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## VOLUME I: TECHNICAL PROPOSAL

# Route 606 Bridge Replacement over I-95 with 606 Improvements, Spotsylvania County

State Project Nos: Route 606 Roadway Improvements (0606-088-653, C501), UPC 105463  
Route 606 Bridge Replacement (606-088-622, C501, B634), UPC 100829

Federal Project Nos: Route 606 Roadway Improvements (STP-5111(272))  
Route 606 Bridge Replacement (BR-5111 (237))

Contract ID Number: C00105463DB89

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Date	August 22, 2016
Submitted to	Virginia Department of Transportation
Submitted by	Wagman Heavy Civil, Inc. 26000 Simpson Road North Dinwiddie, VA 23803
Phone	804-631-0000
Fax	804-733-6281

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wagman.com

# 4.1 Letter of Submittal



Volume I

August 22, 2016

## 4.1 LETTER OF SUBMITTAL

Stephen D. Kindy, P.E.  
Virginia Department of Transportation (VDOT)  
1401 East Broad Street  
Annex Building, 8<sup>th</sup> Floor  
Richmond, VA 23219

RE: Technical Proposal for Route 606 Bridge  
Replacement over I-95 with 606 Improvements,  
Spotsylvania County, VA  
A Design-Build (DB) Project  
Contract ID Number: C00105463DB89

Dear Mr. Kindy:

**Wagman Heavy Civil, Inc. (Wagman)**, in association with Rinker Design Associates, P.C. (RDA) as Lead Designer, is pleased to submit our Technical Proposal to provide professional DB services for the Route 606 Bridge Replacement over I-95 with 606 Improvements (I-95/606) Project. After carefully reviewing the RFP dated April 27, 2016 and associated addenda, we offer our complete response containing all information requested.

**4.1.1 Offeror's Full Legal Name and Address.** Wagman Heavy Civil, Inc., 3290 North Susquehanna Trail, York, PA 17406-9754

**4.1.2 Declaration of Intent.** It is Wagman's intent, if selected, to enter into a contract with VDOT for the Project in accordance with the terms of this RFP.

**4.1.3 120-Day Declaration.** Pursuant to Part 1, Section 8.2, Wagman declares that the offer represented by this Technical Proposal will remain in full force and effect for one hundred twenty (120) days after August 17, 2016, the date the Technical Proposal was submitted to VDOT.

**4.1.4 Offeror's Point of Contact.** Mr. David W. Lyle is the authorized representative and point of contact for the Wagman Team for all matters associated with this submittal.

David W. Lyle, Vice President, Design-Build/Major Pursuits

26000 Simpson Road, North Dinwiddie, VA 23803-8943

Phone: 804.631.0003 | Mobile: 804.731.3707 | Fax: 804.733.6281 | Email: [dwlyle@wagman.com](mailto:dwlyle@wagman.com)

**4.1.5 Offeror's Principal Officer Information.** Mr. Gregory Andricos, P.E. will serve as the Principal Officer for Wagman.

Gregory M. Andricos, P.E., President/COO

3290 North Susquehanna Trail, York, PA 17406-9754

Telephone: 717.764.8521 | Fax: 717.767.5457 | Email: [gmandricos@wagman.com](mailto:gmandricos@wagman.com)

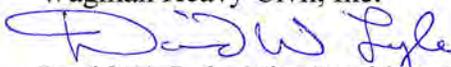
**4.1.6 Final Completion Date.** In accordance with RFP Section 2.3.1.15, Wagman proposes a Final Completion Date of September 18, 2019.

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

**4.1.8 Certification Regarding Debarment Forms.** Certifications for Debarment for Primary and Lower Tier Transactions have been completed and executed for the Offeror and all subconsultants, subcontractors, and other entities as identified as members of the Wagman Team. These forms are included in the Appendix.

We thank you for the opportunity to submit our Technical Proposal. We are confident that our Team will deliver this VDOT Project for all stakeholders in a high quality, timely, and economical manner.

Sincerely,  
Wagman Heavy Civil, Inc.



David W. Lyle, Vice President, Design-Build/Major Pursuits

## 4.2 Offeror's Qualifications



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## 4.2 OFFEROR'S QUALIFICATIONS

### 4.2.1 Key Personnel Confirmation

With the exception of replacing our Design-Build Project Manager (DBPM), Jorge Gambini, P.E. (Wagman), with J. Carter Washington, P.E. (Wagman), Wagman confirms that the information contained in our Technical Proposal remains true and accurate in accordance with RFP Part 1, Section 11.4. Our request to replace the DBPM has been approved by VDOT in writing. A copy of the approval letter dated June 2, 2016 is included in the Appendix.

The following firms will support Wagman and RDA on this Project:

- **Engineering & Materials Technologies, Inc. (EM Tech)**, a Virginia-certified DBE, will provide the QAM, QA inspection services, and QA laboratory services.
- **Whitman, Requardt & Associates, LLP (WRA)** will provide bridge design, geotechnical design, and environmental services.
- **DMY Engineering Consultants, Inc. (DMY)**, a Virginia-certified DBE, will provide geotechnical drilling and laboratory services for design and construction QC laboratory services.

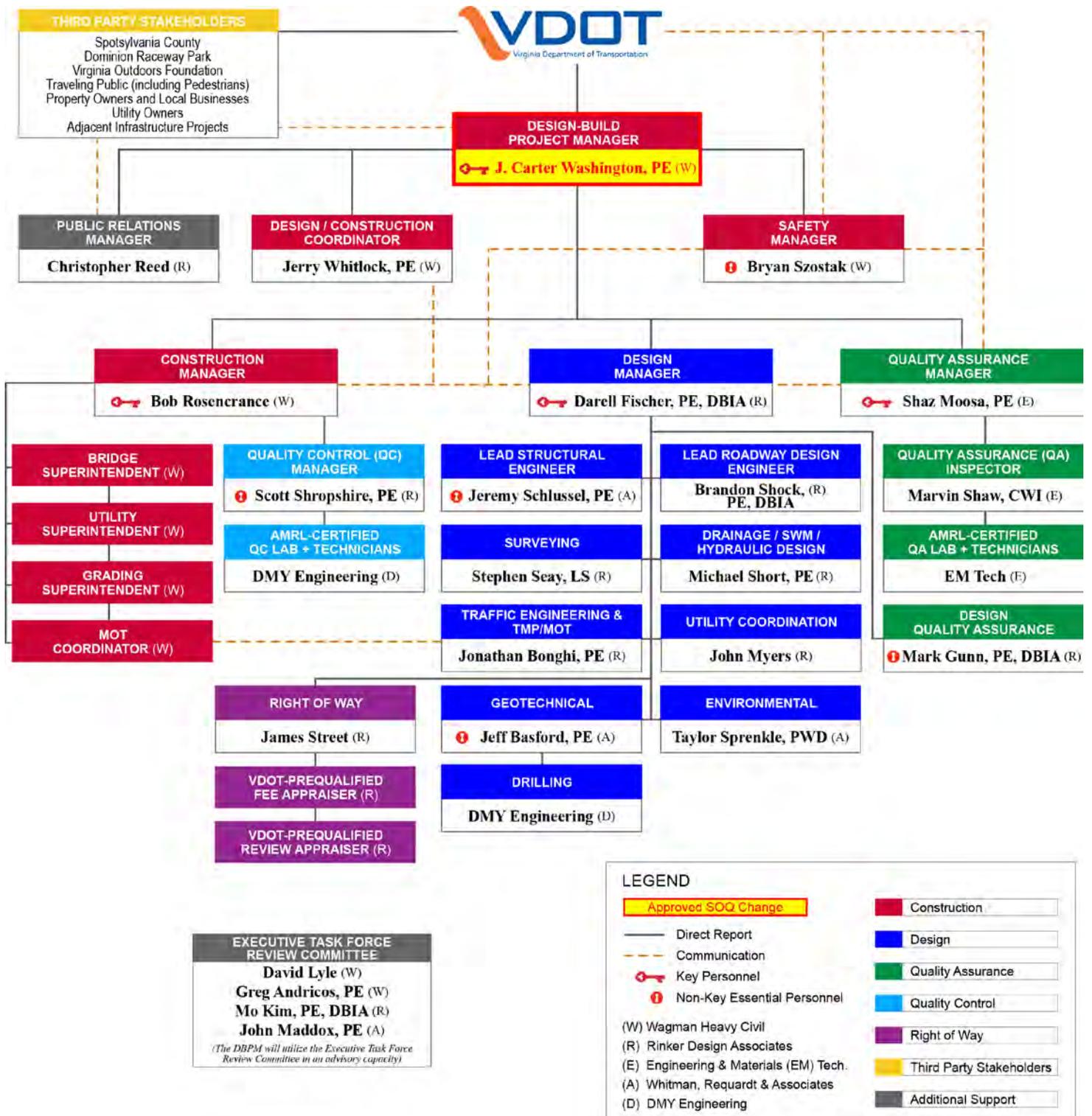
### 4.2.2 Organizational Chart and Narratives

The narratives and organizational chart below include updates from our Statement of Qualifications (SOQ) submittal, clearly indicating the changes that have been made and previously approved by VDOT in accordance with RFP Part 1, Section 11.4. No updates or changes have been made to the narrative describing the functional relationships among participants.

#### *Design-Build Project Manager – J. Carter Washington, P.E. (Wagman)*

**Mr. J. Carter Washington, P.E.** will serve as the Design-Build Project Manager (DBPM) and will oversee the Project to include design, construction, construction quality management, and contract administration. He has over 18 years of construction experience and is a Project Manager for Wagman. He has served in a management role on several heavy construction projects and has successfully delivered significant projects including DB, Bridges, and Highway Rehabilitation. Mr. Washington worked on five VDOT projects as a Project Manager, Construction Manager, or Project Engineer. His responsibilities for these roles included estimating, proposal preparation, financial management, and supervising the quality and safety of his projects. During his career, Mr. Washington has worked on numerous bridge replacement projects crossing interstates or railroads, which all required coordination to minimize impacts to the traveling public during lane closures.

As DBPM, Mr. Washington will report directly to VDOT at an executive level for all project activities including contract administration, scheduling, design, construction, and quality. He will directly manage the Key Personnel: Mr. Shaz Moosa, P.E. (Quality Assurance Manager), Mr. Darell Fischer, P.E., DBIA (Design Manager), and Mr. Bob Rosencrance (Construction Manager). Also reporting to Mr. Washington will be additional personnel whose roles will be instrumental to the Project's success: Mr. Jerry Whitlock (Design/Construction Coordinator), Mr. Bryan Szostak (Safety Manager), and Mr. Christopher Reed (Public Relations Manager).



# 4.3 Design Concept

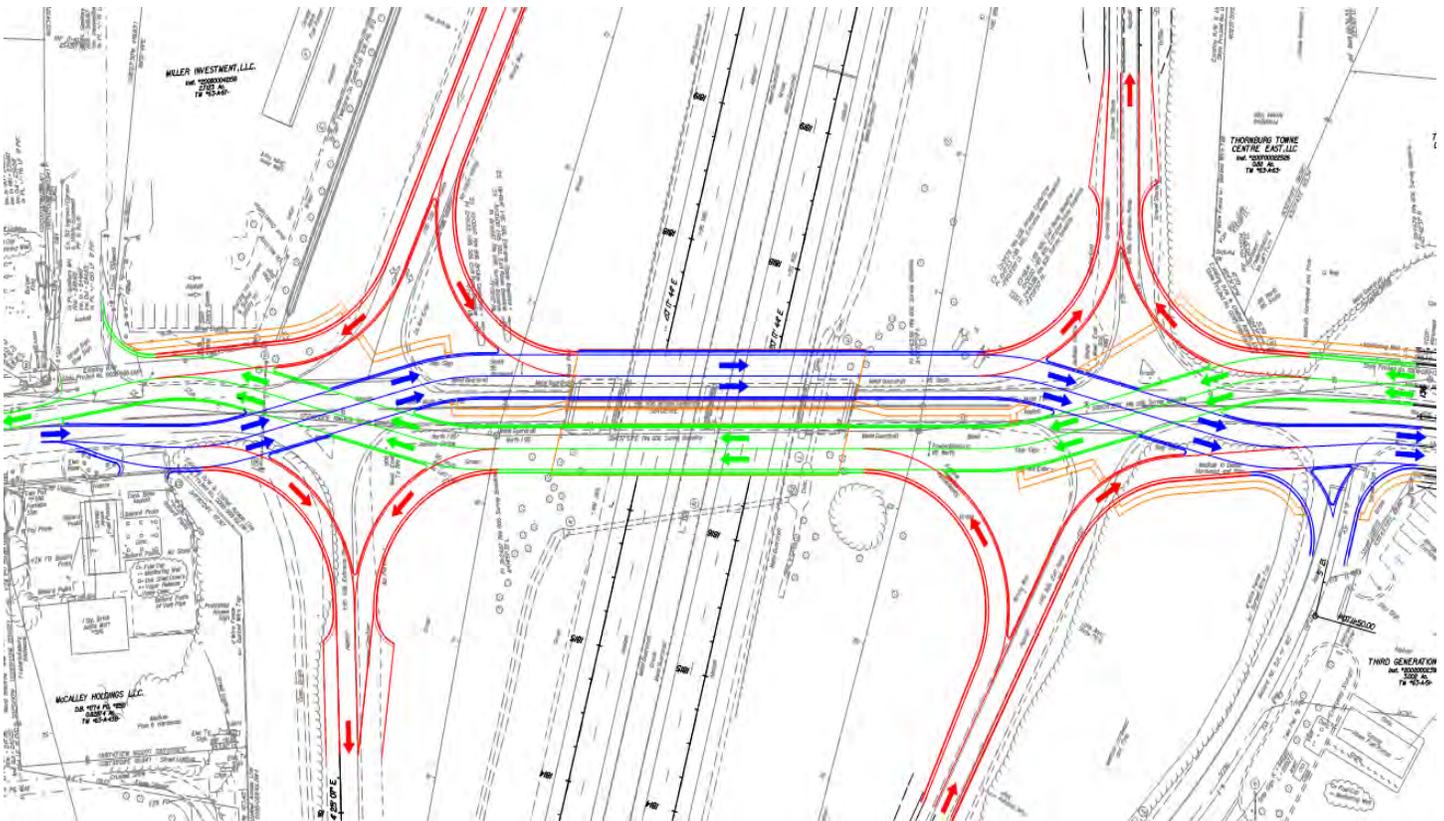


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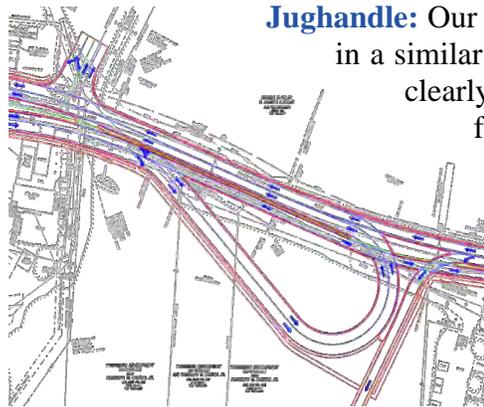
## 4.3 DESIGN CONCEPT

The RFP allows Offerors to propose alternate intersection design concepts that meet or exceed the traffic movement requirements of the proposed roundabout. Our Team developed multiple concepts – a Diverging Diamond Interchange, an Extended Roundabout, a Jughandle, a Continuous Green T-Intersection, and VDOT's RFP Concept Design – to fully evaluate the Project and determine the right solution to meet all of the Project's challenges and demands. Each concept is discussed in detail below. Our evaluation and final selection was based on several critical factors: safety, functionality, operation, ease of construction, avoidance of additional design exceptions or design waivers beyond those identified in the RFP documents, and overall compliance with the RFP. Based on our Team's analysis, the alternative that best achieves the level of service required by the RFP is the RFP Concept Design. Consequently, our Team's design concept proposes enhancements to the RFP Conceptual Plans and meets or exceeds all RFP requirements.

**Diverging Diamond Interchange (DDI):** Given the linear nature of the Route 606 and I-95 corridors, this Project's interchange is an ideal location to implement a DDI from a graphical perspective. The benefits of a DDI over a Diamond Interchange are numerous, one being the significant reduction in the number of conflict points (from 30 to 18), contributing to safer traffic movements. Another advantage is the substantial reduction in bridge width, which would be approximately 20 feet for this Project and result in considerable savings in preliminary construction and future maintenance costs. However, a geometric layout could not be designed to meet the design criteria established in VDOT's *Road Design Manual*, which stipulates that turning movements from the minor roadway (Route 606) onto the ramps to the major roadway (I-95), as well as turning movements from the ramps to the minor roadway, meet 25 mph. Furthermore, the minimum distance between the ramp intersections where the crossover movements would occur should be 800 feet. Our geometric layout (shown below) could only meet 20 mph turning movements and a crossover separation of approximately 650 feet.



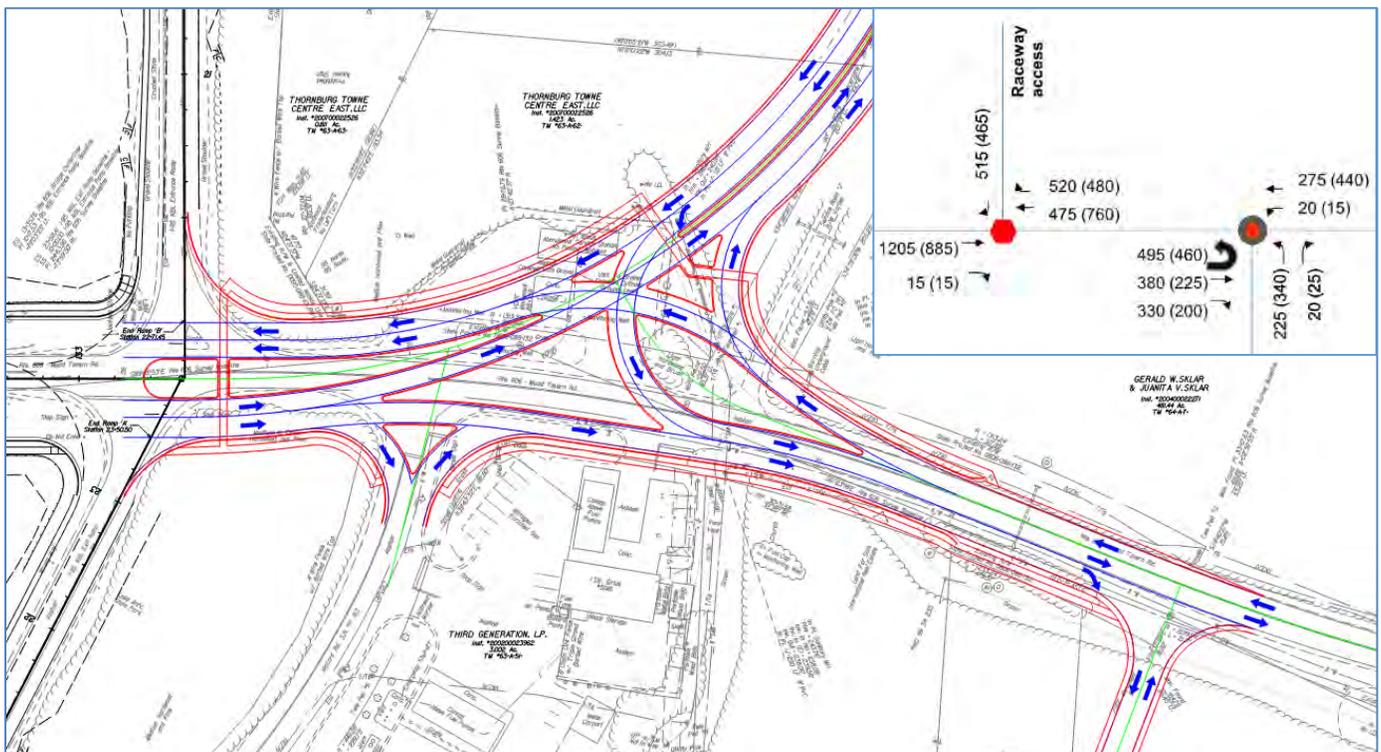
**Extended Roundabout:** In evaluating the traffic generators along the corridor, Dominion Raceway is a key component to the success of the Project; therefore, ingress/egress for the Raceway was the primary focal point in the development of this layout. Our Team’s analysis concluded that this extended roundabout (shown right) would provide the most efficient traffic movements in all directions of all concepts considered (our Team’s as well as the RFP Conceptual Plans). Unfortunately, the implementation of this alignment is encumbered by its proximity to the Sklar property, which is adjacent to a Virginia Outdoors Foundation (VOF) easement. The nature of the easement is for conservation and is difficult, at best, upon which to encroach. The VOF closely analyzes all encroachments, evaluating how they may affect the integrity of their easement. As a result, the potential for success in procuring fee simple ROW along with easements is small; therefore, our Team removed this alternative from consideration despite its benefits.



