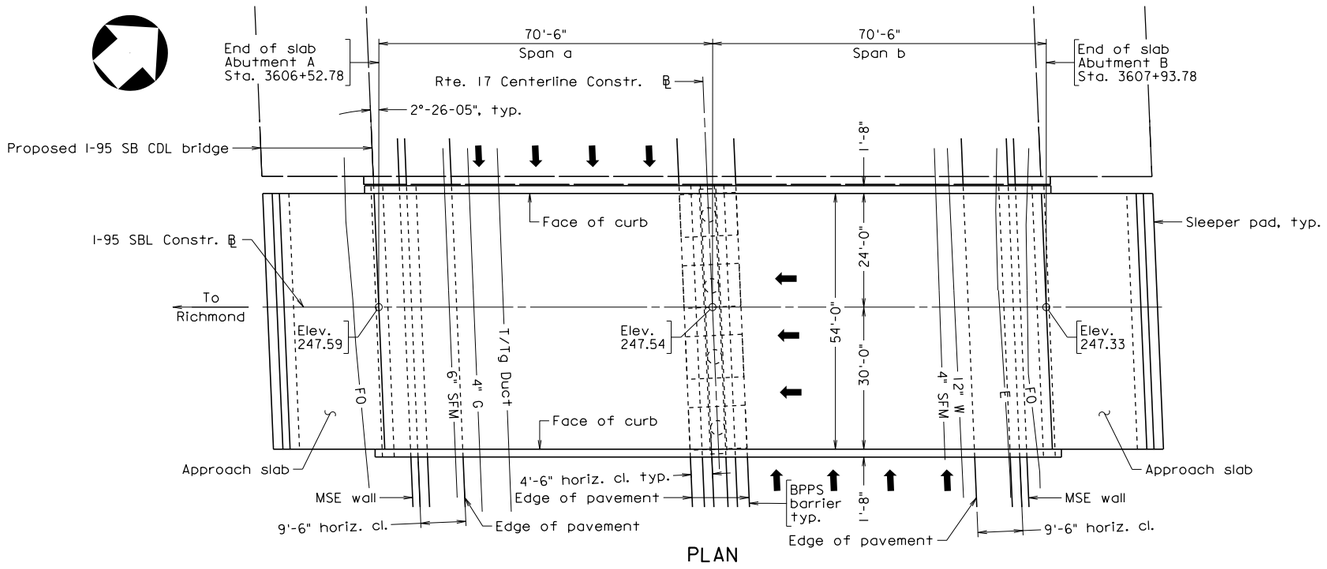
Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.

Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; and VDOT Modifications.

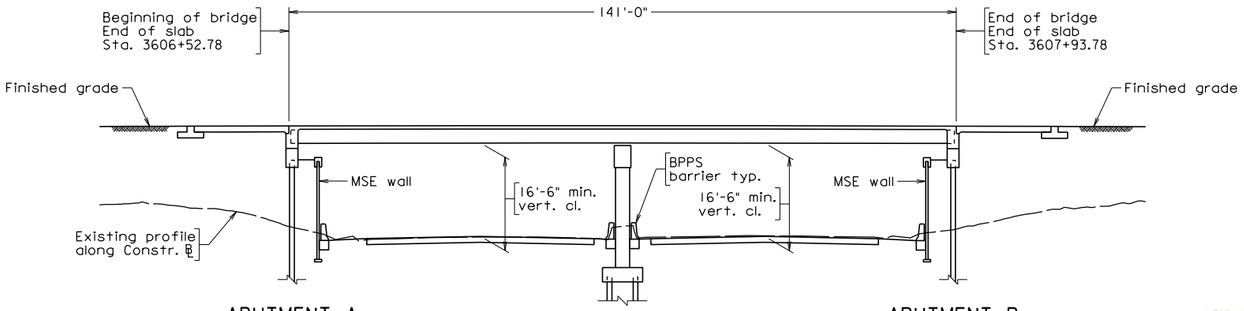
Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

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

Architectural treatment on MSE walls shall be drystack with 2" relief.



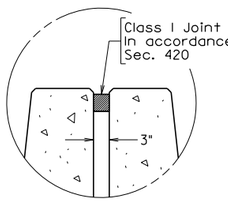
PLAN



ABUTMENT A PIER ABUTMENT B

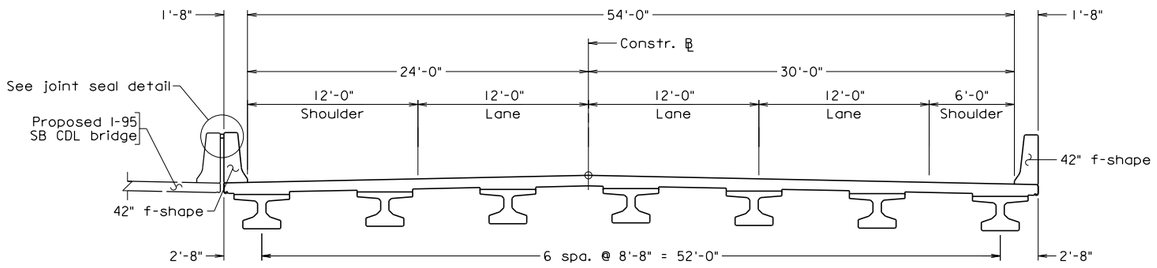
DEVELOPED SECTION ALONG CONSTR. ℄

Note: utilities not shown in section



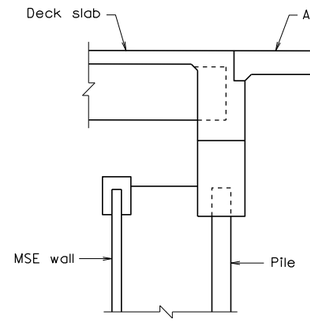
JOINT SEAL DETAIL

Not to scale



TRANSVERSE SECTION

Scale 3/16" = 1'-0"



ABUTMENT SECTION

Not to scale

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

VDOT

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF TRANSPORTATION

PROPOSED BRIDGE ON

I-95 SBL OVER RTE. 17
STAFFORD CO. - 1.1 MI. S. OF RTE. 652
PROJ. 0095-089-741, B651

PRELIMINARY PLANS

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS

Table of Revisions

PLANS BY:	Dewberry
COORDINATED:	
SUPERVISED:	
DESIGNED:	J. Ross Burhouse
DRAWN:	John P. Doulis
CHECKED:	

Scale: 1/16" = 1'-0" unless otherwise noted

Recommended for Approval: _____ Date
Developer's Designee

Approved: _____ Date
Chief Engineer

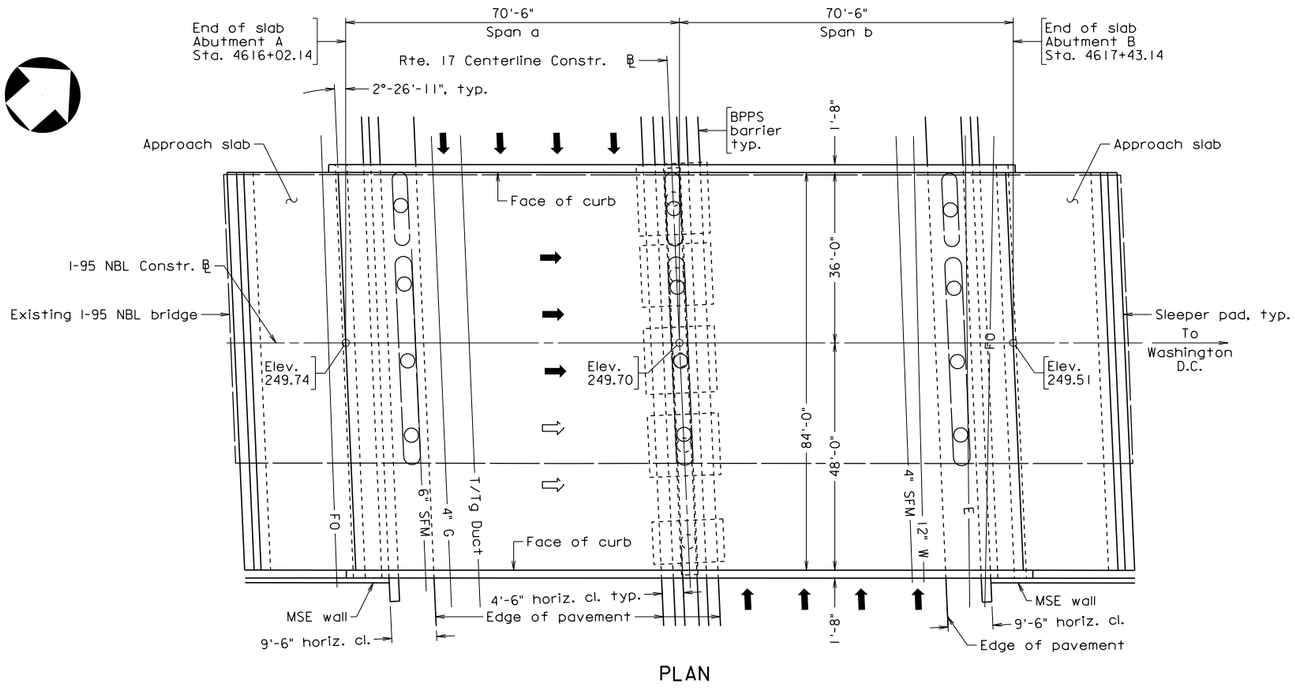
299-99

Date: November, 2017

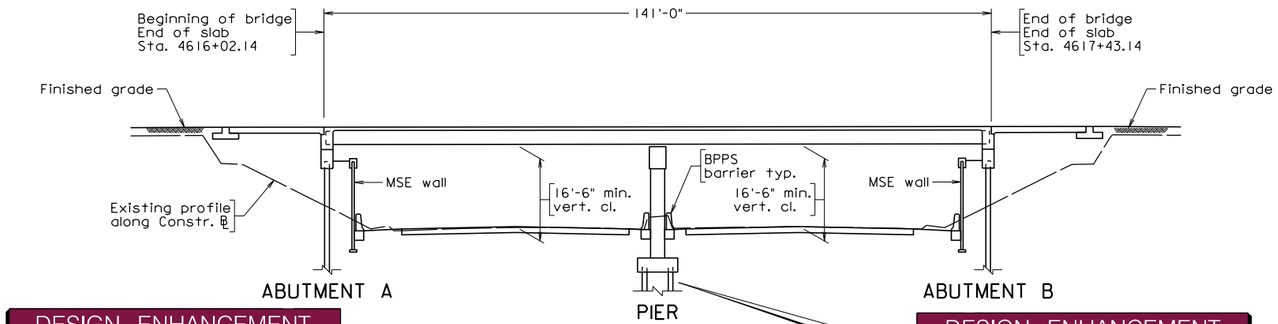
Sheet 1 of 1

b651_SBL_over_Rte-17_GP&E.dgn

STATE	FEDERAL AID		STATE		SHEET NO.
	ROUTE	PROJECT	ROUTE	PROJECT	
VA.	—	IM-5111(235)	95	0095-089-741, B652	1
NBIS Number: 000000000030890			UPC No. 110595		
Federal Oversight Code: FO			FHWA Construction and Scour Code:		



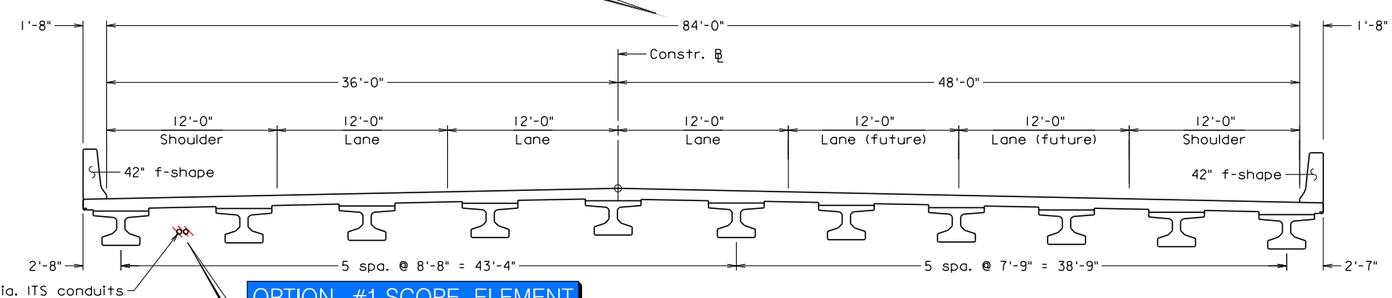
PLAN



DESIGN ENHANCEMENT
Construct ultimate 5-lane bridge section. Simplifies construction phasing and provides for planned future lanes.

DESIGN ENHANCEMENT
Incorporate existing piles into pier foundation. Minimizes construction impacts on Route 17.

DEVELOPED SECTION ALONG CONSTR. ℄
Note: utilities not shown in section



OPTION #1 SCOPE ELEMENT
Item A-6: ITS Conduits across NB I-95 GP Bridge over Route 17 (B652) – Installation of two 4-inch diameter conduits and junction boxes within the existing I-95 median for future use by the Fred-Ex Project.

TRANSVERSE SECTION
Scale 3/16" = 1'-0"

Scale: 1/16" = 1'-0" unless otherwise noted

PLANS BY:	Dewberry
COORDINATED:	
SUPERVISED:	
DESIGNED:	J. Ross Burhouse
DRAWN:	John P. Doulis
CHECKED:	

b652_NBL_over_Rte-17_GP&E.dgn

DESIGN EXCEPTION(S):

None

GENERAL NOTES:

Width: 84'-0" face-to-face of curbs.

Span layout: 70'-6" - 70'-6" prestressed concrete bulb-T beams continuous for live load

Capacity: HL-93 loading.

Specifications:

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

Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; and VDOT Modifications.

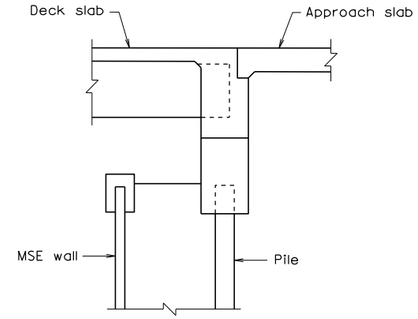
Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

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

Bridge No. of existing bridge is 2001. Plan No. are 156-05 and 258-51.

The existing structure is designated a Type B structure in accordance with Sec. 411.

Architectural treatment on MSE walls shall be drystack with 2" relief.



ABUTMENT SECTION
Not to scale

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED REPLACEMENT BRIDGE ON

I-95 NBL OVER RTE. 17
STAFFORD CO. - 1.1 MI. S. OF RTE. 652
PROJ. 0095-089-741, B652

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date

REVISIONS
Table of Revisions

Recommended for Approval: _____ Developer's Designee _____ Date

Approved: _____ Chief Engineer _____ Date

Date: November, 2017

300-01

Sheet 1 of 1

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	1

SHIRLEY CONTRACTING COMPANY, LLC

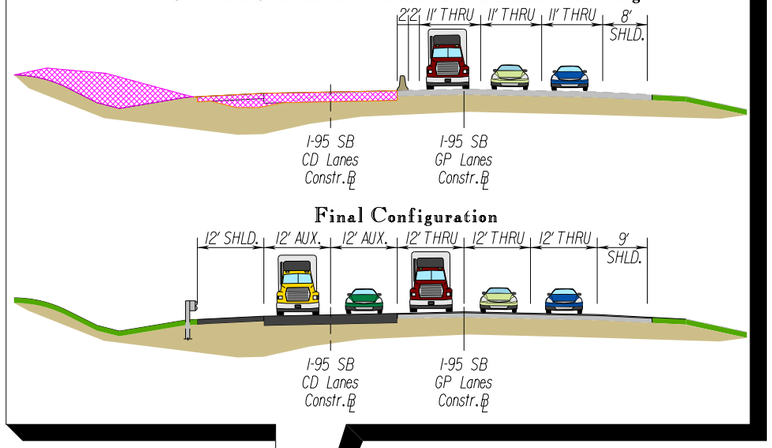
Dewberry

LEGEND

- Work During Stage 1
- Work During Stage 2
- Work During Stages 1 & 2
- Temporary Pavement

OUTSIDE WORK ONLY

STAGES 1 & 2 - Construct Outside Widening



Final Configuration

SCALE	PROJECT	SHEET NO.
0 600' 1200'	0095-111-259 0095-089-741	1

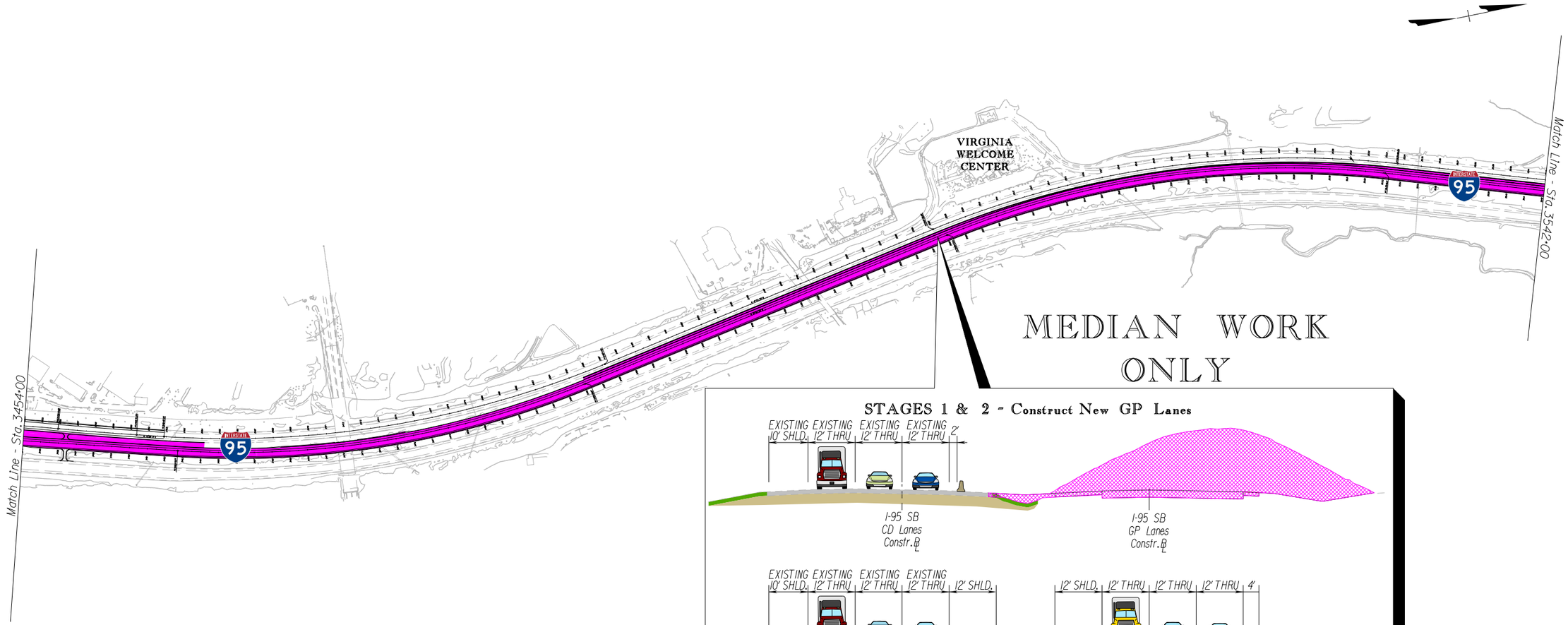
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	2

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

LEGEND

- Work During Stage 1
- Work During Stage 2
- Work During Stages 1 & 2
- Temporary Pavement

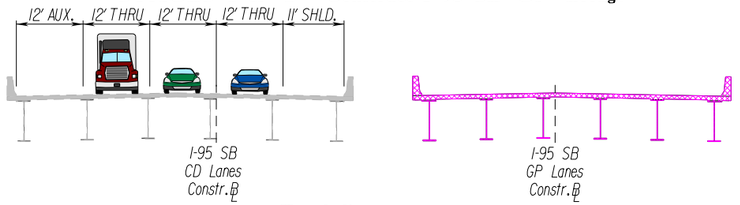


MEDIAN WORK ONLY

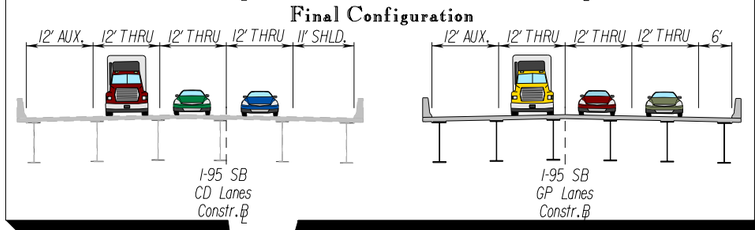
SCALE	PROJECT	SHEET NO.
0 600' 1200'	0095-111-259 0095-089-741	2

RAPPAHANNOCK RIVER BRIDGE

STAGES 1 & 2 - Construct I-95 SB GP Bridge

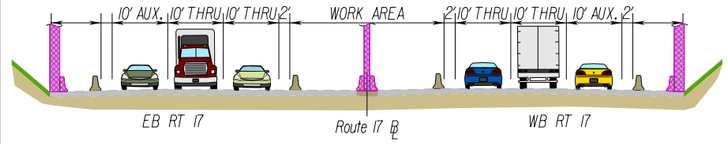


Final Configuration

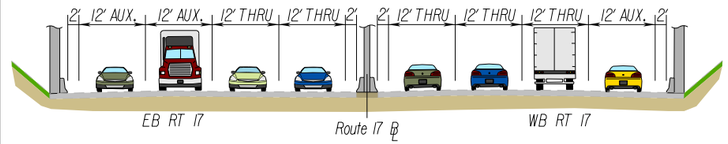


ROUTE 17

STAGES 1 & 2 - Bridge Construction and Demolition



Existing and Final Conditions

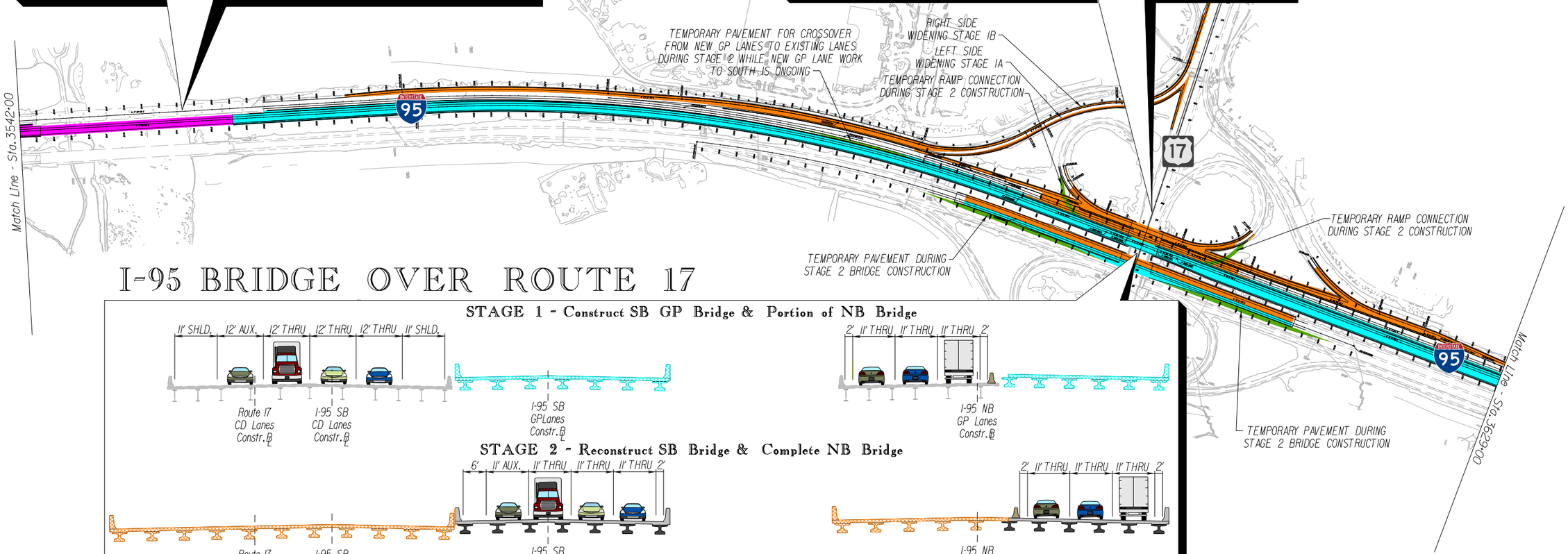


REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	3

SHIRLEY CONTRACTING COMPANY, LLC
Dewberry

LEGEND

- Work During Stage 1
- Work During Stage 2
- Work During Stages 1 & 2
- Temporary Pavement

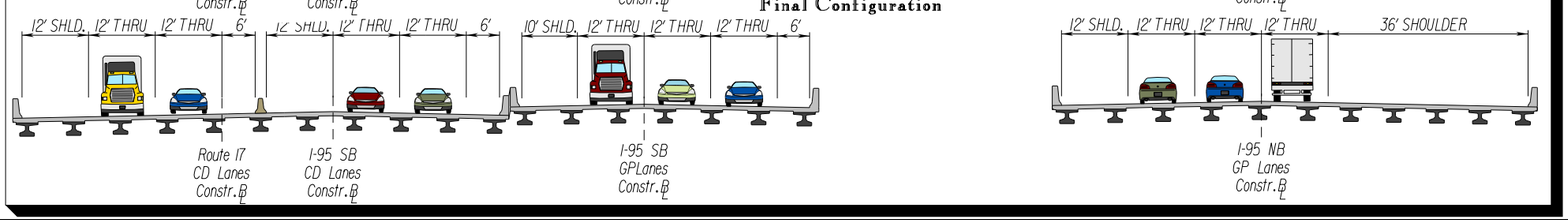


I-95 BRIDGE OVER ROUTE 17

STAGE 1 - Construct SB GP Bridge & Portion of NB Bridge

STAGE 2 - Reconstruct SB Bridge & Complete NB Bridge

Final Configuration



SCALE	PROJECT	SHEET NO.
0 600' 1200'	0095-111-259 0095-089-741	3

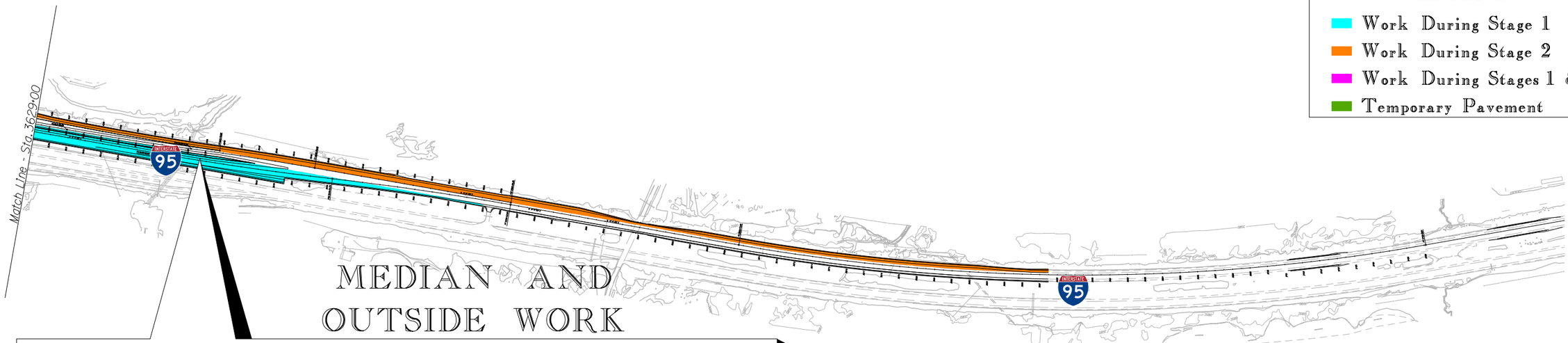
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	95	0095-111-259, P-101, P101, R201, C501 0095-089-741, P101, C501	4