**Jughandle:** Our Team also evaluated a Jughandle model (shown left), which moves traffic in a similar facet as the roundabout with the use of a signal. However, the Jughandle clearly exceeds the footprint of the roundabout, which was a secondary, limiting factor in the RFP to the operation efficiency of alternative intersections. Due to these deficiencies, this alternative was eliminated from consideration.

**Continuous Green T-Intersection:** Similar to the Extended Roundabout option (above right), the Continuous Green T-Intersection provides a unique and efficient means of addressing the significance of the traffic generated by Dominion Raceway. The layout below provides one configuration option for this intersection. Another option would tee the raceway entrance into Route 606.

Unfortunately, both of the Continuous Green T-Intersection models that our Team analyzed resulted in failures, primarily due to backups into the interchange caused by the large, opposing traffic numbers as reported in the Build Alternative Analysis Report (shown in the upper right corner of the graphic below). Significant traffic is generated from both east of the Project along Route 606 and south of the Project along Mallard Road. These movements cause unacceptable levels of service in both unsignalized and signalized versions of the Green T.



### 4.3.1 Conceptual Roadway Plans

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The I-95/606 Project consists of two UPCs: one for the bridge and interchange ramp improvements (UPC 100829) and one for the Route 606 roadway improvements to the east of the interchange (UPC 105463).

Our Team's Conceptual Plans summarize the individual design elements and conform to all AASHTO, VDOT, and RFP requirements, including those listed in RFP Part 2, Attachment 2.2. Our unique design solutions and enhancements to the RFP Conceptual Plans are highlighted in our Wagman Conceptual Roadway Plans. Plans have been prepared using MicroStation and will continue to be developed in "dgn" and "pdf" formats. Hardcopy prints will be provided at the submission milestones outlined in the RFP. Final record plans depicting as-built conditions will be submitted at the completion of the Project in accordance with VDOT requirements.

Each of the elements below describe the I-95/606 Project in accordance with the RFP. We have provided detailed discussions regarding our selected alternative as well as discussion about alternatives explored and not implemented based on merit, functionality, or violation of RFP requirements.

*(a) General Geometry Including the Number and Widths of Lanes, Shoulders and Sidewalks.* Our Team's concept design maintains the intent and lane configuration of the RFP Conceptual Plans. Adjustments to the design were made to ensure that turning movements by a WB-67 class vehicle could be achieved.

**Route 606:** Improvements to Route 606 will widen/reconstruct the existing roadway from a two-lane open section roadway to a four-lane closed section (urban) roadway. Exclusive of turn lanes, the design provides for two lanes in each direction. The left lane is 12 feet wide with a one-foot shy distance to the raised median. The right lane is 14 feet wide to accommodate bicycles with CG-6 curb and gutter on the outside. A sidewalk will be provided along the north side of Route 606 up to the entrance of the Dominion Raceway Complex. Crosswalks will be provided at either end of the bridge beyond the ramp tie-ins. A sidewalk will also be provided on the south side of Route 606 from the crosswalk described above to and around the roundabout where it widens out to also accommodate bicycle traffic that will transition from the roadway to the sidewalk/path.

On either side of the bridge, left turn lanes accommodate 2038 Build Alternative traffic. In the westbound direction, a single 12-foot left turn lane to Ramp D (on-ramp to I-95 southbound) is provided. In the eastbound direction, dual 12-foot left turn lanes to Ramp B (on-ramp to I-95 northbound) are provided. Continuing to the east, the existing Mallard Road connection will be reconstructed as a right-in/right-out condition. On the north side of Route 606, the entrance to the Dominion Raceway Complex will be configured to accommodate right-ins, right-outs, and left-outs. Finally, improvements to Route 606 will culminate with a roundabout which integrates the full four-lane section of Route 606 to the west, a tie back to the existing Route 606 to the east, and a two-lane section of Relocated Mallard Road.

**Ramp A (northbound off-ramp):** Ramp A connects I-95 northbound to Route 606. The existing ramp is a single-lane facility. However, to accommodate increased traffic to development opportunities along Mallard Road and the new racetrack, the new ramp will transition from a single 12-foot lane to a dual 12-foot lane facility providing a left/through movement and a right turn movement at Route 606.

**Ramp B (northbound on-ramp):** Currently, Ramp B (on-ramp to I-95 northbound) is a single-lane facility. The ramp will be widened to 24 feet (two 12-foot lanes) to accommodate dual left turn lanes from Route 606; however, at the receiving throat of the ramp, the width will be 30 feet wide as required by VDOT design standards. The ramp will then transition to a single 12-foot lane where it ties back to the existing ramp width before entering I-95 northbound.

**Ramp C (southbound off-ramp):** The existing ramp configuration currently provides the required footprint; however, minor adjustments to the vertical ties of Ramp C will be required.

**Ramp D (southbound on-ramp):** Similar to Ramp C, improvements to Ramp D will involve vertical adjustments.

**Relocated Mallard Road:** Mallard Road will be relocated to the east to tie into the proposed roundabout. However, the existing tie to Route 606 will be maintained for right-in/right-out movements. The new roadway will consist of two 10-foot lanes with 8-foot shoulders, 4 feet of which will be paved.

**(b) Horizontal Alignments.** The alignment of Route 606, the ramps, and Relocated Mallard Road will generally follow the RFP Concept Plan. Minor adjustments have been incorporated to accommodate design optimizations as described below.

- Maintained the southern edge of the bridge and eliminated the sidewalk along the south side of the bridge, effectively shifting the horizontal alignment by 6 feet
- Adjusted the right-in/right-out to existing Mallard Road to provide a better tie to the existing roadway
- Refined return radii to accommodate required turning movements while discouraging wrong-way movements
- Adjusted the roundabout configuration to ensure that the circular lane accommodates an S-BUS-36 while the truck apron accommodates the WB-67 classes of vehicles

**(c) Maximum Grade for all Segments and Connectors.** The grades along Route 606 generally follow the RFP. Minor adjustments were made while maintaining adherence to the criteria established in the Design Criteria Table (RFP Attachment 2.2). Likewise, the I-95 Ramps and Relocated Mallard Road follow the Design Criteria Table or the *Road Design Manual* when not addressed in the Design Criteria Table.

**Grades for Segments and Connectors**

Roadway	Min. Grade Provided	Max. Grade Provided	Max. Grade per Design Criteria
Route 606	1.50%	2.50%	10%
I-95 Ramps	0.50%	3.27%	4-6%
Relocated Mallard Road	0.50%	3.50%	15%

**(d) Typical Sections of the Roadway Segments to Include Ramps, Retaining Walls and Bridge Structures.** The typical sections utilized for each roadway and critical features on the Project are described in the table below.

**Typical Sections for Roadways and Critical Features**

Roadway	GS Std. or Type	Design Speed	No. and Width of Lanes	Width of Paved Shoulders or Curb & Gutter Type	Width of Bicycle/ Pedestrian Facilities
Route 606, west of Roundabout	GS-7, Urban	35 mph	4 (12')	CG-6 (4" mountable curb adjacent to guardrail, RDM I-21)	5' sidewalk 6' at roundabout Right lanes widened by 2' to accommodate bicycles
Route 606, east of Roundabout	GS-7, Urban	35 mph	2 (12')	CG-6 & 4' paved	5' sidewalk 6' at roundabout
I-95 Ramps	GS-R	35 mph	Single 16'/ Dual 12'	4'LT & 8'RT	N/A
Mallard Road	GS-8, Urban	30 mph	2 (10')	4'	N/A

**(e) Conceptual Hydraulic and Stormwater Management (SWM) Design.** The I-95/606 Project contains two 6th Order Hydrologic Unit Codes (HUCs), which are generally separated by existing Route 606: one HUC (YO41 Po River–Lake Pocahontas) to the north, and one HUC (YO45 Matta River) to the south. Given that the roadway typically is an urban (curb and gutter) section, closed systems will convey the captured water toward the project outfalls to SWM facilities where needed. However, unavoidable minor adjustments to the HUC boundaries will occur as a result of the closed system design.

SWM needs for the Project will be obtained through multiple means/approaches. The bridge replacement (UPC 100829) is grandfathered under Part IIC of the VSMP Regulations. Water quality will be met through the purchase of Nutrient Credits while quantity will be addressed by the 1% Rule. The roadway improvements along Route 606 (UPC 105463) are being designed under the new regulations (Part IIB). As such, water quality can be met through the purchase of Nutrient Credits, as the Project falls under the 10-pound/year threshold. However, in addressing water quantity, some quality benefits may be achieved and accounted for. Water quantity will be achieved by evaluating the energy balance equation for each outfall location to ensure the requirements are met.

Where the project outfalls to the north, the insignificance of the Project on the overall drainage area will eliminate the need for any structural measures for quantity control. However, where the project outfalls to the south (near the cell tower at the southern end of VDOT's Fredericksburg District Smart Traffic Center), a SWM facility will be needed to control the project contributions in order to meet VDEQ requirements.

In accordance with the RFP, we have assumed that all culverts within the project limits are a functional element of our drainage design, are structurally deficient with the exception of the 42-inch pipe under I-95, and will be plugged/removed and replaced with hydraulically adequate structures. If, after Award, our Team determines that some or all of the existing pipes are structurally sound or can be repaired to meet project needs, then the cost differential will be credited to VDOT. Evaluation will be conducted utilizing the assessment criteria provided in VDOT's Special Provision for Post Installation Inspections (VDOT Supplemental Specification 302).

**(f) Proposed Right of Way (ROW) Limits.** As required by the RFP, reductions in ROW between our concept plan and the one provided in the RFP are highlighted and included as part of the Volume II Plans. Specific details regarding these ROW reductions are described on our Volume II Plans and summarized below.

ROW Impacts			
Impact Type	RFP Impact (AC)	Wagman Impact (AC)	Reduction (AC)
ROW	4.8927	4.3256	0.5671
TCE	0.3207	0.3207	0
PDE	0.0157	0.0157	0
<b>Total</b>	<b>5.2291</b>	<b>5.6620</b>	<b>0.5671</b>

In accordance with the RFP, our design is contained within the prescribed ROW. However, additional easements, also described in the RFP, will be required for temporary/permanent construction and utility relocations which have not yet been identified. No total takes have been identified or are anticipated.

**(g) Proposed Utility Impacts.** Utility avoidance was prioritized by our Team to reduce cost and schedule impacts. Based on our evaluation, utility impacts are identified in the table below.

Utility Impacts		
Utility	Size	Approach/Strategy
Spotsylvania County Sewer	2" sanitary force main (SFM) along Mudd Tavern Road	Will be relocated to accommodate roadway improvements and limited access constraints
Rappahannock Electric Cooperative	Single Phase aerial along Mudd Tavern Road, 3 Phase crossing into the Raceway Complex	Will be relocated into an easement outside of the roadway limits
Verizon	50 Pair copper and 24 Pair fiber optic lines along Mudd Tavern Road	Testholes and design adjustments will be investigated to minimize impacts
Spotsylvania Water	8" waterline along Mudd Tavern Road	Will be relocated to accommodate roadway improvements and limited access constraints
SummitIG	Fiber optic lines along Ramps A and B	Designate the line not currently shown in RFP Plans and confirm there are no conflicts
Comcast	Fiber optic lines crossing at Dominion Raceway	Testholes and design adjustments will be investigated to minimize impacts
VDOT	96 Pair fiber optic line along Mudd Tavern Road extending from the SummitIG facilities	Designate the line not currently shown in RFP Plans and minimize impacts through design optimization

As design progresses, we will continuously evaluate the utilities to further minimize impacts.

**(h) Soundwall Locations.** As part of the preliminary work that VDOT performed in development of this Project, a Noise Screening Analysis was performed. The screening analysis concluded that there were no noise receptor sites located within the Project corridor. As such, no quantitative analysis is required. No soundwalls are required.

**(i) Any Other Key Project Features.** All key elements have been integrated into the discussions above.

### 4.3.2 Conceptual Structural Plans (provided in Volume II)

Our conceptual structural plans summarize the individual design elements and conform to all AASHTO, VDOT, and RFP requirements. The proposed bridges will be designed per AASHTO LRFD *Bridge Design Specifications*, 7th Edition, 2014, the most current version of VDOT Modifications (IIM-S&B-80.5), and the additional Substructure and Foundation Criteria attachment. VDOT's Standard Details, including VDOT Design Aids, will be used in developing the bridge plans. These bridges will utilize low-permeability concrete in accordance with the Special Provisions for Low Permeability Concrete for Design-Build Projects. Corrosion Resistant Reinforcing Steel will be utilized in accordance with VDOT IIM-S&B-81.6.

Our conceptual design for the bridge over I-95 reduced the footprint of the bridge by shortening its overall length. This was accomplished by introducing MSE walls in front of the proposed abutments. These MSE walls are located as such to accommodate the future widening of I-95 and placement of a protection barrier at the face of the abutment MSE walls. The face of the barrier was offset to accommodate a 14'-0" shoulder and located 2'-0" from the front face of the MSE wall. This accommodates a total of 20'-0" clear from the west abutment and 18'-0" clear from the east abutment. The 2'-0" offset to the face of MSE wall from the future BPPS represents the width of the barrier footing per File No. 15.06-3 of VDOT Design Manual Vol. V Part 2. The MSE walls parallel to Route 606 have been laid out to sufficiently accommodate the future widening of the Route 606 Bridge over I-95 to accommodate one additional lane in each direction. This arrangement allowed for a significant reduction in end spans length. The proposed bridge is comprised of a two-span structure consisting of a reinforced concrete deck supported by two-span continuous prestressed bulb-tees with equal span lengths of 100 feet for a total bridge length of 200 feet from end of slab at Abutment A to end of slab at Abutment B. The bridge skew is constant for both abutments and the pier and is made parallel to I-95. Designs comply with the RFP and referenced documents. This reduced bridge length results in a shallower superstructure thereby reducing costs. These savings are also realized in the substructure due to the reduced overall weight and subsequently, the number of foundation elements and provides an enhancement to the RFP by eliminating the need for cutting into the RFP proposed concrete slope protection in front of the abutments to accommodate future I-95 widening. This also allows for a more economical approach to the use of shallower prestressed beams to reduce the profile grade changes on the approaches to the bridge that would have negative impacts on the tie-ins and ramps. The shorter bridge accommodates the use of integral abutments while maintaining the use of integral abutments on the skew in accordance with the VDOT Design Manual. The use of integral abutments with MSE walls and a prestressed superstructure reduces the long term maintenance costs of the structure by providing a jointless bridge. Pile casings will be installed behind the MSE walls on the outside of the Route 606 Bridge to accommodate the installation of steel piles for the future widening of the Route 606 Bridge over I-95. These casings will be located to extend the current abutment design and will be offset from the MSE wall in accordance with VDOT's *Manual of the Structure and Bridge Division*, Volume V, Part 2, Chapter 17 to accommodate skew requirements of the MSE wall straps. Our unique design solutions and enhancements to the RFP Conceptual Plans are highlighted in our Wagman Conceptual Bridge Plans. Plans have been prepared using MicroStation and will continue to be developed in "dgn" and "pdf" formats.



The two-span layout accommodates three existing NB and SB lanes as well as the future widening of I-95 to four lanes with 14'-0" shoulders. The horizontal layout of the structure also accommodates of the eastbound Route 606 Bridge being shifted south to allow for maintaining traffic on the existing bridge while a portion of the proposed structure is built to accommodate the switch in traffic to allow for the demolition and reconstruction of the westbound Route 606 structure. This shift allows for the entire Stage 1 construction to occur without impacts/modifications to the load carrying members of the existing structure. This minimizes the risks of modifying the existing structure due to its condition and allows the DB Team to monitor and maintain the existing structure while expediting construction for its replacement. The south sidewalk was eliminated to reduce the structure width



*Wagman night girder erection on  
Route 54 over I-95 in Ashland, VA*

and provide savings to VDOT while providing additional separation from the existing structure during staged construction. The pedestrian movements will be provided on the north side sidewalk while maintaining the flow of pedestrians on both sides of the roadway at the east and west signals.

Notable features of the bridge include an efficient girder spacing at a 9'-9½" maximum. Additionally, the cantilever deck slab width is less than the maximum allowed by IIM-S&B-80.5-0.3 x girder spacing. Architectural treatment will be applied to the external vertical barrier faces of the bridge as well as to the exposed faces of the proposed abutment MSE walls for a more aesthetically-pleasing structure.

# 4.4 Project Approach



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## 4.4 PROJECT APPROACH

The Wagman Team’s approach to the Project is to engage highly qualified construction, design, maintenance of traffic (MOT) and permitting personnel to provide VDOT the proficiency required to manage and control all facets of this important DB project. This synergy and functional composition has proven to be successful, and with full confidence in the Team, VDOT can operate strictly in an oversight role. As a result, stakeholders will see a continuously progressing project that has diligently planned for and managed risks, costs, and schedule. We will work closely with VDOT and other stakeholders to maintain open lines of communication using practical work sessions to address concerns and needs. This proactive management approach will result in a best-value, successful project for all stakeholders and the Wagman Team.

### 4.4.1 Environmental Management

The Project Team has reviewed the RFP and required permits and has incorporated obtainable and viable timeframes into our schedule to allow for environmental compliance. Our Conceptual Design was developed with close coordination among the designers, environmental staff, and construction experts to ensure that we ultimately achieve a “*permissible*” project. This integrated approach has allowed us to develop solutions to the recognized environmental conditions by minimizing wetland impacts and identifying required permits and environmental commitments.

Our project schedule considers the timeframes to acquire all permits. Wagman has assigned a Design/Construction Coordinator (DCC), who will be integrated into the environmental management team with a main focus on anticipating and mitigating potential delays. During final design, our environmental staff will continue to collaborate with the designers and the DCC to identify and minimize impacts. By working with the DCC, all construction means and methods will be taken into account when preparing the permit application. The following will be performed to ensure that environmental resource impacts have been documented, minimized, and are cleared by the regulatory agencies for construction and that environmental commitments are met during construction.