SHIRLEY CONTRACTING COMPANY, LLC

Dewberry

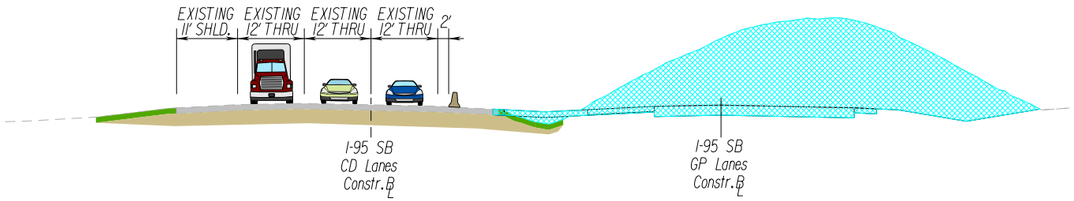
LEGEND

- Work During Stage 1
- Work During Stage 2
- Work During Stages 1 & 2
- Temporary Pavement

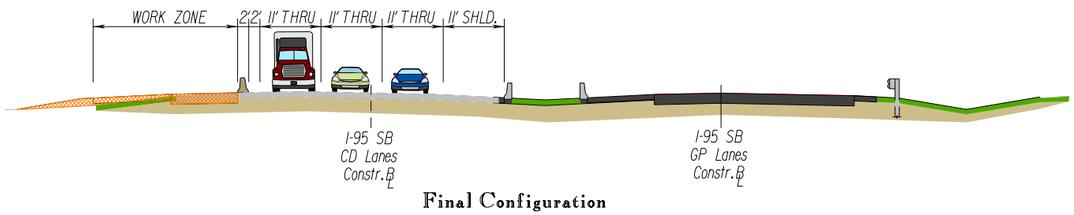


MEDIAN AND OUTSIDE WORK

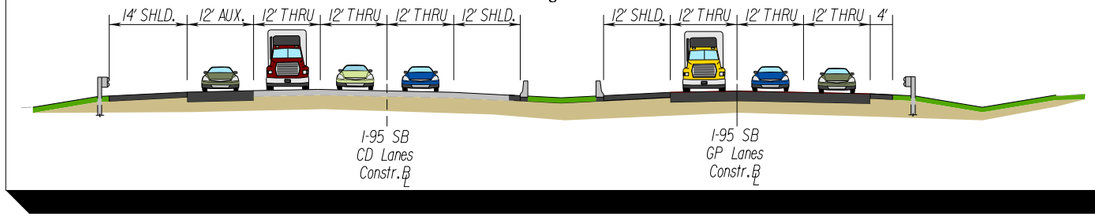
STAGE 1 - Construct New GP Lanes



STAGE 2 - Construct Auxiliary lane tie-in



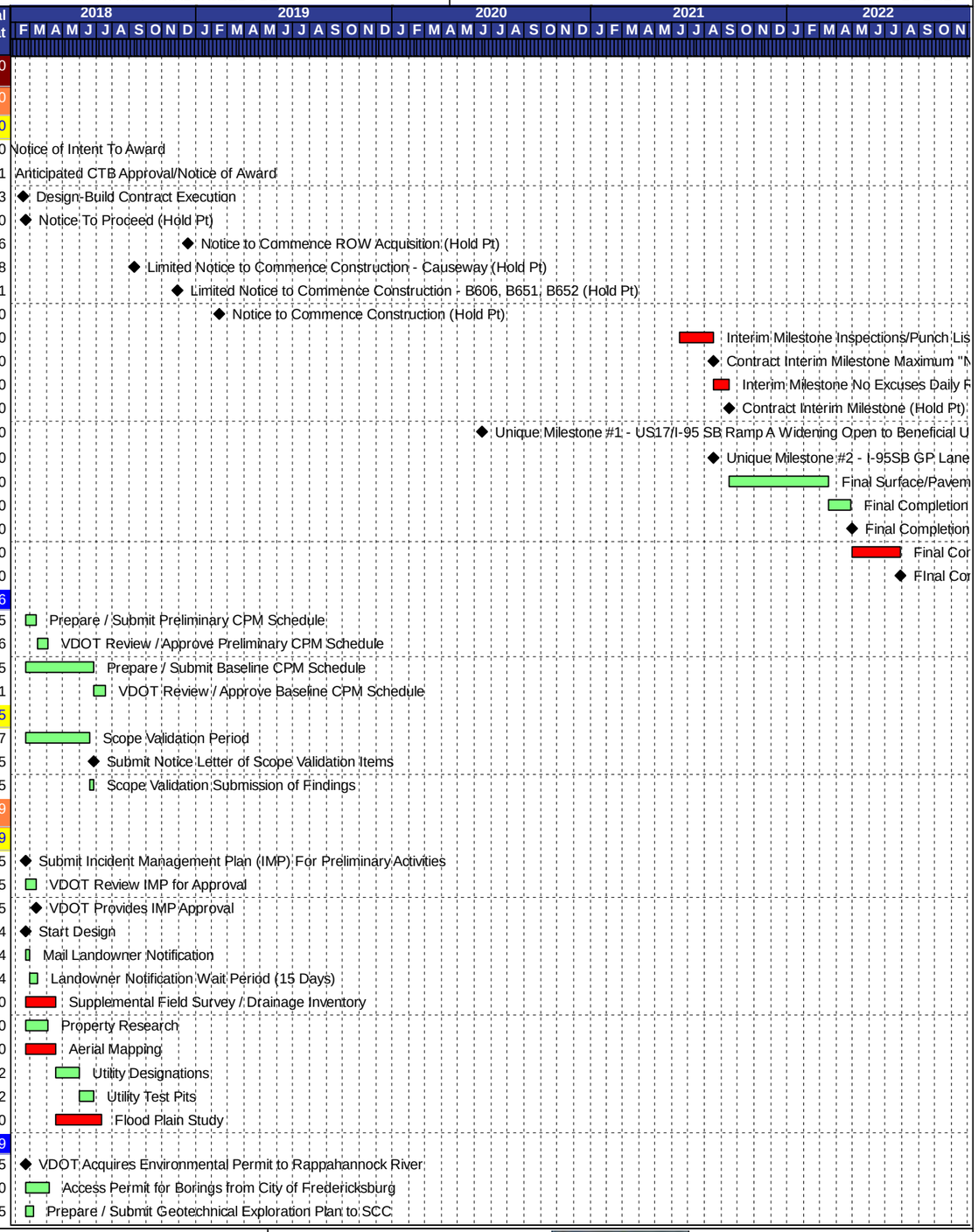
Final Configuration



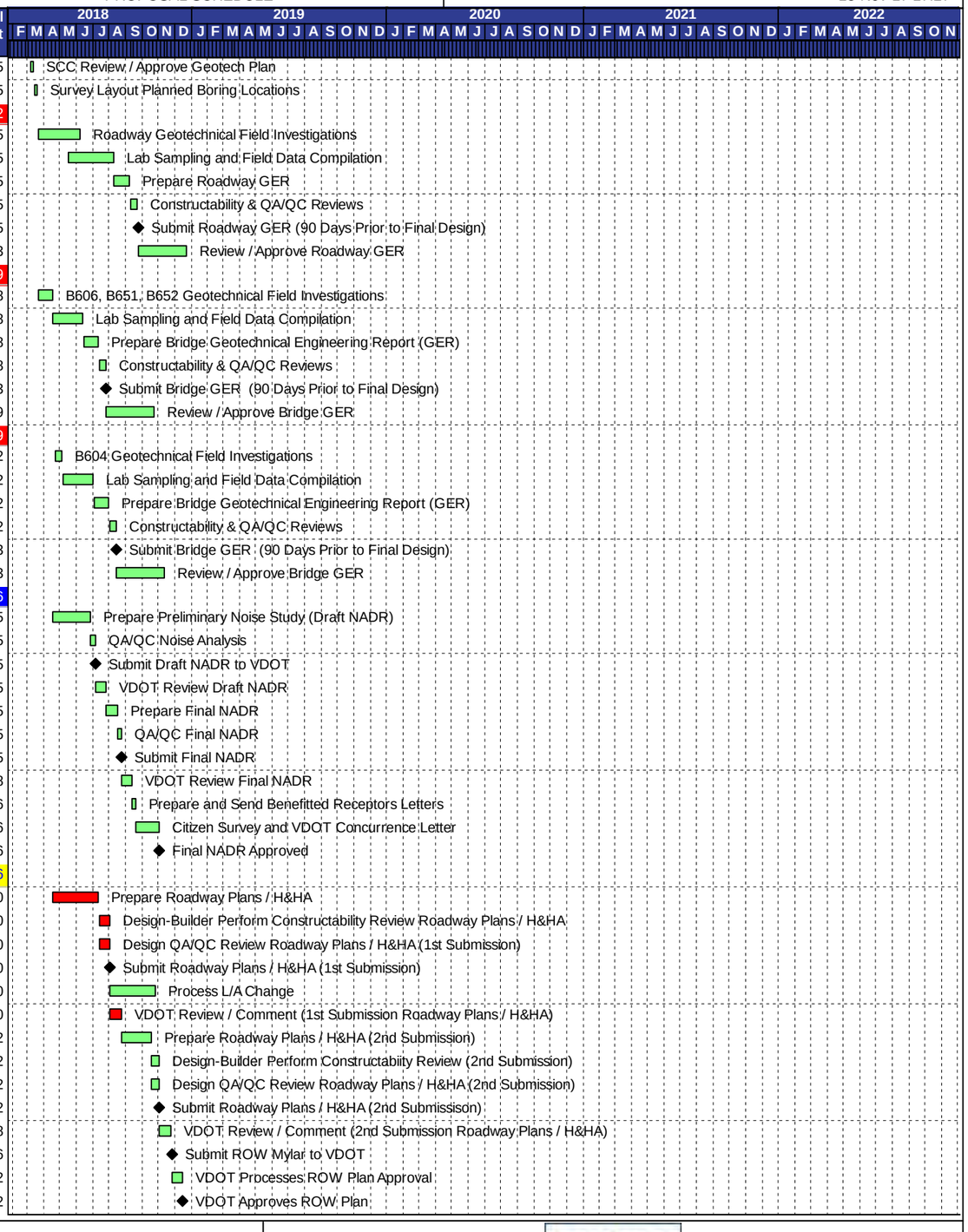
SCALE	PROJECT	SHEET NO.
0 600' 1200'	0095-111-259 0095-089-741	4

4.7.1 - Proposal Schedule

Activity ID	Activity Name	Duration	Start	Finish	Total Float
I95RRC	**I-95 Southbound CD Lanes - Rappahannock River Crossing**	1171	20-Dec-17	30-Jul-22	0
I95RRC.1	**PROJECT MILESTONES**	1166	28-Dec-17	30-Jul-22	0
I95RRC.1.1	**Milestones**	1166	28-Dec-17	30-Jul-22	0
PD10240	Notice of Intent To Award	0	28-Dec-17*		0
PD10250	Anticipated CTB Approval/Notice of Award	0	09-Jan-18*		31
PD10260	Design-Build Contract Execution	0	16-Feb-18*		3
PD10270	Notice To Proceed (Hold Pt)	0	21-Feb-18*		0
PD10315	Notice to Commence ROW Acquisition (Hold Pt)	0	17-Dec-18		86
PD10318	Limited Notice to Commence Construction - Causeway (Hold Pt)	0	10-Sep-18		38
PD10319	Limited Notice to Commence Construction - B606, B651, B652 (Hold Pt)	0	28-Nov-18		251
PD10320	Notice to Commence Construction (Hold Pt)	0	15-Feb-19*		0
PD10325	Interim Milestone Inspections/Punch List	45	14-Jun-21	16-Aug-21	0
PD10330	Contract Interim Milestone Maximum "No Excuses" Milestone	0		16-Aug-21*	0
PD10340	Interim Milestone No Excuses Daily Reduction	30	17-Aug-21	15-Sep-21	0
PD10400	Contract Interim Milestone (Hold Pt)	0		15-Sep-21*	0
PD10500	Unique Milestone #1 - US17/I-95 SB Ramp A Widening Open to Beneficial Use (Hold Pt)	0		15-Jun-20	0
PD10510	Unique Milestone #2 - I-95SB GP Lanes [3606+50 - Southern Terminus] Open to Beneficial Use	0		16-Aug-21	0
PD10515	Final Surface/Pavement Markings/Rumble Strips/Stabilization	45	15-Sep-21	18-Mar-22	0
PD10520	Final Completion Inspections/Punch List	30	18-Mar-22	29-Apr-22	0
PD11120	Final Completion Max "No Excuses" Milestone	0		01-May-22*	0
PD11125	Final Completion No Excuses Daily Reduction	90	01-May-22	29-Jul-22	0
PD12000	FInal Completion (Hold Pt)	0		30-Jul-22*	0
I95RRC.1.1.1	**Schedule Submissions**	104	21-Feb-18	18-Jul-18	146
PD12500	Prepare / Submit Preliminary CPM Schedule	15	21-Feb-18	13-Mar-18	145
PD12520	VDOT Review / Approve Preliminary CPM Schedule	21	14-Mar-18	03-Apr-18	296
PD12540	Prepare / Submit Baseline CPM Schedule	90	21-Feb-18	27-Jun-18	145
PD12560	VDOT Review / Approve Baseline CPM Schedule	21	28-Jun-18	18-Jul-18	211
I95RRC.1.2	**Scope Validation**	90	21-Feb-18	27-Jun-18	115
PD13000	Scope Validation Period	120	21-Feb-18	20-Jun-18	167
PD13020	Submit Notice Letter of Scope Validation Items	0		27-Jun-18	115
PD13040	Scope Validation Submission of Findings	5	20-Jun-18	27-Jun-18	115
I95RRC.2	**DESIGN PHASE**	281	20-Dec-17	29-Jan-19	209
I95RRC.2.1	**Preliminary Design**	213	21-Feb-18	22-Dec-18	69
DES00000	Submit Incident Management Plan (IMP) For Preliminary Activities	0	21-Feb-18		25
DES00030	VDOT Review IMP for Approval	21	21-Feb-18	13-Mar-18	35
DES00040	VDOT Provides IMP Approval	0		13-Mar-18	25
DES10000	Start Design	0	21-Feb-18		24
DES10010	Mail Landowner Notification	5	21-Feb-18	27-Feb-18	24
DES10030	Landowner Notification Wait Period (15 Days)	15	28-Feb-18	14-Mar-18	34
DES10040	Supplemental Field Survey / Drainage Inventory	40	21-Feb-18	17-Apr-18	0
DES10041	Property Research	30	21-Feb-18	03-Apr-18	10
DES10045	Aerial Mapping	40	21-Feb-18	17-Apr-18	0
DES10050	Utility Designations	30	18-Apr-18	30-May-18	52
DES10060	Utility Test Pits	20	31-May-18	27-Jun-18	52
DES10070	Flood Plain Study	60	18-Apr-18	12-Jul-18	0
I95RRC.2.1.1	**Geotechnical Investigation and Reports**	213	21-Feb-18	22-Dec-18	69
GT00010	VDOT Acquires Environmental Permit to Rappahannock River	0		21-Feb-18	95
GT00020	Access Permit for Borings from City of Fredericksburg	45	21-Feb-18	06-Apr-18	90
GT10000	Prepare / Submit Geotechnical Exploration Plan to SCC	10	21-Feb-18	06-Mar-18	25



Activity ID	Activity Name	Duration	Start	Finish	Total Float
GT10010	SCC Review / Approve Geotech Plan	5	07-Mar-18	13-Mar-18	25
GT10020	Survey Layout Planned Boring Locations	5	14-Mar-18	20-Mar-18	25
I95RRC.2.1.1.1 Roadway		193	21-Mar-18	22-Dec-18	22
GT100	Roadway Geotechnical Field Investigations	55	21-Mar-18	06-Jun-18	25
GT100	Lab Sampling and Field Data Compilation	60	16-May-18	09-Aug-18	25
GT101	Prepare Roadway GER	20	10-Aug-18	07-Sep-18	25
GT101	Constructability & QA/QC Reviews	10	10-Sep-18	21-Sep-18	25
GT101	Submit Roadway GER (90 Days Prior to Final Design)	0	24-Sep-18		25
GT101	Review / Approve Roadway GER	90	24-Sep-18	22-Dec-18	33
I95RRC.2.1.1.2 B606, B651, B652		153	21-Mar-18	24-Oct-18	109
GT100	B606, B651, B652 Geotechnical Field Investigations	20	21-Mar-18	17-Apr-18	108
GT100	Lab Sampling and Field Data Compilation	40	18-Apr-18	13-Jun-18	108
GT100	Prepare Bridge Geotechnical Engineering Report (GER)	20	14-Jun-18	12-Jul-18	108
GT100	Constructability & QA/QC Reviews	10	13-Jul-18	26-Jul-18	108
GT100	Submit Bridge GER (90 Days Prior to Final Design)	0	27-Jul-18		113
GT101	Review / Approve Bridge GER	90	27-Jul-18	24-Oct-18	159
I95RRC.2.1.1.3 B604		143	23-Apr-18	12-Nov-18	49
GT100	B604 Geotechnical Field Investigations	10	23-Apr-18	04-May-18	52
GT100	Lab Sampling and Field Data Compilation	40	07-May-18	02-Jul-18	52
GT101	Prepare Bridge Geotechnical Engineering Report (GER)	20	03-Jul-18	31-Jul-18	52
GT101	Constructability & QA/QC Reviews	10	01-Aug-18	14-Aug-18	52
GT101	Submit Bridge GER (90 Days Prior to Final Design)	0	15-Aug-18		53
GT102	Review / Approve Bridge GER	90	15-Aug-18	12-Nov-18	73
I95RRC.2.1.2 Noise Analysis		139	18-Apr-18	01-Nov-18	26
NA10000	Prepare Preliminary Noise Study (Draft NADR)	50	18-Apr-18	27-Jun-18	25
NA10010	QA/QC Noise Analysis	5	28-Jun-18	05-Jul-18	25
NA10020	Submit Draft NADR to VDOT	0	06-Jul-18		25
NA10030	VDOT Review Draft NADR	21	06-Jul-18	26-Jul-18	35
NA10040	Prepare Final NADR	15	26-Jul-18	16-Aug-18	25
NA10050	QA/QC Final NADR	5	16-Aug-18	23-Aug-18	25
NA10060	Submit Final NADR	0	23-Aug-18		25
NA10070	VDOT Review Final NADR	21	24-Aug-18	13-Sep-18	38
NA10080	Prepare and Send Benefitted Receptors Letters	5	13-Sep-18	20-Sep-18	26
NA10090	Citizen Survey and VDOT Concurrence Letter	30	20-Sep-18	01-Nov-18	26
NA10100	Final NADR Approved	0		01-Nov-18	26
I95RRC.2.2 Roadway / Retaining Walls / Soundwall Plans		198	18-Apr-18	29-Jan-19	56
DES12000	Prepare Roadway Plans / H&HA	60	18-Apr-18	12-Jul-18	0
DES12020	Design-Builder Perform Constructability Review Roadway Plans / H&HA	15	13-Jul-18	02-Aug-18	0
DES12040	Design QA/QC Review Roadway Plans / H&HA (1st Submission)	15	13-Jul-18	02-Aug-18	0
DES12050	Submit Roadway Plans / H&HA (1st Submission)	0	03-Aug-18		0
DES12055	Process L/A Change	60	03-Aug-18	26-Oct-18	60
DES12060	VDOT Review / Comment (1st Submission Roadway Plans / H&HA)	21	03-Aug-18	23-Aug-18	0
DES12070	Prepare Roadway Plans / H&HA (2nd Submission)	40	23-Aug-18	19-Oct-18	12
DES12090	Design-Builder Perform Constructabiity Review (2nd Submission)	10	19-Oct-18	02-Nov-18	12
DES12110	Design QA/QC Review Roadway Plans / H&HA (2nd Submission)	10	19-Oct-18	02-Nov-18	12
DES12120	Submit Roadway Plans / H&HA (2nd Submissison)	0	02-Nov-18		12
DES12130	VDOT Review / Comment (2nd Submission Roadway Plans / H&HA)	21	03-Nov-18	23-Nov-18	18
DES12135	Submit ROW Mylar to VDOT	0	26-Nov-18		86
DES12136	VDOT Processes ROW Plan Approval	21	26-Nov-18	16-Dec-18	122
DES12137	VDOT Approves ROW Plan	0		16-Dec-18	122

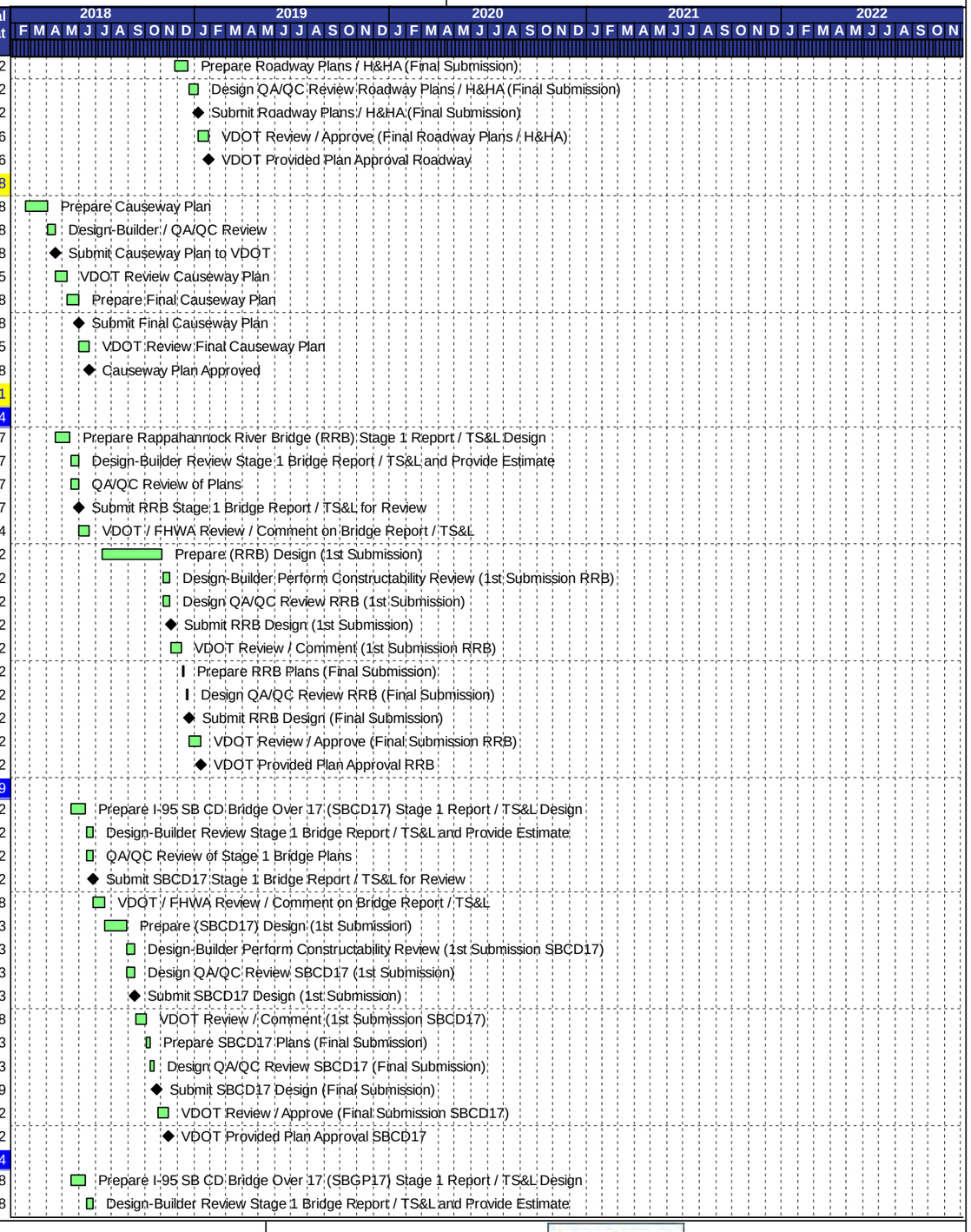


Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
DES12140	Prepare Roadway Plans / H&HA (Final Submission)	20	26-Nov-18	21-Dec-18	12
DES12150	Design QA/QC Review Roadway Plans / H&HA (Final Submission)	10	24-Dec-18	08-Jan-19	12
DES12160	Submit Roadway Plans / H&HA (Final Submission)	0	09-Jan-19		12
DES12170	VDOT Review / Approve (Final Roadway Plans / H&HA)	21	09-Jan-19	29-Jan-19	16
DES12180	VDOT Provided Plan Approval Roadway	0		29-Jan-19	16
I95RRC.2.3	**Causeway Plan**	85	21-Feb-18	20-Jun-18	38
DES13000	Prepare Causeway Plan	30	21-Feb-18	03-Apr-18	38
DES13010	Design-Builder / QA/QC Review	10	04-Apr-18	17-Apr-18	38
DES13080	Submit Causeway Plan to VDOT	0	18-Apr-18		38
DES13090	VDOT Review Causeway Plan	21	18-Apr-18	08-May-18	55
DES13110	Prepare Final Causeway Plan	15	08-May-18	30-May-18	38
DES13120	Submit Final Causeway Plan	0	30-May-18		38
DES13130	VDOT Review Final Causeway Plan	21	31-May-18	20-Jun-18	55
DES13140	Causeway Plan Approved	0		20-Jun-18	38
I95RRC.2.4	**Bridge Plans**	186	18-Apr-18	13-Jan-19	221
I95RRC.2.4.1	**Rappahannock River Bridge B604**	186	18-Apr-18	13-Jan-19	24
BD10000	Prepare Rappahannock River Bridge (RRB) Stage 1 Report / TS&L Design	20	18-Apr-18	15-May-18	37
BD10020	Design-Builder Review Stage 1 Bridge Report / TS&L and Provide Estimate	10	16-May-18	30-May-18	37
BD10030	QA/QC Review of Plans	10	16-May-18	30-May-18	37
BD10040	Submit RRB Stage 1 Bridge Report / TS&L for Review	0	31-May-18		37
BD10050	VDOT / FHWA Review / Comment on Bridge Report / TS&L	21	31-May-18	20-Jun-18	54
BD10060	Prepare (RRB) Design (1st Submission)	80	13-Jul-18	02-Nov-18	22
BD10080	Design-Builder Perform Constructability Review (1st Submission RRB)	10	05-Nov-18	16-Nov-18	22
BD10100	Design QA/QC Review RRB (1st Submission)	10	05-Nov-18	16-Nov-18	22
BD10110	Submit RRB Design (1st Submission)	0	19-Nov-18		22
BD10120	VDOT Review / Comment (1st Submission RRB)	21	19-Nov-18	09-Dec-18	32
BD10200	Prepare RRB Plans (Final Submission)	5	10-Dec-18	14-Dec-18	22
BD10210	Design QA/QC Review RRB (Final Submission)	5	17-Dec-18	21-Dec-18	22
BD10220	Submit RRB Design (Final Submission)	0	24-Dec-18		22
BD10230	VDOT Review / Approve (Final Submission RRB)	21	24-Dec-18	13-Jan-19	32
BD10240	VDOT Provided Plan Approval RRB	0		13-Jan-19	32
I95RRC.2.4.2	**I-95 SB CD Over Route 17 B606**	128	16-May-18	14-Nov-18	259
BD11000	Prepare I-95 SB CD Bridge Over 17 (SBCD17) Stage 1 Report / TS&L Design	20	16-May-18	13-Jun-18	262
BD11020	Design-Builder Review Stage 1 Bridge Report / TS&L and Provide Estimate	10	14-Jun-18	27-Jun-18	262
BD11030	QA/QC Review of Stage 1 Bridge Plans	10	14-Jun-18	27-Jun-18	262
BD11040	Submit SBCD17 Stage 1 Bridge Report / TS&L for Review	0	28-Jun-18		262
BD11050	VDOT / FHWA Review / Comment on Bridge Report / TS&L	21	28-Jun-18	18-Jul-18	378
BD11060	Prepare (SBCD17) Design (1st Submission)	30	18-Jul-18	29-Aug-18	263
BD11080	Design-Builder Perform Constructability Review (1st Submission SBCD17)	10	29-Aug-18	13-Sep-18	263
BD11100	Design QA/QC Review SBCD17 (1st Submission)	10	29-Aug-18	13-Sep-18	263
BD11110	Submit SBCD17 Design (1st Submission)	0	13-Sep-18		263
BD11120	VDOT Review / Comment (1st Submission SBCD17)	21	14-Sep-18	04-Oct-18	378
BD11200	Prepare SBCD17 Plans (Final Submission)	5	04-Oct-18	11-Oct-18	263
BD11210	Design QA/QC Review SBCD17 (Final Submission)	5	11-Oct-18	18-Oct-18	263
BD11220	Submit SBCD17 Design (Final Submission)	0	24-Oct-18		259
BD11230	VDOT Review / Approve (Final Submission SBCD17)	21	25-Oct-18	14-Nov-18	372
BD11240	VDOT Provided Plan Approval SBCD17	0		14-Nov-18	372
I95RRC.2.4.3	**I-95 SB GP Over Route 17 B651**	128	16-May-18	14-Nov-18	254
BD12000	Prepare I-95 SB CD Bridge Over 17 (SBGP17) Stage 1 Report / TS&L Design	20	16-May-18	13-Jun-18	258
BD12020	Design-Builder Review Stage 1 Bridge Report / TS&L and Provide Estimate	10	14-Jun-18	27-Jun-18	258

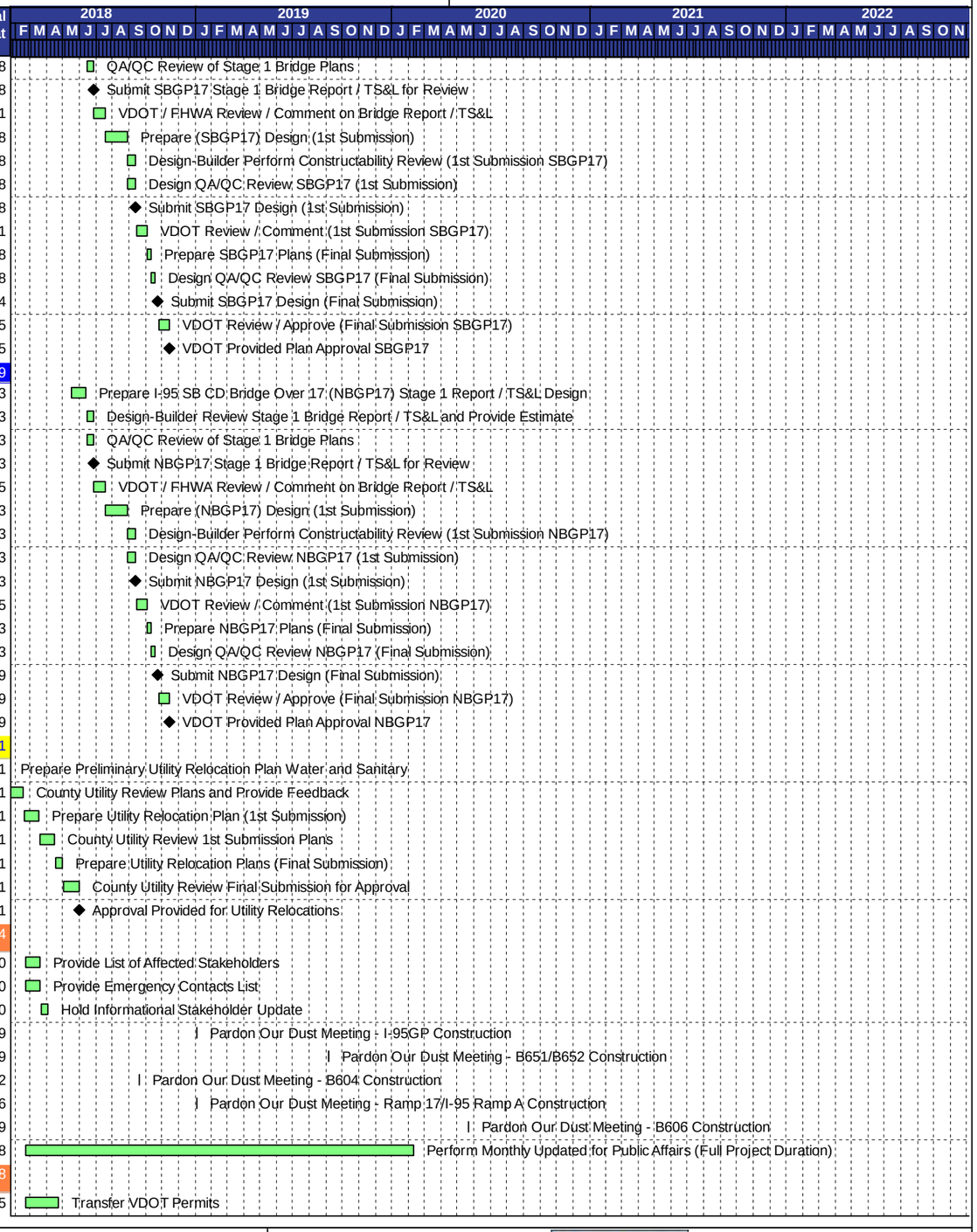


Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
BD12030	QA/QC Review of Stage 1 Bridge Plans	10	14-Jun-18	27-Jun-18	258
BD12040	Submit SBGP17 Stage 1 Bridge Report / TS&L for Review	0	28-Jun-18		258
BD12050	VDOT / FHWA Review / Comment on Bridge Report / TS&L	21	28-Jun-18	18-Jul-18	371
BD12060	Prepare (SBGP17) Design (1st Submission)	30	18-Jul-18	29-Aug-18	258
BD12080	Design-Builder Perform Constructability Review (1st Submission SBGP17)	10	29-Aug-18	13-Sep-18	258
BD12100	Design QA/QC Review SBGP17 (1st Submission)	10	29-Aug-18	13-Sep-18	258
BD12110	Submit SBGP17 Design (1st Submission)	0	13-Sep-18		258
BD12120	VDOT Review / Comment (1st Submission SBGP17)	21	14-Sep-18	04-Oct-18	371
BD12200	Prepare SBGP17 Plans (Final Submission)	5	04-Oct-18	11-Oct-18	258
BD12210	Design QA/QC Review SBGP17 (Final Submission)	5	11-Oct-18	18-Oct-18	258
BD12220	Submit SBGP17 Design (Final Submission)	0	24-Oct-18		254
BD12230	VDOT Review / Approve (Final Submission SBGP17)	21	25-Oct-18	14-Nov-18	365
BD12240	VDOT Provided Plan Approval SBGP17	0		14-Nov-18	365
I95RRC.2.4.4	**I-95 NB GP Over Route 17 B652**	128	16-May-18	14-Nov-18	109
BD13000	Prepare I-95 SB CD Bridge Over 17 (NBGP17) Stage 1 Report / TS&L Design	20	16-May-18	13-Jun-18	113
BD13020	Design-Builder Review Stage 1 Bridge Report / TS&L and Provide Estimate	10	14-Jun-18	27-Jun-18	113
BD13030	QA/QC Review of Stage 1 Bridge Plans	10	14-Jun-18	27-Jun-18	113
BD13040	Submit NBGP17 Stage 1 Bridge Report / TS&L for Review	0	28-Jun-18		113
BD13050	VDOT / FHWA Review / Comment on Bridge Report / TS&L	21	28-Jun-18	18-Jul-18	165
BD13060	Prepare (NBGP17) Design (1st Submission)	30	18-Jul-18	29-Aug-18	113
BD13080	Design-Builder Perform Constructability Review (1st Submission NBGP17)	10	29-Aug-18	13-Sep-18	113
BD13100	Design QA/QC Review NBGP17 (1st Submission)	10	29-Aug-18	13-Sep-18	113
BD13110	Submit NBGP17 Design (1st Submission)	0	13-Sep-18		113
BD13120	VDOT Review / Comment (1st Submission NBGP17)	21	14-Sep-18	04-Oct-18	165
BD13200	Prepare NBGP17 Plans (Final Submission)	5	04-Oct-18	11-Oct-18	113
BD13210	Design QA/QC Review NBGP17 (Final Submission)	5	11-Oct-18	18-Oct-18	113
BD13220	Submit NBGP17 Design (Final Submission)	0	24-Oct-18		109
BD13230	VDOT Review / Approve (Final Submission NBGP17)	21	25-Oct-18	14-Nov-18	159
BD13240	VDOT Provided Plan Approval NBGP17	0		14-Nov-18	159
I95RRC.2.5	**Waterline / Sanitary Sewer Relocation Plans**	113	20-Dec-17	30-May-18	191
UD10000	Prepare Preliminary Utility Relocation Plan Water and Sanitary	20	20-Dec-17	18-Jan-18	191
UD10010	County Utility Review Plans and Provide Feedback	21	19-Jan-18	16-Feb-18	191
UD10020	Prepare Utility Relocation Plan (1st Submission)	20	19-Feb-18	16-Mar-18	191
UD10030	County Utility Review 1st Submission Plans	21	19-Mar-18	16-Apr-18	191
UD10040	Prepare Utility Relocation Plans (Final Submission)	10	17-Apr-18	30-Apr-18	191
UD10050	County Utility Review Final Submission for Approval	21	01-May-18	30-May-18	191
UD10060	Approval Provided for Utility Relocations	0		30-May-18	191
I95RRC.3	**PUBLIC INVOLVEMENT / PUBLIC RELATIONS**	574	21-Feb-18	22-May-20	554
PI10000	Provide List of Affected Stakeholders	20	21-Feb-18	20-Mar-18	220
PI10010	Provide Emergency Contacts List	20	21-Feb-18	20-Mar-18	220
PI10020	Hold Informational Stakeholder Update	10	21-Mar-18	03-Apr-18	220
PI10030	Pardon Our Dust Meeting - I-95GP Construction	1	04-Jan-19	04-Jan-19	169
PI10040	Pardon Our Dust Meeting - B651/B652 Construction	1	06-Sep-19	06-Sep-19	39
PI10050	Pardon Our Dust Meeting - B604 Construction	1	20-Sep-18	20-Sep-18	72
PI10060	Pardon Our Dust Meeting - Ramp 17/I-95 Ramp A Construction	1	04-Jan-19	04-Jan-19	36
PI10070	Pardon Our Dust Meeting - B606 Construction	1	22-May-20	22-May-20	29
PI10100	Perform Monthly Updated for Public Affairs (Full Project Duration)	500	21-Feb-18	10-Feb-20	628
I95RRC.4	**ENVIRONMENTAL PERMITTING**	250	21-Feb-18	14-Feb-19	878
ENV00000	Transfer VDOT Permits	60	21-Feb-18	21-Apr-18	75

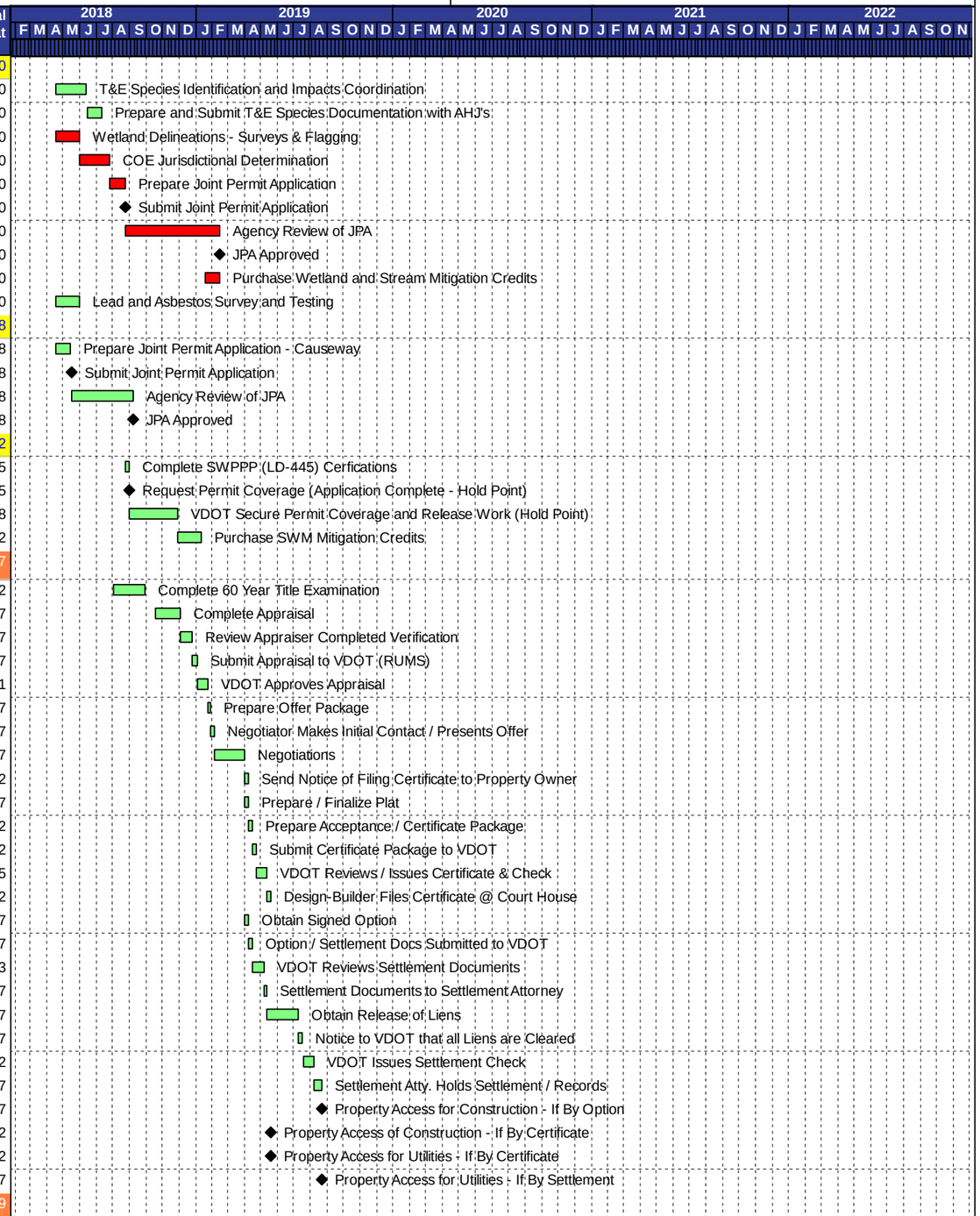


Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
I95RRC.4.1	**Joint Permit Application**	210	18-Apr-18	14-Feb-19	0
ENV10000	T&E Species Identification and Impacts Coordination	40	18-Apr-18	13-Jun-18	30
ENV10010	Prepare and Submit T&E Species Documentation with AHJ's	20	14-Jun-18	12-Jul-18	30
ENV10070	Wetland Delineations - Surveys & Flagging	30	18-Apr-18	30-May-18	0
ENV10080	COE Jurisdictional Determination	40	31-May-18	26-Jul-18	0
ENV10090	Prepare Joint Permit Application	20	27-Jul-18	23-Aug-18	0
ENV10100	Submit Joint Permit Application	0	24-Aug-18		0
ENV10110	Agency Review of JPA	120	24-Aug-18	14-Feb-19	0
ENV10120	JPA Approved	0		14-Feb-19	0
ENV10130	Purchase Wetland and Stream Mitigation Credits	20	18-Jan-19	14-Feb-19	0
ENV12000	Lead and Asbestos Survey and Testing	30	18-Apr-18	30-May-18	180
I95RRC.4.4	**Joint Permit Application - Causeway**	100	18-Apr-18	07-Sep-18	38
ENV00010	Prepare Joint Permit Application - Causeway	20	18-Apr-18	15-May-18	38
ENV00020	Submit Joint Permit Application	0	16-May-18		38
ENV00030	Agency Review of JPA	80	16-May-18	07-Sep-18	38
ENV00040	JPA Approved	0		07-Sep-18	38
I95RRC.4.2	**SWPPP / LD-445**	96	23-Aug-18	11-Jan-19	902
ENV10020	Complete SWPPP (LD-445) Cerfications	5	23-Aug-18	30-Aug-18	55
ENV10030	Request Permit Coverage (Application Complete - Hold Point)	0	30-Aug-18		55
ENV10050	VDOT Secure Permit Coverage and Release Work (Hold Point)	90	31-Aug-18	28-Nov-18	78
ENV10060	Purchase SWM Mitigation Credits	30	28-Nov-18	11-Jan-19	902
I95RRC.5	**RIGHT-OF-WAY / EASEMENT ACQUISITIONS**	267	03-Aug-18	21-Aug-19	57
ROW10000	Complete 60 Year Title Examination	40	03-Aug-18	28-Sep-18	72
ROW10010	Complete Appraisal	30	19-Oct-18	04-Dec-18	57
ROW10020	Review Appraiser Completed Verification	15	04-Dec-18	26-Dec-18	57
ROW10030	Submit Appraisal to VDOT (RUMS)	5	26-Dec-18	03-Jan-19	57
ROW10040	VDOT Approves Appraisal	21	04-Jan-19	24-Jan-19	81
ROW10050	Prepare Offer Package	2	24-Jan-19	28-Jan-19	57
ROW10060	Negotiator Makes Initial Contact / Presents Offer	5	28-Jan-19	04-Feb-19	57
ROW10070	Negotiations	40	04-Feb-19	01-Apr-19	57
ROW10080	Send Notice of Filing Certificate to Property Owner	5	01-Apr-19	08-Apr-19	122
ROW10090	Prepare / Finalize Plat	5	01-Apr-19	08-Apr-19	57
ROW10100	Prepare Acceptance / Certificate Package	5	08-Apr-19	15-Apr-19	122
ROW10110	Submit Certificate Package to VDOT	5	15-Apr-19	22-Apr-19	122
ROW10120	VDOT Reviews / Issues Certificate & Check	21	23-Apr-19	13-May-19	175
ROW10130	Design-Builder Files Certificate @ Court House	5	13-May-19	20-May-19	122
ROW10140	Obtain Signed Option	5	01-Apr-19	08-Apr-19	57
ROW10150	Option / Settlement Docs Submitted to VDOT	5	08-Apr-19	15-Apr-19	57
ROW10160	VDOT Reviews Settlement Documents	21	16-Apr-19	06-May-19	83
ROW10170	Settlement Documents to Settlement Attorney	5	06-May-19	13-May-19	57
ROW10180	Obtain Release of Liens	40	13-May-19	10-Jul-19	57
ROW10190	Notice to VDOT that all Liens are Cleared	5	10-Jul-19	17-Jul-19	57
ROW10200	VDOT Issues Settlement Check	21	18-Jul-19	07-Aug-19	82
ROW10210	Settlement Atty. Holds Settlement / Records	10	07-Aug-19	21-Aug-19	57
ROW10220	Property Access for Construction - If By Option	0		21-Aug-19	57
ROW10230	Property Access of Construction - If By Certificate	0		20-May-19	122
ROW10240	Property Access for Utilities - If By Certificate	0		20-May-19	122
ROW10250	Property Access for Utilities - If By Settlement	0		21-Aug-19	57
I95RRC.6	**UTILITY RELOCATIONS**	547	21-Feb-18	15-Apr-20	339

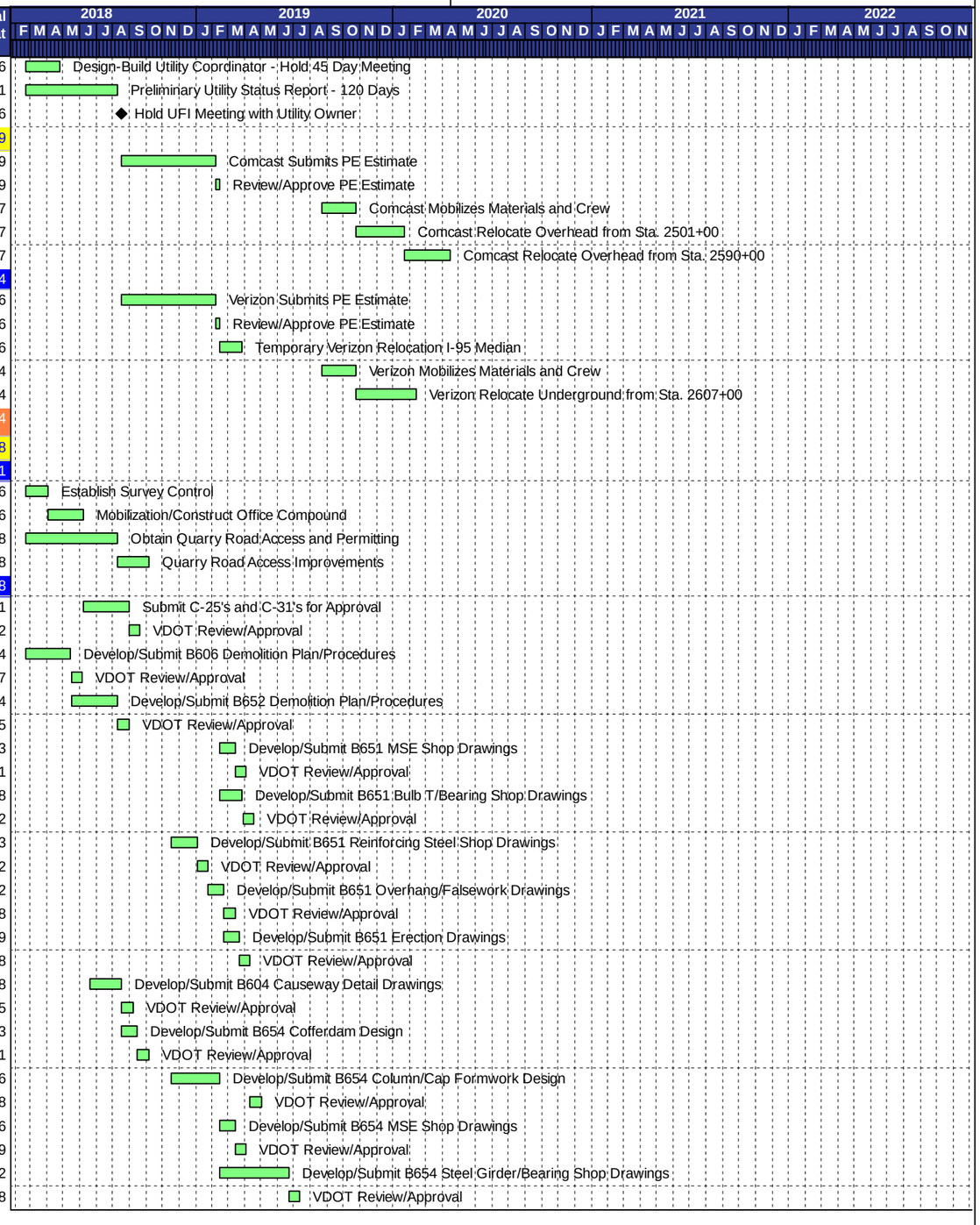


Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
UR10000	Design-Build Utility Coordinator - Hold 45 Day Meeting	45	21-Feb-18	24-Apr-18	176
UR10010	Preliminary Utility Status Report - 120 Days	120	21-Feb-18	09-Aug-18	101
UR10020	Hold UFI Meeting with Utility Owner	0	17-Aug-18		96
I95RRC.6.1	**Comcast Overhead Relocation**	422	17-Aug-18	15-Apr-20	339
UR10100	Comcast Submits PE Estimate	120	17-Aug-18	07-Feb-19	189
UR10110	Review/Approve PE Estimate	5	08-Feb-19	14-Feb-19	189
UR10130	Comcast Mobilizes Materials and Crew	45	21-Aug-19	24-Oct-19	57
UR10150	Comcast Relocate Overhead from Sta. 2501+00	60	24-Oct-19	22-Jan-20	57
UR10170	Comcast Relocate Overhead from Sta. 2590+00	60	22-Jan-20	15-Apr-20	57
I95RRC.6.1.1	**Verizon Underground Relocation**	377	17-Aug-18	12-Feb-20	384
UR12100	Verizon Submits PE Estimate	120	17-Aug-18	07-Feb-19	96
UR12110	Review/Approve PE Estimate	5	08-Feb-19	14-Feb-19	96
UR12120	Temporary Verizon Relocation I-95 Median	30	15-Feb-19	28-Mar-19	96
UR12130	Verizon Mobilizes Materials and Crew	45	21-Aug-19	24-Oct-19	384
UR12150	Verizon Relocate Underground from Sta. 2607+00	75	24-Oct-19	12-Feb-20	384
I95RRC.8	**CONSTRUCTION**	904	21-Feb-18	10-Sep-21	224
I95RRC.8.801	**GENERAL**	570	21-Feb-18	18-May-20	558
I95RRC.8.801.500	**Preconstruction**	160	21-Feb-18	05-Oct-18	101
PC10000	Establish Survey Control	30	21-Feb-18	03-Apr-18	186
PC10010	Mobilization/Construct Office Compound	45	04-Apr-18	06-Jun-18	186
PC10020	Obtain Quarry Road Access and Permitting	120	21-Feb-18	09-Aug-18	18
PC10030	Quarry Road Access Improvements	40	10-Aug-18	05-Oct-18	18
I95RRC.8.801.501	**Primary Construction Submittals**	490	21-Feb-18	27-Jan-20	618
MS10000	Submit C-25's and C-31's for Approval	60	07-Jun-18	30-Aug-18	251
MS10001	VDOT Review/Approval	21	31-Aug-18	20-Sep-18	362
MS10010	Develop/Submit B606 Demolition Plan/Procedures	60	21-Feb-18	15-May-18	134
MS10015	VDOT Review/Approval	21	16-May-18	05-Jun-18	747
MS10020	Develop/Submit B652 Demolition Plan/Procedures	60	16-May-18	09-Aug-18	134
MS10025	VDOT Review/Approval	21	10-Aug-18	30-Aug-18	195
MS10030	Develop/Submit B651 MSE Shop Drawings	20	15-Feb-19	14-Mar-19	113
MS10040	VDOT Review/Approval	21	15-Mar-19	04-Apr-19	161
MS10055	Develop/Submit B651 Bulb T/Bearing Shop Drawings	30	15-Feb-19	28-Mar-19	18
MS10060	VDOT Review/Approval	21	29-Mar-19	18-Apr-19	262
MS10065	Develop/Submit B651 Reinforcing Steel Shop Drawings	30	16-Nov-18	03-Jan-19	63
MS10070	VDOT Review/Approval	21	04-Jan-19	24-Jan-19	102
MS10080	Develop/Submit B651 Overhang/Falsework Drawings	20	24-Jan-19	21-Feb-19	72
MS10090	VDOT Review/Approval	21	22-Feb-19	14-Mar-19	368
MS10100	Develop/Submit B651 Erection Drawings	20	21-Feb-19	21-Mar-19	179
MS10110	VDOT Review/Approval	21	22-Mar-19	11-Apr-19	258
MS10120	Develop/Submit B604 Causeway Detail Drawings	40	20-Jun-18	16-Aug-18	38
MS10130	VDOT Review/Approval	21	17-Aug-18	06-Sep-18	55
MS10140	Develop/Submit B654 Cofferdam Design	20	16-Aug-18	14-Sep-18	63
MS10150	VDOT Review/Approval	21	15-Sep-18	05-Oct-18	451
MS10160	Develop/Submit B654 Column/Cap Formwork Design	60	16-Nov-18	14-Feb-19	66
MS10170	VDOT Review/Approval	21	12-Apr-19	02-May-19	258
MS10190	Develop/Submit B654 MSE Shop Drawings	20	14-Feb-19	14-Mar-19	66
MS10200	VDOT Review/Approval	21	15-Mar-19	04-Apr-19	229
MS10210	Develop/Submit B654 Steel Girder/Bearing Shop Drawings	90	15-Feb-19	21-Jun-19	82
MS10220	VDOT Review/Approval	21	22-Jun-19	12-Jul-19	118