Our permitting staff reviewed the RFP data and the permit requirements to ensure the timeframes shown in our schedule are achievable and sustainable. Securing the required environmental clearances is critical to the design and construction schedule. To facilitate this, the Wagman Team will:

- **Identify and Update Environmental Resources:** Upon NTP, environmental resource locations within the Project corridor will be refined based on our Conceptual Design. Field work and technical services will involve wetland delineations, stream assessments, water quality studies, threatened and endangered species reviews and cultural resource reviews that will be utilized for water quality permitting and environmental compliance monitoring. Should this refinement disclose unanticipated or unknown resources, the preliminary design will be modified to support avoidance and minimization opportunities.
- **Manage Hazardous Materials:** As stated in the RFP, VDOT conducted Phase I and Phase II Environmental Site Assessments (ESAs) that identified petroleum contaminated soil and groundwater at the Dominion Raceway and Quarles/Shell properties located at 5015 and 5016 Mudd Tavern Road, respectively. Our Team will handle contaminated soil and groundwater in accordance with Virginia Solid Waste Management Regulations and VPDES requirements. Spill Prevention, Control, and Countermeasure Plans will also be prepared prior to construction. We will comply with Hazardous Materials Special Provisions per the RFP.
- **Secure the Virginia Department of Environmental Quality (VDEQ) Virginia Stormwater Management Program (VSMP):** Starting at NTP, we will design erosion and sediment control and SWM plans to meet VSMP permit regulatory requirements. We will consult with the VDEQ to discuss

our streamlined permitting approach for each advanced work package and submit a permit application to VDOT to secure VSMP within 30 days of submittal.

- **Coordinate with Agencies for Threatened and Endangered Species:** Our Team has reviewed the threatened and endangered species studies and coordination conducted by VDOT to date. We also conducted updated database queries to identify the presence of any threatened or endangered species that may affect the Project. The query included the USFWS Information, Planning, and Consultation (IPAC) System database, the Virginia Department of Game and Inland Fisheries' (VDGIF) Virginia Fish and Wildlife Information Service, and the Virginia Department of Conservation and Recreation's (VDCR) online searchable database. According to database queries conducted on July 29, 2016, no new species were identified that were not discussed in the RFP. When coordinating permits, we will continue coordinating with resource agencies to avoid impacts to threatened and endangered species.

According to the RFP, VDOT conducted a survey for Small Whorled Pogonia (SWP) during the 2016 survey season and found no plants. The study area of the 2016 survey includes the entire area of disturbance from our Team's design; therefore, no further SWP surveys will be conducted.

For proposed bridge work, we will conduct annual bat inventories until the commencement of construction activities on the bridge in accordance with the Special Provision for Limitation of Operations Protection of Bats. Inspections will follow VDOT's *Bat Inventory Guidelines for Bridges* and will be documented on the Bat Inventory Form contained in the guidelines.

For tree removal, the Wagman Team will follow the final 4(d) rule, promulgated on February 16, 2016 by the U.S. Fish and Wildlife Service (USFWS). The final 4(d) rule states:



*Northern Long-Eared Bat*  
photo credit: New York  
Dept. of Environmental  
Conservation; Al Hicks  
<http://www.fws.gov>

*Under this final 4(d) rule, incidental take within the WNS zone involving tree removal is not prohibited if two conservation measures are followed. The first measure is the application of a 0.25 mile (0.4 km) buffer around known occupied northern long-eared bat hibernacula. The second conservation measure is that the activity does not cut or destroy known occupied maternity roost trees, or any other trees within a 150-foot (45-meter) radius around the maternity roost tree, during the pup season (June 1 through July 31).*

USFWS currently accepts presence/absence determinations made by consulting occurrence data managed by the VDGIF and available online through the Northern Long-Eared Bat (NLEB) Winter Habitat and Roost Tree Application. According to the database, no known or documented hibernacula or maternity roosts occur within 2 miles of the project area. Pursuant to the final 4(d) rule, we do not anticipate that time-of-year restrictions will be required for tree clearing.

- **Conduct Coordination for Chesapeake Bay Act Compliance.** No Resource Protection Areas (RPAs) are present within the project area.
- **Coordinate Consistency with the Coastal Zone Management Program:** As required by the US Army Corps of Engineers (USACE), to issue a Section 404 permit, we will submit a Coastal Zone Management Act consistency determination package to the VDEQ for review and approval. Coordination ensures that the project is consistent with the enforceable policies of Virginia's Coastal Zone Management Program.



*Small Whorled Pogonia*  
photo credit:  
<http://vtpp.ext.vt.edu>

- **Conduct Avoidance and Minimization:** After Notice to Proceed (NTP), we will refine the design to avoid and minimize impacts. We will implement an Environmental Compliance Matrix (ECM) that defines environmental commitments made during the development of the design and offers strategies that will be implemented for avoidance and minimization. Regular workshops will be held between our design, construction, and environmental staff to capture opportunities to minimize impacts.
- **Secure Water Quality Permits:** Within two weeks of NTP, we will hold a Pre-Application Meeting with the USACE, VDEQ, and Virginia Marine Resources Commission (VMRC) to discuss scope and identify any agency concerns early in the process. The purpose of this meeting is to partner with the regulators and to identify any additional studies or design considerations or constraints that would cause delays or additional cost.

We anticipate that the Project will result in impacts to 0.18 acres of wetlands. Because the Project has an approved Categorical Exclusion (CE) and wetland impacts are less than one-half acre, it qualifies for a Nationwide Permit 23 from the USACE. VDEQ has issued unconditional Section 401 Water Quality Certification for the USACE Nationwide Permit 23; therefore, it is not anticipated that the Project will require a Section 401 permit from VDEQ. No streams with a drainage area greater than 5 square miles will be impacted; therefore, no permit from VMRC is anticipated.

- **Integrate into Schedule:** Our Team has established a detailed time-driven plan for the environmental clearances that supports and ensures an on-time delivery. Our ECM is a tracking and status tool that will be used during project delivery. The ECM shows progress, interrelationships and dependencies of the design, the required environmental clearances and the aspect of construction delivery. Given that environmental clearance is a key factor in establishing a successful project schedule, our Team evaluated the plan development process to ensure that enough detail could be provided for grading, drainage, and temporary construction items to meet the informational requirements of the reviewing agencies. Once this process was defined, we included the resulting hold points in our schedule.

During the development of the Project, we will perform constructability reviews to confirm that the environmental commitments are reflected in our project plans prior to construction activities. These reviews will coincide with the avoidance and minimization workshops discussed above. We will continually identify project risk reduction opportunities by determining the variables and effects of NEPA documentation, permit acquisition, environmental certifications, permit required monitoring, phased erosion and sediment controls, SWM implementation, and project construction activities.

- **Support Construction:** Once construction begins, the environmental staff will collaborate and support the construction staff to meet environmental commitments and to advise the field construction staff of any issue or construction activity that may impact the standing permit.

#### 4.4.2 Utilities

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One of the keys to a successful DB project is well-managed utility relocations. In turn, the crucial part of a successful utility relocation is early and open communication and coordination with the involved utility companies. Our Team has a track record of proactive utility coordination that has earned us the respect and good working relationships with each of the utility companies involved in this Project.

We have a proven process of integrating the utility companies early to receive their input in the design of the Project and establishing them as a valued member of the project team. As a result, they have a vested interest in the Project which leads to better cooperation and response to the project needs. Historically, the more they know and understand, the more willing they are to partner together to achieve a timely relocation at the lowest cost possible for everyone.

Our Team has looked in depth at the utilities within the Project limits not only through the designation file provided with the contract documents, but also through field investigation and contact with the utilities. Overall, the Project does not involve a large utility relocation effort. The utilities affected by the construction are smaller

in scale and should lend to an expedited and manageable relocation phase. The western portion of the Project (west of the bridge and including the bridge) will not impact utilities, allowing construction to begin upon NTP.

Conversely, the east side of the Project will have utility impacts. Additionally, the requirement that no utilities can have access points within existing or proposed Limited Access will mandate relocations not in physical conflict with the proposed project features. The following is a breakdown of all the conflict analyses performed to date.

**Spotsylvania Sewer:** There are two lines that will need relocated/adjusted for their facilities in the preliminary analysis:

- An 8-inch gravity sewer crossing Route 606 will be affected due to the proposed curb line impact of a sewer manhole. This manhole will need to be moved and the sewer system adjusted to tie into it.
- A 2-inch force main runs parallel with proposed Route 606 improvements. Portions of the line are in limited access, while others are in conflict with proposed drainage and cut slopes. Relocation of this system will be outside of limited access per VDOT's *Land Use Permit Manual* and tied back in beyond the conflict points.
- Final drainage and testholes will be used to avoid conflicts with the existing 6-inch force main crossing the entrance.

**Rappahannock Electric Cooperative (REC):** REC has a single-phase aerial electric line running parallel to Route 606. This will be relocated in an easement outside the roadway limits. Additionally, there is an existing two-phase line with a pole in conflict with proposed Mallard Road that will need to be shifted/adjusted in line. The vertical clearance of the line will also be assessed to ensure a new pole does not need to be installed beside the proposed road to raise the line to clear Relocated Mallard Road.

The recent addition of the Dominion Raceway Complex has added another single-phase pole and three-phase pole which will be in conflict along the south side of Route 606. Furthermore, an underground three-phase crossing at the raceway entrance will need to be relocated in advance of our roadway improvements.

**Verizon Virginia:** Verizon has copper and fiber optic lines running parallel to Route 606 and across Mallard Road that will be impacted by proposed cut slopes.

The 50 Pair copper that crosses Route 606 at the raceway entrance will be in conflict with proposed drainage and will extend to the next pedestal or handhole.

Verizon has an existing 100 Pair copper line running parallel to Route 606 that will be relocated due to proposed limited access line constraints, proposed cut slopes, and physical conflicts with telephone pedestals and handholes. Parallel to the 100 Pair copper is a 24 fiber optic that serves the VDOT Fredericksburg District Smart Traffic Center. This will be in conflict with limited access as well as cut slopes on the Project.

There is a 50 Pair copper and a service line that cross proposed Mallard Drive within an area designated as cut. We will testhole this line to determine if it can stay or be manipulated in place.

**Spotsylvania Water:** The 8-inch water line parallel to Route 606 will be relocated outside of proposed limited access. With this relocation, two hydrants will also be relocated. Similar to the sewer, final drainage design and testholes will determine whether conflicts can be avoided through design optimization.

**SummitIG:** SummitIG owns a 432 fiber optic line running inside the ROW of the northbound lanes. This line goes up the ramps on the east side of the interchange and across Route 606 before going back down to I-95. This line does not appear to be in conflict and may just need the handholes adjusted outside of the proposed roadway/limited access. However, SummitIG reports a fiber optic line along Route 606, which serves the VDOT Fredericksburg District Smart Traffic Center. Should this facility need to be moved, it will be at 100% Project cost. This line is currently not shown on the designation and will be designated and testholed as needed after receiving NTP.

**Comcast:** The original designation showed no Comcast facilities present within the work area and thus no conflict. Comcast has recently added a line to the east side of I-95 to serve the raceway. A new fiber optic line was installed across the proposed Mallard Drive up the existing alignment to the corner of Route 606, then down Route 606 and across to the raceway. This line will need to be designated and testholed as needed after receiving NTP to determine the full extent of the relocation.

### 4.4.3 Geotechnical

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There are geotechnical risks associated with all highway construction projects. The contracting mechanism affects which risks are relevant to the Owner and which risks become liabilities to the Design-Builder. For this Project, VDOT has provided a baseline of geotechnical conditions underlying the site through the 12/4/15 Geotechnical Data Report (GDR) and the supplemental data provided in July 2016. These conditions present a baseline of risk to the DB team. We utilize these conditions and our experience in both the area and the type of project to identify risks that have the potential to impact the cost, schedule, and final product of the I-95/606 Project.

**Summary of the GDR:** Our Team reviewed the GDR provided with the RFP and researched geotechnical and geological references, maps, and publications. The Project site is located in the Coastal Plain physiographic province a few miles east of the Fall Line. The Fall Line is the division between the Piedmont physiographic region to the west and the Coastal Plain to the east. The Piedmont consists of residual soils, and metamorphic rocks such as schist, gneiss, and phyllite. The Coastal Plain province was formed by marine and fluvial depositions and erosion during periods of glacial activity and includes interbedded sand, silt, and clay soils.

The existing ground surface elevations (EL) at the project site range from about EL 230 feet to EL 255 feet, and fill depths ranging from 2 feet to 17 feet were reported in the area of the bridge. The Coastal Plain sediments encountered at the project site are characterized by Tertiary to Cretaceous age deposits of the Aquia, Calvert, and Potomac formations. The Tertiary age deposits are characterized as Terrace deposits consisting of sand, silt, clay, and trace quartz gravel, that generally extend down from about EL 230 feet to EL 220 feet. According to the GDR, the underlying silts and clays are reported to likely represent the Cretaceous age Potomac formation, extending downward from EL 220 to EL 215 feet. However, it is possible that some of the very soft to soft, silt and clay layers are more recent deposits, and are not part of the typically over-consolidated Potomac formation. Some of the granular Potomac formation deposits are reported as very loose. Additional sampling and testing will be performed to evaluate these loose and soft soil layers for consolidation and compressibility under new embankment loads.

The Potomac formation soils are underlain by a thin layer (5 feet) of sandy intermediate geomaterial (IGM) overlying hard rock consisting of biotite gneiss of Paleozoic or Late-Proterozoic age. This transition from IGM to hard rock was recorded from about EL 197 feet to EL 191 feet. Rock was generally encountered at depths ranging from 42 feet to 63 feet below grade. Groundwater was noted at approximately EL 230 feet, and perched water tables associated with numerous clay layers are expected within the project limits.

The Tertiary age deposits along the Fall Line can contain iron sulfide minerals and are therefore potentially acidic. The RFP states that the site soils are potentially acidic due to the presence of acid sulfate soils. The results of acid-base accounting tests provided in the GDR confirm the potential for acidic soils, and further testing is recommended.

**Approach to Geotechnical Risk Identification:** The Wagman Team is keenly aware of the geotechnical issues associated with the project site geology and as described in the GDR, and we are prepared to investigate and better define these issues during the design and construction phases of this project. We have identified several geotechnical risks, potential geotechnical issues associated with those risks, and mitigation measures that we will employ as necessary. The primary geotechnical risks are identified as follows.

- **Embankment Settlement:** At the abutments, the borings indicate variable subsurface conditions that include very loose to loose granular soils, and very soft to soft cohesive soils. The proposed embankment widening and grade increase at the existing bridge approaches can cause settlement under

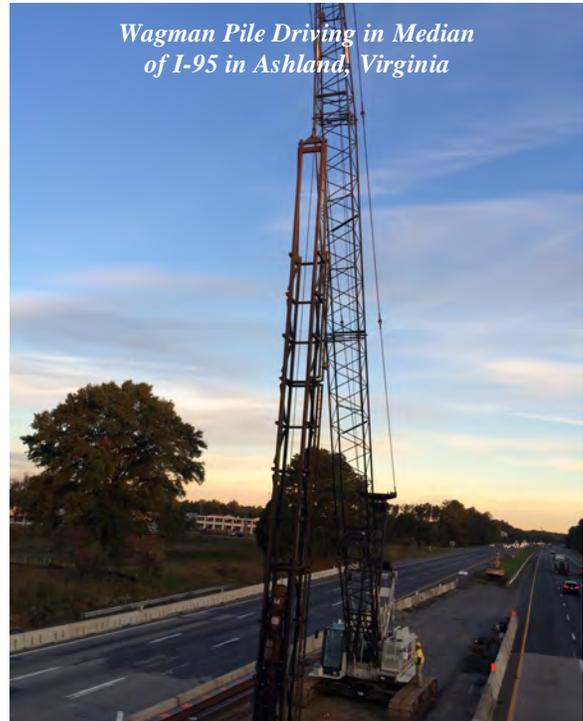
the new embankment loads. We anticipate supporting the new bridge on pile foundations bearing on rock. Embankment settlement causes pile downdrag forces and can result in overstressing the piles. The time required for settlement to occur and the impact of embankment settlement on the pile foundations are major concerns.

As the length of the bridge decreases, more embankment fill is needed to create the approach. The higher required fill height will take longer to settle, which will create added stresses to the construction schedule making it more difficult to meet target deadlines. As timelines are reduced, the accuracy of the CPT and consolidation testing data provided in the Addendum to the contract become increasingly pivotal to a successful project.

- **Existing Structure:** During construction of the new bridge, the existing bridge needs to remain in service. Construction activity in the vicinity of the existing bridge foundations will include pile driving, grading, and excavation. These activities could affect the integrity of the existing bridge and bridge foundations.

Aside from the apparent risk of operating equipment in close proximity to the existing bridge, if the bridge is shortened, the new fill placed for Stage 1 construction would induce downdrag forces on the piles of the existing bridge which is to remain in service. Because the existing pile are founded on rock, overloading the piles from a geotechnical capacity is not a concern; however, overstressing them from a structural standpoint is a concern. There is a risk that the new fill placed for a short bridge would cause the pile supporting the existing abutment to buckle.

- **Slope Stability:** The Project includes grading and earthwork and it will be important to design and construct new, existing, and reconstructed slopes to provide conditions of long-term stability.
- **Acidic Soils:** Determining the presence of acidic soils at the project site will be critical to many aspects of the proposed construction with potential for impacts including: earthwork and site grading limitations, establishing vegetative growth on cut and fill slopes, corrosion of metal culverts and structures, and runoff possibly becoming toxic to aquatic species if not buffered before release to adjacent waterways.
- **Unsuitable Materials:** As identified in the GDR, the subsurface profile has both granular and cohesive soils. Perched groundwater conditions and standing water in lowland areas may be problematic for roadway embankment and pavement subgrades in these areas. Unsuitable materials include soils that exhibit heaving, pumping, or rutting. The shallow cohesive soils may become unsuitable by softening in the presence of water, and may require mitigation.



*Wagman Pile Driving in Median of I-95 in Ashland, Virginia*

**Geotechnical Risk Mitigation Measures:** Knowing the risks are important; however, knowing how to mitigate these risks during design and construction is the key to success. Unfortunately, many of these risk items do not fit neatly into a design or construction category. It has been our experience on DB projects that risk items need to be championed through to completion through an integrated design/construction approach with all parties engaged from the beginning concept development. As a result, we propose to implement a Geotechnical Risk Task Force that will oversee the process of assessing the likelihood of the risk, developing mitigation measures, and ensuring that field operations implement mitigation strategies appropriately upon discovery.