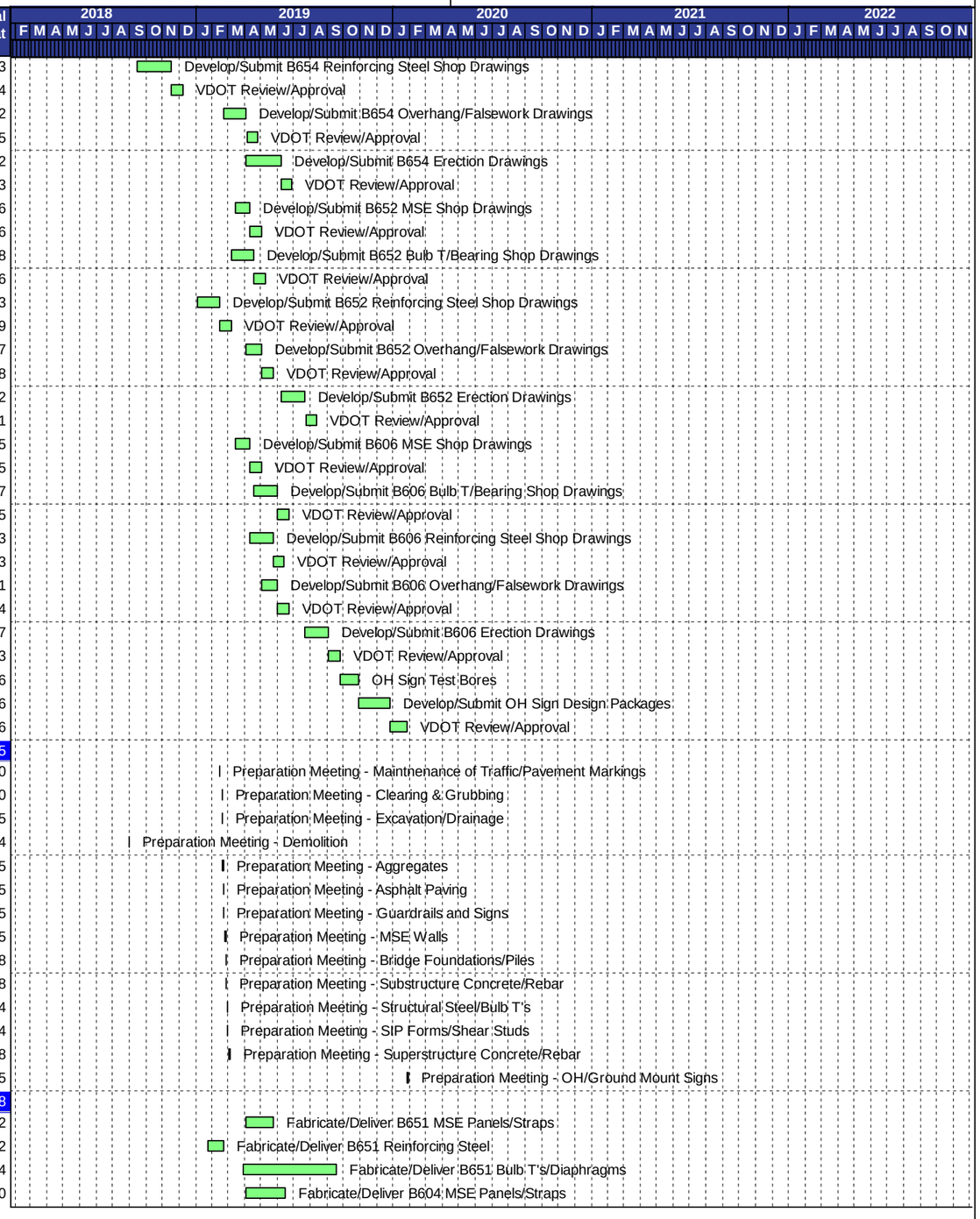


Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
MS10230	Develop/Submit B654 Reinforcing Steel Shop Drawings	45	14-Sep-18	16-Nov-18	63
MS10240	VDOT Review/Approval	21	17-Nov-18	07-Dec-18	334
MS10260	Develop/Submit B654 Overhang/Falsework Drawings	30	21-Feb-19	04-Apr-19	72
MS10270	VDOT Review/Approval	21	05-Apr-19	25-Apr-19	515
MS10280	Develop/Submit B654 Erection Drawings	45	04-Apr-19	07-Jun-19	72
MS10290	VDOT Review/Approval	21	08-Jun-19	28-Jun-19	363
MS10310	Develop/Submit B652 MSE Shop Drawings	20	14-Mar-19	11-Apr-19	66
MS10320	VDOT Review/Approval	21	12-Apr-19	02-May-19	96
MS10330	Develop/Submit B652 Bulb T/Bearing Shop Drawings	30	08-Mar-19	18-Apr-19	18
MS10340	VDOT Review/Approval	21	19-Apr-19	09-May-19	26
MS10350	Develop/Submit B652 Reinforcing Steel Shop Drawings	30	03-Jan-19	14-Feb-19	63
MS10360	VDOT Review/Approval	21	15-Feb-19	07-Mar-19	89
MS10370	Develop/Submit B652 Overhang/Falsework Drawings	20	04-Apr-19	02-May-19	177
MS10380	VDOT Review/Approval	21	03-May-19	23-May-19	258
MS10390	Develop/Submit B652 Erection Drawings	30	07-Jun-19	22-Jul-19	72
MS10400	VDOT Review/Approval	21	23-Jul-19	12-Aug-19	101
MS10420	Develop/Submit B606 MSE Shop Drawings	20	15-Mar-19	11-Apr-19	365
MS10430	VDOT Review/Approval	21	12-Apr-19	02-May-19	525
MS10440	Develop/Submit B606 Bulb T/Bearing Shop Drawings	30	19-Apr-19	31-May-19	287
MS10450	VDOT Review/Approval	21	01-Jun-19	21-Jun-19	415
MS10460	Develop/Submit B606 Reinforcing Steel Shop Drawings	30	12-Apr-19	23-May-19	773
MS10470	VDOT Review/Approval	21	24-May-19	13-Jun-19	1113
MS10480	Develop/Submit B606 Overhang/Falsework Drawings	20	02-May-19	31-May-19	461
MS10490	VDOT Review/Approval	21	01-Jun-19	21-Jun-19	664
MS10500	Develop/Submit B606 Erection Drawings	30	22-Jul-19	03-Sep-19	177
MS10510	VDOT Review/Approval	21	04-Sep-19	24-Sep-19	253
MS10520	OH Sign Test Bores	24	24-Sep-19	28-Oct-19	176
MS10530	Develop/Submit OH Sign Design Packages	40	28-Oct-19	26-Dec-19	176
MS10540	VDOT Review/Approval	21	26-Dec-19	27-Jan-20	176
I95RRC.8.801.502	**Preconstruction QA/QC Process**	356	30-Aug-18	28-Jan-20	345
PQP10000	Preparation Meeting - Maintnenance of Traffic/Pavement Markings	1	15-Feb-19	15-Feb-19	0
PQP10010	Preparation Meeting - Clearing & Grubbing	1	18-Feb-19	18-Feb-19	0
PQP10020	Preparation Meeting - Excavation/Drainage	1	19-Feb-19	19-Feb-19	155
PQP10030	Preparation Meeting - Demolition	1	30-Aug-18	31-Aug-18	134
PQP10040	Preparation Meeting - Aggregates	1	20-Feb-19	20-Feb-19	155
PQP10050	Preparation Meeting - Asphalt Paving	1	21-Feb-19	21-Feb-19	155
PQP10060	Preparation Meeting - Guardrails and Signs	1	22-Feb-19	22-Feb-19	155
PQP10070	Preparation Meeting - MSE Walls	1	25-Feb-19	25-Feb-19	155
PQP10080	Preparation Meeting - Bridge Foundations/Piles	1	26-Feb-19	26-Feb-19	188
PQP10090	Preparation Meeting - Substructure Concrete/Rebar	1	27-Feb-19	27-Feb-19	188
PQP10100	Preparation Meeting - Structural Steel/Bulb T's	1	28-Feb-19	28-Feb-19	214
PQP10110	Preparation Meeting - SIP Forms/Shear Studs	1	01-Mar-19	01-Mar-19	254
PQP10120	Preparation Meeting - Superstructure Concrete/Rebar	1	04-Mar-19	04-Mar-19	278
PQP10130	Preparation Meeting - OH/Ground Mount Signs	1	27-Jan-20	28-Jan-20	345
I95RRC.8.801.503	**Primary Construction Materials**	367	07-Dec-18	18-May-20	558
MM10000	Fabricate/Deliver B651 MSE Panels/Straps	35	04-Apr-19	23-May-19	112
MM10010	Fabricate/Deliver B651 Reinforcing Steel	20	24-Jan-19	21-Feb-19	192
MM10020	Fabricate/Deliver B651 Bulb T's/Diaphragms	120	29-Mar-19	17-Sep-19	74
MM10100	Fabricate/Deliver B604 MSE Panels/Straps	50	04-Apr-19	14-Jun-19	160

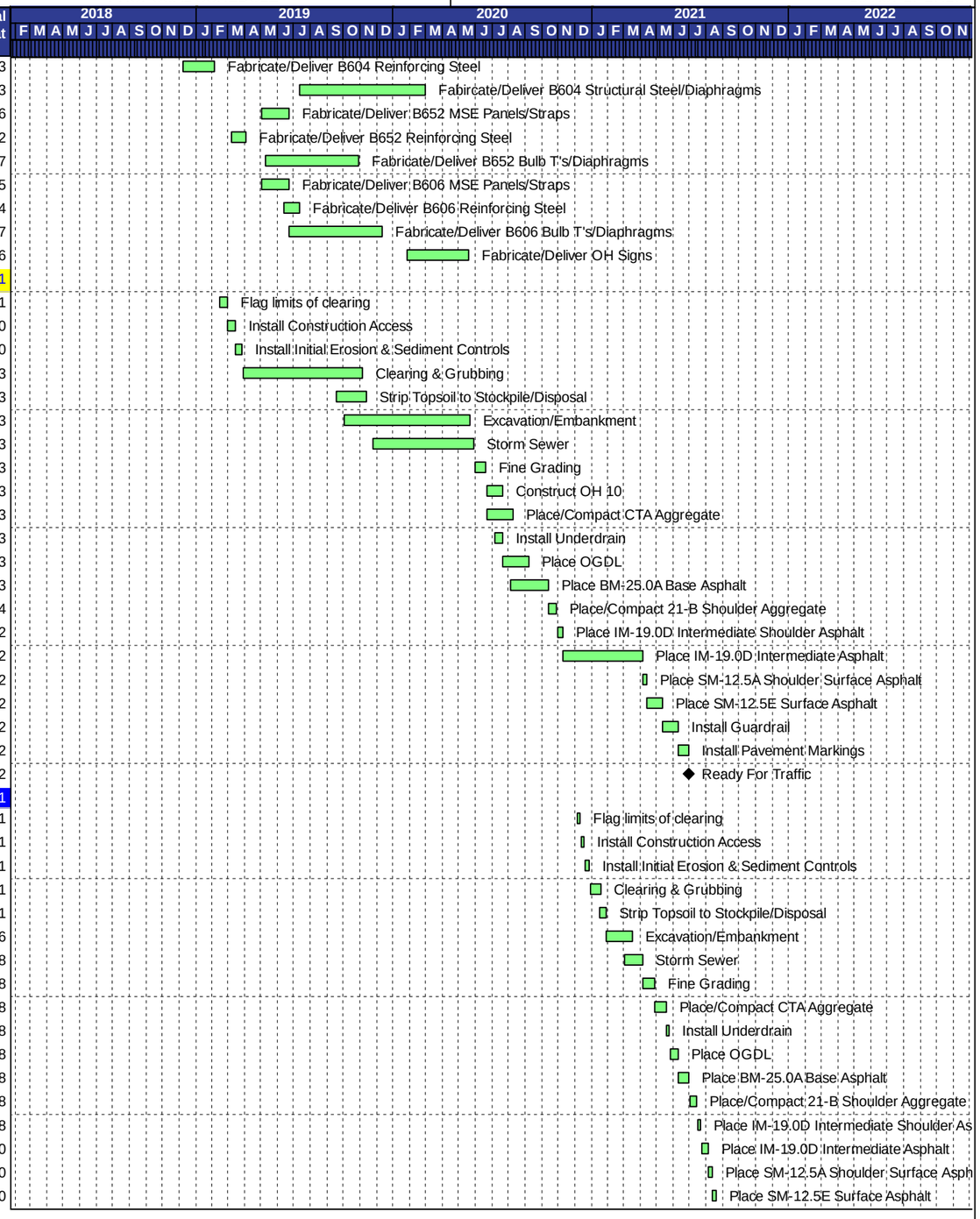


Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
MM10110	Fabricate/Deliver B604 Reinforcing Steel	40	07-Dec-18	05-Feb-19	233
MM10120	Fabircate/Deliver B604 Structural Steel/Diaphragms	160	12-Jul-19	28-Feb-20	83
MM10200	Fabricate/Deliver B652 MSE Panels/Straps	35	02-May-19	21-Jun-19	66
MM10210	Fabricate/Deliver B652 Reinforcing Steel	20	07-Mar-19	04-Apr-19	62
MM10220	Fabricate/Deliver B652 Bulb T's/Diaphragms	120	09-May-19	29-Oct-19	17
MM10300	Fabricate/Deliver B606 MSE Panels/Straps	35	02-May-19	21-Jun-19	365
MM10310	Fabricate/Deliver B606 Reinforcing Steel	20	13-Jun-19	12-Jul-19	774
MM10320	Fabricate/Deliver B606 Bulb T's/Diaphragms	120	21-Jun-19	12-Dec-19	287
MM10330	Fabricate/Deliver OH Signs	80	27-Jan-20	18-May-20	176
I95RRC.8.810	**AREA 1 GP I-95SB 3462+00 - 3367+00**	654	15-Feb-19	10-Sep-21	131
A110000	Flag limits of clearing	10	15-Feb-19	28-Feb-19	11
A110100	Install Construction Access	10	01-Mar-19	14-Mar-19	130
A110200	Install Initial Erosion & Sediment Controls	10	15-Mar-19	28-Mar-19	130
A110300	Clearing & Grubbing	48	29-Mar-19	05-Nov-19	23
A110400	Strip Topsoil to Stockpile/Disposal	40	17-Sep-19	11-Nov-19	23
A110500	Excavation/Embankment	150	01-Oct-19	21-May-20	23
A110600	Storm Sewer	130	25-Nov-19	29-May-20	23
A110700	Fine Grading	15	01-Jun-20	19-Jun-20	23
A110710	Construct OH 10	20	22-Jun-20	20-Jul-20	243
A110800	Place/Compact CTA Aggregate	35	22-Jun-20	10-Aug-20	23
A111000	Install Underdrain	10	07-Jul-20	20-Jul-20	23
A111100	Place OGDL	35	21-Jul-20	08-Sep-20	23
A111200	Place BM-25.0A Base Asphalt	50	04-Aug-20	13-Oct-20	23
A111300	Place/Compact 21-B Shoulder Aggregate	12	14-Oct-20	29-Oct-20	54
A111400	Place IM-19.0D Intermediate Shoulder Asphalt	7	30-Oct-20	09-Nov-20	32
A111500	Place IM-19.0D Intermediate Asphalt	20	10-Nov-20	06-Apr-21	32
A111600	Place SM-12.5A Shoulder Surface Asphalt	5	07-Apr-21	13-Apr-21	32
A111700	Place SM-12.5E Surface Asphalt	20	14-Apr-21	11-May-21	32
A111900	Install Guardrail	20	12-May-21	09-Jun-21	32
A112000	Install Pavement Markings	15	10-Jun-21	30-Jun-21	32
A112010	Ready For Traffic	0		30-Jun-21	32
I95RRC.8.810.1	**Area 1 CD I-95SB 3412+75 - 3367+00**	195	07-Dec-20	10-Sep-21	131
A170000	Flag limits of clearing	5	07-Dec-20	11-Dec-20	41
A170010	Install Construction Access	5	14-Dec-20	18-Dec-20	41
A170020	Install Initial Erosion & Sediment Controls	5	21-Dec-20	28-Dec-20	41
A170030	Clearing & Grubbing	15	29-Dec-20	19-Jan-21	41
A170040	Strip Topsoil to Stockpile/Disposal	10	15-Jan-21	28-Jan-21	41
A170050	Excavation/Embankment	30	29-Jan-21	18-Mar-21	36
A170060	Storm Sewer	25	03-Mar-21	06-Apr-21	38
A170070	Fine Grading	15	07-Apr-21	27-Apr-21	38
A170080	Place/Compact CTA Aggregate	15	28-Apr-21	18-May-21	38
A170100	Install Underdrain	5	19-May-21	25-May-21	38
A170110	Place OGDL	10	26-May-21	09-Jun-21	38
A170120	Place BM-25.0A Base Asphalt	15	10-Jun-21	30-Jun-21	38
A170130	Place/Compact 21-B Shoulder Aggregate	10	01-Jul-21	15-Jul-21	38
A170140	Place IM-19.0D Intermediate Shoulder Asphalt	5	16-Jul-21	22-Jul-21	38
A170150	Place IM-19.0D Intermediate Asphalt	10	23-Jul-21	05-Aug-21	60
A170160	Place SM-12.5A Shoulder Surface Asphalt	5	06-Aug-21	12-Aug-21	60
A170170	Place SM-12.5E Surface Asphalt	5	13-Aug-21	19-Aug-21	60



Remaining Work ◆ Milestone

Critical Remaining Work

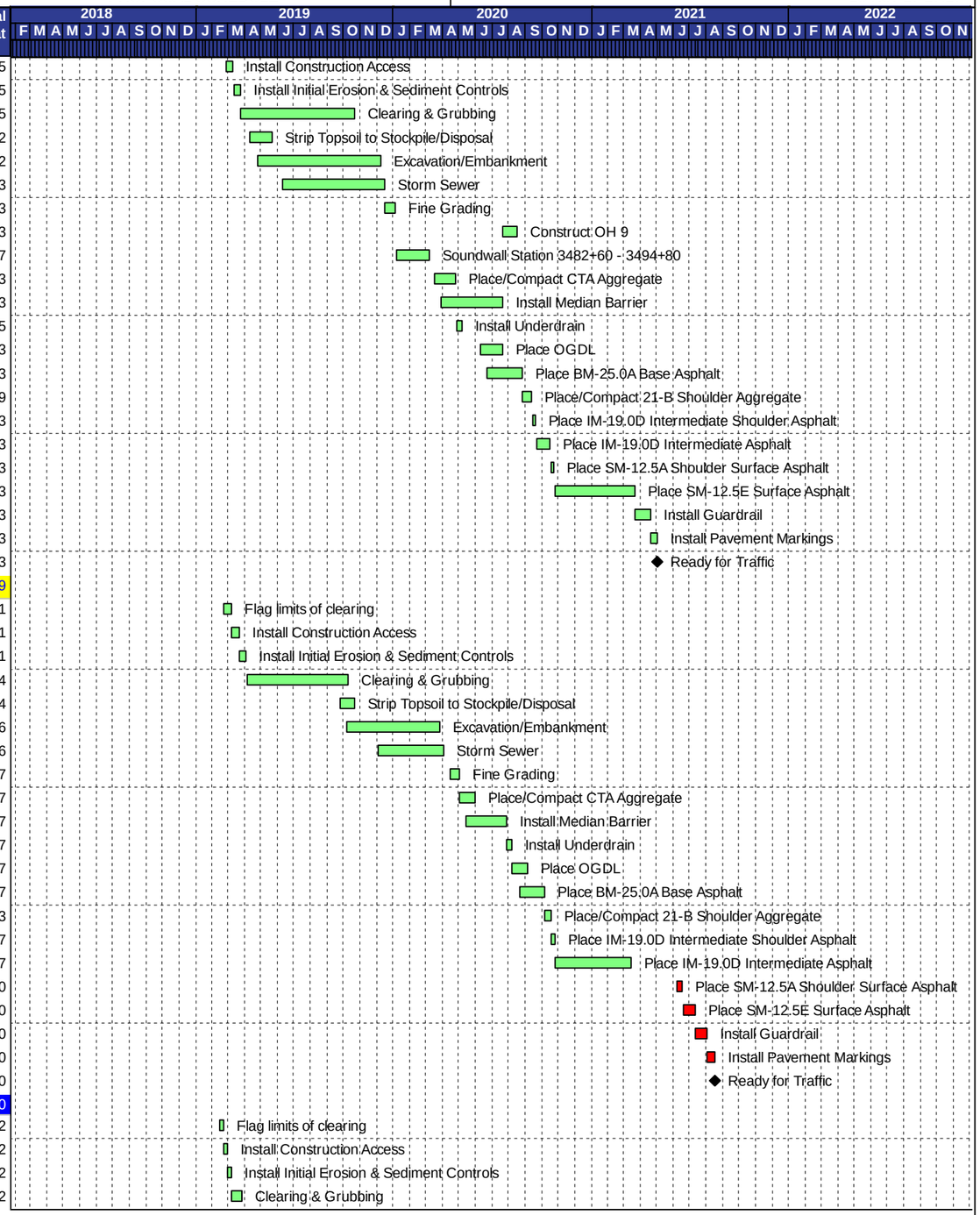
SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A170190	Install Guardrail	10	20-Aug-21	02-Sep-21	130
A170200	Install Pavement Markings	5	03-Sep-21	10-Sep-21	113
A170210	Ready for Traffic	0		10-Sep-21	131
I95RRC.8.810.2	**SWM B**	428	01-Mar-19	03-Nov-20	138
A1P10000	Flag limits of clearing	1	01-Mar-19	01-Mar-19	11
A1P10100	Install Construction Access	2	06-Mar-19	07-Mar-19	11
A1P10200	Install Initial Erosion & Sediment Controls	3	08-Mar-19	12-Mar-19	11
A1P10300	Clearing & Grubbing	10	13-Mar-19	26-Mar-19	11
A1P10400	Strip Topsoil to Stockpile/Disposal	10	29-Mar-19	11-Apr-19	75
A1P10500	Excavation/Embankment	30	12-Apr-19	23-May-19	75
A1P10600	Storm Sewer	15	10-May-19	31-May-19	75
A1P10700	Convert SWM Pond	15	14-Oct-20	03-Nov-20	138
I95RRC.8.810.3	**SWM C**	378	03-Jun-19	24-Nov-20	138
A1P20000	Flag limits of clearing	1	03-Jun-19	03-Jun-19	75
A1P20100	Install Construction Access	2	06-Jun-19	07-Jun-19	75
A1P20200	Install Initial Erosion & Sediment Controls	3	10-Jun-19	12-Jun-19	75
A1P20300	Clearing & Grubbing	10	16-Sep-19	27-Sep-19	10
A1P20400	Strip Topsoil to Stockpile/Disposal	10	02-Oct-19	15-Oct-19	10
A1P20500	Excavation/Embankment	30	16-Oct-19	02-Dec-19	10
A1P20600	Storm Sewer	15	14-Nov-19	06-Dec-19	11
A1P20700	Convert SWM Pond	15	04-Nov-20	24-Nov-20	138
I95RRC.8.810.4	**SWM G - Option 1**	262	09-Dec-19	17-Dec-20	138
A1P30000	Flag limits of clearing	1	09-Dec-19	09-Dec-19	11
A1P30100	Install Construction Access	2	12-Dec-19	13-Dec-19	11
A1P30200	Install Initial Erosion & Sediment Controls	3	16-Dec-19	18-Dec-19	11
A1P30300	Clearing & Grubbing	10	19-Dec-19	03-Jan-20	11
A1P30400	Strip Topsoil to Stockpile/Disposal	10	08-Jan-20	21-Jan-20	11
A1P30500	Excavation/Embankment	30	08-Jan-20	26-Feb-20	9
A1P30600	Storm Sewer	15	11-Feb-20	02-Mar-20	11
A1P30700	Convert SWM Pond	15	25-Nov-20	17-Dec-20	138
I95RRC.8.810.5	**SWM H - Option 1**	218	03-Mar-20	11-Jan-21	138
A1P40000	Flag limits of clearing	1	03-Mar-20	03-Mar-20	11
A1P40100	Install Construction Access	2	06-Mar-20	09-Mar-20	11
A1P40200	Install Initial Erosion & Sediment Controls	3	10-Mar-20	12-Mar-20	11
A1P40300	Clearing & Grubbing	10	13-Mar-20	26-Mar-20	11
A1P40400	Strip Topsoil to Stockpile/Disposal	10	31-Mar-20	13-Apr-20	103
A1P40500	Excavation/Embankment	30	14-Apr-20	26-May-20	103
A1P40600	Storm Sewer	15	12-May-20	02-Jun-20	103
A1P40700	Convert SWM Pond	15	18-Dec-20	11-Jan-21	138
I95RRC.8.810.6	**SWM J - Option 1**	168	03-Jun-20	01-Feb-21	138
A1P50000	Flag limits of clearing	1	03-Jun-20	03-Jun-20	103
A1P50100	Install Construction Access	2	08-Jun-20	09-Jun-20	103
A1P50200	Install Initial Erosion & Sediment Controls	3	10-Jun-20	12-Jun-20	103
A1P50300	Clearing & Grubbing	10	16-Sep-20	29-Sep-20	38
A1P50400	Strip Topsoil to Stockpile/Disposal	10	02-Oct-20	15-Oct-20	38
A1P50500	Excavation/Embankment	30	16-Oct-20	04-Dec-20	34
A1P50600	Storm Sewer	15	19-Nov-20	11-Dec-20	157
A1P50700	Convert SWM Pond	15	12-Jan-21	01-Feb-21	138
I95RRC.8.815	**AREA 2 GP I-95SB 3554+50 - 3462+00**	563	15-Feb-19	03-May-21	73
A210000	Flag limits of clearing	5	15-Feb-19	21-Feb-19	5