### Mitigation Measures

Risk	Issues	Mitigation
<b>Embankment Settlement</b>	<ol style="list-style-type: none"> <li>1. Pile downdrag</li> <li>2. Overstress pile</li> <li>3. Time for settlement to occur</li> </ol>	<ul style="list-style-type: none"> <li>• Evaluate subsurface conditions</li> <li>• Perform laboratory consolidation testing</li> <li>• Calculate the magnitude and time of consolidation, estimate total settlement</li> <li>• Establish waiting periods, if required</li> <li>• Monitor embankment settlement</li> <li>• Design piles for downdrag forces</li> <li>• Delay final pavement at bridge approaches until monitoring indicates that the majority of settlement has occurred</li> </ul>
<b>Existing Structure</b>	<ol style="list-style-type: none"> <li>1. Construction vibrations</li> <li>2. Loss of ground</li> <li>3. Settlement problems</li> <li>4. Overstress piles</li> </ol>	<ul style="list-style-type: none"> <li>• Monitor and maintain the existing bridge structure</li> <li>• Design and construct support of excavation systems to prevent loss of ground confinement</li> <li>• Use preaugured foundations for SOE and permanent foundations in Stage 1 to minimize vibrations</li> <li>• Evaluate effects of estimated settlement on existing bridge structure/ foundations</li> <li>• Underpin the existing abutment</li> </ul>
<b>Slope Stability</b>	<ol style="list-style-type: none"> <li>1. Slope failure</li> <li>2. Sloughing</li> </ol>	<ul style="list-style-type: none"> <li>• Evaluate subsurface conditions</li> <li>• Conduct laboratory residual shear strength tests</li> <li>• Assess presence of highly plastic soils</li> <li>• Perform slope stability analyses</li> <li>• Design and construct slopes for long-term stability</li> </ul>
<b>Acidic Soils</b>	<ol style="list-style-type: none"> <li>1. Problems establishing vegetation</li> <li>2. Corrosion of pipes and metal structures</li> <li>3. Acidic run-off during construction</li> </ol>	<ul style="list-style-type: none"> <li>• Evaluate site soils. Conduct pH and acid-base accounting tests</li> <li>• Treat acidic soils with agricultural lime to adjust pH and neutralize</li> <li>• Place acidic soils 2 feet (minimum) below surfaces where vegetation will be established (if not treated with lime)</li> <li>• Utilize non-metallic pipes and culverts where acidic soils are identified</li> <li>• Steel H-piles – Proper selection of materials, coatings, and construction methods for corrosion protection, if required</li> <li>• Provide lined ditches to convey acidic run-off to lined holding basins, where applicable</li> <li>• Collect and treat acidic run-off before release</li> </ul>
<b>Unsuitable Soils</b>	<ol style="list-style-type: none"> <li>1. High Moisture Content</li> </ol>	<ul style="list-style-type: none"> <li>• In-situ stabilization using admixtures</li> <li>• Undercut and replace</li> <li>• Partial undercut and replace combined with geotextiles</li> </ul>

**Work Adjacent to Existing Structures:** Although we have generally addressed risks and mitigation measures of working in close proximity to an existing structure, we believe there is significantly more that can and should be discussed with respect to geotechnical/construction activities. The Wagman Team has a thorough understanding of the challenges associated with design and construction of the replacement bridge, interstate ramps, and the associated roadway improvements to Route 606, especially as it relates to their proximity to the existing bridge. The existing bridge will remain in service during the first stage of the new bridge construction. To ensure safety and serviceability during construction, we will monitor the condition of the existing bridge and maintain it, as required, until phasing allows for its demolition. In addition, the Wagman Team proposes the use of preaugured deep foundations for the SOE and permanent substructure units to minimize the vibrations due to pile driving next to the deteriorated bridge elements until such time as Stage 1 construction is complete, allowing for existing bridge demolition to commence.

The existing bridge over I-95 is structurally deficient and will be demolished and removed in accordance with our stage construction, bridge demolition, and erection plans, with VDOT approval. The as-built plans for the existing bridge indicate that the bridge abutments and piers are supported on driven steel H-pile foundations (10HP42) with 50-ton capacity, bearing on rock. Plumb piles and batter piles at 3H:12V were driven at the existing abutments at lengths ranging from 50 to 55 feet. Plumb piles and batter piles at 2H:12V were driven at the existing piers at lengths ranging from 31 to 36 feet. When exposed, the existing bridge piles will be inspected and assessed for corrosion.

In evaluating how our Team will successfully navigate construction activities around the existing structure, it is important to understand what geotechnical elements will impact those activities. Discussed below are the critical elements that define these challenges.

- Foundation Design:** We anticipate the use of driven steel H-pile foundations bearing on rock for support of the new bridge structure pier and abutments. The new bridge construction will require working in the vicinity of the existing bridge foundations while the bridge structure is in use. The stage construction plans, sequence of construction, and foundation plans will be developed with due consideration of the existing bridge (structure and foundations). New foundations will be designed and constructed to avoid conflict with the existing foundations, and to limit potential effects on the existing foundations due to excavation and pile driving activity. Temporary excavation support systems will be designed, phased, and constructed so that the existing bridge is not undermined, and loss of ground is minimized.
- Embankment Settlement:** We will utilize the additional subsurface investigation and testing provided in the contract addendum to estimate the amount of settlement caused by the proposed embankment widening and grade increase at the existing bridge approaches. The existing bridge is supported on pile foundations bearing on rock and we plan to support the new bridge on pile foundations bearing on rock. The embankment settlement causes pile downdrag forces and can result in overstressing the piles. We will estimate the time required for settlement to occur, and evaluate the effect of downdrag on the existing and new pile foundations. Depending upon our findings and the results of our evaluation, we will design the new piles for downdrag forces, or establish a waiting period and settlement monitoring plan, followed by pile driving. Preliminary calculation indicate the existing piles have sufficient section to resist the downdrag loads without being overstressed; therefore, underpinning is not anticipated.



The Wagman Team is currently working on the Route 7 Widening and Bridge Rehabilitation Over Dulles Toll Road and Airport Access Highway DB project, building new H-pile supported abutment foundations adjacent to existing spread footing foundations while maintaining traffic flow on the existing bridge. For staged construction of the new abutments, we are designing and building a temporary excavation support system consisting of driven soldier pile and lagging walls. The finished abutment walls will consist of permanent tied-back soldier pile and lagging retaining walls with a pre-cast concrete panel facing.




The Wagman Team is addressing a similar issue involving embankment fill and settlement on the Route 7 Widening and Bridge Rehabilitation project, where a 25-foot high modified RW retaining wall will be constructed. After completing our subsurface investigation, testing, and analysis, we determined that settlement of the retained embankment fill will cause excessive downdrag forces on the drilled pier foundations for a new pedestrian bridge. To mitigate this issue, we established a waiting period with settlement monitoring followed by construction of the drilled pier foundation on the Route 7 Project.



- Slope Stability:** We have reviewed the RFP documents and conceptual plans and thoroughly understand the challenges associated with grading and earthwork for construction of the bridge, interstate ramps, and roadway improvements to Route 606. The conceptual plans and profiles indicate fills up to about 6 feet, and cuts to depths of about 4 feet. The impact of the proposed grading on the existing slopes appears to be minimal; however, we understand the issues and potential problems with slope construction along the I-95 corridor in this region of Virginia.

Our Team is familiar with the slope stability issues and shrink-swell characteristics associated with the marine clays of the Potomac formation. The recommendations for slope design provided in the GDR limit cut and fill slopes to a maximum slope ratio of 2H:1V, unless constructed within highly plastic soils of the Potomac formation. In this case, the slopes need to be flattened and slope designs shall be prepared using the appropriate residual and/or fully softened shear strength parameters for the highly plastic strata.

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

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Design-Build is predicated on all of the design, construction, and oversight parties working together in a unified partnership. The QA/QC process is where this alliance is most apparent. The Wagman Team, comprised of design and construction staff, QC inspectors, and an independent QAM and QA unit, will work side-by-side with VDOT to ensure the project meets or exceeds the requirements established by the RFP. The QA/QC Plan will be based on VDOT's Minimum Requirements for QA and QC on Design-Build and PPTA Projects, January 2012 and will be a "living" document that is updated as elements or situations arise that require specificity not previously included. The QA/QC Plan will not only include roles, responsibilities, authorities, and organizational structure, but also provide mechanisms to address and document deficient workmanship, materials, and/or equipment compiled into a Non-Conformance Report (NCR) and auditing and recovery (AR) plans to control and repair deficient items.

The Wagman Team provides this sound approach that has been used to develop, execute, and update QA/QC plans for several successful VDOT DB projects. With each DB project, Wagman's quality, design, and construction teams have acquired invaluable experience and lessons learned to improve the effectiveness of subsequent QA/QC plans. Our Team will provide a well-structured, easily audited plan that minimizes the need to expand VDOT's contract administration efforts.

Wagman preplans all construction activities using Work Plans, which provide labor, equipment, materials, procedures, safety, and production details for each activity. Wagman's Work Plans effectively implement QA/QC activities, testing requirements, and hold points. Construction QA and QC personnel will use these Work Plans to properly execute construction and schedule QA and QC activities.

**Approach to QA/QC:** Our Team's approach to quality management is focused on continuous improvement and ensuring that all levels of the design and construction team obtain, understand, implement, monitor, and document quality procedures. The project QA/QC Plan will include:

- Clear provisions for identifying, notifying, and tracking potential non-conforming work, materials, or equipment and administering a quality assurance auditing and nonconformance recovery plan
- Clear stipulation that the QAM does not report to production forces, has the authority to stop work, and will communicate daily with the CM/lead inspector based on daily monitoring of the QC program
- A design QA/QC plan which specifies cross-disciplinary and constructability reviews
- A construction QC Plan which requires qualified, VDOT-certified QC inspectors and uses checklists to document inspections.

The Wagman QA Team, overseen by the DBPM, with input from the DCC (as shown in our organizational chart) and led by the QAM, will implement the Project's QA/QC plan to verify contract requirements are met; work and materials are performed in the manner for which they are intended; and records, materials notebook, and documentation are accurate and complete.

**Design QA/QC:** Our approach to design QA/QC is a team effort involving the Design/Construction Coordinator (DCC), Design Manager (DM), design leads, Construction Manager (CM), and the Design-Build Project Manager (DBPM). The Design QA/QC, overseen by the DBPM, will be led by the DM to provide quality designs and plans in accordance with VDOT's QA/QC Guide and minimize VDOT's administrative efforts by:

- Designing features that are safe and meet (or exceed) VDOT regulations and established criteria
- Conforming to the standards and reference documents in the RFP
- Designing elements that are constructible, durable, economical, and minimize future maintenance
- Meeting design schedule, budget, and construction staging requirements
- Providing an organized and indexed set of design calculations, criteria, and assumptions.

To initiate the design QA/QC process, the DM, DCC, lead discipline engineers, and Design QA Manager will establish the design criteria and checklists for each design element, then distribute to assigned staff engineers and

subconsultants. Design deliverables will be prepared under the lead discipline engineers and reviewed to ensure completeness and all necessary and appropriate construction requirements/details. The processes/procedures defined in the QA/QC Plan will be strictly enforced and thoroughly documented to minimize VDOT reviews. To ensure well-structured and easily audited documents, forms and certifications will be completed and electronically submitted with each design submittal to digitally track drawing review certifications, calculation review certifications, and release for deliverables.

Weekly design meetings, directed and led by the DM, will include the Lead Engineers, CM, and other field engineers and input from the DCC as needed. All plans will be coordinated through the DCC and reviewed by the CM and field engineers for constructability and means/methods. Work Plans will be reviewed and modified as necessary to address any new or unexpected conditions.

VDOT and key stakeholders will be invited to participate in over-the-shoulder reviews to streamline the review process by citing preferences and clarifications.

The QAM will certify that all QA/QC efforts are completed in accordance with the required procedures and the DM, and DBPM will sign-off on their acceptance. For final submissions, deliverables will be signed and sealed by discipline leads prior to submitting to VDOT for acceptance.

Design changes during construction will be reviewed using the same process as the original design; however, the DCC will be directly involved and have approving role in implementing these changes. Changes, such as field design changes and nonconformance evaluations, will be maintained in a database to track revisions and update the as-built documents.

*Staffing Plan for Design.* A quality design begins with the people designing the project. However, a sound checks and balances approach integrates senior staff not involved with the day to day design that will provide QC and QA reviews. This team will be comprised on disciplinary experts (i.e., roadway, drainage, structures, traffic) that provide detailed markups of the plans and documents for consideration and implementation. The QC team members will focus on design criteria and RFP directives compliance while the QA team members will evaluate the process, assess inclusion of QC comments, and ensure compliance with the RFP requirements.

*QA/QC Procedures for Unique Design Project Element (MOT).* Public opinion of a construction project is first formed based on MOT impacts. A successful MOT plan will leave a positive lasting impression on travelers and result in efficient execution of the construction. A strong MOT plan begins with a commitment to the QA/QC process to reap the benefits provided during construction. Our weekly design meetings will serve as the opportunity to integrate design, construction, and safety personnel in the establishment of the MOT schemes. Integration of construction personnel is crucial to match the means and methods of construction with the design criteria, design manuals, and traffic needs.

As this integrated design progresses and before submitting to the QC Engineers for review, the MOT will be reviewed by the DM and other discipline leads for an interdisciplinary review. This review will focus beyond the criteria and ensure that each discipline's elements of design are integrated for each phase of the MOT. Critical for these reviews will be the development of cross-sections for each phase to ensure drainage, utilities, and traffic control elements are properly accounted for and coordinated. For instance, the Hydraulics/SWM lead will ensure that both permanent and temporary drainage features are appropriately integrated. However, perhaps the most important interdisciplinary review is that of the construction staff who will ensure that there is safe access into the work area for construction staff and equipment and material deliveries. Furthermore, the construction staff will ensure that the work area defined has adequate laydown area for storage of equipment and materials and maneuverability of equipment and personnel.

Once these reviews are complete and the design has been revised to reflect all discipline markups, the plans will be submitted to the QC Engineers for review. Given that the QC Engineers have not been involved in the development of the design, their perspective is fresh and uninfluenced by the day to day involvement of the Project. Their review will focus on meeting and exceeding the design criteria for the Project and ensuring that safety related to foreseeable scenarios (i.e., work area access, lane shifts, clear zone protection, etc.) has been

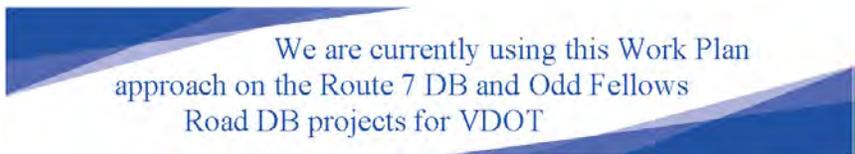
addressed and meets expectations. Comments will be generated and submitted back to the DM and other discipline leads for consideration/implementation.

A revised set of plans with responses to QC comments, where needed, will be provided to the QA Engineer for final inspection. This review ensures that comments have been incorporated or adequately addressed and that the process, procedures, and criteria have been followed.

Before releasing the plans for VDOT review, construction staff will perform one last review. Focus will be on constructability, feasibility, practicality, efficiency, and most importantly safety (of the workers and traveling public). Once this review and appropriate changes are complete, the Release for Deliverable form will be executed starting with the QA Engineer and progressing through the DM, QAM, and finally the DBPM before being submitted to VDOT as a complete package containing the plans, calculations, the form, and a statement that the QA/QC Plan has been followed in the implementation and execution of the design.

**Construction QA/QC:** To successfully complete the Project as designed, the entire team must work together and perform the work to the best of their abilities and as required according to the project specifications. One critical issue in the DB process is to assure the quality of the materials and workmanship by conducting appropriate and correct testing and construction inspections.

Wagman's Work Plan development, review, implementation, and continuous use by the construction staff as well as QA/QC staff will result in a successful project. Work Plans are developed by the project staff for each work activity. The project staff will, at a minimum, include the CM, Project Superintendents, Foreman, Safety personnel, QA/QC personnel, and subcontractors. Work Plans include a description of the work to be performed, all resources and materials needed to accomplish the task, all safety concerns and appropriate mitigation techniques, all quality checks including any hold points or required QA/QC reviews or tests. Work Plans include production rates, equipment, and manpower necessary to efficiently accomplish the given task. Development and use of these Work Plans by the project team allows the construction, QA, and QC to be able to safely and efficiently plan and execute daily tasks to efficiently deliver a high quality project. Used in conjunction with the project schedule, planning and coordination meetings and effective daily team communication, Wagman will successfully deliver a safe, timely, and quality project to VDOT.



We are currently using this Work Plan approach on the Route 7 DB and Odd Fellows Road DB projects for VDOT

**Quality Assurance (QA)** – the planned and systematic activities implemented in a quality system so that quality requirements for a product or service will be fulfilled.

**Quality Control (QC)** – the techniques and activities used to fulfill requirements for quality.

On this Project, the QA and QC services will use as their basis the seven rights (7R's) of quality construction as described in VDOT's *Construction Resource Guidebook*: “The ***Right Material*** (1), put in the ***Right Way*** (2), at the ***Right Time*** (3), in the ***Right Location*** (4), in the ***Right Quantity*** (5), all verified with the ***Right Documentation*** (6), and then the ***Right Payment*** (7) can be made.” As also stated in the Guidebook, “These 7R's present the definitive requirements for achieving process and product construction quality.”

**Staffing Plan for Construction.** The construction QA/QC team consists of experienced, qualified, and VDOT certified technicians, inspectors, and engineers. The construction QA/QC testing is performed in the field using appropriate modern calibrated equipment and the laboratory testing is performed in accredited facilities.

By working toward the mutual goal of providing a quality product and service, the efforts of the QA/QC team members will be synergistic. The project Construction Quality Management Program relies heavily on communication and coordination between the members of the QA/QC team who will establish, utilize, and maintain detailed inspection requirements and records. This focus on the goal by the members of both the QA and the QC teams results in a very strong and effective program.

The QA team members will perform independent testing as required by VDOT's *Minimum Requirements for Quality Assurance and Quality Control for Design-Build and Public-Private Transportation Act Projects*, dated January 2012 (Guidelines).

The QC team will perform inspections during all phases of construction and will function as an integral part of the DB team. Working with the Contractor as a member of the DB team, the QC team will perform sampling, testing and analysis that will result in the project meeting/exceeding the minimum requirements. Additionally, the extensive use of checklists will reduce the potential for omissions and non-conforming work. The application of effective Quality Management procedures, including detailed inspections, sampling, testing, reviewing, and reporting, will ensure that the workmanship will comply with the contract documents.

The start-up phase of a project is critical for establishing relationships and project-specific procedures. During the initial stages of the Project, the Quality Assurance Manager (QAM) will frequently visit the site and meet with the Quality Control Manager (QCM); after determining that the QA and QC services are integrating smoothly into the project and the team members are acclimated with the project requirements, the frequency of the visits of the QAM will be reduced and the QA Lead Inspector will then assume more responsibility for the on-site QA duties. Additional qualified and certified staff, when required, will be provided to support QA Lead Inspector.

As the QAM for this Project, Mr. Shaz Moosa, P.E. will have Stop Work authority on construction activities. He will also be responsible for supervising the QA Inspector(s) and Technician(s) as well as coordinating the QA laboratory testing. The QAM will assure that the necessary documentation regarding the QA/QC inspections, the testing of materials, and the construction techniques have been performed in accordance with the contract documents. Before any payment is approved, the QAM will report the QA team's findings to the DBPM.

*QA/QC Procedures for Unique Construction Project Element (Bridge Deck).* The requirements of the Project include the construction of continuous span units and jointless bridge design technologies. Aside from the safety aspects of the Project, our Team considers the construction of the continuous/jointless bridge deck to be one of the most technically critical aspects of this Project.

Applying the "7R" criteria to the construction of the bridge deck, which is a critical item, QA/QC services will include the following:

- Pre-start planning meeting prior to commencement of work:
  - Review specification requirements, material documentation, construction procedures, pour plan, and safety requirements
  - Discuss any special approvals and/or requirements that may be necessary for the construction of the bridge deck (example: continuous pour, design mix, concrete delivery timing, curing method, formwork removal, etc.)
  - Discuss the inspections and testing requirements including the respective work activity checklists
  - Review of each activity-specific Work Plan by all involved personnel
- Start of inspection:
  - Ensure the QA/QC Inspection Checklists are on-hand and completed throughout the respective construction work activity processes
  - Ensure that all testing equipment is calibrated and in good condition
  - Ensure the contractor is following the approved pour plan
  - Check all concrete discharge methods to ensure proper placement and to prevent consolidation
  - Check the methods and materials used for curing
  - Review survey records and verify grades and alignment
  - Verify any revisions, i.e., Engineers Approved/Authorized RFIs
- Continuous inspection:
  - Check preparations (formwork accuracy, formwork materials, reinforcing steel placement, thickness, form treatment, cleanliness, etc.) and joint placement

- Check concrete placement requirements (form, air temperatures, humidity, surface, coverage, etc.)
- Verify and test concrete (slump, air content, temperature, unit weight, batch-to-placement time, etc.) as required
- Inspect placement methods to prevent segregation (vibration methods, placement layers, drop height, etc.) and verify finishing methods
- Ensure all required curing and protection methods are applied and maintained
- Verify proper methods of form removal
- Final Inspection:
  - Check tolerances of placement and finish
  - Verify the laboratory test results
  - Make final observations and measurements
  - Verify payment computations



The QA/QC inspectors and technicians assigned to this project are experienced and are VDOT certified. All services will be provided in accordance with the requirements of the project plans and specifications. All QA/QC activities will meet or exceed VDOT's *Minimum Requirements for Quality Assurance and Quality Control on Design-Build and Public-Private Transportation Act Projects, Construction Manual, Inspection Manual, Materials Manual of Instructions, Road and Bridge Standards, and Road and Bridge Specifications*. This includes the documentation of construction activities and materials acceptance.

QA services include reviewing the QC Plan, verifying the construction QC processes and checking the accuracy of the QC records. The timely distribution of records by the QAM will provide frequent opportunities to exercise control over the project in terms of time and possible check points. The result of providing these services is that additional QA/QC effort on the part of VDOT is minimized.

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The following further describes how the QA/QC services on the I-95/606 Project will minimize the amount of oversight required of VDOT.

- The QA team will verify the material certifications from the supplier or manufacturer that confirm the materials supplied meet or exceed the technical and material characteristics defined in the project specifications.
- Relative to materials that are delivered to the jobsite, QA and QC will assure that the procedures to receive, inspect, handle, store and protect the materials are established before their delivery. Materials or goods that are damaged at the point of delivery will immediately be reported to the contractor and other involved parties, and will be noted on the Deficiency (Non-compliance) List.
- The QA/QC team will perform field verification and testing at project-specific “Inspection Verification Points” or “Witness Hold Points.” Qualified certified personnel will use properly calibrated instruments and correct equipment to perform tests, will record the information on the appropriate forms, and will compare the results to the specification requirements.
- The QA team will prepare an inspection/item checklist to assure that specified materials, processes, and construction methods are verified and recorded. Checklists will be attached to daily QA/QC field reports.
- All required inspections will be performed in accordance with the required testing procedures, and the written records of the test results will be properly recorded and reported on the appropriate forms. Field reports will be sequentially ordered by date and report number, and will cite referenced QC reports.

- The QA firm will prepare, maintain, and submit completed test records and final materials certifications to VDOT's Project Manager.
- When nonconforming work is discovered through testing, inspection, or QA review, it will be immediately brought to the attention of project management personnel through a Non-Conformance Report (NCR).
- Non-conforming items will also be recorded on a separate Deficiency (Non-compliance) list that can be referenced easily by VDOT. The non-compliance list will be maintained by the QAM and will include the date, a brief description of the non-conformance issue, the proposed remedial action, and the final outcome (removal, re-work, substitution, etc.).
- Corrective actions will be implemented to prevent the reoccurrence of nonconforming work. Those actions include analyzing the cause of the deficiency, revising procedures to prevent recurrence, and documenting the changes to the existing work plan. At the project progress meetings, the QA firm will address the non-conformance issues and will explain and discuss the work plan changes. In addition, the QA firm will provide explanations to the project personnel responsible for maintaining project documentation, including the testing and inspection reports.
- The QA firm will maintain the project Materials Book, record the quantities of materials used, the source of the materials, and the method used to verify compliance with VDOT standards and project specifications.

Using the approach described above, the Quality Management practices are well structured, easily audited, and will minimize the likelihood of requiring additional contract administration efforts by VDOT.

Detailed inspection checklists will be created for each activity involved in the construction and management of the Project using the "7R" criteria as a guide. The QA/QC practices begin before the start of construction. For the construction of the bridge deck, QA/QC services will include:

1. *Communication:* The QA firm will hold a pre-start planning meeting to assure that all parties know their roles and responsibilities, aware of the project requirements, and have the adequate and affective means and methods to perform the work in accordance with the project plans and specification. Discussion will include the items that are subject to inspection, materials testing, and reporting
2. *Inspections and Testing:* Verification of proper construction materials, so that:
  - Concrete and its constituents (such as the aggregate, the admixtures, etc., and the reinforcing steel) conform to project specifications
  - Bridge deck forms, water stops, form release agents, etc. conform to project requirements
3. *Verification of Contractor's preparations*
  - Prior to the placement of concrete, forms and supports shall be inspected and approved for use
  - The length(s)/width(s), size, and condition of screed(s) or other finishing equipment
4. *Verification of formwork, falsework, reinforcing steel*
  - Falsework assembly shall conform to the approved drawings
  - Check the shape, dimensions, strength, rigidity, water tightness, and surface smoothness of forms. Forms shall be set and maintained true to line
  - Assure the use of an approved form release agent
  - Forms shall be maintained at a temperature that will not adversely affect curing of concrete
  - Check formed voids in concrete for accurate dimensions and locations
  - Check the size, spacing, and stability of reinforcing steel
  - Check welds, shear studs, inserts, etc.
  - Verify placement of construction joints, waterstop, etc.

- Verify stability and bracing of formwork
  - Check anchorage mechanisms
  - Verify cleanliness of forms before the placement of concrete
5. *Verification of concrete supply and placement*
- The method of placement shall be such as to avoid the possibility of segregating ingredients or displacing reinforcing steel or void forms
  - Assure that embedded materials are suitably supported and maintained in the correct position
  - Verify that the concrete for the entire section or unit will be placed in one event and that it will remain workable until the placing, finishing, and testing have been completed
  - Assure that consolidation of placed concrete is properly accomplished
6. *Verification of proper concrete finishing*
- Verify that the concrete finish method and appearance are in accordance with the project requirements
7. *Verification of proper concrete curing*
- Verify that the method of curing is as required by the project specifications
  - Monitor temperatures relative to the approved curing methods
  - Assure that the concrete is maintained in a moist condition during curing
  - Assure protection of concrete from physical damage, rain, etc.
  - Assure that the concrete is protected against freezing and that approved coverings or heating methods are used
  - Assure that protection is provided to guard against rapid drying as a result of low humidity, high wind, and/or high concrete temperatures
  - Assure that the concrete is not walked on or otherwise disturbed while curing
  - Verify that the surface dimensions and shape have been checked with appropriate equipment (straightedge, etc.), as necessary
8. *Verification of proper formwork removal (including falsework, braces, ties, guywires, and other instruments of stabilization)*
- Verify control cylinder strengths relative to the concrete design strength requirements prior to the approval for the removal of forms
  - Verify the condition of the formed surfaces

# 4.5 Construction of the Project



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## 4.5 CONSTRUCTION OF THE PROJECT

The Route 606 Bridge Replacement over I-95 with 606 Improvements Project is a significant infrastructure project intended to better serve the fast-developing community of Thornburg in Spotsylvania County, Virginia. The Project construction scope includes the widening of Route 606 for approximately 1,500 feet, the replacement of the I-95 over Route 606 Bridge, and the relocation of Mallard Road (approximately 1,300 feet). The Wagman Team has approximately 33 months to design and construct the Work and achieve Final Completion no later than September 18, 2019. This Project requires a heightened degree of coordination and effective communication between design, construction, and local stakeholders. The Wagman Team designed and is currently constructing a bridge replacement and interchange improvement project on Route 7 over the Dulles Toll Road. Our Team will implement the same core management and operational approach to capitalize on valuable “lessons learned” during design and construction and ensure a seamless, efficient, and successful DB project.

### 4.5.1 Sequence of Construction

The key to minimizing traffic disruptions and maximizing the safety of the traveling public and construction workers is to split the project into phases. This will allow adequate space for existing traffic patterns to be maintained through the work zone during construction. The Wagman Team will accomplish this through strategic use of temporary traffic control devices and careful planning of the limits of construction within each phase of the work. Our specific plan is to subdivide the construction of the project into three phases.

**Phase 1:** During Phase 1, the Team will focus construction efforts on the proposed roadway and bridge improvements located along the southern half of the Route 606 corridor. As such, the first phase of construction will include the following work:

- Erosion and sediment control
- Temporary signage along Route 606
- Construction of the eastbound lanes of the new Route 606 Bridge over I-95 (south of the existing bridge structure)
- The widening of Route 606 and construction of the proposed roundabout south of the edge of pavement along the existing eastbound lane of Route 606
- The relocation of Mallard Road to include SWM facilities
- Ramp A improvements
- Ramp D improvements



The limits of work during Phase 1 will allow for existing traffic to be maintained on I-95 and Route 606, including access to and from all businesses and public rights of way.

**Phase 2:** During Phase 2, we will focus construction efforts on the proposed roadway and bridge improvements located along the northern half of the Route 606 corridor. The second phase of construction will include:

- Erosion and sediment control
- Temporary signalization and signage along Route 606
- Demolition of the existing Route 606 Bridge over I-95
- Construction of the westbound lanes of the new Route 606 Bridge over I-95
- The widening of Route 606 and construction of the proposed roundabout north of the edge of pavement along the existing eastbound lane of Route 606
- Construction of improvements at the existing entrance to the Dominion Raceway Complex
- Ramp B improvements
- Ramp C improvements

The limits of work during Phase 2 will allow for existing traffic to be maintained on I-95 and Route 606, including access to and from all businesses and public rights of way. Through traffic on Route 606 will be routed onto new pavement constructed during Phase 1.

**Phase 3:** During the final phase of construction, the Team will focus on the building of improvements located along the median of Route 606. During this phase, we will place all final surface mix asphalt pavement and complete landscaping, pavement markings, signage, roadway lighting, and traffic signalization. Specifically, Phase 3 will consist of the following work:

- Construction of the raised median along Route 606 east of the Route 606 Bridge over I-95
- Construction of raised concrete medians at the proposed roundabout and at the existing Mallard Road tie-in to Route 606
- Final surface mix (SM) asphalt pavement on eastbound and westbound Route 606
- Final SM asphalt pavement on all ramps
- Final SM asphalt pavement on Relocated Mallard Road
- Final SM asphalt pavement at entrance to the Dominion Raceway Complex
- Installation of landscaping, pavement markings, signage, roadway lighting, and traffic signalization

Upon completion of Phase 3, traffic along Route 606 will be placed in its final configuration.

**Anticipation and Mitigation of Potential Delays:** The Wagman Team is fully aware of the potential for construction delays. Our schedule was developed to anticipate and mitigate the potential for delay from the most probable impacts as follows:

- **Geotechnical Constraints:** We anticipate that there is a potential for settlement at the proposed bridge abutments, which may affect pile foundations; therefore, we have planned the bridge work to include a six-week settlement period between the construction of abutment fills and the installation of piling to allow for appropriate settlement associated with downdrag. Our planned schedule also anticipates the possibility of a lengthy period of geotechnical exploration and geotechnical report approval. We will also identify corrosive soils and remove or implement engineered encapsulation.
- **ROW Acquisition:** We anticipate that there is a potential for adjacent property owners to delay the acquisition of land along Route 606 and within the proposed footprint of Relocated Mallard Road. Although the relocation of Mallard Road is included in Phase 1, this work can continue into Phase 2 without impacting the schedule. Delays in the project schedule will be further mitigated by starting construction as soon as possible in areas that do not depend on the acquisition of additional ROW. This includes work on the Route 606 Bridge over I-95 and the widening of I-95 on/off ramps.
- **Environmental Impacts:** We also anticipate wetland impacts, which may further delay the construction of Relocated Mallard Road. Our schedule reflects ample time for regulatory approval of wetland impacts prior to the start of construction within the proposed Mallard Road corridor.
- **Public Involvement/Stakeholder Coordination and Government Approvals:** We recognize the importance of obtaining required government agency approvals and coordinating with project stakeholders, which may have an effect on schedule. Our schedule provides appropriate timeframes for review and approval of design elements. We will conduct over-the-shoulder reviews during the design process, which will increase the level of design QC, streamline the design and approval process, and reduce the potential for schedule delays.



Traffic switch from Phase 1 to Phase 2 of bridge construction on Route 54 over I-95 in Ashland, Virginia

## 4.5.2 Transportation Management Plan

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The Wagman Team recognizes that the I-95 corridor is one of the most heavily-traveled interstate systems in the region. Additionally, the interchange with Route 606 provides a direct link to Thornburg, the Dominion Raceway Complex, and an ingress/egress point for I-95 to US Route 1 during incident management operations. Moreover, we recognize the importance and necessity of maintaining traffic with the least disruption to the roadway users and adjacent landowners.

Our Team is fully committed to providing safe and efficient movements of traffic through the work zone as well as providing protection for construction workers and their activities. We will focus on roadway visibility, public communication, and functionality of the temporary traffic work zone and traffic flow through the work zone.

**Transportation Management Plan (TMP) Composition:** The TMP will be developed to efficiently handle traffic during construction in accordance with VDOT's *Instructional and Information Memorandum (IIM) LD-241*. This Project is classified as a Type B, Category IV project; meaning, this Project's traffic impact is primarily limited to Route 606 and I-95. Major components of a Type B, Category IV Project TMP are a Temporary Traffic Control Plan, a Public Communication Plan, a Transportation Operations Plan, and an Incident Management Plan.

**Temporary Traffic Control Plan.** The Temporary Traffic Control Plan section of the TMP contains phase specific MOT plans, details, and typical sections. Traffic will be maintained through all phases of construction, with the majority of traffic disruptions occurring during traffic phase switches and final paving operations. Working closely with Wagman's construction team, the TMP design will be coordinated by Jonathan Bonghi, P.E., our Traffic Engineering and TMP/MOT lead engineer, to ensure the design and construction sequence can be implemented safely, efficiently, and in keeping with Wagman's means and methods.

All work will be designed and performed in accordance with FHWA's *Manual of Uniform Traffic Control Devices (MUTCD)* and the *Virginia Work Area Protection Manual (VWAPM)*. Our detailed MOT plans will include clear and concise sequence of construction (SOC) notes, type and location of all temporary traffic control devices (markings, signs, channelization devices, temporary barriers, etc.) for each work zone, and all detour routes. Safe work zone access for construction personnel and equipment/material deliveries will be identified, and access to local businesses and commercial property within the work zone will be maintained at all times.

While developing the preliminary SOC and MOT plan, our Team has identified the following critical construction operations/areas that will require detailed analysis during the design development of the TMP/MOT: (1) maintaining access to I-95, (2) grade changes at the bridge abutments, and (3) construction access along I-95.

**Public Communications Plan.** A Public Communications Plan developed with the Project's TMP will be incorporated into the Wagman Team's overall Public Involvement Plan. Through this plan, we will maintain multiple channels of communication with the traveling public, mass transit systems, local jurisdiction fire and rescue, utilities, local residents and businesses, and other stakeholders. The major stakeholders include, but are not limited to: the traveling public, Dominion Raceway Complex, local residents and businesses, Spotsylvania County, adjacent VDOT projects, and VDOT Fredericksburg District Communication Office. Open channels of communication will be established throughout the life of the Project to disseminate project information, including TMP information such as: lane closures, traffic pattern changes, the implementation of ramp closures, and, if necessary, temporary detours. We will provide the required weekly updates to VDOT's Fredericksburg District Communications Office to enable information to be posted on VDOT's website for anyone who may be seeking project updates. In addition to ongoing communication, our Team will hold coordination meetings with VDOT and other stakeholders to provide critical information for continuity of operations along I-95 and Route 606.

Our Team will provide advanced notification of construction activities to VDOT and the public to minimize the disruption to travelers through the project area. We will address this with proper signage and notification (as stated above), but it will require some exposure to the traffic pattern to complete the education and to normalize traffic movement. As required, all steps will be followed to schedule significant construction events and activities for off-peak times. Likewise, strict attention will be given to construction activities being normalized in the appropriate flow direction during peak hours.

*Transportation Operations Plan.* The Wagman Team will prepare a detailed Transportation Operations Plan, which will notify VDOT Northern Virginia and Richmond Traffic Operation Centers (TOCs) for planned work activities that impact the shoulder and travelway. This plan will include notification procedures for responding to incidents within the work zone as well as restoring the traffic to normal operations, some of which are discussed in the Incident Management Plan below. Our Team believes that work zone safety is a priority. As such, work zone controls will be inspected regularly and adjusted as needed. If an incident occurs within the work zone, our Team will evaluate the Temporary Traffic Control Plan and modify the controls (if warranted) to improve the safety of the traveling public and construction workers.

*Incident Management Plan.* Our Team will coordinate with VDOT to develop protocols for the implementation of incident management. We will develop the necessary list of contacts for any emergency action required and will develop plans to address incident scenarios. Such plans will include the utilization of strategically-placed variable message signs to assist motorists in dealing with the incident. These plans may also include:

- Recommended alternative routes and procedures for emergency lane closures or hazard protection
- Recommended signal timing changes at affected intersections
- Possible turn movement restrictions, by the installation of cones or drums to be placed in addition to what may be reflected in the plan

It is also appropriate to consider the effect of an incident outside the project boundary. Our Team will develop protocols and procedures for various incidents that could affect travel patterns in and around the project area. The Wagman Team will also have tools to immediately deploy for incident management including: variable message sign boards, signs, and channelizing devices. Our Team will keep this, along with a list of emergency contacts, onsite. This approach will allow our project team to be prepared and react quickly to any incident affecting travel through/around the Project.

#### **Proposed Lane or Ramp Closures:**

- **Lane Closures:** The Wagman Team's approach to constructing the project will require temporary lane closures, with the exception of Route 606 which will require flagging operations, for the following proposed elements of work: installing concrete barrier to provide separation/protection for the construction work zone, installing project signage, installing foundations for overhead signs and bridge structure components that will span the roadway, and increasing the separation between the travel way and the work zone activities when temporary traffic barrier is not present. In these instances, the clear zone for the work area will be met per the VWAPM. All lane closures will be implemented in accordance with the RFP Section 2.10.3. In order to install the concrete barrier and provide additional separation between the travel way and construction work zone, the Team will utilize VWAPM TTC 16.1 and/or TTC 17.1 during each phase of the project.
- **Shoulder Closures:** The I-95/606 Project will implement shoulder closures for the construction activities involving bridge construction on I-95. As well as on Route 606, to construct the project's roadway/ drainage improvements will be constructed within the work zone separated by a shoulder closure. The Wagman Team will implement VWAPM TTC-4.1 and/or TTC-6.1 as applicable for all shoulder closures to provide for a safe separation for the construction work zone.
- **Temporary Ramp Closures:** We do not anticipate ramp closures as part of this project. Should a ramp closure be deemed necessary to ensure safety of the traveling public, we will seek approval from VDOT outlining detours for each instance. If ramp closures are necessary, the Wagman Team would implement such closures in a manner not exceed more than one overnight shift. At the completion of each shift the ramps will be re-opened to traffic the following morning and may be re-implemented the next available overnight shift to minimize disruption to traffic. Short term detours will utilize VWAPM TTC 46.1, when the need arises and only with VDOT's concurrence/approval. Communicating temporary ramp closures to the traveling motorist the Wagman Team will employ PCMS in advance and as appropriate for the situation. Motorist will be guided back to their destination by way of adjacent interchanges along I-95.