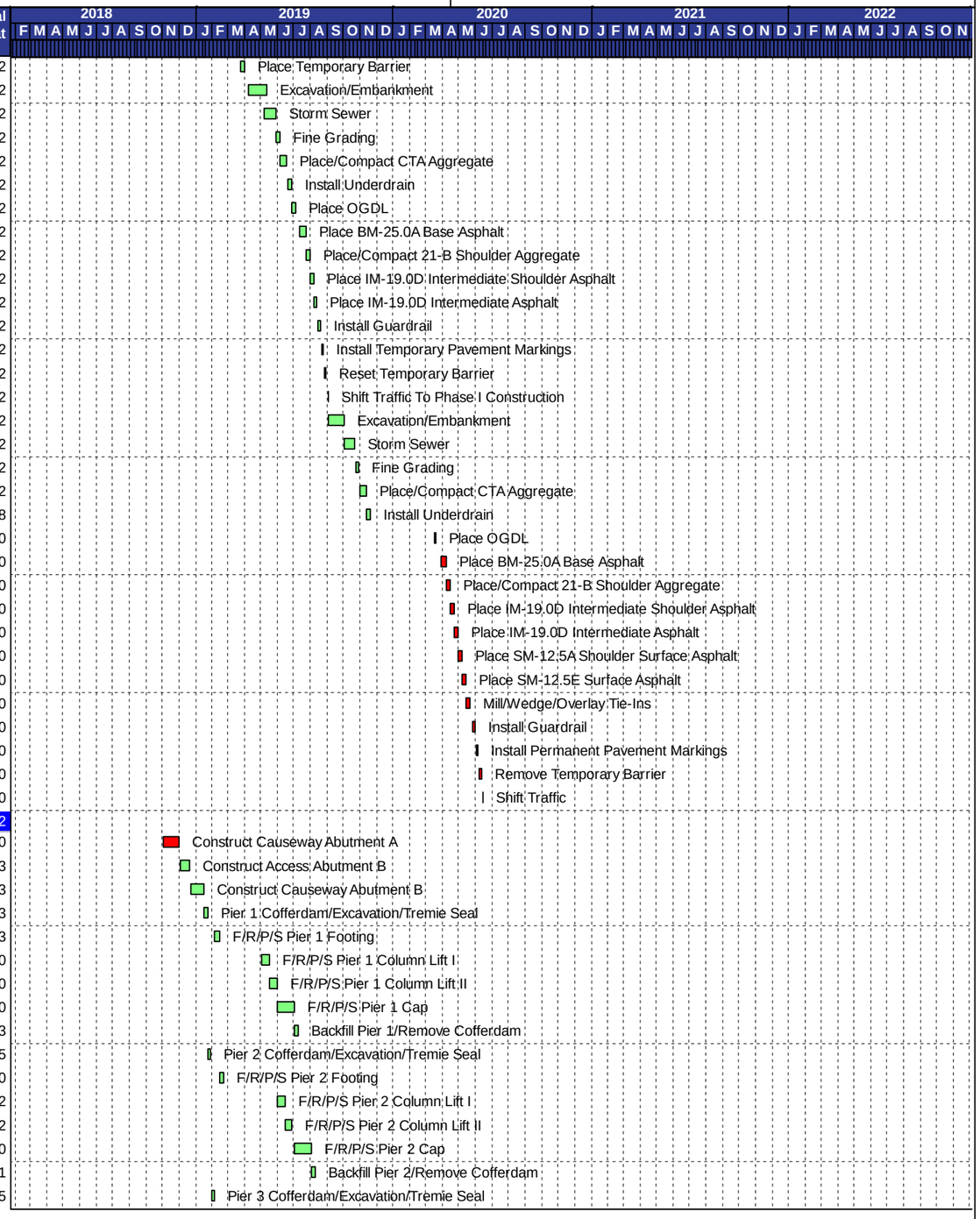
Remaining Work ◆ Milestone
Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A210100	Install Construction Access	10	26-Feb-19	11-Mar-19	5
A210200	Install Initial Erosion & Sediment Controls	10	12-Mar-19	25-Mar-19	5
A210300	Clearing & Grubbing	40	26-Mar-19	21-Oct-19	5
A210400	Strip Topsoil to Stockpile/Disposal	30	11-Apr-19	22-May-19	112
A210500	Excavation/Embankment	155	25-Apr-19	09-Dec-19	112
A210600	Storm Sewer	132	10-Jun-19	16-Dec-19	123
A210700	Fine Grading	12	17-Dec-19	03-Jan-20	123
A210710	Construct OH 9	20	21-Jul-20	17-Aug-20	243
A210720	Soundwall Station 3482+60 - 3494+80	45	06-Jan-20	06-Mar-20	367
A210800	Place/Compact CTA Aggregate	30	16-Mar-20	24-Apr-20	73
A210900	Install Median Barrier	80	30-Mar-20	21-Jul-20	73
A211000	Install Underdrain	8	27-Apr-20	06-May-20	95
A211100	Place OGDL	30	09-Jun-20	21-Jul-20	73
A211200	Place BM-25.0A Base Asphalt	45	23-Jun-20	25-Aug-20	73
A211300	Place/Compact 21-B Shoulder Aggregate	12	26-Aug-20	11-Sep-20	139
A211400	Place IM-19.0D Intermediate Shoulder Asphalt	5	14-Sep-20	18-Sep-20	73
A211500	Place IM-19.0D Intermediate Asphalt	20	21-Sep-20	16-Oct-20	73
A211600	Place SM-12.5A Shoulder Surface Asphalt	5	19-Oct-20	23-Oct-20	73
A211700	Place SM-12.5E Surface Asphalt	20	26-Oct-20	22-Mar-21	73
A211900	Install Guardrail	20	23-Mar-21	19-Apr-21	73
A212000	Install Pavement Markings	10	20-Apr-21	03-May-21	73
A212010	Ready for Traffic	0		03-May-21	73
I95RRC.8.825	**AREA 3 GP I-95SB 3606+00 - 3554+50**	708	01-Nov-18	16-Aug-21	179
A310000	Flag limits of clearing	10	22-Feb-19	07-Mar-19	181
A310100	Install Construction Access	10	08-Mar-19	21-Mar-19	181
A310200	Install Initial Erosion & Sediment Controls	10	22-Mar-19	04-Apr-19	181
A310300	Clearing & Grubbing	25	05-Apr-19	10-Oct-19	74
A310400	Strip Topsoil to Stockpile/Disposal	20	24-Sep-19	21-Oct-19	74
A310500	Excavation/Embankment	105	08-Oct-19	26-Mar-20	66
A310600	Storm Sewer	85	04-Dec-19	02-Apr-20	66
A310700	Fine Grading	12	15-Apr-20	01-May-20	57
A310800	Place/Compact CTA Aggregate	20	01-May-20	01-Jun-20	57
A310900	Install Median Barrier	50	15-May-20	28-Jul-20	57
A311000	Install Underdrain	8	28-Jul-20	07-Aug-20	57
A311100	Place OGDL	20	07-Aug-20	04-Sep-20	57
A311200	Place BM-25.0A Base Asphalt	30	21-Aug-20	05-Oct-20	57
A311300	Place/Compact 21-B Shoulder Aggregate	10	05-Oct-20	19-Oct-20	123
A311400	Place IM-19.0D Intermediate Shoulder Asphalt	5	19-Oct-20	26-Oct-20	57
A311500	Place IM-19.0D Intermediate Asphalt	15	26-Oct-20	16-Mar-21	57
A311600	Place SM-12.5A Shoulder Surface Asphalt	10	07-Jun-21	18-Jun-21	0
A311700	Place SM-12.5E Surface Asphalt	15	21-Jun-21	12-Jul-21	0
A311900	Install Guardrail	15	13-Jul-21	02-Aug-21	0
A312000	Install Pavement Markings	10	03-Aug-21	16-Aug-21	0
A312010	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.825.1	**RT17/I-95SB Ramp 10+00 - 48+64.89 w/Option 1**	339	15-Feb-19	15-Jun-20	0
A3UM100(	Flag limits of clearing	5	15-Feb-19	21-Feb-19	2
A3UM101(	Install Construction Access	5	22-Feb-19	28-Feb-19	2
A3UM102(	Install Initial Erosion & Sediment Controls	5	01-Mar-19	07-Mar-19	2
A3UM103(	Clearing & Grubbing	15	08-Mar-19	28-Mar-19	2



Activity ID	Activity Name	Duration	Start	Finish	Total Float
A3UM104(	Place Temporary Barrier	5	26-Mar-19	01-Apr-19	2
A3UM105(	Excavation/Embankment	25	09-Apr-19	13-May-19	2
A3UM106(	Storm Sewer	15	07-May-19	28-May-19	2
A3UM107(	Fine Grading	5	29-May-19	04-Jun-19	2
A3UM108(	Place/Compact CTA Aggregate	10	05-Jun-19	18-Jun-19	2
A3UM110(	Install Underdrain	6	19-Jun-19	26-Jun-19	2
A3UM111(	Place OGDL	5	27-Jun-19	03-Jul-19	2
A3UM112(	Place BM-25.0A Base Asphalt	8	12-Jul-19	23-Jul-19	2
A3UM113(	Place/Compact 21-B Shoulder Aggregate	5	24-Jul-19	30-Jul-19	2
A3UM114(	Place IM-19.0D Intermediate Shoulder Asphalt	5	31-Jul-19	06-Aug-19	2
A3UM115(	Place IM-19.0D Intermediate Asphalt	5	07-Aug-19	13-Aug-19	2
A3UM119(	Install Guardrail	5	14-Aug-19	20-Aug-19	2
A3UM120(	Install Temporary Pavement Markings	3	21-Aug-19	23-Aug-19	2
A3UM120:	Reset Temporary Barrier	5	26-Aug-19	30-Aug-19	2
A3UM120;	Shift Traffic To Phase I Construction	1	03-Sep-19	03-Sep-19	2
A3UMII10(	Excavation/Embankment	20	04-Sep-19	01-Oct-19	2
A3UMII10:	Storm Sewer	15	02-Oct-19	22-Oct-19	2
A3UMII10;	Fine Grading	5	23-Oct-19	29-Oct-19	2
A3UMII10=	Place/Compact CTA Aggregate	10	30-Oct-19	12-Nov-19	2
A3UMII10<	Install Underdrain	6	13-Nov-19	20-Nov-19	78
A3UMII10?	Place OGDL	5	16-Mar-20	20-Mar-20	0
A3UMII10@	Place BM-25.0A Base Asphalt	8	30-Mar-20	08-Apr-20	0
A3UMII10A	Place/Compact 21-B Shoulder Aggregate	5	09-Apr-20	15-Apr-20	0
A3UMII10B	Place IM-19.0D Intermediate Shoulder Asphalt	5	16-Apr-20	22-Apr-20	0
A3UMII10C	Place IM-19.0D Intermediate Asphalt	5	23-Apr-20	29-Apr-20	0
A3UMII11(	Place SM-12.5A Shoulder Surface Asphalt	5	30-Apr-20	06-May-20	0
A3UMII11	Place SM-12.5E Surface Asphalt	5	07-May-20	13-May-20	0
A3UMII11	Mill/Wedge/Overlay Tie-Ins	7	14-May-20	22-May-20	0
A3UMII11:	Install Guardrail	5	26-May-20	01-Jun-20	0
A3UMII11;	Install Permanent Pavement Markings	4	02-Jun-20	05-Jun-20	0
A3UMII11<	Remove Temporary Barrier	5	08-Jun-20	12-Jun-20	0
A3UMII11?	Shift Traffic	1	15-Jun-20	15-Jun-20	0
I95RRC.8.825.2	**Bridge B604**	685	01-Nov-18	14-Jul-21	202
A3RC100(	Construct Causeway Abutment A	20	01-Nov-18*	30-Nov-18	0
A3RC100:	Construct Access Abutment B	15	03-Dec-18	21-Dec-18	23
A3RC100;	Construct Causeway Abutment B	15	24-Dec-18*	15-Jan-19*	23
A3RC200(	Pier 1 Cofferdam/Excavation/Tremie Seal	5	16-Jan-19	22-Jan-19	243
A3RC200:	F/R/P/S Pier 1 Footing	5	05-Feb-19	13-Feb-19	223
A3RC200;	F/R/P/S Pier 1 Column Lift I	10	02-May-19	16-May-19	170
A3RC200=	F/R/P/S Pier 1 Column Lift II	10	16-May-19	31-May-19	170
A3RC200<	F/R/P/S Pier 1 Cap	22	31-May-19	02-Jul-19	170
A3RC200?	Backfill Pier 1/Remove Cofferdam	5	02-Jul-19	10-Jul-19	673
A3RC300(	Pier 2 Cofferdam/Excavation/Tremie Seal	5	23-Jan-19	29-Jan-19	265
A3RC301(	F/R/P/S Pier 2 Footing	5	13-Feb-19	21-Feb-19	240
A3RC302(	F/R/P/S Pier 2 Column Lift I	10	31-May-19	14-Jun-19	172
A3RC303(	F/R/P/S Pier 2 Column Lift II	10	14-Jun-19	28-Jun-19	172
A3RC304(	F/R/P/S Pier 2 Cap	22	02-Jul-19	02-Aug-19	170
A3RC305(	Backfill Pier 2/Remove Cofferdam	5	02-Aug-19	09-Aug-19	651
A3RC400(	Pier 3 Cofferdam/Excavation/Tremie Seal	5	30-Jan-19	05-Feb-19	285



Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

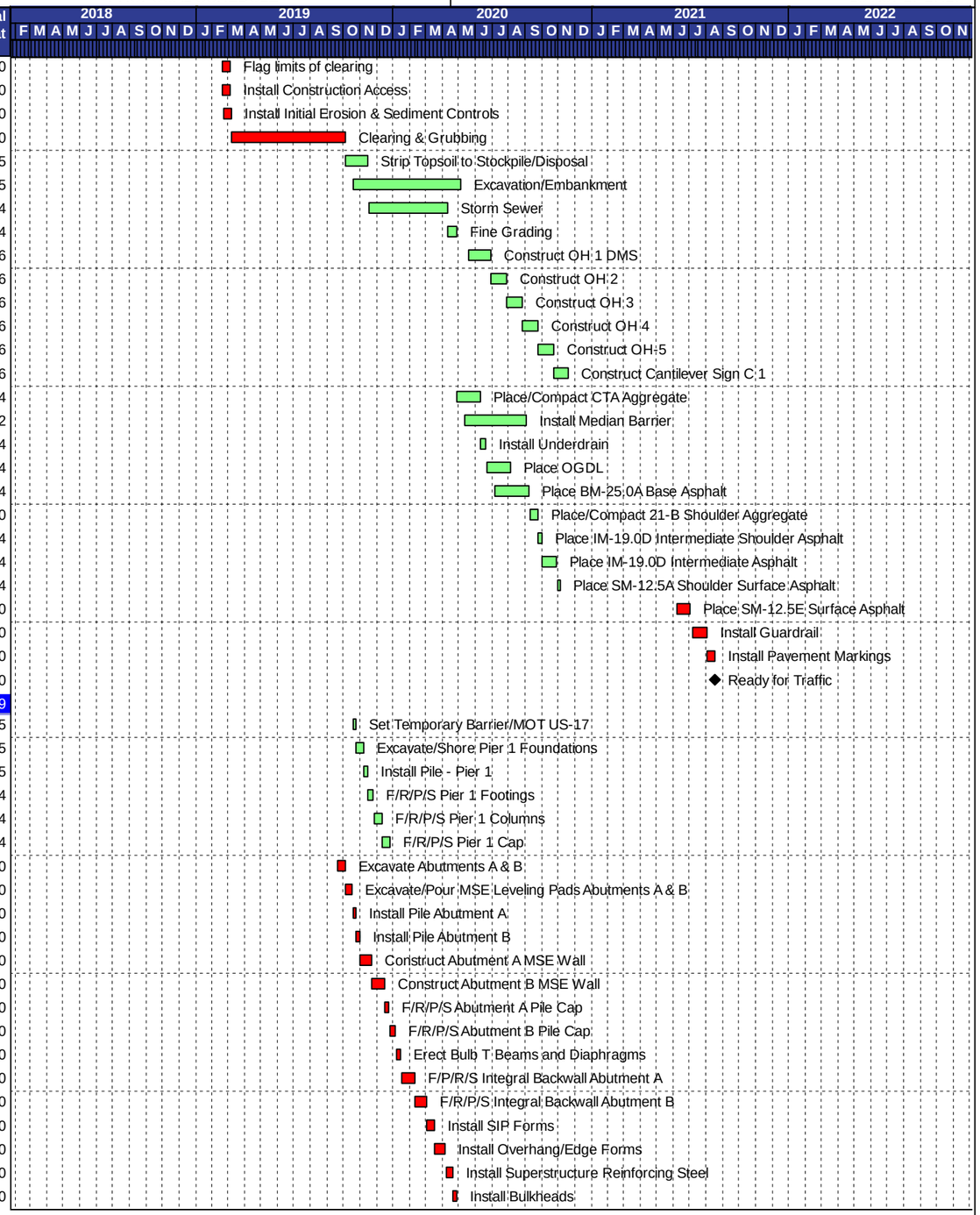
Activity ID	Activity Name	Duration	Start	Finish	Total Float
A3RC401(	F/R/P/S Pier 3 Footing	5	21-Feb-19	28-Feb-19	257
A3RC402(	F/R/P/S Pier 3 Column Lift I	10	28-Jun-19	15-Jul-19	174
A3RC403(	F/R/P/S Pier 3 Column Lift II	10	15-Jul-19	29-Jul-19	174
A3RC404(	F/R/P/S Pier 3 Cap	22	02-Aug-19	04-Sep-19	170
A3RC405(	Backfill Pier 3/Remove Cofferdam	5	04-Sep-19	11-Sep-19	629
A3RC500(	Pier 4 Cofferdam/Excavation/Tremie Seal	5	06-Feb-19	12-Feb-19	302
A3RC501(	F/R/P/S Pier 4 Footing	5	28-Feb-19	08-Mar-19	274
A3RC502(	F/R/P/S Pier 4 Column Lift I	10	29-Jul-19	12-Aug-19	176
A3RC503(	F/R/P/S Pier 4 Column Lift II	10	12-Aug-19	26-Aug-19	176
A3RC504(	F/R/P/S Pier 4 Cap	22	04-Sep-19	04-Oct-19	170
A3RC505(	Backfill Pier 4/Remove Cofferdam	5	04-Oct-19	11-Oct-19	607
A3RC700(	Excavate Abutment A	10	23-Oct-19	05-Nov-19	0
A3RC700:	Excavate/Pour MSE Leveling Pads Abutment A	15	06-Nov-19	26-Nov-19	0
A3RC701(	Excavate Abutment B	10	27-Nov-19	12-Dec-19	0
A3RC701:	Excavate/Pour MSE Leveling Pads Abutment B	15	13-Dec-19	06-Jan-20	0
A3RC702(	Install Pile Abutment A	10	07-Jan-20	20-Jan-20	0
A3RC703(	Install Pile Abutment B	10	21-Jan-20	03-Feb-20	0
A3RC704(	Construct Abutment A MSE Wall	31	04-Feb-20	17-Mar-20	0
A3RC705(	Construct Abutment B MSE Wall	31	18-Mar-20	29-Apr-20	0
A3RC706(	F/R/P/S Abutment A Pile Cap	10	30-Apr-20	13-May-20	0
A3RC706:	F/R/P/S Abutment A Backwall	10	14-May-20	28-May-20	0
A3RC707(	F/R/P/S Abutment B Pile Cap	10	29-May-20	11-Jun-20	0
A3RC707:	F/R/P/S Abutment B Backwall	10	12-Jun-20	25-Jun-20	0
A3RC708(	Erect Structural Steel and Diaphragms	40	26-Jun-20	21-Aug-20	0
A3RC710(	Install SIP Forms	40	27-Jul-20	21-Sep-20	0
A3RC711(	Install Shear Studs	20	24-Aug-20	21-Sep-20	0
A3RC712(	Install Overhang/Edge Forms	50	22-Sep-20	02-Dec-20	0
A3RC713(	Install Superstructure Reinforcing Steel	50	03-Dec-20	12-Feb-21	0
A3RC714(	Install Bulkheads	15	15-Feb-21	05-Mar-21	0
A3RC715(	Pour/Cure Bridge Deck	15	08-Mar-21	29-Mar-21	0
A3RC716(	Slip Form Parapet	25	30-Mar-21	03-May-21	0
A3RC718(	F/R/P/S Buried Approach Slab Abutment A	5	04-May-21	10-May-21	0
A3RC720(	F/R/P/S Buried Approach Slab Abutment B	5	11-May-21	17-May-21	0
A3RC722(	Remove Causeway Abutment A	20	18-May-21	15-Jun-21	202
A3RC723(	Remove Causeway Abutment B	20	16-Jun-21	14-Jul-21	202
A3RC726(	Bridge Deck Grooving	5	18-May-21	24-May-21	0
A3RC727(	Permanent Bridge Pavement Markings	5	25-May-21	01-Jun-21	0
A3RC728(	Bridge Safety Inspection	3	02-Jun-21	04-Jun-21	0
A3RC729(	Ready for Traffic	0		04-Jun-21	0
I95RRC.8.825.3	**SWM F**	231	04-Jun-19	29-Apr-20	279
A3P10000	Flag limits of clearing	1	04-Jun-19	04-Jun-19	430
A3P10100	Install Construction Access	2	07-Jun-19	10-Jun-19	430
A3P10200	Install Initial Erosion & Sediment Controls	3	11-Jun-19	13-Jun-19	430
A3P10300	Clearing & Grubbing	10	16-Sep-19	27-Sep-19	259
A3P10400	Strip Topsoil to Stockpile/Disposal	10	02-Oct-19	15-Oct-19	366
A3P10500	Excavation/Embankment	30	16-Oct-19	02-Dec-19	336
A3P10600	Storm Sewer	15	18-Nov-19	10-Dec-19	363
A3P10700	Convert SWM Pond	15	09-Apr-20	29-Apr-20	279
I95RRC.8.850	**AREA 4 GP I-95SB 3687+50 - 3606+00 w/Option 1**	634	19-Feb-19	16-Aug-21	179

Remaining Work ◆ Milestone

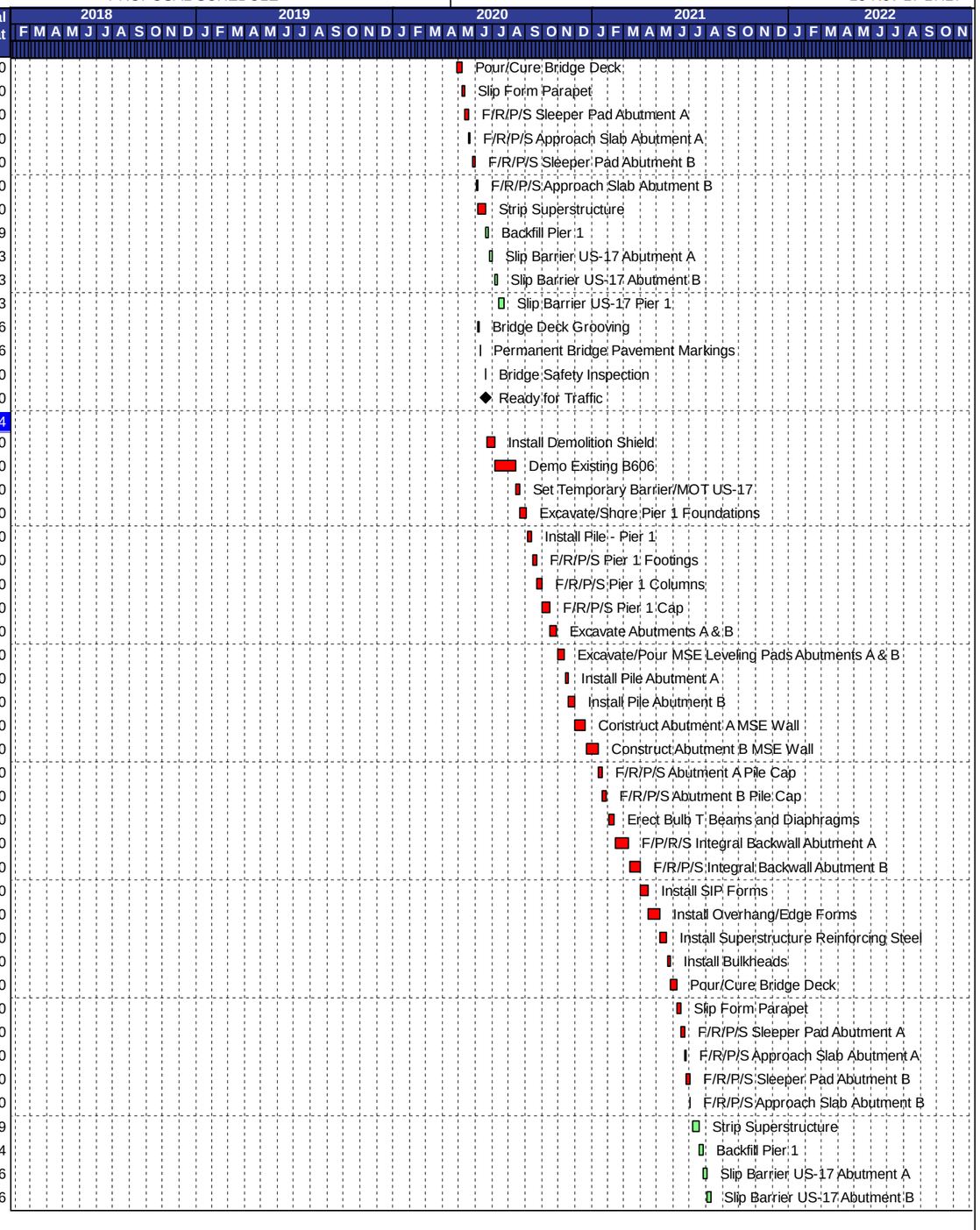
Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A4-10000	Flag limits of clearing	10	19-Feb-19	04-Mar-19	0
A4-10010	Install Construction Access	10	19-Feb-19	04-Mar-19	0
A4-10020	Install Initial Erosion & Sediment Controls	10	22-Feb-19	07-Mar-19	0
A4-10030	Clearing & Grubbing	40	08-Mar-19	03-Oct-19	0
A4-10040	Strip Topsoil to Stockpile/Disposal	30	04-Oct-19	14-Nov-19	5
A4-10050	Excavation/Embankment	125	18-Oct-19	05-May-20	5
A4-10060	Storm Sewer	100	18-Nov-19	09-Apr-20	64
A4-10070	Fine Grading	12	10-Apr-20	27-Apr-20	64
A4-10071	Construct OH 1 DMS	30	18-May-20	30-Jun-20	176
A4-10072	Construct OH 2	20	30-Jun-20	29-Jul-20	176
A4-10073	Construct OH 3	20	29-Jul-20	26-Aug-20	176
A4-10074	Construct OH 4	20	26-Aug-20	24-Sep-20	176
A4-10075	Construct OH-5	20	24-Sep-20	22-Oct-20	176
A4-10076	Construct Cantilever Sign C 1	20	22-Oct-20	19-Nov-20	176
A4-10080	Place/Compact CTA Aggregate	30	28-Apr-20	09-Jun-20	64
A4-10090	Install Median Barrier	80	12-May-20	02-Sep-20	82
A4-10095	Install Underdrain	8	10-Jun-20	19-Jun-20	64
A4-10100	Place OGDL	30	22-Jun-20	03-Aug-20	64
A4-10110	Place BM-25.0A Base Asphalt	45	07-Jul-20	08-Sep-20	64
A4-10120	Place/Compact 21-B Shoulder Aggregate	12	09-Sep-20	24-Sep-20	130
A4-10130	Place IM-19.0D Intermediate Shoulder Asphalt	5	25-Sep-20	01-Oct-20	64
A4-10140	Place IM-19.0D Intermediate Asphalt	20	02-Oct-20	29-Oct-20	64
A4-10150	Place SM-12.5A Shoulder Surface Asphalt	5	30-Oct-20	05-Nov-20	64
A4-10160	Place SM-12.5E Surface Asphalt	20	07-Jun-21	02-Jul-21	0
A4-10180	Install Guardrail	20	06-Jul-21	02-Aug-21	0
A4-10190	Install Pavement Markings	10	03-Aug-21	16-Aug-21	0
A4-10200	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.850.1	**Bridge B651**	215	20-Sep-19	24-Jul-20	269
BR10000	Set Temporary Barrier/MOT US-17	5	18-Oct-19	24-Oct-19	5
BR10010	Excavate/Shore Pier 1 Foundations	10	25-Oct-19	07-Nov-19	5
BR10015	Install Pile - Pier 1	5	08-Nov-19	14-Nov-19	5
BR10020	F/R/P/S Pier 1 Footings	6	15-Nov-19	25-Nov-19	4
BR10030	F/R/P/S Pier 1 Columns	8	26-Nov-19	10-Dec-19	4
BR10040	F/R/P/S Pier 1 Cap	10	11-Dec-19	26-Dec-19	4
BR10050	Excavate Abutments A & B	10	20-Sep-19	03-Oct-19	0
BR10100	Excavate/Pour MSE Leveling Pads Abutments A & B	10	04-Oct-19	17-Oct-19	0
BR10200	Install Pile Abutment A	5	18-Oct-19	24-Oct-19	0
BR10300	Install Pile Abutment B	5	25-Oct-19	31-Oct-19	0
BR10400	Construct Abutment A MSE Wall	15	01-Nov-19	21-Nov-19	0
BR10410	Construct Abutment B MSE Wall	15	22-Nov-19	16-Dec-19	0
BR10420	F/R/P/S Abutment A Pile Cap	5	17-Dec-19	24-Dec-19	0
BR10430	F/R/P/S Abutment B Pile Cap	5	26-Dec-19	03-Jan-20	0
BR10440	Erect Bulb T Beams and Diaphragms	8	06-Jan-20	15-Jan-20	0
BR10450	F/P/R/S Integral Backwall Abutment A	15	16-Jan-20	10-Feb-20	0
BR10455	F/R/P/S Integral Backwall Abutment B	15	11-Feb-20	02-Mar-20	0
BR10460	Install SIP Forms	10	03-Mar-20	16-Mar-20	0
BR10470	Install Overhang/Edge Forms	15	17-Mar-20	06-Apr-20	0
BR10480	Install Superstructure Reinforcing Steel	10	07-Apr-20	20-Apr-20	0
BR10490	Install Bulkheads	5	21-Apr-20	27-Apr-20	0