- **Total Roadway Closures.** This Project will require roadway closures to complete bridge girder erection, bridge demolition, and overhead sign installation. We will follow the mandated time-limit requirements (20-minute maximum per RFP Section 2.10.3) and will follow the TTC applications outlined in the VWAPM. In all instances of roadway closures, the Wagman Team will provide the required advance notification outlined by the RFP and communicate the TMP implementation plans to all stakeholders (including motorists).

**Temporary Detours:** This Project does not anticipate the need for temporary detours. If such circumstances arise, particularly due to unanticipated work zone incidents, the Wagman Team is more than able to adapt and provide for a temporary detour with accompanying work zone traffic impact analysis that complies with Section 2.10.3's requirements for impacts on adjacent side-streets and intersections.

**Time of Day Restrictions:** For all roadway, lane, and ramp closures, the Wagman Team will follow the time-of-day restrictions outlined in RFP Section 2.10.3.

**Flagging Operations:** Flagging Operations will only be permitted as allowed by the VWAPM and all flaggers will have the required certifications. This project will utilize flagging operations periodically on Route 606, as previously indicated, in order to install work zone devices, perform pavement installation at the termini of the project and during construction activities at the intersections of I-95 Ramps and where otherwise maintenance of two lanes of travel is not possible. The use of state police within signalized intersections will be utilized. In all instances of flagging operations, the Wagman team will follow the time of day restrictions outlined in the RFP Section 2.10.3 and will follow the applications outlined in the VWAPM TTC 23.1 and TTC 30.1.

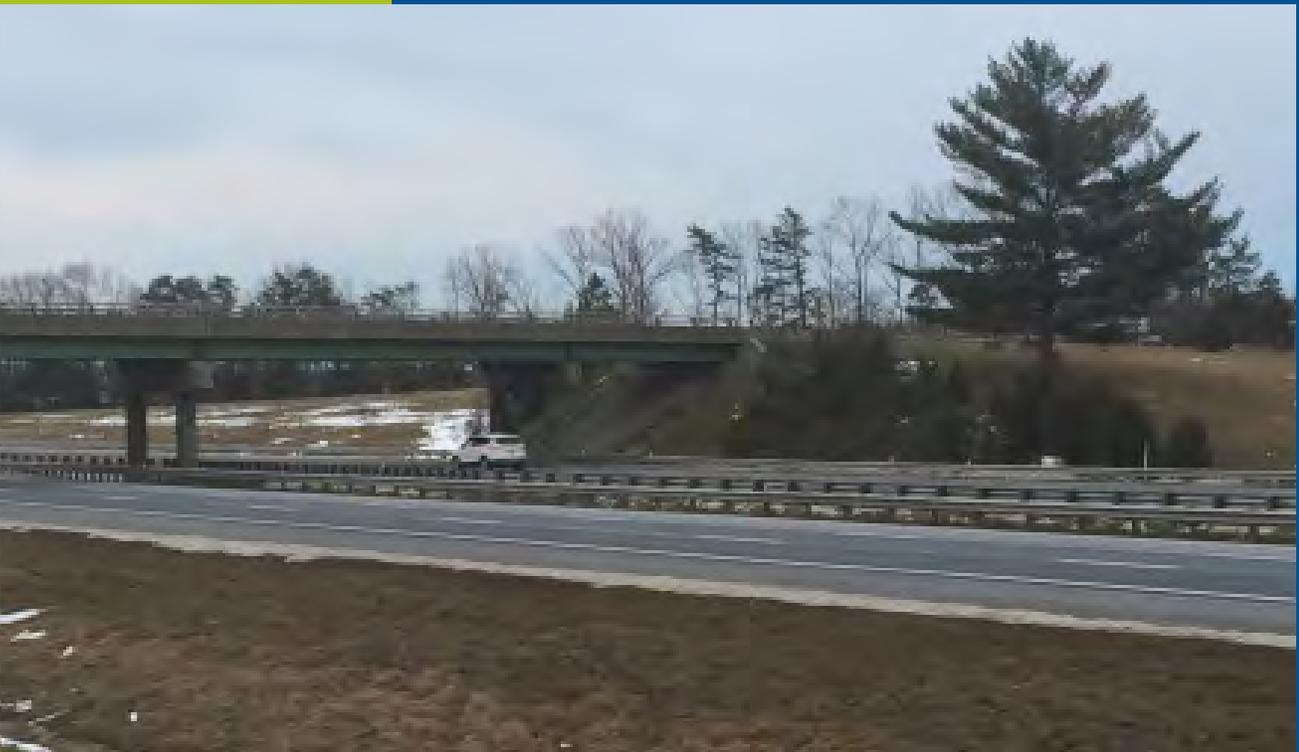
**Minimum Lane Widths:** All lanes on I-95 as part of the TMP will be a minimum 12 feet in width, and all temporary traffic control devices (TCD) will be a minimum of two feet from the travelway.

For all other roadways within the project limits, the existing roadway widths will be maintained, and all temporary TCD will be a minimum of one foot away from the travelway.

**Work Zone Speed Reductions Required:** The posted speed limit on Route 606 through the project is 35 mph. The Wagman team will request a speed reduction to heighten awareness, safety, and have greater flexibility with transitions.

**Major Project Stakeholders (Impacts During Construction):** As part of the Public Communications Plan above, we have identified stakeholders and our approach to communicating with them throughout design and construction to disseminate information and address concerns.

# 4.6 Disadvantaged Business Enterprises (DBE)



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## 4.6 DISADVANTAGED BUSINESS ENTERPRISE (DBE)

**Wagman Commitment to DBE Participation Goal:** Wagman is committed to achieving the fifteen percent (15%) DBE participation goal for the entire value of the contract.

**DBE Subcontracting Narrative:** Wagman began considering our commitment to the DBE goal prior to submitting our SOQ.

Our DB Team already consists of significant DBE participation:

- EM Tech will be performing Quality Assurance Management, Inspection, and Testing
- DMY will be performing QC Testing services
- DMY will also performing post bid soil borings for the design team

Wagman will continue working to meet the DBE goal for this project during the estimating, award, and design phases of the I-95/606 Project.

Our Estimating and Project Management Staff will work together in the following manner:

- Review the certified DBE contractors list for firms that perform work available in this particular project
- Research those firms for quality, performance and safety
- Identify subcontractor opportunities on the Project
- Solicit contractors to provide pricing on the subcontractor packages
- Document all solicitations for DBE Good Faith Effort
- Work with all potential and interested parties to understand the project goals and requirements
- Work with all vendors to make sure quotes meet project requirements
- Select vendors that provide competitive pricing for the Project

The Project Management Team will:

- Finalize any subcontracting or materials scopes necessary when final design is complete
- Work with the selected vendors (materials and subcontractors, DBE, and non-DBE) to finalize all subcontracts and purchase orders to a mutually agreeable scope and schedule
- Issue subcontracts and purchase orders
- Communicate schedule, safety, and quality requirements throughout the life of the Project
- Work with the vendors in a Team atmosphere to make sure the project is delivered to VDOT in the required timeframe with the highest regard to safety and quality

Wagman has a history of meeting or exceeding DBE contract goals on every single VDOT project performed.

# 4.7 Proposal Schedule



Volume I

## 4.7 PROPOSAL SCHEDULE

### 4.7.1 Proposal Schedule

The Wagman Team has provided a Proposal Schedule and Proposal Narrative demonstrating our understanding of the complexities and interrelationships of the technical elements of the Project. PDF copies of the Proposal Schedule and narrative as well as a back-up copy of the Proposal Schedule's source document have been provided on a CD-ROM.

The Wagman Team has developed a Proposal Schedule (located in Volume II), which takes into account the internal plan reviews, VDOT plan reviews and approvals, environmental permitting and constraints, ROW acquisition, utility relocation, construction activities, and QA/QC inspection and testing. Our Final Completion Date of September 18, 2019 aligns with the required timeframe listed in RFP Part 1, Section 2.3.1. The Proposal Schedule depicts the Wagman Team's proposed overall sequence of work and duration for each work task and deliverable required to complete the Project. The schedule is organized using a hierarchical Work Breakdown Structure (WBS), divided into major phases of the Project.

### 4.7.2 Proposal Schedule Narrative

In addition to the technical elements, the narrative also describes the Wagman Team's plan to accomplish the Work including, but not limited to, the overall sequencing, a description and explanation of the Critical Path, proposed means and methods, and other key assumptions upon which the Proposal Schedule is based.

**Schedule Development:** The Wagman Team has reviewed in detail the scope and schedule requirements outlined in the RFP documents. Numerous site visits and team meetings were planned, pre-proposal meetings were attended, proprietary meeting discussions occurred, and a schedule team was developed to build a comprehensive schedule for the design and construction of the Route 606 Improvements and the Replacement of the Route 606 Bridge over I-95.

The Wagman Team is committed to providing VDOT with a completed project by September 18, 2019.

### Project Milestones:

#### Project Milestones

Key Milestone	Milestone Date
Notice To Proceed	December 16, 2016
Substantial Completion of Design	September 15, 2017
Start Bridge Construction	September 16, 2017
Start Phase 1 Construction	September 16, 2017
Complete Phase 1 Construction	June 27, 2018
Start Phase 2 Construction	June 28, 2018
Complete Phase 2 Construction	June 17, 2019
Start Phase 3	June 18, 2019
Final Punchlist / Demobilization	August 30, 2019 – September 18, 2019
Final Completion	September 18, 2019

**Work Breakdown Structure:** The following Work Breakdown Structure (WBS) provided by the Wagman Team integrates all preconstruction activities as well as construction activities for the Route 606 Improvements and the Replacement the Route 606 Bridge over I-95 project into the schedule. The following is a summary overview of the Phases of Construction succeeded by the complete WBS layout.

*Milestones/General Conditions and Preconstruction Activities.* These sections contain all non-construction related activities that are pertinent to the project. The following categories represent these sections:

- **Milestones:** Major project dates to achieve project completion goals.
- **General Conditions:** Project management and punch list items required for the project.
- **Design:** Duration set aside for the preliminary, ROW/roadway design, and final design of the project. The design will consist of three phases to facilitate VDOT reviews and approvals to advance the start of construction. Whenever possible, permits required for construction will be obtained in advance of final design. The Wagman Team will work with VDOT during the design using over-the-shoulder reviews and provide comment resolution with all submissions to reduce subsequent review cycles. The design category also includes the following:
  - *Structures & Bridges:* Preliminary and final design of the Route 606 Bridge over I-95
  - *Scope Validation:* Duration for discussion between VDOT and the Wagman Team for validation and approval of project scope
  - *Survey:* Timeframe allowing all necessary surveying for the design and ROW acquisition process
  - *Geotechnical:* All borings and lab work required to prepare the Geotechnical Reports
  - *VPDES/SWPPP Permitting:* Timeframe set aside for permitting
  - *Individual Wetlands Permits:* Timeframe set aside for permitting
  - *ROW Acquisition Services:* Necessary activities for the procurement of public and private property for ROW
  - *Utility Coordination and Relocation:* Necessary activities to relocate utilities including the design, procurement, and construction of utilities that may be affected by construction

*Construction Activities.* This Project has been designed and set up in three phases.

- **Phase 1:** During Phase 1, bridge and roadway improvements located along the southern half of the Route 606 corridor will be constructed. This includes the followings project elements:
  - Erosion and sediment control
  - Temporary signage along Route 606
  - Construction of the eastbound lanes of the new Route 606 Bridge over I-95 (south of the existing bridge structure)
  - The widening of Route 606 and construction of the proposed roundabout south of the edge of pavement along the existing eastbound lane of Route 606
  - The relocation of Mallard Road to include SWM facilities
  - Ramp A improvements
  - Ramp D improvements

Work on the Route 606 Bridge will begin as soon as the bridge design is approved, and work on the I-95 on/off ramps will begin as soon as roadway/drainage plans are approved. Work on the bridge and ramps does not depend on ROW acquisition or wetlands permitting. The widening of Route 606 and relocation of Mallard Road will begin after the roadway/drainage design, ROW acquisition, and wetlands permitting is complete.

- **Phase 2:** During Phase 2, bridge, and roadway improvements located along the southern half of the Route 606 corridor will be constructed. This includes the followings project elements:
  - Erosion and sediment control
  - Temporary signalization and signage along Route 606
  - Demolition of the existing Route 606 Bridge over I-95
  - Construction of the westbound lanes of the new Route 606 Bridge over I-95

- The widening of Route 606 and construction of the proposed roundabout north of the edge of pavement along the existing eastbound lane of Route 606
- Construction of improvements at the existing entrance to the Dominion Raceway Complex
- Ramp B improvements
- Ramp C improvements

The work in Phase 2 will begin after the completion of the work in Phase 1. However, the start of work in Phase 2 does not depend on the completion of work associated with the relocation of Mallard Road. Mallard Road relocation work that started in Phase 1 can continue in Phase 2 without impacting any other work in Phase 2. Mallard Road relocation work only needs to be completed prior to the start of Phase 3 so that final paving, striping, and signs on Mallard Road can be installed.

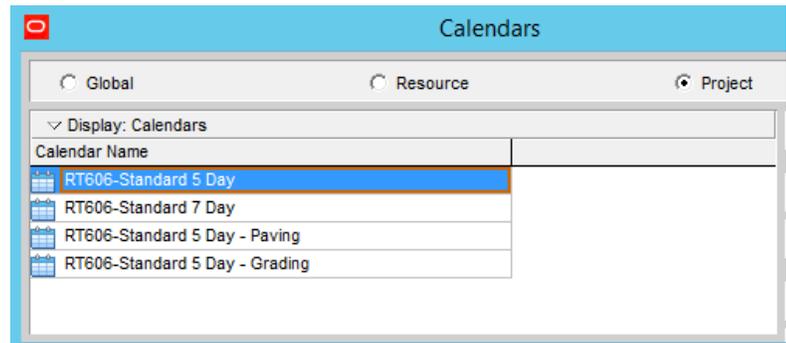
- **Phase 3:** The final phase of construction will be utilized to place all final surface mix asphalt pavement, and to perform all final landscaping, pavement marking installation, sign installation, roadway lighting installation, and traffic signal construction. Specifically, Phase 3 will consist of the following construction activities:
  - Construction of the raised median along Route 606 east of the Route 606 bridge over I-95
  - Construction of raised concrete medians at the proposed roundabout and at the existing Mallard Road tie-in to Route 606
  - Final surface mix (SM) asphalt pavement on eastbound and westbound Route 606
  - Final SM asphalt pavement on all ramps
  - Final SM asphalt pavement on Relocated Mallard Road
  - Final SM asphalt pavement at entrance to the Dominion Raceway Complex
  - Installation of landscaping, pavement markings, signage, roadway lighting, and traffic signalization

Project Work Breakdown Structure.

WBS Code	WBS Name
C00105463DB89-TP01	Route 606 Bridge Replacement over I-95 with 606 Improvements - Proposal Schedule
C00105463DB89-TP01.1	Milestones and General Conditions
C00105463DB89-TP01.1.1	Milestones
C00105463DB89-TP01.1.1.1	Project Milestones
C00105463DB89-TP01.2	Preconstruction
C00105463DB89-TP01.2.1	Design
C00105463DB89-TP01.2.1.2	Scope Validation
C00105463DB89-TP01.2.1.4	Geotechnical
C00105463DB89-TP01.2.1.4.1	Bridge & Retaining Walls
C00105463DB89-TP01.2.1.4.2	Roadway & Drainage
C00105463DB89-TP01.2.1.4.3	Storm Water Management
C00105463DB89-TP01.2.1.4.4	Signal & Sign Foundations
C00105463DB89-TP01.2.1.3	Survey
C00105463DB89-TP01.2.1.1	Structures and Bridges
C00105463DB89-TP01.2.1.6	FI/ROW Plans
C00105463DB89-TP01.2.1.6.4	MOT/TMP
C00105463DB89-TP01.2.1.6.1	Roadway and Drainage
C00105463DB89-TP01.2.1.6.2	Traffic
C00105463DB89-TP01.2.1.6.3	Lighting
C00105463DB89-TP01.2.1.7	Final Design
C00105463DB89-TP01.2.1.7.4	MOT/TMP
C00105463DB89-TP01.2.1.7.1	Roadway and Drainage
C00105463DB89-TP01.2.1.7.2	Traffic
C00105463DB89-TP01.2.1.7.3	Lighting
C00105463DB89-TP01.2.1.5	Environmental Site Assessment
C00105463DB89-TP01.2.1.13	Inspection of Existing Bridge Hazardous Materials
C00105463DB89-TP01.2.1.8	VPDES/SWPPP Permitting
C00105463DB89-TP01.2.1.9	Nationwide Permit (NWP) 23 from USACE
C00105463DB89-TP01.2.1.10	Right of Way Acquisition Services
C00105463DB89-TP01.2.1.11	Utility Coordination and Relocations
C00105463DB89-TP01.2.1.12	Construction Engineering Services
C00105463DB89-TP01.2.2	Construction Submittals
C00105463DB89-TP01.2.3	Acquisitions
C00105463DB89-TP01.3	Construction
C00105463DB89-TP01.3.1	Phase 1
C00105463DB89-TP01.3.1.1	Route 606 EB Mainline (Including South Half of Roundabout)
C00105463DB89-TP01.3.1.1.1	West of Route 606 Bridge
C00105463DB89-TP01.3.1.1.2	East of Route 606 Bridge
C00105463DB89-TP01.3.1.2	Route 606 EB Bridge
C00105463DB89-TP01.3.1.2.1	Substructure
C00105463DB89-TP01.3.1.2.1.1	Abutment A
C00105463DB89-TP01.3.1.2.1.2	Abutment B
C00105463DB89-TP01.3.1.2.1.3	Pier 1
C00105463DB89-TP01.3.1.2.2	Superstructure
C00105463DB89-TP01.3.1.3	I-95 Ramps
C00105463DB89-TP01.3.1.3.1	Ramp A Improvements
C00105463DB89-TP01.3.1.3.2	Ramp D Improvements
C00105463DB89-TP01.3.1.4	Mallard Road Relocation
C00105463DB89-TP01.3.1.5	Temporary Signal Work
C00105463DB89-TP01.3.2	Phase 2
C00105463DB89-TP01.3.2.1	Route 606 WB Mainline (Including North Half of Roundabout)
C00105463DB89-TP01.3.2.1.1	West of Route 606 Bridge
C00105463DB89-TP01.3.2.1.2	East of Route 606 Bridge
C00105463DB89-TP01.3.2.2	Route 606 WB Bridge
C00105463DB89-TP01.3.2.2.1	Substructure
C00105463DB89-TP01.3.2.2.1.1	Abutment A
C00105463DB89-TP01.3.2.2.1.2	Abutment B
C00105463DB89-TP01.3.2.2.1.3	Pier 1
C00105463DB89-TP01.3.2.2.2	Superstructure
C00105463DB89-TP01.3.2.7	I-95 Ramps
C00105463DB89-TP01.3.2.7.1	Ramp B Improvements
C00105463DB89-TP01.3.2.7.2	Ramp C Improvements
C00105463DB89-TP01.3.2.4	Race Track Entrance
C00105463DB89-TP01.3.3	Phase 3
C00105463DB89-TP01.3.3.1	Concrete Median Construction
C00105463DB89-TP01.3.3.4	Final Paving, Signs, Striping, Signals & Landscaping
C00105463DB89-TP01.3.3.4.1	Route 606 Mainline
C00105463DB89-TP01.3.3.4.2	I-95 Ramps
C00105463DB89-TP01.3.3.4.3	Mallard Road

**Calendars:** The Wagman Team has incorporated four calendars into the Project Schedule:

- **Standard 5-Day Calendar:** This calendar is the base calendar for all non-weather-sensitive construction activities. It incorporates a standard five-day workweek.
- **Standard 7-Day Calendar:** This calendar holds every day as a working day and is only attached to nonproduction activities.
- **Standard 5-Day (Paving):** This calendar is used for construction activities that are extremely sensitive to weather (such as asphalt paving, pavement marking, and landscaping) and allows no work to occur from December 1 through March 31.
- **Standard 5-Day (Grading):** This calendar is used for construction activities that are less sensitive to weather than paving, such as earthwork and grading. This calendar anticipates no work to occur from December 1 through January 31; however, work activities may continue during this calendar period if weather permits. The schedule will be adjusted as necessary during these months to reflect actual progress as necessary.



**Critical Path:** The critical path for the Project runs through the bridge design and construction. It begins with the preparation of the Route 606 bridge plans, which determines when new construction can begin. The critical path runs through the Phase 1 and Phase 2 bridge substructure and superstructure construction. After the bridge work has been completed, the critical path continues through final paving and road finishes.

Route 606 Bridge Replacement over I-95 with		Classic Schedule Layout		19-Aug-16 07:52	
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float
<b>Route 606 Bridge Replacement over I-95 with 606 Improvements -</b>		718	16-Dec-16	18-Sep-19	0
<b>Milestones and General Conditions</b>		1007	16-Dec-16	18-Sep-19	0
<b>Milestones</b>		1007	16-Dec-16	18-Sep-19	0
<b>Project Milestones</b>		1007	16-Dec-16	18-Sep-19	0
A1000	Notice to Proceed	0	16-Dec-16		69
A1020	Substantial Completion of Design	0		15-Sep-17	69
A1040	Complete Phase 1 Construction	0		27-Jun-18	69
A1060	Start Construction of Phase 2	0	28-Jun-18		69
A1070	Complete Phase 2 Construction	0		17-Jun-19	0
A3660	Start Phase 3	0	18-Jun-19		0
A1110	Final Punchlist / Demobilization	20	30-Aug-19	18-Sep-19	0
A1030	Final Completion	0		18-Sep-19	0
<b>Preconstruction</b>		226	16-Dec-16	27-Oct-17	49
<b>Design</b>		196	16-Dec-16	15-Sep-17	49
<b>Structures and Bridges</b>		196	16-Dec-16	15-Sep-17	49
D2000	Stage I Design (TS&L)	30	16-Dec-16	26-Jan-17	49
D2160	Stage I Design (Wagman Review)	10	27-Jan-17	09-Feb-17	49
D2010	Submit for Comment Stage I Design (VDOT)	10	10-Feb-17	23-Feb-17	49
D2020	Review & Comment Stage I Design (VDOT)	21	24-Feb-17	16-Mar-17	69
D2210	Stage II Design - Superstructure	40	17-Mar-17	11-May-17	49
D2220	Stage II Design - Substructure	40	17-Mar-17	11-May-17	49
D2430	Stage II Design - Superstructure (Wagman Review)	5	12-May-17	18-May-17	49
D2440	Stage II Design - Substructure (Wagman Review)	5	12-May-17	18-May-17	49
D2460	Submit for Comment Stage II Design - Superstructure (VDOT)	10	19-May-17	01-Jun-17	49
D2470	Submit for Comment Stage II Design - Substructure (VDOT)	10	19-May-17	01-Jun-17	49
D2490	Review & Comment Stage II Design - Superstructure (VDOT)	21	02-Jun-17	22-Jun-17	69
D2500	Review & Comment Stage II Design - Substructure (VDOT)	21	02-Jun-17	22-Jun-17	69
D2530	Final Stage II Design	30	23-Jun-17	03-Aug-17	49
D2580	Final Stage II Design (Wagman Review)	6	04-Aug-17	11-Aug-17	49
D2590	Submit for Comment Final Stage II Design (VDOT)	10	14-Aug-17	25-Aug-17	49
D2600	Review & Comment Final Stage II Design (VDOT)	21	26-Aug-17	15-Sep-17	69
<b>Construction Submittals</b>		30	28-Aug-17	06-Oct-17	49
A1120	SOE Plan	15	28-Aug-17	15-Sep-17	49
A3720	Prepare MSE Wall Shop Drawings	15	28-Aug-17	15-Sep-17	49
A1160	Review / Approve SOE	15	18-Sep-17	06-Oct-17	49
A4230	Review & Approve MSE Wall Shop Drawings	10	18-Sep-17	29-Sep-17	49
<b>Acquisitions</b>		20	02-Oct-17	27-Oct-17	49
A4280	Fabricate / Deliver MSE Walls	20	02-Oct-17	27-Oct-17	49
<b>Construction</b>		494	09-Oct-17	29-Aug-19	0
<b>Phase 1</b>		188	09-Oct-17	27-Jun-18	49
<b>Route 606 EB Bridge</b>		188	09-Oct-17	27-Jun-18	49
<b>Substructure</b>		101	09-Oct-17	26-Feb-18	49
<b>Abutment A</b>		76	09-Oct-17	22-Jan-18	49
A1720	Install SOE	10	09-Oct-17	20-Oct-17	49
A1740	Excavate for MSE Wall	5	23-Oct-17	27-Oct-17	49
A1760	Install MSE Wall	15	30-Oct-17	17-Nov-17	49
A1780	Settlement Period	45	18-Nov-17	01-Jan-18	69
A1800	Install Piles	15	02-Jan-18	22-Jan-18	49
<b>Abutment B</b>		71	20-Nov-17	26-Feb-18	49
A1770	Install MSE Wall	15	20-Nov-17	08-Dec-17	49
A1790	Settlement Period	45	09-Dec-17	22-Jan-18	69
A1810	Install Piles	15	23-Jan-18	12-Feb-18	49
A1830	FRPS Abutment Pile Cap	10	13-Feb-18	26-Feb-18	49
<b>Superstructure</b>		92	20-Feb-18	27-Jun-18	49

Route 606 Bridge Replacement over I-95 with		Classic Schedule Layout		19-Aug-16 07:52		
Activity ID	Activity Name	Original Duration	Start	Finish	Total Float	
A1890	Set Girders	10	20-Feb-18	05-Mar-18	49	
A1900	FRPS Integral Backwalls	10	06-Mar-18	19-Mar-18	49	
A1910	Install Overhangs	10	20-Mar-18	02-Apr-18	49	
A1920	Install SIP Forms	10	20-Mar-18	02-Apr-18	49	
A1930	Install Rebar	10	03-Apr-18	16-Apr-18	49	
A1940	Pour & Cure Deck	25	17-Apr-18	21-May-18	49	
A2120	Sidewalk and Parapet Wall	15	22-May-18	11-Jun-18	49	
A2210	Install Bridge Rail & Pedestrian Fence	12	12-Jun-18	27-Jun-18	49	
<b>Phase 2</b>		<b>253</b>	<b>28-Jun-18</b>	<b>17-Jun-19</b>	<b>0</b>	
A2810	Install MOT and Shift Traffic to Phase 2	3	28-Jun-18	02-Jul-18	49	
<b>Route 606 WB Bridge</b>		<b>250</b>	<b>03-Jul-18</b>	<b>17-Jun-19</b>	<b>0</b>	
A1960	Demo Existing Route 606 Bridge	20	03-Jul-18	30-Jul-18	49	
<b>Substructure</b>		<b>93</b>	<b>31-Jul-18</b>	<b>06-Dec-18</b>	<b>47</b>	
<b>Abutment A</b>		<b>25</b>	<b>31-Jul-18</b>	<b>03-Sep-18</b>	<b>49</b>	
A3690	Install SOE	5	31-Jul-18	06-Aug-18	49	
A1970	Excavate for MSE Wall	5	07-Aug-18	13-Aug-18	49	
A1990	Install MSE Wall	15	14-Aug-18	03-Sep-18	49	
<b>Abutment B</b>		<b>68</b>	<b>04-Sep-18</b>	<b>06-Dec-18</b>	<b>47</b>	
A2000	Install MSE Wall	15	04-Sep-18	24-Sep-18	49	
A2020	Settlement Period	45	25-Sep-18	08-Nov-18	67	
A2040	Install Piles	10	09-Nov-18	22-Nov-18	47	
A2060	FRPS Abutment Pile Cap	10	23-Nov-18	06-Dec-18	47	
<b>Superstructure</b>		<b>142</b>	<b>30-Nov-18</b>	<b>17-Jun-19</b>	<b>0</b>	
A2130	Set Girders	10	30-Nov-18	13-Dec-18	47	
A2140	FRPS Integral Backwalls	10	14-Dec-18	27-Dec-18	47	
A2150	Install Overhangs	10	28-Dec-18	10-Jan-19	47	
A2160	Install SIP Forms	10	28-Dec-18	10-Jan-19	47	
A2170	Install Rebar	10	11-Jan-19	24-Jan-19	47	
A2180	Pour & Cure Deck	25	02-Apr-19	06-May-19	0	
A2190	Sidewalk and Parapet Wall	15	07-May-19	27-May-19	0	
A2200	Install Bridge Rail & Pedestrian Fence	15	28-May-19	17-Jun-19	0	
<b>Phase 3</b>		<b>53</b>	<b>18-Jun-19</b>	<b>29-Aug-19</b>	<b>0</b>	
A3840	Install MOT and Shift Traffic to Phase 3	3	18-Jun-19	20-Jun-19	0	
<b>Concrete Median Construction</b>		<b>20</b>	<b>21-Jun-19</b>	<b>18-Jul-19</b>	<b>0</b>	
A3750	Construct Center Median East of Route 606 Bridge to Roundabout	20	21-Jun-19	18-Jul-19	0	
A3770	Construct Raised Concrete Medians at Roundabout	20	21-Jun-19	18-Jul-19	0	
<b>Final Paving, Signs, Striping, Signals &amp; Landscaping</b>		<b>30</b>	<b>19-Jul-19</b>	<b>29-Aug-19</b>	<b>0</b>	
<b>Route 606 Mainline</b>		<b>12</b>	<b>19-Jul-19</b>	<b>05-Aug-19</b>	<b>0</b>	
A2820	SM Asphalt - Route 606 EB Mainline & Roundabout	5	19-Jul-19	25-Jul-19	0	
A2830	SM Asphalt - Route 606 WB Mainline & Roundabout	5	26-Jul-19	01-Aug-19	0	
A2840	SM Asphalt - Race Track Entrance	2	02-Aug-19	05-Aug-19	0	
<b>I-95 Ramps</b>		<b>12</b>	<b>06-Aug-19</b>	<b>21-Aug-19</b>	<b>0</b>	
A3020	SM Asphalt - Ramp C	3	06-Aug-19	08-Aug-19	0	
A2910	SM Asphalt - Ramp B	3	09-Aug-19	13-Aug-19	0	
A2350	SM Asphalt - Ramp D	3	14-Aug-19	16-Aug-19	0	
A2290	SM Asphalt - Ramp A	3	19-Aug-19	21-Aug-19	0	
<b>Mallard Road</b>		<b>6</b>	<b>22-Aug-19</b>	<b>29-Aug-19</b>	<b>0</b>	
A1470	SM Asphalt - Mallard Road	3	22-Aug-19	26-Aug-19	0	
A3210	Final Striping - Mallard Road	3	27-Aug-19	29-Aug-19	0	
A3560	Final Signs - Mallard Road	3	27-Aug-19	29-Aug-19	0	

**Design:** The Wagman Team will advance the design from the current RFP documents and incorporate any new design elements into final design and construction documents. Design activities will include surveying, roadway design, bridge design, traffic control devices, MOT plans, signs, guardrail, pavement markings, drainage design, design of SWM facilities, geotechnical investigation including borings and analysis, materials analysis, hydraulic design and pavement design. The Project will be delivered by completing three phases of design: Preliminary, ROW, and Final. Design-related activities to be performed during each phase are outlined below.

- *Preliminary design activities* will focus on expanding the RFP documents and preparing a set of preliminary plans and reports for submission to VDOT for review and approval. The Wagman Team will perform numerous independent studies of the information contained in the RFP documents to confirm that the information provided to date is correct and suitable for use in designing the project. These additional studies will include performing supplemental field surveying to confirm horizontal and vertical control of key project features verifying type and location of existing subsurface utilities; performing legal research to confirm existing ROW and property limits; and performing a thorough geotechnical field investigation to confirm geotechnical conditions for the bridge foundation and roadway design. The findings of these studies will be summarized in a series of reports and, if discrepancies occur between the information in the RFP documents and the Wagman Team studies, these results will be presented to VDOT for review and evaluation as outlined in the Scope Validation process for the project. Preliminary roadway plans will be developed including performing geometric design; preparing cross sections and defining limits of construction; completing SWM and erosion and sediment control design; preparing plans for traffic control devices as well as a Transportation Management Plan; and completing the preliminary bridge plans working closely with the geotechnical engineers. Required ROW limits will be evaluated and depicted on the plans, and preliminary utility relocation plans will be prepared.
- *ROW/roadway design submittal* will occur after receiving preliminary plan approval from VDOT. The ROW, environmental coordination and approval, and utility relocation plan activities will be separated and developed for individual submissions to VDOT and other regulatory agencies for review and approval. The *preliminary bridge and roadway plans will be fully detailed and ready for construction.*
- *Final design submittal* will occur after receiving ROW/roadway design plan approval from VDOT. The Wagman Team will submit the final design plans and reports to VDOT for review and approval.

**Environmental Coordination and Approvals:** Preliminary environmental activities will begin shortly after receiving NTP and will include a thorough environmental evaluation and confirmation of the information provided in the RFP documents. The Wagman Team will prepare a comprehensive environmental management plan that includes a matrix of environmental commitments and compliance requirements; identifies milestone dates and integrates those into the project schedule; identifies the responsible party; and summarizes requirements. Final environmental activities will begin immediately after receiving preliminary plan approval from VDOT. At this point in the design, the footprint for the project will be firmly established, and the Wagman Team will identify the final environmental impacts required to construct the project in its entirety. We will strive to avoid and minimize environmental impacts during design development and construction. A Stormwater Pollution Prevention Plan (SWPPP) will be developed and the registration statement for the VSMP will be submitted immediately following the SWPPP development.

**Right of Way (ROW):** The Wagman Team will evaluate the proposed ROW and easements as shown on the plans. If changes are required, either due to a change in the required ROW or a change based on the results of legal research, the Team will prepare updated preliminary ROW plans and a ROW data sheet and will submit to VDOT for review and approval. Preliminary ROW activities will begin after receiving NTP. Our Team will begin performing the legal research for the identified parcels on the preliminary plans at the same time that our survey crew is validating the survey information provided in the RFP package.

**Schedule and Project Management:** The schedule is the most important tool in the construction management process and is an efficient method to communicate the intended sequence and progress of the project to the

construction team as well as the project stakeholders. The schedule is an extremely useful and productive planning tool. The Wagman Team takes pride in our detailed advance planning for safe and efficient execution of the work. Our Construction Managers, Superintendents, Safety Professionals, and Craft Supervisors use this critical tool as the first step in developing Activity Hazard Analyses and Activity Work Plans. In addition to early planning, the schedule is used to monitor the project's progress and help identify potential deficiencies and problem areas before they develop into a critical impact.

The project management team will continually review and monitor the schedule and use the information gathered to develop mitigation strategies for any activities that are identified as potential impacts. This proactive approach will ensure that the project continues to move forward and that any potential delays are addressed immediately.

A variety of different tools will be utilized to assist with this process, including but not limited to the following:

- Weekly schedule meetings between the engineering and construction team members during the design phase
- Weekly construction scheduling meetings throughout the duration of the construction process with the construction team (including management)
- Monthly progress meetings to include all project stakeholders, project team members, and subcontractors
- Three-week look ahead schedules
- RFI logs
- Submittal logs
- Work plans
- Subcontract/purchase order logs
- Shop drawing tracking logs
- Weekly manpower and equipment reviews.

All of the above referenced tools will be utilized simultaneously to provide a current and realistic picture of the progress and status at any given time. Information will be presented at meetings to all who are involved for the opportunity to discuss and address any concerns in front of all that are affected. This keeps the line of communication open and allows resolutions and recovery strategies to be developed at an early stage, therefore preventing further conflict.

**Subcontractor and Material Supplier Scheduling:** Subcontractors and material suppliers are a critical part of the project schedule. The Wagman Team will closely evaluate each subcontractor and supplier based on quality, performance, and reputation. Beginning with the initial subcontract paperwork, each subcontractor will be intimately involved with every aspect of the project schedule, and their input will be vital. Suppliers will go through a similar process. This includes progress meetings, weekly look-ahead schedules, material submittals, and recovery strategies if needed. Accountability is the key to effective subcontractor and supplier management, and it will be perfectly clear that subcontractors and suppliers will be held accountable for all aspects of their work from quality to schedule.

**Schedule Recovery:** Unexpected issues and unforeseen conditions are a possibility during the construction process. The Wagman Team includes many experienced and well-respected members in the DB field with the ability to recognize and react to any issues. We will aggressively manage the project and, if needed, mitigate any issues that affect the construction schedule. If necessary, a schedule recovery strategy will be developed, immediately implemented, and closely monitored until the schedule is recovered.

Should schedule recovery be required, Wagman has two field services centers in close proximity to this Project. We have an equipment fleet valued at over \$30 million and over 500 construction professionals. Therefore, Wagman's resources can be quickly mobilized to recover the schedule.

Wagman utilized a CPM schedule on the recently completed \$54.9M I-95 Bridge Deck Rehabilitation and Joint Modification project in Maryland. Through Partnership between the Owner, Wagman, and the Designer, minor adjustments were incorporated into the project that facilitated construction operations, maximized staff utilization, and minimized traffic impacts. The project was safely delivered within an extremely compressed schedule and was also recently recognized by *Engineering News-Record (ENR)* as **2016's Best Specialty Contracting Project in the Mid-Atlantic Region.**

Wagman and WRA also worked together on Route 54 over I-95 in Ashland, VA to replace the existing structures with new structures while maintaining traffic. Temporary excavation shoring and engineered excavations were used to safely accomplish phased bridge, drainage, and roadway embankments.