Activity ID	Activity Name	Duration	Start	Finish	Total Float
BR10500	Pour/Cure Bridge Deck	7	28-Apr-20	06-May-20	0
BR10510	Slip Form Parapet	4	07-May-20	12-May-20	0
BR10520	F/R/P/S Sleeper Pad Abutment A	5	13-May-20	19-May-20	0
BR10530	F/R/P/S Approach Slab Abutment A	3	20-May-20	22-May-20	0
BR10540	F/R/P/S Sleeper Pad Abutment B	5	26-May-20	01-Jun-20	0
BR10550	F/R/P/S Approach Slab Abutment B	3	02-Jun-20	04-Jun-20	0
BR10560	Strip Superstructure	10	05-Jun-20	18-Jun-20	0
BR10570	Backfill Pier 1	5	19-Jun-20	25-Jun-20	269
BR10580	Slip Barrier US-17 Abutment A	5	26-Jun-20	02-Jul-20	253
BR10590	Slip Barrier US-17 Abutment B	5	06-Jul-20	10-Jul-20	253
BR10600	Slip Barrier US-17 Pier 1	10	13-Jul-20	24-Jul-20	253
BR10610	Bridge Deck Grooving	2	05-Jun-20	08-Jun-20	6
BR10620	Permanent Bridge Pavement Markings	2	09-Jun-20	10-Jun-20	6
BR10630	Bridge Safety Inspection	1	19-Jun-20	19-Jun-20	0
BR10640	Ready for Traffic	0		19-Jun-20	0
I95RRC.8.850.2	**Bridge B606 w/Option 1**	288	22-Jun-20	09-Aug-21	184
BR6061030	Install Demolition Shield	10	22-Jun-20	06-Jul-20	0
BR6061040	Demo Existing B606	28	07-Jul-20	13-Aug-20	0
BR6061050	Set Temporary Barrier/MOT US-17	5	14-Aug-20	20-Aug-20	0
BR6061060	Excavate/Shore Pier 1 Foundations	10	21-Aug-20	03-Sep-20	0
BR6061065	Install Pile - Pier 1	5	04-Sep-20	11-Sep-20	0
BR6061070	F/R/P/S Pier 1 Footings	6	14-Sep-20	21-Sep-20	0
BR6061080	F/R/P/S Pier 1 Columns	8	22-Sep-20	01-Oct-20	0
BR6061090	F/R/P/S Pier 1 Cap	10	02-Oct-20	15-Oct-20	0
BR6061100	Excavate Abutments A & B	10	16-Oct-20	29-Oct-20	0
BR6061110	Excavate/Pour MSE Leveling Pads Abutments A & B	10	30-Oct-20	12-Nov-20	0
BR6061120	Install Pile Abutment A	5	13-Nov-20	19-Nov-20	0
BR6061130	Install Pile Abutment B	5	20-Nov-20	30-Nov-20	0
BR6061140	Construct Abutment A MSE Wall	15	01-Dec-20	21-Dec-20	0
BR6061150	Construct Abutment B MSE Wall	15	22-Dec-20	13-Jan-21	0
BR6061160	F/R/P/S Abutment A Pile Cap	5	14-Jan-21	21-Jan-21	0
BR6061170	F/R/P/S Abutment B Pile Cap	5	22-Jan-21	29-Jan-21	0
BR6061180	Erect Bulb T Beams and Diaphragms	10	01-Feb-21	12-Feb-21	0
BR6061190	F/P/R/S Integral Backwall Abutment A	15	15-Feb-21	11-Mar-21	0
BR6061200	F/R/P/S Integral Backwall Abutment B	15	12-Mar-21	01-Apr-21	0
BR6061210	Install SIP Forms	10	02-Apr-21	15-Apr-21	0
BR6061220	Install Overhang/Edge Forms	15	16-Apr-21	06-May-21	0
BR6061230	Install Superstructure Reinforcing Steel	10	07-May-21	20-May-21	0
BR6061240	Install Bulkheads	5	21-May-21	27-May-21	0
BR6061250	Pour/Cure Bridge Deck	7	28-May-21	08-Jun-21	0
BR6061260	Slip Form Parapet	4	09-Jun-21	14-Jun-21	0
BR6061270	F/R/P/S Sleeper Pad Abutment A	5	15-Jun-21	21-Jun-21	0
BR6061280	F/R/P/S Approach Slab Abutment A	3	22-Jun-21	24-Jun-21	0
BR6061290	F/R/P/S Sleeper Pad Abutment B	5	25-Jun-21	01-Jul-21	0
BR6061300	F/R/P/S Approach Slab Abutment B	1	02-Jul-21	02-Jul-21	0
BR6061310	Strip Superstructure	10	06-Jul-21	19-Jul-21	19
BR6061320	Backfill Pier 1	5	20-Jul-21	26-Jul-21	184
BR6061330	Slip Barrier US-17 Abutment A	5	27-Jul-21	02-Aug-21	166
BR6061340	Slip Barrier US-17 Abutment B	5	03-Aug-21	09-Aug-21	166



Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
BR6061350	Bridge Deck Grooving	2	06-Jul-21	07-Jul-21	25
BR6061360	Pavement Markings	2	08-Jul-21	09-Jul-21	25
BR6061370	Bridge Safety Inspection	1	20-Jul-21	20-Jul-21	19
BR6061380	Ready for Traffic	0		20-Jul-21	19
I95RRC.8.850.3	**Area 4 CD I-95SB 3687+50 - 3608+00**	548	19-Feb-19	14-Apr-21	86
A470210	Flag limits of clearing	10	19-Feb-19	04-Mar-19	230
A470220	Install Construction Access	10	05-Mar-19	18-Mar-19	230
A470230	Install Initial Erosion & Sediment Controls	10	19-Mar-19	01-Apr-19	230
A470240	Clearing & Grubbing	20	04-Oct-19	31-Oct-19	100
A470250	Strip Topsoil to Stockpile/Disposal	15	22-Oct-19	11-Nov-19	100
A470260	Excavation/Embankment	100	05-Nov-19	16-Apr-20	86
A470270	Storm Sewer	65	24-Jan-20	23-Apr-20	86
A470280	Fine Grading	15	24-Apr-20	14-May-20	86
A470285	Construct OH 6	20	15-May-20	12-Jun-20	268
A470286	Construct OH 7	20	15-Jun-20	13-Jul-20	268
A470290	Place/Compact CTA Aggregate	25	15-May-20	19-Jun-20	86
A470310	Install Underdrain	8	22-Jun-20	01-Jul-20	86
A470320	Place OGDL	20	02-Jul-20	30-Jul-20	86
A470330	Place BM-25.0A Base Asphalt	35	17-Jul-20	03-Sep-20	86
A470340	Place/Compact 21-B Shoulder Aggregate	12	04-Sep-20	22-Sep-20	152
A470350	Place IM-19.0D Intermediate Shoulder Asphalt	10	23-Sep-20	06-Oct-20	86
A470360	Place IM-19.0D Intermediate Asphalt	10	07-Oct-20	20-Oct-20	86
A470370	Place SM-12.5A Shoulder Surface Asphalt	10	21-Oct-20	03-Nov-20	86
A470380	Place SM-12.5E Surface Asphalt	10	04-Nov-20	17-Mar-21	86
A470400	Install Guardrail	10	18-Mar-21	31-Mar-21	86
A470410	Install Pavement Markings	10	01-Apr-21	14-Apr-21	86
A470420	Ready for Traffic	0		14-Apr-21	86
I95RRC.8.850.4	**Area 4 CD I-95SB 2604+00 - 2606+75 W/Ramps w/Option 1**	338	17-Apr-20	16-Aug-21	0
A480030	Demo Existing Asphalt	10	17-Apr-20	30-Apr-20	137
A480040	Strip Topsoil to Stockpile/Disposal	5	01-May-20	07-May-20	137
A480050	Excavation/Embankment	25	15-May-20	19-Jun-20	134
A480060	Storm Sewer	15	15-Jun-20	06-Jul-20	142
A480070	Fine Grading	10	07-Jul-20	20-Jul-20	142
A480075	Construct OH 8	20	21-Jul-20	17-Aug-20	248
A480080	Place/Compact CTA Aggregate	10	21-Jul-20	03-Aug-20	96
A480090	Install Underdrain	5	04-Aug-20	10-Aug-20	178
A480100	Place OGDL	10	11-Aug-20	24-Aug-20	96
A480110	Place BM-25.0A Base Asphalt	10	25-Aug-20	08-Sep-20	96
A480120	Place/Compact 21-B Shoulder Aggregate	10	09-Sep-20	22-Sep-20	162
A480130	Place IM-19.0D Intermediate Shoulder Asphalt	10	23-Sep-20	06-Oct-20	96
A480140	Place IM-19.0D Intermediate Asphalt	10	07-Oct-20	20-Oct-20	96
A480150	Place SM-12.5A Shoulder Surface Asphalt	10	06-Jul-21	19-Jul-21	0
A480160	Place SM-12.5E Surface Asphalt	10	20-Jul-21	02-Aug-21	0
A480180	Install Guardrail	5	03-Aug-21	09-Aug-21	0
A480190	Install Pavement Markings	5	10-Aug-21	16-Aug-21	0
A480200	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.850.5	**Area 4 CD I-95SB 2608+00 - 2611+50 W/Ramps w/Option 1**	328	01-May-20	16-Aug-21	0
A490030	Demo Existing Asphalt	10	01-May-20	14-May-20	164
A490040	Strip Topsoil to Stockpile/Disposal	5	15-May-20	21-May-20	164
A490050	Excavation/Embankment	25	01-Jun-20	06-Jul-20	154

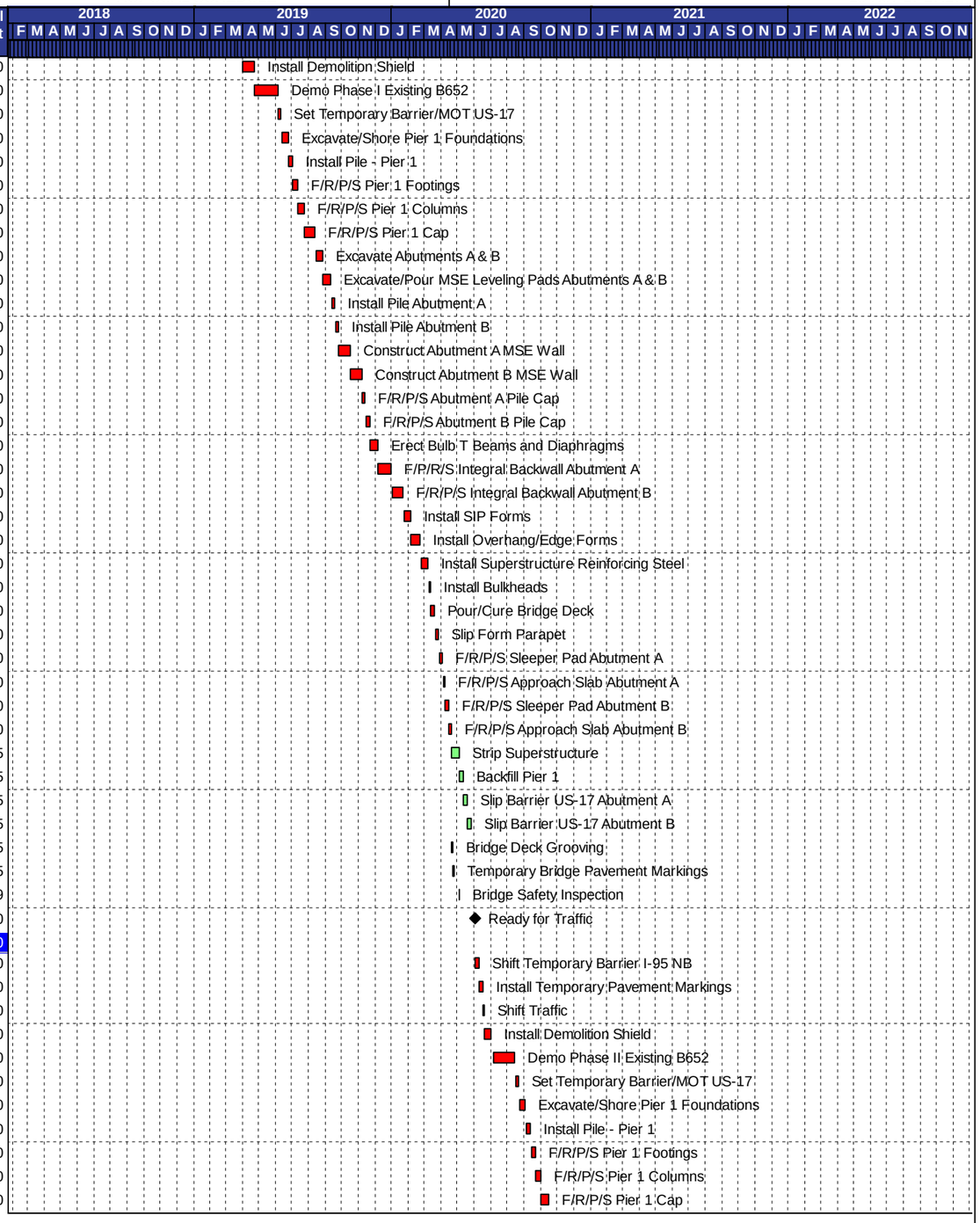
Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A490060	Storm Sewer	15	29-Jun-20	20-Jul-20	168
A490070	Fine Grading	10	21-Jul-20	03-Aug-20	168
A490080	Place/Compact CTA Aggregate	10	04-Aug-20	17-Aug-20	86
A490090	Install Underdrain	5	18-Aug-20	24-Aug-20	168
A490100	Place OGDL	10	25-Aug-20	08-Sep-20	86
A490110	Place BM-25.0A Base Asphalt	10	09-Sep-20	22-Sep-20	86
A490120	Place/Compact 21-B Shoulder Aggregate	10	23-Sep-20	06-Oct-20	152
A490130	Place IM-19.0D Intermediate Shoulder Asphalt	10	07-Oct-20	20-Oct-20	86
A490140	Place IM-19.0D Intermediate Asphalt	10	21-Oct-20	03-Nov-20	86
A490150	Place SM-12.5A Shoulder Surface Asphalt	10	06-Jul-21	19-Jul-21	0
A490160	Place SM-12.5E Surface Asphalt	10	20-Jul-21	02-Aug-21	0
A490180	Install Guardrail	5	03-Aug-21	09-Aug-21	0
A490190	Install Pavement Markings	5	10-Aug-21	16-Aug-21	0
A490200	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.850.7	**SWM E**	346	05-Jun-19	13-Oct-20	213
A4P10000	Flag limits of clearing	1	05-Jun-19	05-Jun-19	453
A4P10100	Install Construction Access	2	10-Jun-19	11-Jun-19	453
A4P10200	Install Initial Erosion & Sediment Controls	3	12-Jun-19	14-Jun-19	453
A4P10300	Clearing & Grubbing	10	16-Sep-19	27-Sep-19	283
A4P10400	Strip Topsoil to Stockpile/Disposal	10	02-Oct-19	15-Oct-19	416
A4P10500	Excavation/Embankment	30	16-Oct-19	02-Dec-19	386
A4P10600	Storm Sewer	15	18-Nov-19	10-Dec-19	413
A4P10700	Convert SWM Pond	15	23-Sep-20	13-Oct-20	213
I95RRC.8.875	**AREA 5 GP I-95NB 4606+27 - 4618+00**	626	01-Mar-19	16-Aug-21	0
I95RRC.8.875.3	**I95 NB GP Phase I**	320	01-Mar-19	02-Jun-20	0
A5PI10000	Flag limits of clearing	3	01-Mar-19	05-Mar-19	0
A5PI10100	Install Construction Access	2	06-Mar-19	07-Mar-19	0
A5PI10200	Install Initial Erosion & Sediment Controls	5	08-Mar-19	14-Mar-19	0
A5PI10300	Clearing & Grubbing	10	15-Mar-19	28-Mar-19	9
A5PI10400	Strip Topsoil to Stockpile/Disposal	10	02-Apr-19	15-Apr-19	91
A5PI10500	Excavation/Embankment	15	16-Apr-19	06-May-19	91
A5PI10600	Storm Sewer	10	14-May-19	28-May-19	91
A5PI10700	Fine Grading	5	29-May-19	04-Jun-19	91
A5PI10800	Place/Compact CTA Aggregate	5	05-Jun-19	11-Jun-19	91
A5PI10900	Install Underdrain	3	12-Jun-19	14-Jun-19	103
A5PI11000	Place OGDL	5	03-Jul-19	10-Jul-19	91
A5PI11100	Place BM-25.0A Base Asphalt	10	18-Jul-19	31-Jul-19	91
A5PI11200	Place/Compact 21-B Shoulder Aggregate	5	01-Aug-19	07-Aug-19	159
A5PI11300	Place IM-19.0D Intermediate Shoulder Asphalt	5	08-Aug-19	14-Aug-19	91
A5PI11400	Place IM-19.0D Intermediate Asphalt	10	15-Aug-19	28-Aug-19	91
A5PI11500	Place SM-12.5A Shoulder Surface Asphalt	5	21-Apr-20	27-Apr-20	0
A5PI11600	Place SM-12.5E Surface Asphalt	10	28-Apr-20	11-May-20	0
A5PI11650	Place Temporary Transition Asphalt	5	12-May-20	18-May-20	0
A5PI11800	Install Guardrail	5	19-May-20	26-May-20	0
A5PI11900	Install Pavement Markings	5	27-May-20	02-Jun-20	0
A5PI11910	Ready for Traffic	0		02-Jun-20	0
I95RRC.8.875.1	**Bridge B652 Phase I**	310	15-Mar-19	02-Jun-20	0
A312030	Set Temporary Barrier I-95 NB	5	15-Mar-19	21-Mar-19	0
A312040	Install Temporary Pavement Markings	5	22-Mar-19	28-Mar-19	0
A312050	Shift Traffic	2	29-Mar-19	01-Apr-19	0

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A312060	Install Demolition Shield	15	02-Apr-19	22-Apr-19	0
A312070	Demo Phase I Existing B652	30	23-Apr-19	04-Jun-19	0
A510000	Set Temporary Barrier/MOT US-17	5	05-Jun-19	11-Jun-19	0
A510100	Excavate/Shore Pier 1 Foundations	10	12-Jun-19	25-Jun-19	0
A510110	Install Pile - Pier 1	5	26-Jun-19	02-Jul-19	0
A510200	F/R/P/S Pier 1 Footings	6	03-Jul-19	11-Jul-19	0
A510300	F/R/P/S Pier 1 Columns	8	12-Jul-19	23-Jul-19	0
A510400	F/R/P/S Pier 1 Cap	15	24-Jul-19	13-Aug-19	0
A510500	Excavate Abutments A & B	10	14-Aug-19	27-Aug-19	0
A510600	Excavate/Pour MSE Leveling Pads Abutments A & B	10	28-Aug-19	11-Sep-19	0
A510700	Install Pile Abutment A	5	12-Sep-19	18-Sep-19	0
A510800	Install Pile Abutment B	5	19-Sep-19	25-Sep-19	0
A510900	Construct Abutment A MSE Wall	15	26-Sep-19	16-Oct-19	0
A511000	Construct Abutment B MSE Wall	15	17-Oct-19	06-Nov-19	0
A511100	F/R/P/S Abutment A Pile Cap	5	07-Nov-19	13-Nov-19	0
A511200	F/R/P/S Abutment B Pile Cap	5	14-Nov-19	21-Nov-19	0
A511300	Erect Bulb T Beams and Diaphragms	8	22-Nov-19	05-Dec-19	0
A511400	F/P/R/S Integral Backwall Abutment A	15	06-Dec-19	31-Dec-19	0
A511500	F/R/P/S Integral Backwall Abutment B	15	02-Jan-20	22-Jan-20	0
A511600	Install SIP Forms	10	23-Jan-20	05-Feb-20	0
A511700	Install Overhang/Edge Forms	12	06-Feb-20	21-Feb-20	0
A511800	Install Superstructure Reinforcing Steel	10	24-Feb-20	06-Mar-20	0
A511900	Install Bulkheads	3	09-Mar-20	11-Mar-20	0
A512000	Pour/Cure Bridge Deck	7	12-Mar-20	20-Mar-20	0
A512100	Slip Form Parapet	5	23-Mar-20	27-Mar-20	0
A512200	F/R/P/S Sleeper Pad Abutment A	5	30-Mar-20	03-Apr-20	0
A512300	F/R/P/S Approach Slab Abutment A	3	06-Apr-20	08-Apr-20	0
A512400	F/R/P/S Sleeper Pad Abutment B	5	09-Apr-20	15-Apr-20	0
A512500	F/R/P/S Approach Slab Abutment B	3	16-Apr-20	20-Apr-20	0
A512600	Strip Superstructure	10	21-Apr-20	04-May-20	5
A512700	Backfill Pier 1	5	05-May-20	11-May-20	5
A512800	Slip Barrier US-17 Abutment A	5	12-May-20	18-May-20	5
A512900	Slip Barrier US-17 Abutment B	5	19-May-20	26-May-20	5
A513100	Bridge Deck Grooving	2	21-Apr-20	22-Apr-20	25
A513200	Temporary Bridge Pavement Markings	2	23-Apr-20	24-Apr-20	25
A513300	Bridge Safety Inspection	1	05-May-20	05-May-20	19
A513400	Ready for Traffic	0		02-Jun-20	0
I95RRC.8.875.2	**Bridge B652 Phase II**	306	03-Jun-20	16-Aug-21	0
A5II10000	Shift Temporary Barrier I-95 NB	5	03-Jun-20	09-Jun-20	0
A5II10100	Install Temporary Pavement Markings	5	10-Jun-20	16-Jun-20	0
A5II10200	Shift Traffic	2	17-Jun-20	18-Jun-20	0
A5II10300	Install Demolition Shield	10	19-Jun-20	02-Jul-20	0
A5II10400	Demo Phase II Existing B652	30	06-Jul-20	14-Aug-20	0
A5II10500	Set Temporary Barrier/MOT US-17	5	17-Aug-20	21-Aug-20	0
A5II10600	Excavate/Shore Pier 1 Foundations	9	24-Aug-20	03-Sep-20	0
A5II10610	Install Pile - Pier 1	5	04-Sep-20	11-Sep-20	0
A5II10700	F/R/P/S Pier 1 Footings	6	14-Sep-20	21-Sep-20	0
A5II10800	F/R/P/S Pier 1 Columns	8	22-Sep-20	01-Oct-20	0
A5II10900	F/R/P/S Pier 1 Cap	10	02-Oct-20	15-Oct-20	0



Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A5II11000	Excavate Abutments A & B	10	16-Oct-20	29-Oct-20	0
A5II11100	Excavate/Pour MSE Leveling Pads Abutments A & B	10	30-Oct-20	12-Nov-20	0
A5II11200	Install Pile Abutment A	5	13-Nov-20	19-Nov-20	0
A5II11300	Install Pile Abutment B	5	20-Nov-20	30-Nov-20	0
A5II11400	Construct Abutment A MSE Wall	15	01-Dec-20	21-Dec-20	0
A5II11500	Construct Abutment B MSE Wall	15	22-Dec-20	13-Jan-21	0
A5II11600	F/R/P/S Abutment A Pile Cap	5	14-Jan-21	21-Jan-21	0
A5II11700	F/R/P/S Abutment B Pile Cap	5	22-Jan-21	29-Jan-21	0
A5II11800	Erect Bulb T Beams and Diaphragms	8	01-Feb-21	10-Feb-21	0
A5II11900	F/P/R/S Integral Backwall Abutment A	15	11-Feb-21	08-Mar-21	0
A5II12000	F/R/P/S Integral Backwall Abutment B	15	09-Mar-21	29-Mar-21	0
A5II12100	Install SIP Forms	10	30-Mar-21	12-Apr-21	0
A5II12200	Install Overhang/Edge Forms	15	13-Apr-21	03-May-21	0
A5II12300	Install Superstructure Reinforcing Steel	10	04-May-21	17-May-21	0
A5II12400	Install Bulkheads	3	18-May-21	20-May-21	0
A5II12500	Pour/Cure Bridge Deck	7	21-May-21	01-Jun-21	0
A5II12510	Install Option 1 Fred Ex Conduit	5	21-May-21	27-May-21	8
A5II12600	Slip Form Parapet	4	02-Jun-21	07-Jun-21	0
A5II12700	F/R/P/S Sleeper Pad Abutment A	4	08-Jun-21	11-Jun-21	0
A5II12800	F/R/P/S Approach Slab Abutment A	3	14-Jun-21	16-Jun-21	0
A5II12900	F/R/P/S Sleeper Pad Abutment B	4	17-Jun-21	22-Jun-21	0
A5II13000	F/R/P/S Approach Slab Abutment B	3	23-Jun-21	25-Jun-21	0
A5II13100	Strip Superstructure	10	28-Jun-21	12-Jul-21	0
A5II13200	Backfill Pier 1	5	13-Jul-21	19-Jul-21	0
A5II13300	Slip Barrier US-17 Abutment A	5	20-Jul-21	26-Jul-21	0
A5II13400	Slip Barrier US-17 Abutment B	5	27-Jul-21	02-Aug-21	0
A5II13500	Slip Barrier US-17 Pier 1	10	03-Aug-21	16-Aug-21	0
A5II13600	Bridge Deck Grooving	2	28-Jun-21	29-Jun-21	30
A5II13700	Permanent Bridge Pavement Markings	2	30-Jun-21	01-Jul-21	30
A5II13800	Bridge Safety Inspection	1	13-Jul-21	13-Jul-21	24
A5II13900	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.875.4	**I-95 NB GP Phase II**	284	19-Jun-20	02-Aug-21	10
A5PII10000	Flag limits of clearing	3	19-Jun-20	23-Jun-20	139
A5PII10100	Install Construction Access	2	24-Jun-20	25-Jun-20	139
A5PII10200	Install Initial Erosion & Sediment Controls	5	26-Jun-20	02-Jul-20	139
A5PII10300	Clearing & Grubbing	10	16-Sep-20	29-Sep-20	88
A5PII10400	Strip Topsoil to Stockpile/Disposal	10	02-Oct-20	15-Oct-20	88
A5PII10500	Excavation/Embankment	15	16-Oct-20	06-Nov-20	75
A5PII10600	Storm Sewer	10	16-Nov-20	01-Dec-20	90
A5PII10700	Fine Grading	5	02-Dec-20	08-Dec-20	90
A5PII10710	Install Option 1 Fred Ex Junction Box	2	09-Nov-20	10-Nov-20	108
A5PII10800	Place/Compact CTA Aggregate	5	16-Mar-21	22-Mar-21	23
A5PII10900	Install Underdrain	3	23-Mar-21	25-Mar-21	35
A5PII11000	Place OGDL	5	13-Apr-21	19-Apr-21	23
A5PII11100	Place BM-25.0A Base Asphalt	10	27-Apr-21	10-May-21	23
A5PII11200	Place/Compact 21-B Shoulder Aggregate	5	11-May-21	17-May-21	23
A5PII11300	Place IM-19.0D Intermediate Shoulder Asphalt	5	18-May-21	24-May-21	23
A5PII11400	Place IM-19.0D Intermediate Asphalt	10	25-May-21	08-Jun-21	23
A5PII11500	Place SM-12.5A Shoulder Surface Asphalt	5	28-Jun-21	02-Jul-21	10

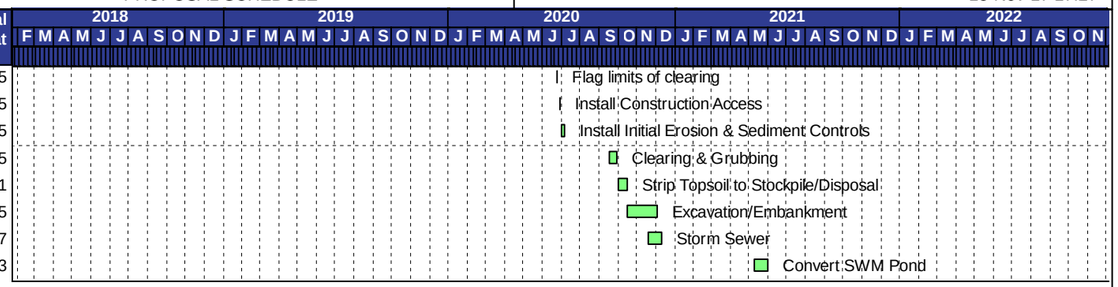
Activity ID	Activity Name	Duration	Start	Finish	Total Float
A5PII11600	Place SM-12.5E Surface Asphalt	10	06-Jul-21	19-Jul-21	10
A5PII11800	Install Guardrail	5	20-Jul-21	26-Jul-21	10
A5PII11900	Install Pavement Markings	5	27-Jul-21	02-Aug-21	10
A5PII11910	Ready for Traffic	0		02-Aug-21	10
I95RRC.8.900	**AREA 6 GP I-95NB 4618+00 - 4626+00**	626	15-Feb-19	02-Aug-21	10
I95RRC.8.900.1	**I-95 NB GP Phase I**	330	15-Feb-19	02-Jun-20	0
A6PII10000	Flag limits of clearing	3	15-Feb-19	19-Feb-19	19
A6PII10100	Install Construction Access	2	20-Feb-19	21-Feb-19	19
A6PII10200	Install Initial Erosion & Sediment Controls	5	22-Feb-19	28-Feb-19	19
A6PII10300	Clearing & Grubbing	10	01-Mar-19	14-Mar-19	19
A6PII10400	Strip Topsoil to Stockpile/Disposal	10	19-Mar-19	01-Apr-19	91
A6PII10500	Excavation/Embankment	15	02-Apr-19	22-Apr-19	91
A6PII10600	Storm Sewer	10	30-Apr-19	13-May-19	91
A6PII10700	Fine Grading	5	14-May-19	20-May-19	91
A6PII10800	Place/Compact CTA Aggregate	5	21-May-19	28-May-19	91
A6PII10900	Install Underdrain	3	29-May-19	31-May-19	103
A6PII11000	Place OGDL	5	19-Jun-19	25-Jun-19	91
A6PII11100	Place BM-25.0A Base Asphalt	10	03-Jul-19	17-Jul-19	91
A6PII11200	Place/Compact 21-B Shoulder Aggregate	5	18-Jul-19	24-Jul-19	159
A6PII11300	Place IM-19.0D Intermediate Shoulder Asphalt	5	25-Jul-19	31-Jul-19	91
A6PII11400	Place IM-19.0D Intermediate Asphalt	10	01-Aug-19	14-Aug-19	91
A6PII11500	Place SM-12.5A Shoulder Surface Asphalt	5	21-Apr-20	27-Apr-20	0
A6PII11600	Place SM-12.5E Surface Asphalt	10	28-Apr-20	11-May-20	0
A6PII11610	Place Temporary Transition Asphalt	5	12-May-20	18-May-20	0
A6PII11800	Install Guardrail	5	19-May-20	26-May-20	0
A6PII11900	Install Pavement Markings	5	27-May-20	02-Jun-20	0
A6PII11910	Ready for Traffic	0		02-Jun-20	0
I95RRC.8.900.2	**I-95 NB GP Phase II**	284	19-Jun-20	02-Aug-21	10
A6PII10000	Flag limits of clearing	3	19-Jun-20	23-Jun-20	139
A6PII10100	Install Construction Access	2	24-Jun-20	25-Jun-20	139
A6PII10200	Install Initial Erosion & Sediment Controls	5	26-Jun-20	02-Jul-20	139
A6PII10300	Clearing & Grubbing	10	16-Sep-20	29-Sep-20	88
A6PII10400	Strip Topsoil to Stockpile/Disposal	10	02-Oct-20	15-Oct-20	88
A6PII10500	Excavation/Embankment	15	16-Oct-20	06-Nov-20	75
A6PII10600	Storm Sewer	10	16-Nov-20	01-Dec-20	90
A6PII10700	Fine Grading	5	02-Dec-20	08-Dec-20	90
A6PII10710	Install Option 1 Fred Ex Junction Box	2	09-Nov-20	10-Nov-20	110
A6PII10800	Place/Compact CTA Aggregate	5	16-Mar-21	22-Mar-21	23
A6PII10900	Install Underdrain	3	23-Mar-21	25-Mar-21	35
A6PII11000	Place OGDL	5	13-Apr-21	19-Apr-21	23
A6PII11100	Place BM-25.0A Base Asphalt	10	27-Apr-21	10-May-21	23
A6PII11200	Place/Compact 21-B Shoulder Aggregate	5	11-May-21	17-May-21	23
A6PII11300	Place IM-19.0D Intermediate Shoulder Asphalt	5	18-May-21	24-May-21	23
A6PII11400	Place IM-19.0D Intermediate Asphalt	10	25-May-21	08-Jun-21	23
A6PII11500	Place SM-12.5A Shoulder Surface Asphalt	5	28-Jun-21	02-Jul-21	10
A6PII11600	Place SM-12.5E Surface Asphalt	10	06-Jul-21	19-Jul-21	10
A6PII11800	Install Guardrail	5	20-Jul-21	26-Jul-21	10
A6PII11900	Install Pavement Markings	5	27-Jul-21	02-Aug-21	10
A6PII11910	Ready for Traffic	0		02-Aug-21	10
I95RRC.8.900.3	**SWM D**	238	24-Jun-20	01-Jun-21	53

Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A6P10000	Flag limits of clearing	1	24-Jun-20	24-Jun-20	185
A6P10100	Install Construction Access	2	29-Jun-20	30-Jun-20	185
A6P10200	Install Initial Erosion & Sediment Controls	3	01-Jul-20	06-Jul-20	185
A6P10300	Clearing & Grubbing	10	16-Sep-20	29-Sep-20	135
A6P10400	Strip Topsoil to Stockpile/Disposal	10	02-Oct-20	15-Oct-20	161
A6P10500	Excavation/Embankment	30	16-Oct-20	04-Dec-20	145
A6P10600	Storm Sewer	15	19-Nov-20	11-Dec-20	157
A6P10700	Convert SWM Pond	15	11-May-21	01-Jun-21	53



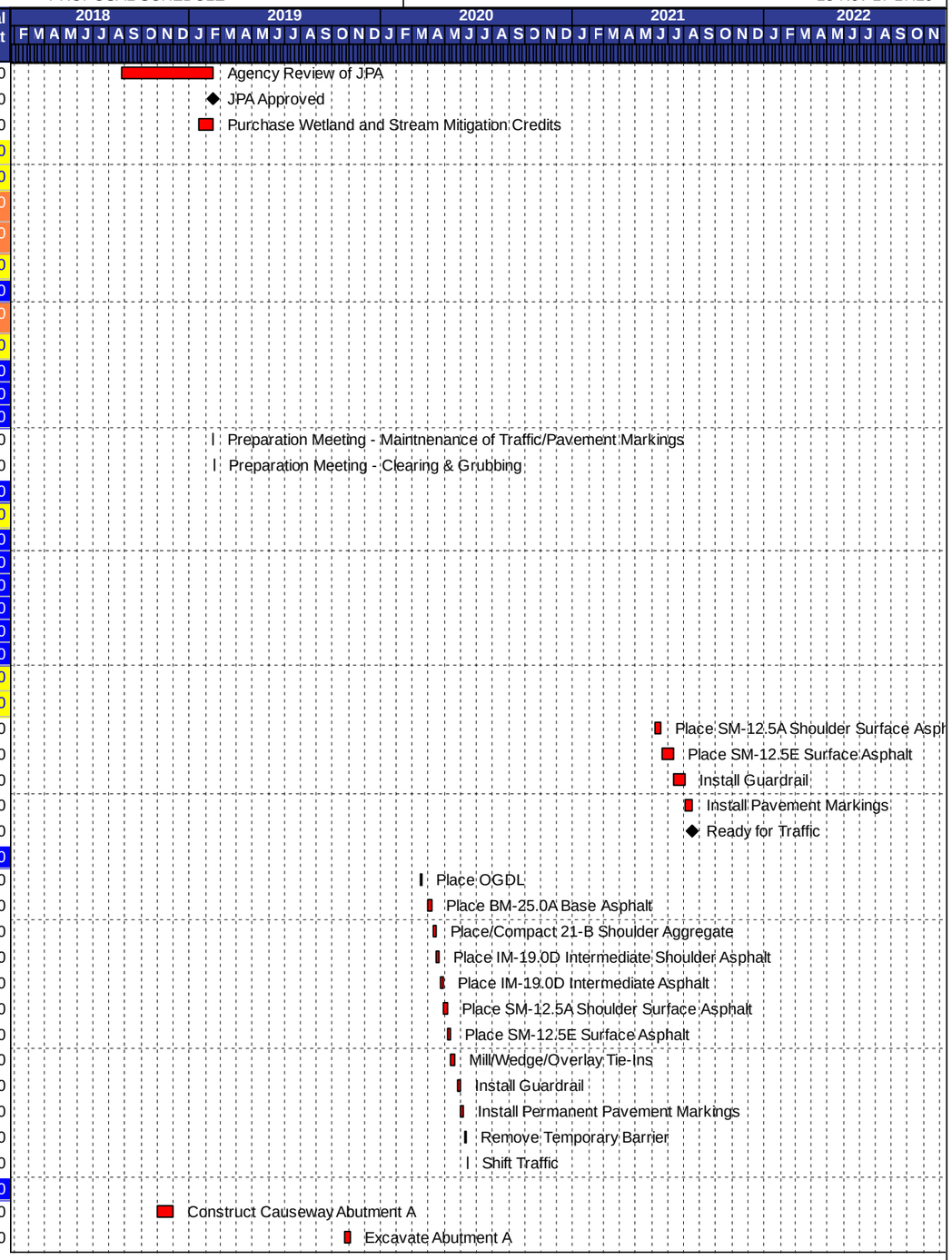
Activity ID	Activity Name	Duration	Start	Finish	Total Float
I95RRC	I-95 Southbound CD Lanes - Rappahannock River Crossing	1166	28-Dec-17	30-Jul-22	0
I95RRC.1	PROJECT MILESTONES	1166	28-Dec-17	30-Jul-22	0
I95RRC.1.1	Milestones	1166	28-Dec-17	30-Jul-22	0
PD10240	Notice of Intent To Award	0	28-Dec-17*		0
PD10270	Notice To Proceed (Hold Pt)	0	21-Feb-18*		0
PD10320	Notice to Commence Construction (Hold Pt)	0	15-Feb-19*		0
PD10325	Interim Milestone Inspections/Punch List	45	14-Jun-21	16-Aug-21	0
PD10330	Contract Interim Milestone Maximum "No Excuses" Milestone	0		16-Aug-21*	0
PD10340	Interim Milestone No Excuses Daily Reduction	30	17-Aug-21	15-Sep-21	0
PD10500	Unique Milestone #1 - US17/I-95 SB Ramp A Widening Open to Beneficial Use (Hold Pt)	0		15-Jun-20	0
PD10510	Unique Milestone #2 - I-95SB GP Lanes [3606+50 - Southern Terminus] Open to Beneficial Use	0		16-Aug-21	0
PD11120	Final Completion Max "No Excuses" Milestone	0		01-May-22*	0
PD11125	Final Completion No Excuses Daily Reduction	90	01-May-22	29-Jul-22	0
PD12000	FInal Completion (Hold Pt)	0		30-Jul-22*	0
I95RRC.1.1.1	Schedule Submissions	0			0
I95RRC.1.2	Scope Validation	0			0
I95RRC.2	DESIGN PHASE	130	21-Feb-18	23-Aug-18	0
I95RRC.2.1	Preliminary Design	100	21-Feb-18	12-Jul-18	0
DES10040	Supplemental Field Survey / Drainage Inventory	40	21-Feb-18	17-Apr-18	0
DES10045	Aerial Mapping	40	21-Feb-18	17-Apr-18	0
DES10070	Flood Plain Study	60	18-Apr-18	12-Jul-18	0
I95RRC.2.1.1	Geotechnical Investigation and Reports	0			0
I95RRC.2.1.1.1	Roadway	0			0
I95RRC.2.1.1.2	B606, B651, B652	0			0
I95RRC.2.1.1.3	B604	0			0
I95RRC.2.1.2	Noise Analysis	0			0
I95RRC.2.2	Roadway / Retaining Walls / Soundwall Plans	90	18-Apr-18	23-Aug-18	0
DES12000	Prepare Roadway Plans / H&HA	60	18-Apr-18	12-Jul-18	0
DES12020	Design-Builder Perform Constructability Review Roadway Plans / H&HA	15	13-Jul-18	02-Aug-18	0
DES12040	Design QA/QC Review Roadway Plans / H&HA (1st Submission)	15	13-Jul-18	02-Aug-18	0
DES12050	Submit Roadway Plans / H&HA (1st Submission)	0	03-Aug-18		0
DES12060	VDOT Review / Comment (1st Submission Roadway Plans / H&HA)	21	03-Aug-18	23-Aug-18	0
I95RRC.2.3	Causeway Plan	0			0
I95RRC.2.4	Bridge Plans	0			0
I95RRC.2.4.1	Rappahannock River Bridge B604	0			0
I95RRC.2.4.2	I-95 SB CD Over Route 17 B606	0			0
I95RRC.2.4.3	I-95 SB GP Over Route 17 B651	0			0
I95RRC.2.4.4	I-95 NB GP Over Route 17 B652	0			0
I95RRC.2.5	Waterline / Sanitary Sewer Relocation Plans	0			0
I95RRC.3	PUBLIC INVOLVEMENT / PUBLIC RELATIONS	0			0
I95RRC.4	ENVIRONMENTAL PERMITTING	210	18-Apr-18	14-Feb-19	0
I95RRC.4.1	Joint Permit Application	210	18-Apr-18	14-Feb-19	0
ENV10070	Wetland Delineations - Surveys & Flagging	30	18-Apr-18	30-May-18	0
ENV10080	COE Jurisdictional Determination	40	31-May-18	26-Jul-18	0
ENV10090	Prepare Joint Permit Application	20	27-Jul-18	23-Aug-18	0
ENV10100	Submit Joint Permit Application	0	24-Aug-18		0

Remaining Work ◆ Milestone

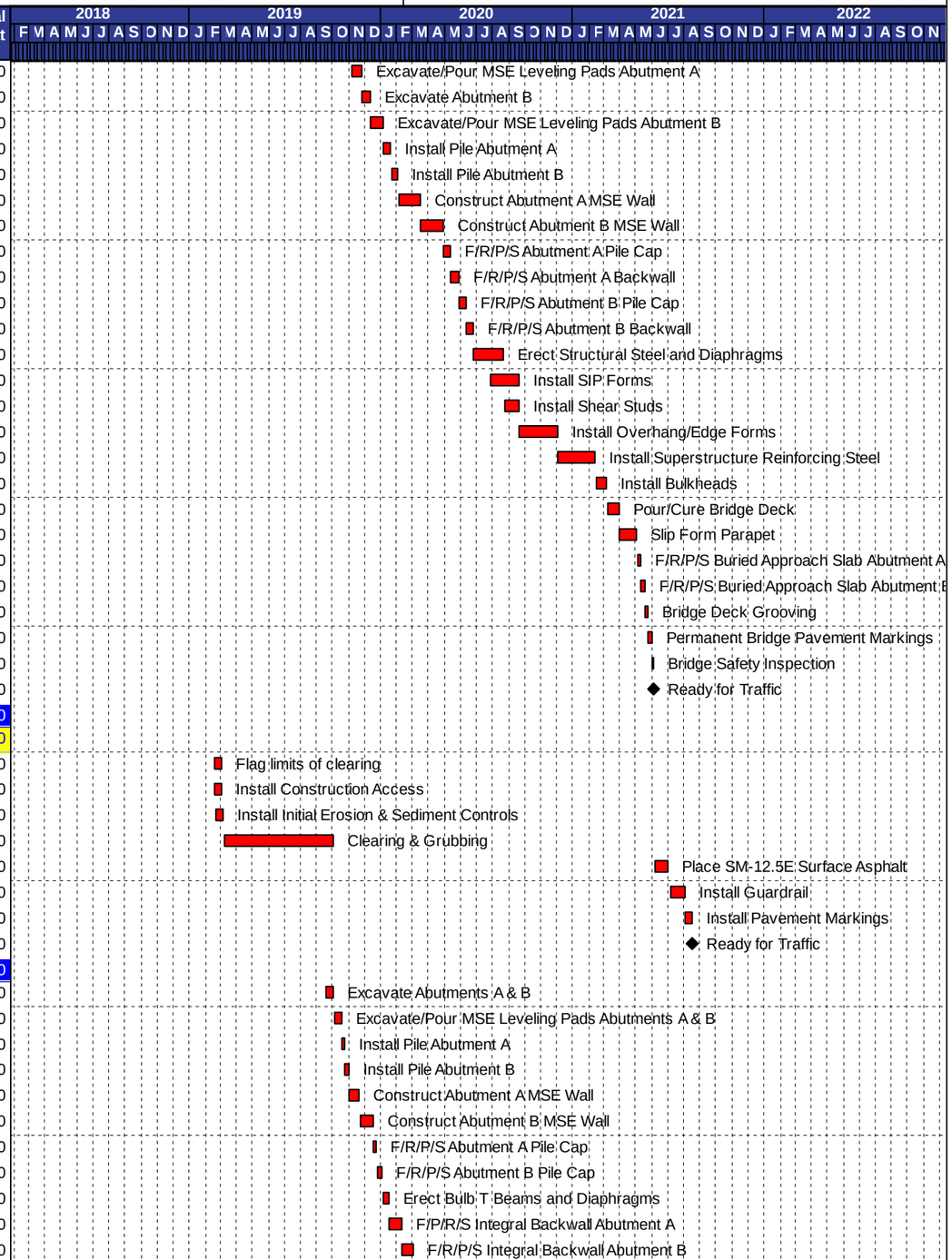
Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
ENV10110	Agency Review of JPA	120	24-Aug-18	14-Feb-19	0
ENV10120	JPA Approved	0		14-Feb-19	0
ENV10130	Purchase Wetland and Stream Mitigation Credits	20	18-Jan-19	14-Feb-19	0
I95RRC.4.4	Joint Permit Application - Causeway	0			0
I95RRC.4.2	SWPPP / LD-445	0			0
I95RRC.5	RIGHT-OF-WAY / EASEMENT ACQUISITIONS	0			0
I95RRC.6	UTILITY RELOCATIONS	0			0
I95RRC.6.1	Comcast Overhead Relocation	0			0
I95RRC.6.1.1	Verizon Underground Relocation	0			0
I95RRC.8	CONSTRUCTION	708	01-Nov-18	16-Aug-21	0
I95RRC.8.801	GENERAL	2	15-Feb-19	18-Feb-19	0
I95RRC.8.801.500	Preconstruction	0			0
I95RRC.8.801.501	Primary Construction Submittals	0			0
I95RRC.8.801.502	Preconstruction QA/QC Process	2	15-Feb-19	18-Feb-19	0
PQP10000	Preparation Meeting - Maintnenance of Traffic/Pavement Markings	1	15-Feb-19	15-Feb-19	0
PQP10010	Preparation Meeting - Clearing & Grubbing	1	18-Feb-19	18-Feb-19	0
I95RRC.8.801.503	Primary Construction Materials	0			0
I95RRC.8.810	AREA 1 GP I-95SB 3462+00 - 3367+00	0			0
I95RRC.8.810.1	Area 1 CD I-95SB 3412+75 - 3367+00	0			0
I95RRC.8.810.2	SWM B	0			0
I95RRC.8.810.3	SWM C	0			0
I95RRC.8.810.4	SWM G - Option 1	0			0
I95RRC.8.810.5	SWM H - Option 1	0			0
I95RRC.8.810.6	SWM J - Option 1	0			0
I95RRC.8.815	AREA 2 GP I-95SB 3554+50 - 3462+00	0			0
I95RRC.8.825	AREA 3 GP I-95SB 3606+00 - 3554+50	708	01-Nov-18	16-Aug-21	0
A311600	Place SM-12.5A Shoulder Surface Asphalt	10	07-Jun-21	18-Jun-21	0
A311700	Place SM-12.5E Surface Asphalt	15	21-Jun-21	12-Jul-21	0
A311900	Install Guardrail	15	13-Jul-21	02-Aug-21	0
A312000	Install Pavement Markings	10	03-Aug-21	16-Aug-21	0
A312010	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.825.1	RT17/I-95SB Ramp 10+00 - 48+64.89 w/Option 1	65	16-Mar-20	15-Jun-20	0
A3UMII10	Place OGDL	5	16-Mar-20	20-Mar-20	0
A3UMII10	Place BM-25.0A Base Asphalt	8	30-Mar-20	08-Apr-20	0
A3UMII10	Place/Compact 21-B Shoulder Aggregate	5	09-Apr-20	15-Apr-20	0
A3UMII10	Place IM-19.0D Intermediate Shoulder Asphalt	5	16-Apr-20	22-Apr-20	0
A3UMII10	Place IM-19.0D Intermediate Asphalt	5	23-Apr-20	29-Apr-20	0
A3UMII11	Place SM-12.5A Shoulder Surface Asphalt	5	30-Apr-20	06-May-20	0
A3UMII11	Place SM-12.5E Surface Asphalt	5	07-May-20	13-May-20	0
A3UMII11	Mill/Wedge/Overlay Tie-Ins	7	14-May-20	22-May-20	0
A3UMII11	Install Guardrail	5	26-May-20	01-Jun-20	0
A3UMII11	Install Permanent Pavement Markings	4	02-Jun-20	05-Jun-20	0
A3UMII11	Remove Temporary Barrier	5	08-Jun-20	12-Jun-20	0
A3UMII11	Shift Traffic	1	15-Jun-20	15-Jun-20	0
I95RRC.8.825.2	Bridge B604	658	01-Nov-18	04-Jun-21	0
A3RC100	Construct Causeway Abutment A	20	01-Nov-18*	30-Nov-18	0
A3RC700	Excavate Abutment A	10	23-Oct-19	05-Nov-19	0



Activity ID	Activity Name	Duration	Start	Finish	Total Float
A3RC7001	Excavate/Pour MSE Leveling Pads Abutment A	15	06-Nov-19	26-Nov-19	0
A3RC7010	Excavate Abutment B	10	27-Nov-19	12-Dec-19	0
A3RC7011	Excavate/Pour MSE Leveling Pads Abutment B	15	13-Dec-19	06-Jan-20	0
A3RC7020	Install Pile Abutment A	10	07-Jan-20	20-Jan-20	0
A3RC7030	Install Pile Abutment B	10	21-Jan-20	03-Feb-20	0
A3RC7040	Construct Abutment A MSE Wall	31	04-Feb-20	17-Mar-20	0
A3RC7050	Construct Abutment B MSE Wall	31	18-Mar-20	29-Apr-20	0
A3RC7060	F/R/P/S Abutment A Pile Cap	10	30-Apr-20	13-May-20	0
A3RC7061	F/R/P/S Abutment A Backwall	10	14-May-20	28-May-20	0
A3RC7070	F/R/P/S Abutment B Pile Cap	10	29-May-20	11-Jun-20	0
A3RC7071	F/R/P/S Abutment B Backwall	10	12-Jun-20	25-Jun-20	0
A3RC7080	Erect Structural Steel and Diaphragms	40	26-Jun-20	21-Aug-20	0
A3RC7100	Install SIP Forms	40	27-Jul-20	21-Sep-20	0
A3RC7110	Install Shear Studs	20	24-Aug-20	21-Sep-20	0
A3RC7120	Install Overhang/Edge Forms	50	22-Sep-20	02-Dec-20	0
A3RC7130	Install Superstructure Reinforcing Steel	50	03-Dec-20	12-Feb-21	0
A3RC7140	Install Bulkheads	15	15-Feb-21	05-Mar-21	0
A3RC7150	Pour/Cure Bridge Deck	15	08-Mar-21	29-Mar-21	0
A3RC7160	Slip Form Parapet	25	30-Mar-21	03-May-21	0
A3RC7180	F/R/P/S Buried Approach Slab Abutment A	5	04-May-21	10-May-21	0
A3RC7200	F/R/P/S Buried Approach Slab Abutment B	5	11-May-21	17-May-21	0
A3RC7260	Bridge Deck Grooving	5	18-May-21	24-May-21	0
A3RC7270	Permanent Bridge Pavement Markings	5	25-May-21	01-Jun-21	0
A3RC7280	Bridge Safety Inspection	3	02-Jun-21	04-Jun-21	0
A3RC7290	Ready for Traffic	0		04-Jun-21	0
I95RRC.8.825.3	**SWM F**	0			0
I95RRC.8.850	**AREA 4 GP I-95SB 3687+50 - 3606+00 w/Option 1**	634	19-Feb-19	16-Aug-21	0
A4-10000	Flag limits of clearing	10	19-Feb-19	04-Mar-19	0
A4-10010	Install Construction Access	10	19-Feb-19	04-Mar-19	0
A4-10020	Install Initial Erosion & Sediment Controls	10	22-Feb-19	07-Mar-19	0
A4-10030	Clearing & Grubbing	40	08-Mar-19	03-Oct-19	0
A4-10160	Place SM-12.5E Surface Asphalt	20	07-Jun-21	02-Jul-21	0
A4-10180	Install Guardrail	20	06-Jul-21	02-Aug-21	0
A4-10190	Install Pavement Markings	10	03-Aug-21	16-Aug-21	0
A4-10200	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.850.1	**Bridge B651**	191	20-Sep-19	19-Jun-20	0
BR10050	Excavate Abutments A & B	10	20-Sep-19	03-Oct-19	0
BR10100	Excavate/Pour MSE Leveling Pads Abutments A & B	10	04-Oct-19	17-Oct-19	0
BR10200	Install Pile Abutment A	5	18-Oct-19	24-Oct-19	0
BR10300	Install Pile Abutment B	5	25-Oct-19	31-Oct-19	0
BR10400	Construct Abutment A MSE Wall	15	01-Nov-19	21-Nov-19	0
BR10410	Construct Abutment B MSE Wall	15	22-Nov-19	16-Dec-19	0
BR10420	F/R/P/S Abutment A Pile Cap	5	17-Dec-19	24-Dec-19	0
BR10430	F/R/P/S Abutment B Pile Cap	5	26-Dec-19	03-Jan-20	0
BR10440	Erect Bulb T Beams and Diaphragms	8	06-Jan-20	15-Jan-20	0
BR10450	F/P/R/S Integral Backwall Abutment A	15	16-Jan-20	10-Feb-20	0
BR10455	F/R/P/S Integral Backwall Abutment B	15	11-Feb-20	02-Mar-20	0

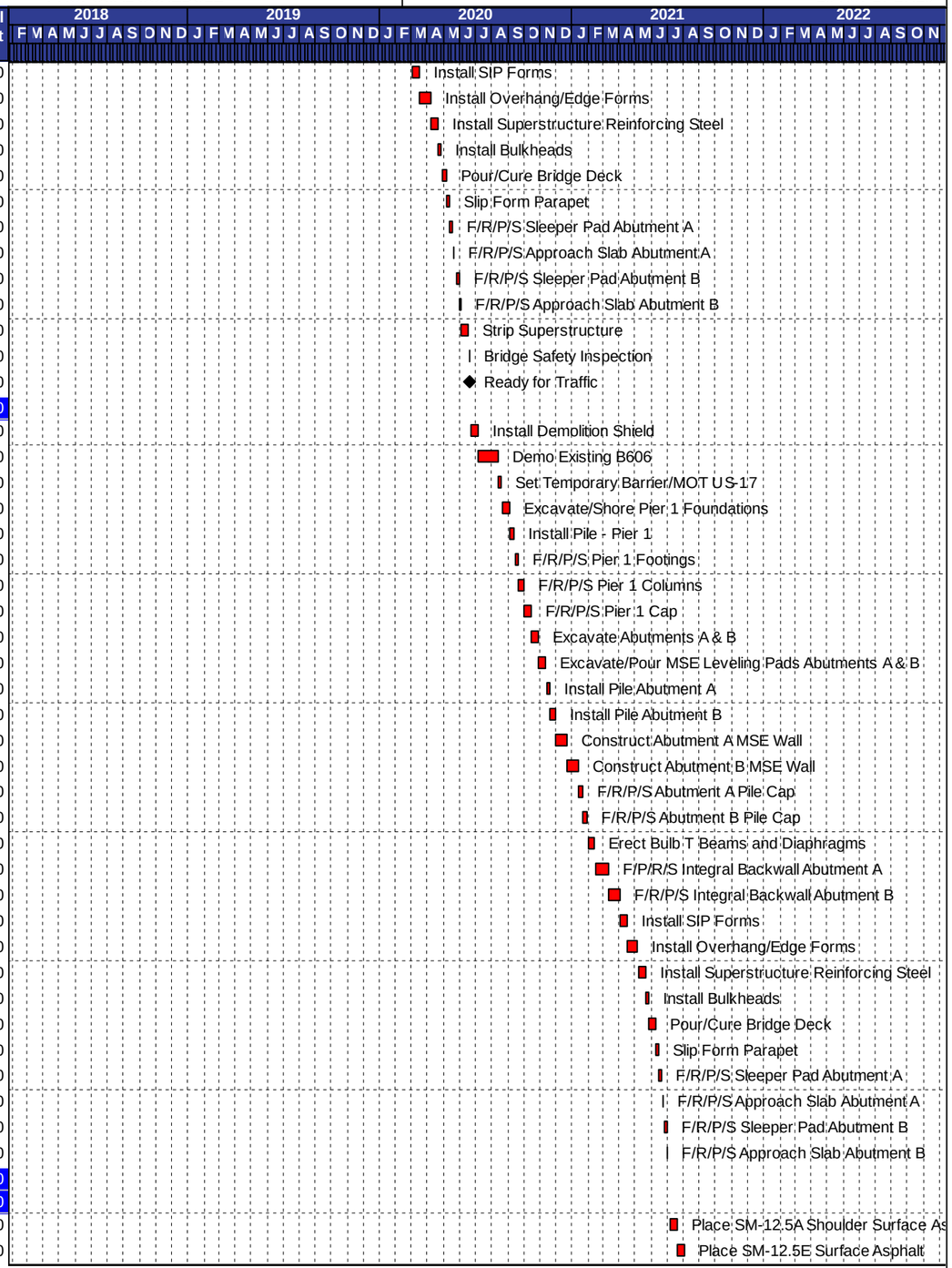


Remaining Work ◆ Milestone

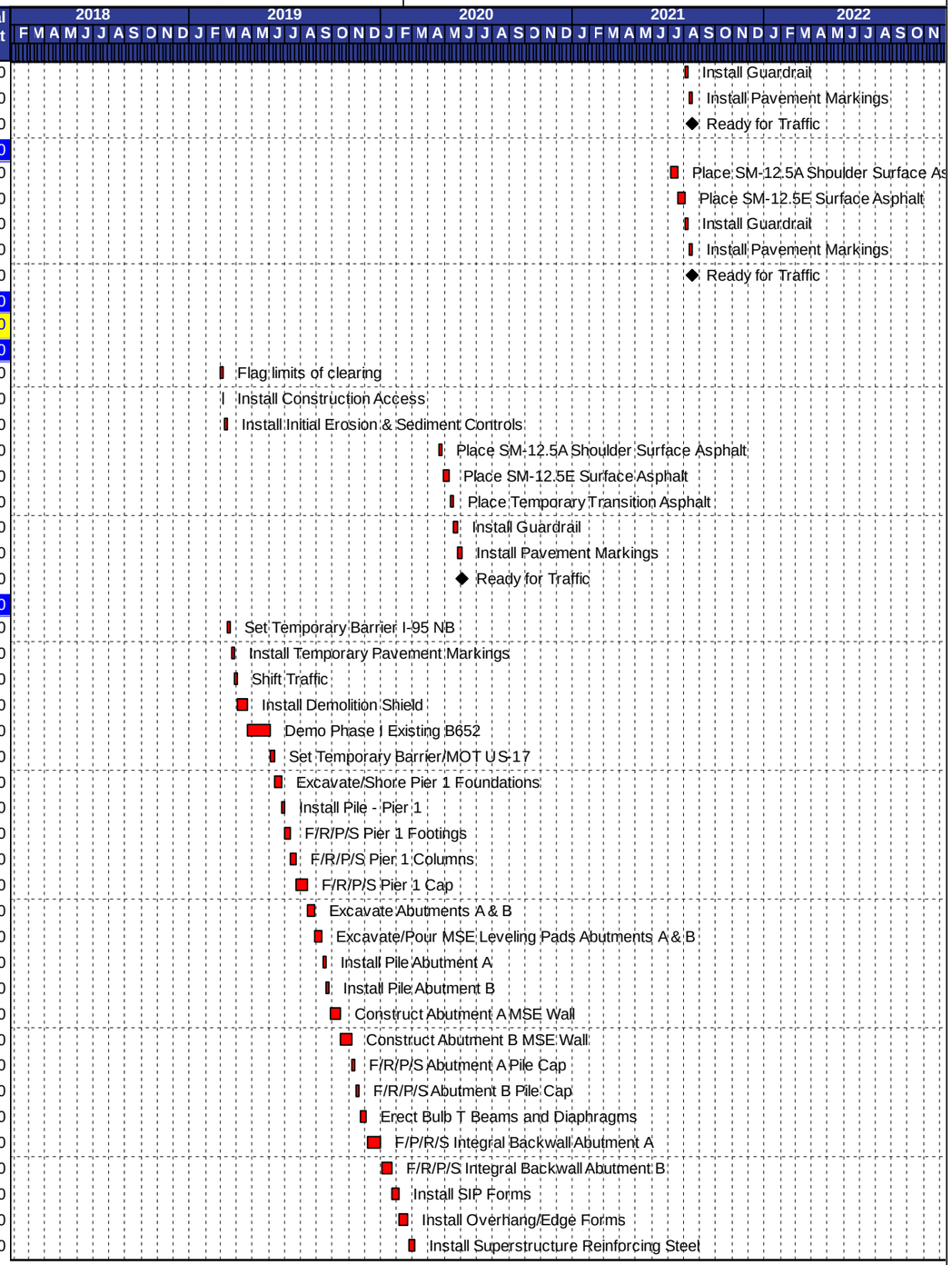
Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
BR10460	Install SIP Forms	10	03-Mar-20	16-Mar-20	0
BR10470	Install Overhang/Edge Forms	15	17-Mar-20	06-Apr-20	0
BR10480	Install Superstructure Reinforcing Steel	10	07-Apr-20	20-Apr-20	0
BR10490	Install Bulkheads	5	21-Apr-20	27-Apr-20	0
BR10500	Pour/Cure Bridge Deck	7	28-Apr-20	06-May-20	0
BR10510	Slip Form Parapet	4	07-May-20	12-May-20	0
BR10520	F/R/P/S Sleeper Pad Abutment A	5	13-May-20	19-May-20	0
BR10530	F/R/P/S Approach Slab Abutment A	3	20-May-20	22-May-20	0
BR10540	F/R/P/S Sleeper Pad Abutment B	5	26-May-20	01-Jun-20	0
BR10550	F/R/P/S Approach Slab Abutment B	3	02-Jun-20	04-Jun-20	0
BR10560	Strip Superstructure	10	05-Jun-20	18-Jun-20	0
BR10630	Bridge Safety Inspection	1	19-Jun-20	19-Jun-20	0
BR10640	Ready for Traffic	0		19-Jun-20	0
I95RRC.8.850.2	**Bridge B606 w/Option 1**	263	22-Jun-20	02-Jul-21	0
BR6061030	Install Demolition Shield	10	22-Jun-20	06-Jul-20	0
BR6061040	Demo Existing B606	28	07-Jul-20	13-Aug-20	0
BR6061050	Set Temporary Barrier/MOT US-17	5	14-Aug-20	20-Aug-20	0
BR6061060	Excavate/Shore Pier 1 Foundations	10	21-Aug-20	03-Sep-20	0
BR6061065	Install Pile - Pier 1	5	04-Sep-20	11-Sep-20	0
BR6061070	F/R/P/S Pier 1 Footings	6	14-Sep-20	21-Sep-20	0
BR6061080	F/R/P/S Pier 1 Columns	8	22-Sep-20	01-Oct-20	0
BR6061090	F/R/P/S Pier 1 Cap	10	02-Oct-20	15-Oct-20	0
BR6061100	Excavate Abutments A & B	10	16-Oct-20	29-Oct-20	0
BR6061110	Excavate/Pour MSE Leveling Pads Abutments A & B	10	30-Oct-20	12-Nov-20	0
BR6061120	Install Pile Abutment A	5	13-Nov-20	19-Nov-20	0
BR6061130	Install Pile Abutment B	5	20-Nov-20	30-Nov-20	0
BR6061140	Construct Abutment A MSE Wall	15	01-Dec-20	21-Dec-20	0
BR6061150	Construct Abutment B MSE Wall	15	22-Dec-20	13-Jan-21	0
BR6061160	F/R/P/S Abutment A Pile Cap	5	14-Jan-21	21-Jan-21	0
BR6061170	F/R/P/S Abutment B Pile Cap	5	22-Jan-21	29-Jan-21	0
BR6061180	Erect Bulb T Beams and Diaphragms	10	01-Feb-21	12-Feb-21	0
BR6061190	F/P/R/S Integral Backwall Abutment A	15	15-Feb-21	11-Mar-21	0
BR6061200	F/R/P/S Integral Backwall Abutment B	15	12-Mar-21	01-Apr-21	0
BR6061210	Install SIP Forms	10	02-Apr-21	15-Apr-21	0
BR6061220	Install Overhang/Edge Forms	15	16-Apr-21	06-May-21	0
BR6061230	Install Superstructure Reinforcing Steel	10	07-May-21	20-May-21	0
BR6061240	Install Bulkheads	5	21-May-21	27-May-21	0
BR6061250	Pour/Cure Bridge Deck	7	28-May-21	08-Jun-21	0
BR6061260	Slip Form Parapet	4	09-Jun-21	14-Jun-21	0
BR6061270	F/R/P/S Sleeper Pad Abutment A	5	15-Jun-21	21-Jun-21	0
BR6061280	F/R/P/S Approach Slab Abutment A	3	22-Jun-21	24-Jun-21	0
BR6061290	F/R/P/S Sleeper Pad Abutment B	5	25-Jun-21	01-Jul-21	0
BR6061300	F/R/P/S Approach Slab Abutment B	1	02-Jul-21	02-Jul-21	0
I95RRC.8.850.3	**Area 4 CD I-95SB 3687+50 - 3608+00**	0			0
I95RRC.8.850.4	**Area 4 CD I-95SB 2604+00 - 2606+75 W/Ramps w/Option 1**	30	06-Jul-21	16-Aug-21	0
A480150	Place SM-12.5A Shoulder Surface Asphalt	10	06-Jul-21	19-Jul-21	0
A480160	Place SM-12.5E Surface Asphalt	10	20-Jul-21	02-Aug-21	0



Activity ID	Activity Name	Duration	Start	Finish	Total Float
A480180	Install Guardrail	5	03-Aug-21	09-Aug-21	0
A480190	Install Pavement Markings	5	10-Aug-21	16-Aug-21	0
A480200	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.850.5	**Area 4 CD I-95SB 2608+00 - 2611+50 W/Ramps w/Option 1**	30	06-Jul-21	16-Aug-21	0
A490150	Place SM-12.5A Shoulder Surface Asphalt	10	06-Jul-21	19-Jul-21	0
A490160	Place SM-12.5E Surface Asphalt	10	20-Jul-21	02-Aug-21	0
A490180	Install Guardrail	5	03-Aug-21	09-Aug-21	0
A490190	Install Pavement Markings	5	10-Aug-21	16-Aug-21	0
A490200	Ready for Traffic	0		16-Aug-21	0
I95RRC.8.850.7	**SWM E**	0			0
I95RRC.8.875	**AREA 5 GP I-95NB 4606+27 - 4618+00**	626	01-Mar-19	16-Aug-21	0
I95RRC.8.875.3	**I95 NB GP Phase I**	320	01-Mar-19	02-Jun-20	0
A5PI10000	Flag limits of clearing	3	01-Mar-19	05-Mar-19	0
A5PI10100	Install Construction Access	2	06-Mar-19	07-Mar-19	0
A5PI10200	Install Initial Erosion & Sediment Controls	5	08-Mar-19	14-Mar-19	0
A5PI11500	Place SM-12.5A Shoulder Surface Asphalt	5	21-Apr-20	27-Apr-20	0
A5PI11600	Place SM-12.5E Surface Asphalt	10	28-Apr-20	11-May-20	0
A5PI11650	Place Temporary Transition Asphalt	5	12-May-20	18-May-20	0
A5PI11800	Install Guardrail	5	19-May-20	26-May-20	0
A5PI11900	Install Pavement Markings	5	27-May-20	02-Jun-20	0
A5PI11910	Ready for Traffic	0		02-Jun-20	0
I95RRC.8.875.1	**Bridge B652 Phase I**	310	15-Mar-19	02-Jun-20	0
A312030	Set Temporary Barrier I-95 NB	5	15-Mar-19	21-Mar-19	0
A312040	Install Temporary Pavement Markings	5	22-Mar-19	28-Mar-19	0
A312050	Shift Traffic	2	29-Mar-19	01-Apr-19	0
A312060	Install Demolition Shield	15	02-Apr-19	22-Apr-19	0
A312070	Demo Phase I Existing B652	30	23-Apr-19	04-Jun-19	0
A510000	Set Temporary Barrier/MOT US-17	5	05-Jun-19	11-Jun-19	0
A510100	Excavate/Shore Pier 1 Foundations	10	12-Jun-19	25-Jun-19	0
A510110	Install Pile - Pier 1	5	26-Jun-19	02-Jul-19	0
A510200	F/R/P/S Pier 1 Footings	6	03-Jul-19	11-Jul-19	0
A510300	F/R/P/S Pier 1 Columns	8	12-Jul-19	23-Jul-19	0
A510400	F/R/P/S Pier 1 Cap	15	24-Jul-19	13-Aug-19	0
A510500	Excavate Abutments A & B	10	14-Aug-19	27-Aug-19	0
A510600	Excavate/Pour MSE Leveling Pads Abutments A & B	10	28-Aug-19	11-Sep-19	0
A510700	Install Pile Abutment A	5	12-Sep-19	18-Sep-19	0
A510800	Install Pile Abutment B	5	19-Sep-19	25-Sep-19	0
A510900	Construct Abutment A MSE Wall	15	26-Sep-19	16-Oct-19	0
A511000	Construct Abutment B MSE Wall	15	17-Oct-19	06-Nov-19	0
A511100	F/R/P/S Abutment A Pile Cap	5	07-Nov-19	13-Nov-19	0
A511200	F/R/P/S Abutment B Pile Cap	5	14-Nov-19	21-Nov-19	0
A511300	Erect Bulb T Beams and Diaphragms	8	22-Nov-19	05-Dec-19	0
A511400	F/P/R/S Integral Backwall Abutment A	15	06-Dec-19	31-Dec-19	0
A511500	F/R/P/S Integral Backwall Abutment B	15	02-Jan-20	22-Jan-20	0
A511600	Install SIP Forms	10	23-Jan-20	05-Feb-20	0
A511700	Install Overhang/Edge Forms	12	06-Feb-20	21-Feb-20	0
A511800	Install Superstructure Reinforcing Steel	10	24-Feb-20	06-Mar-20	0

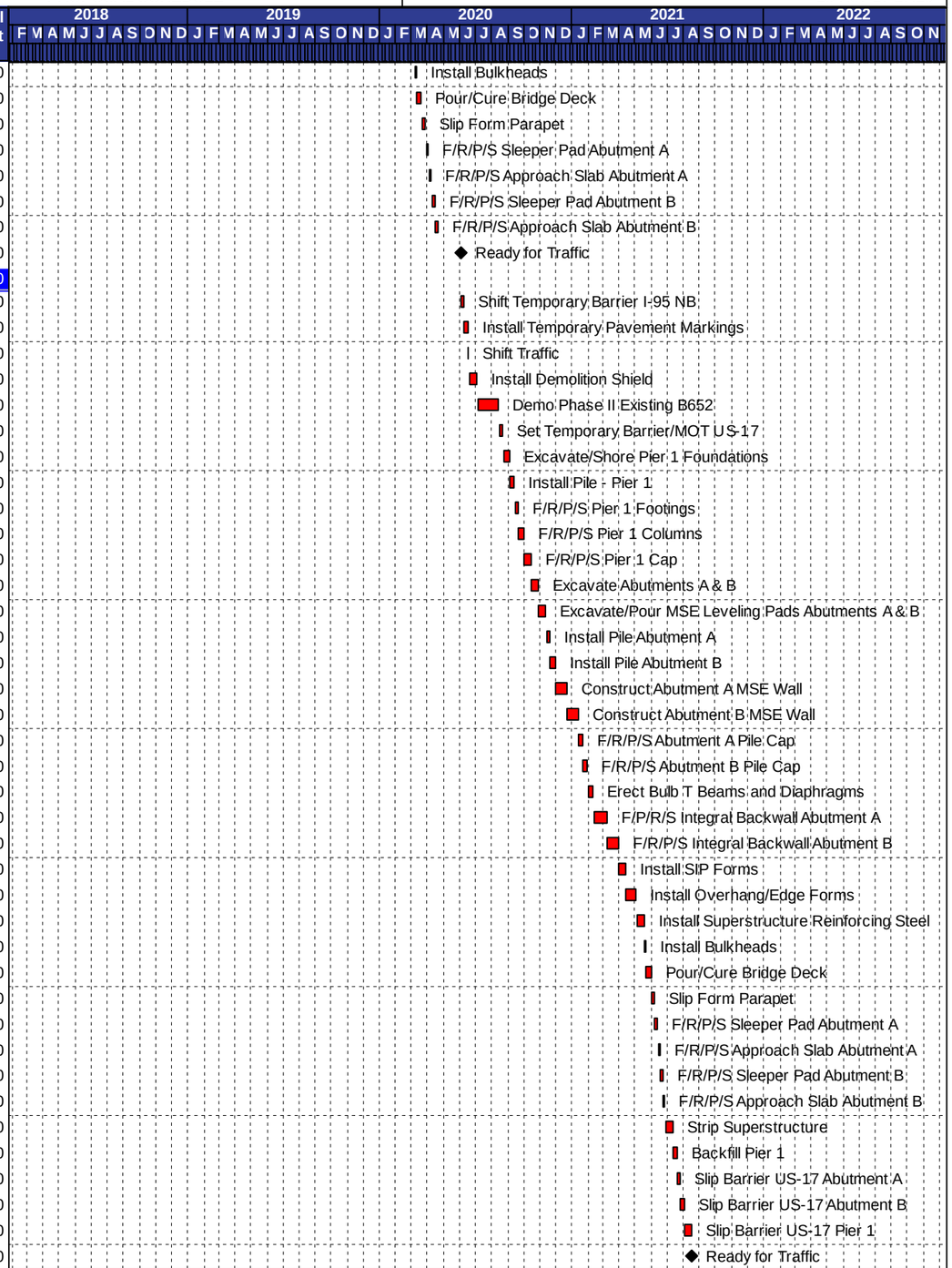


Remaining Work ◆ Milestone

Critical Remaining Work

SHIRLEY CONTRACTING COMPANY

Activity ID	Activity Name	Duration	Start	Finish	Total Float
A511900	Install Bulkheads	3	09-Mar-20	11-Mar-20	0
A512000	Pour/Cure Bridge Deck	7	12-Mar-20	20-Mar-20	0
A512100	Slip Form Parapet	5	23-Mar-20	27-Mar-20	0
A512200	F/R/P/S Sleeper Pad Abutment A	5	30-Mar-20	03-Apr-20	0
A512300	F/R/P/S Approach Slab Abutment A	3	06-Apr-20	08-Apr-20	0
A512400	F/R/P/S Sleeper Pad Abutment B	5	09-Apr-20	15-Apr-20	0
A512500	F/R/P/S Approach Slab Abutment B	3	16-Apr-20	20-Apr-20	0
A513400	Ready for Traffic	0		02-Jun-20	0
I95RRC.8.875.2	**Bridge B652 Phase II**	306	03-Jun-20	16-Aug-21	0
A5II10000	Shift Temporary Barrier I-95 NB	5	03-Jun-20	09-Jun-20	0
A5II10100	Install Temporary Pavement Markings	5	10-Jun-20	16-Jun-20	0
A5II10200	Shift Traffic	2	17-Jun-20	18-Jun-20	0
A5II10300	Install Demolition Shield	10	19-Jun-20	02-Jul-20	0
A5II10400	Demo Phase II Existing B652	30	06-Jul-20	14-Aug-20	0
A5II10500	Set Temporary Barrier/MOT US-17	5	17-Aug-20	21-Aug-20	0
A5II10600	Excavate/Shore Pier 1 Foundations	9	24-Aug-20	03-Sep-20	0
A5II10610	Install Pile - Pier 1	5	04-Sep-20	11-Sep-20	0
A5II10700	F/R/P/S Pier 1 Footings	6	14-Sep-20	21-Sep-20	0
A5II10800	F/R/P/S Pier 1 Columns	8	22-Sep-20	01-Oct-20	0
A5II10900	F/R/P/S Pier 1 Cap	10	02-Oct-20	15-Oct-20	0
A5II11000	Excavate Abutments A & B	10	16-Oct-20	29-Oct-20	0
A5II11100	Excavate/Pour MSE Leveling Pads Abutments A & B	10	30-Oct-20	12-Nov-20	0
A5II11200	Install Pile Abutment A	5	13-Nov-20	19-Nov-20	0
A5II11300	Install Pile Abutment B	5	20-Nov-20	30-Nov-20	0
A5II11400	Construct Abutment A MSE Wall	15	01-Dec-20	21-Dec-20	0
A5II11500	Construct Abutment B MSE Wall	15	22-Dec-20	13-Jan-21	0
A5II11600	F/R/P/S Abutment A Pile Cap	5	14-Jan-21	21-Jan-21	0
A5II11700	F/R/P/S Abutment B Pile Cap	5	22-Jan-21	29-Jan-21	0
A5II11800	Erect Bulb T Beams and Diaphragms	8	01-Feb-21	10-Feb-21	0
A5II11900	F/P/R/S Integral Backwall Abutment A	15	11-Feb-21	08-Mar-21	0
A5II12000	F/R/P/S Integral Backwall Abutment B	15	09-Mar-21	29-Mar-21	0
A5II12100	Install SIP Forms	10	30-Mar-21	12-Apr-21	0
A5II12200	Install Overhang/Edge Forms	15	13-Apr-21	03-May-21	0
A5II12300	Install Superstructure Reinforcing Steel	10	04-May-21	17-May-21	0
A5II12400	Install Bulkheads	3	18-May-21	20-May-21	0
A5II12500	Pour/Cure Bridge Deck	7	21-May-21	01-Jun-21	0
A5II12600	Slip Form Parapet	4	02-Jun-21	07-Jun-21	0
A5II12700	F/R/P/S Sleeper Pad Abutment A	4	08-Jun-21	11-Jun-21	0
A5II12800	F/R/P/S Approach Slab Abutment A	3	14-Jun-21	16-Jun-21	0
A5II12900	F/R/P/S Sleeper Pad Abutment B	4	17-Jun-21	22-Jun-21	0
A5II13000	F/R/P/S Approach Slab Abutment B	3	23-Jun-21	25-Jun-21	0
A5II13100	Strip Superstructure	10	28-Jun-21	12-Jul-21	0
A5II13200	Backfill Pier 1	5	13-Jul-21	19-Jul-21	0
A5II13300	Slip Barrier US-17 Abutment A	5	20-Jul-21	26-Jul-21	0
A5II13400	Slip Barrier US-17 Abutment B	5	27-Jul-21	02-Aug-21	0
A5II13500	Slip Barrier US-17 Pier 1	10	03-Aug-21	16-Aug-21	0
A5II13900	Ready for Traffic	0		16-Aug-21	0



Activity ID	Activity Name	Duration	Start	Finish	Total Float
I95RRC.8.875.4	I-95 NB GP Phase II	0			0
I95RRC.8.900	AREA 6 GP I-95NB 4618+00 - 4626+00	30	21-Apr-20	02-Jun-20	0
I95RRC.8.900.1	I-95 NB GP Phase I	30	21-Apr-20	02-Jun-20	0
A6PI11500	Place SM-12.5A Shoulder Surface Asphalt	5	21-Apr-20	27-Apr-20	0
A6PI11600	Place SM-12.5E Surface Asphalt	10	28-Apr-20	11-May-20	0
A6PI11610	Place Temporary Transition Asphalt	5	12-May-20	18-May-20	0
A6PI11800	Install Guardrail	5	19-May-20	26-May-20	0
A6PI11900	Install Pavement Markings	5	27-May-20	02-Jun-20	0
A6PI11910	Ready for Traffic	0		02-Jun-20	0
I95RRC.8.900.2	I-95 NB GP Phase II	0			0
I95RRC.8.900.3	SWM D	0			0