Volume I

Attachment 4.0.1.1: Technical Proposal Checklist and Contents

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**ATTACHMENT 4.0.1.1**

**Route 606 Bridge Replacement over I-95 with 606 Improvements**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

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

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

**ATTACHMENT 4.0.1.1**

**Route 606 Bridge Replacement over I-95 with 606 Improvements**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Offeror's Qualifications</b>	NA	Section 4.2		
Confirmation that the information provided in the SOQ submittal remains true and accurate or indicates that any requested changes were previously approved by VDOT	NA	Section 4.2.1	yes	2
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	3
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	2
<b>Design Concept</b>	NA	Section 4.3		
Conceptual Roadway Plans and description	NA	Section 4.3.1.1	yes	Vol. I: 6-8 Vol. II: 32-48
Conceptual Structural Plans and description	NA	Section 4.3.1.2	yes	Vol. I: 9-10 Vol. II: 49-51
<b>Project Approach</b>	NA	Section 4.4		
Environmental Management	NA	Section 4.4.1	yes	11-13
Utilities	NA	Section 4.4.2	yes	13-15
Geotechnical	NA	Section 4.4.3	yes	15-18
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.4	yes	18-25

**ATTACHMENT 4.0.1.1**

**Route 606 Bridge Replacement over I-95 with 606 Improvements**

**TECHNICAL PROPOSAL CHECKLIST AND CONTENTS**

<b>Technical Proposal Component</b>	<b>Form (if any)</b>	<b>RFP Part 1 Cross Reference</b>	<b>Included within page limit?</b>	<b>Technical Proposal Page Reference</b>
<b>Construction of Project</b>	NA	Section 4.5		
Sequence of Construction	NA	Section 4.5.1	yes	26-27
Transportation Management Plan	NA	Section 4.5.2	yes	28-30
<b>Disadvantaged Business Enterprises (DBE)</b>	NA	Section 4.6		
Written statement of percent DBE participation	NA	Section 4.6	yes	31
<b>Proposal Schedule</b>	NA	Section 4.7		
Proposal Schedule	NA	Section 4.7	no	S10-S21 (Volume II)
Proposal Schedule Narrative	NA	Section 4.7	no	S1-S9 (Volume I)
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.7	no	CD located inside Front Cover of Volume I

Attachment 3.6: Form C-78-RFP  
Acknowledgement of Receipt of RFP, Revisions, and/or Addenda

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**ATTACHMENT 3.6****COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION**

RFP NO. C00105463DB89  
 PROJECT NO.: 0606-088-653 & 0606-088-622

**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 – April 27, 2016  
(Date)
2. Cover letter of RFP Addendum #1 – June 8, 2016  
(Date)
3. Cover letter of RFP Addendum #2 – July 20, 2016  
(Date)
4. Cover letter of RFP Addendum #3 – July 27, 2016  
(Date)
5. Cover letter of RFP Addendum #4 – August 17, 2016  
(Date)



SIGNATURE

8/19/2016

DATE

David W. Lyle (Wagman Heavy Civil, Inc.)

PRINTED NAME

VP, DB/Major Pursuits

TITLE

Attachment 9.3.1: Proposal Payment Agreement

---

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

**THIS PROPOSAL PAYMENT AGREEMENT** (this “Agreement”) is made and entered into as of this \_\_\_\_ day of \_\_\_\_\_, 20\_\_, by and between the Virginia Department of Transportation (“VDOT”), and \_\_\_\_\_ (“Offeror”).

**WITNESSETH:**

**WHEREAS**, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s December 8, 2015 Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **Route 606 Bridge Replacement over I-95 with 606 Improvements, Project No. 0606-088-653 & 0606-088-622** (“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 **fourteen thousand and 00/100 Dollars (\$14,000.00)** ("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: \_\_\_\_\_

WAGMAN HEAVY CIVIL, INC.

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

Name: David W. Lyle

Title: Vice President, Design-Build / Major Pursuits

Attachment 11.8.6(a): Certification Regarding Debarment Form  
for Primary Covered Transactions

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

**Project No.: 0606-088-653 & 0606-088-622**

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

August 16, 2016  
Date

Vice President, Design-Build/Major Pursuits  
Title

Wagman Heavy Civil, Inc.  
Name of Firm

Attachments 11.8.6(b): Certification Regarding Debarment Forms  
for Lower Tier Covered Transactions

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

**Project No.: 0606-088-653 & 0606-088-622**

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

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

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



Signature

May 17, 2016

Date

President

Title

Rinker Design Associates, P.C.

Name of Firm

**ATTACHMENT NO. 11.8.6(b)**

**CERTIFICATION REGARDING DEBARMENT  
LOWER TIER COVERED TRANSACTIONS**

**Project No.: 0606-088-653 & 0606-088-622**

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 form.

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.

A handwritten signature in blue ink, appearing to read "John M. ...", is written over a horizontal line. Below the line, the word "Signature" is printed.

5/25/2016

Date

Senior Vice President

Title

Whitman, Requardt & Associates, LLP

Name of Firm

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

**Project No.: 0606-088-653 & 0606-088-622**

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.

	May 24, 2016	Vice President
Signature	Date	Title

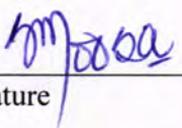
DMY Engineering Consultants Inc.  
Name of Firm

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

**Project No.: 0606-088-653 & 0606-088-622**

- 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.

	5/24/2016	Principal Engineer
Signature	Date	Title

Engineering & Materials Technologies, Inc. (E.M. Tech)  
Name of Firm

VDOT Approval Letter to Change Key Personnel

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# COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION  
1401 EAST BROAD STREET  
RICHMOND, VIRGINIA 23219 2000

**Charles A. Kilpatrick, P.E.**  
Commissioner

June 2, 2016

Mr. David Lyle  
Vice-President, Design-Build/Major Pursuits  
Wagman Heavy Civil, Inc.  
26000 Simpson Road  
North Dinwiddie, Virginia 23803

**Subject: Request to Change Key Personnel**  
Route 606 Bridge Replacement over I-95 with 606 Improvements  
Spotsylvania County, Virginia  
0606-088-653, C501 & 0606-088-622, C501 & B634  
Contract ID No: C000105463DB89

Dear Mr. Lyle,

Thank you for your team's letter, dated June 2, 2016 requesting a change in the Key Personnel for the project referenced above, and providing information regarding your request to change your team's Design-Build Project Manager. Your letter specifically mentions the proposed Design-Build Project Manager, Mr. Jorge D. Gambini is no longer an employee of Wagman Heavy Civil, Inc. (Wagman).

Based on the careful consideration of the situation presented by Wagman and in accordance with Section 11.4 of the RFP Part 1, which allows VDOT to approve a change in the Key Personnel, VDOT has determined it will grant a substitution of Mr. J. Carter Washington, P.E. for Mr. Jorge D. Gambini as the Design-Build Project Manager. Additionally, please be mindful of VDOT's expectation that the Wagman team shall remain committed to keeping the team intact as required per Part 1, Section 11.4. of the RFP.

Sincerely,

A handwritten signature in black ink that reads "Stephen D. Kindy".

Stephen D. Kindy, P.E.  
Senior Project Delivery Engineer





**Electronic Copy (.pdf)**



**VOLUME II: CONCEPTUAL PLANS**

# Route 606 Bridge Replacement over I-95 with 606 Improvements, Spotsylvania County

State Project Nos: Route 606 Roadway Improvements (0606-088-653, C501), UPC 105463  
Route 606 Bridge Replacement (606-088-622, C501, B634), UPC 100829

Federal Project Nos: Route 606 Roadway Improvements (STP-5111(272))  
Route 606 Bridge Replacement (BR-5111 (237))

Contract ID Number: C00105463DB89

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Date	August 22, 2016
Submitted to	Virginia Department of Transportation
Submitted by	Wagman Heavy Civil, Inc. 26000 Simpson Road North Dinwiddie, VA 23803
Phone	804-631-0000
Fax	804-733-6281

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wagman.com



Volume II

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	1A(1)

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

# TMP PHASE I

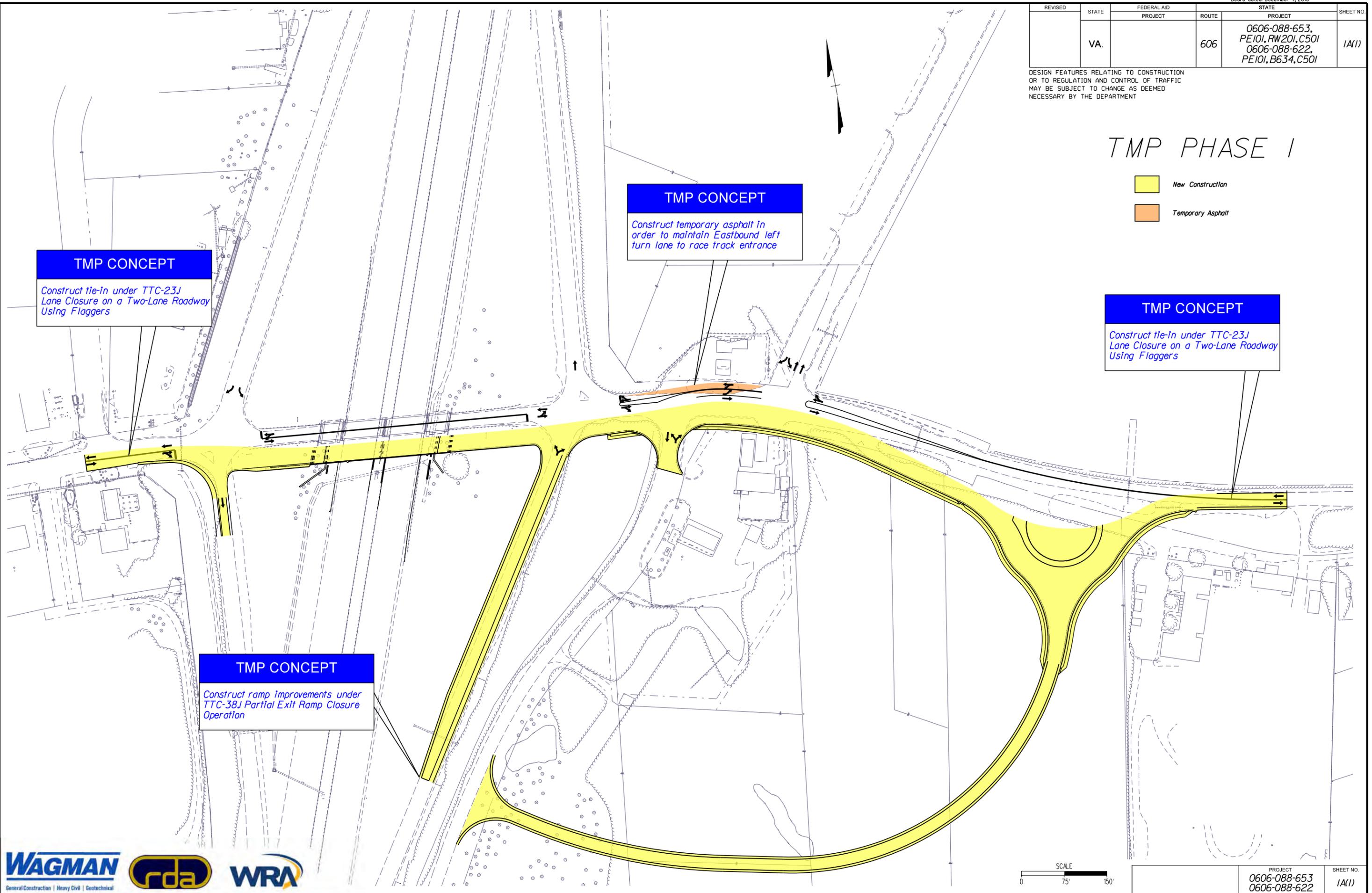
- New Construction
- Temporary Asphalt

**TMP CONCEPT**  
 Construct tie-in under TTC-23J Lane Closure on a Two-Lane Roadway Using Flaggers

**TMP CONCEPT**  
 Construct temporary asphalt in order to maintain Eastbound left turn lane to race track entrance

**TMP CONCEPT**  
 Construct tie-in under TTC-23J Lane Closure on a Two-Lane Roadway Using Flaggers

**TMP CONCEPT**  
 Construct ramp improvements under TTC-38J Partial Exit Ramp Closure Operation



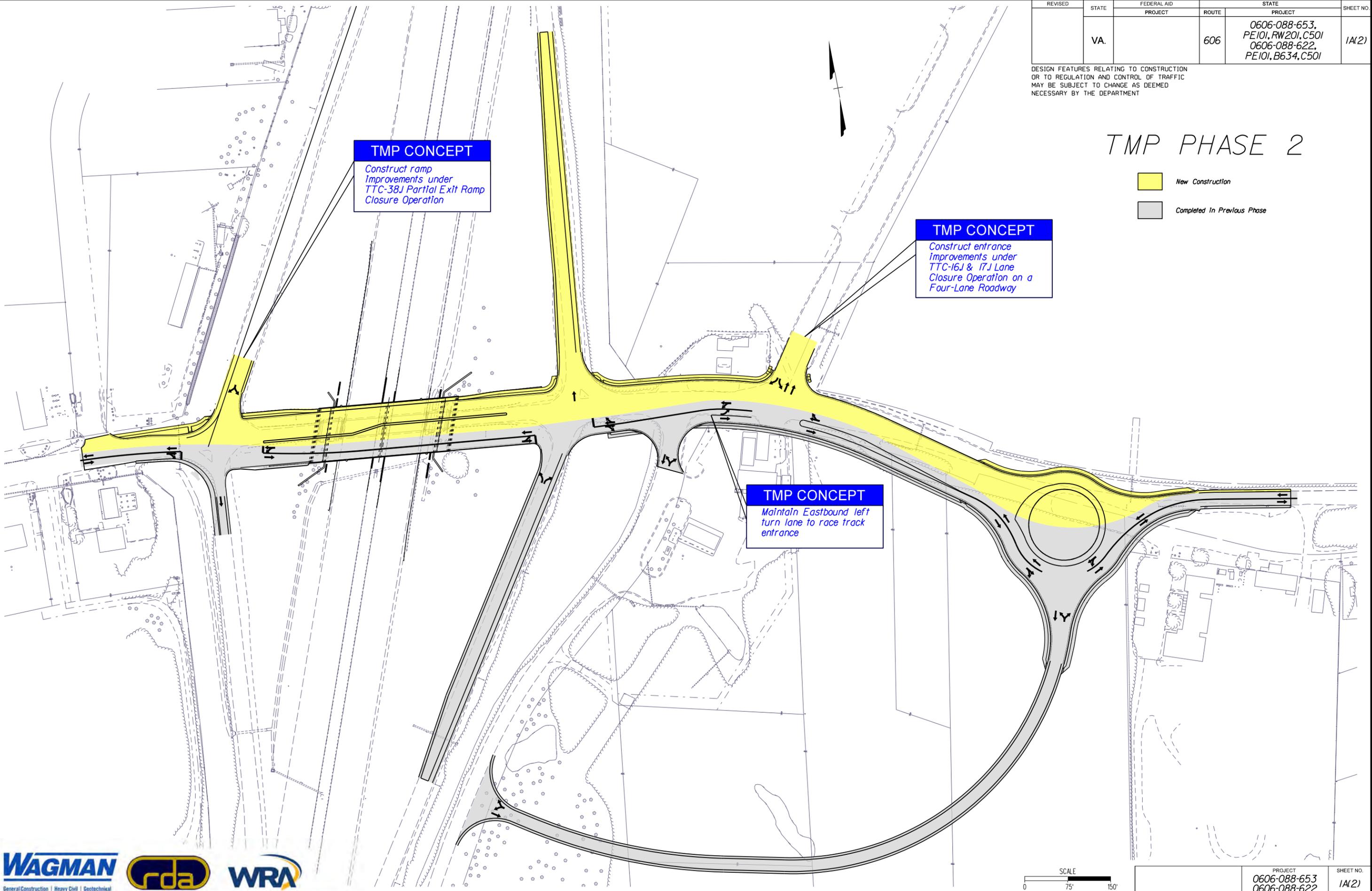
PROJECT	SHEET NO.
0606-088-653 0606-088-622	1A(1)

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	1A(2)

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

# TMP PHASE 2

- New Construction
- Completed in Previous Phase



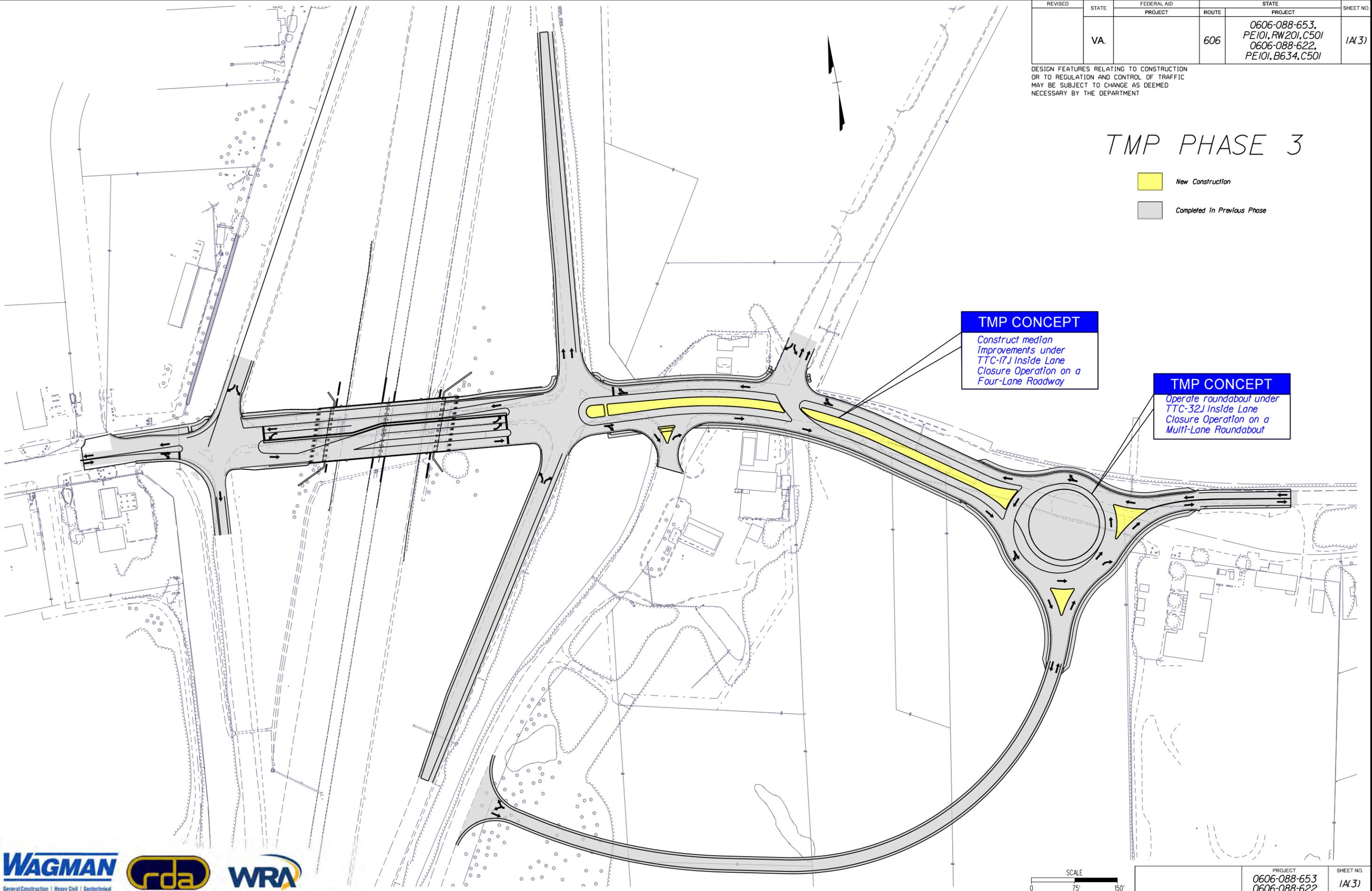
PROJECT	SHEET NO.
0606-088-653 0606-088-622	1A(2)

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	1A(3)

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

# TMP PHASE 3

- New Construction
- Completed in Previous Phase



**TMP CONCEPT**  
 Construct median  
 Improvements under  
 TTC-17.J Inside Lane  
 Closure Operation on a  
 Four-Lane Roadway

**TMP CONCEPT**  
 Operate roundabout under  
 TTC-32.J Inside Lane  
 Closure Operation on a  
 Multi-Lane Roundabout



PROJECT	SHEET NO.
0606-088-653 0606-088-622	1A(3)

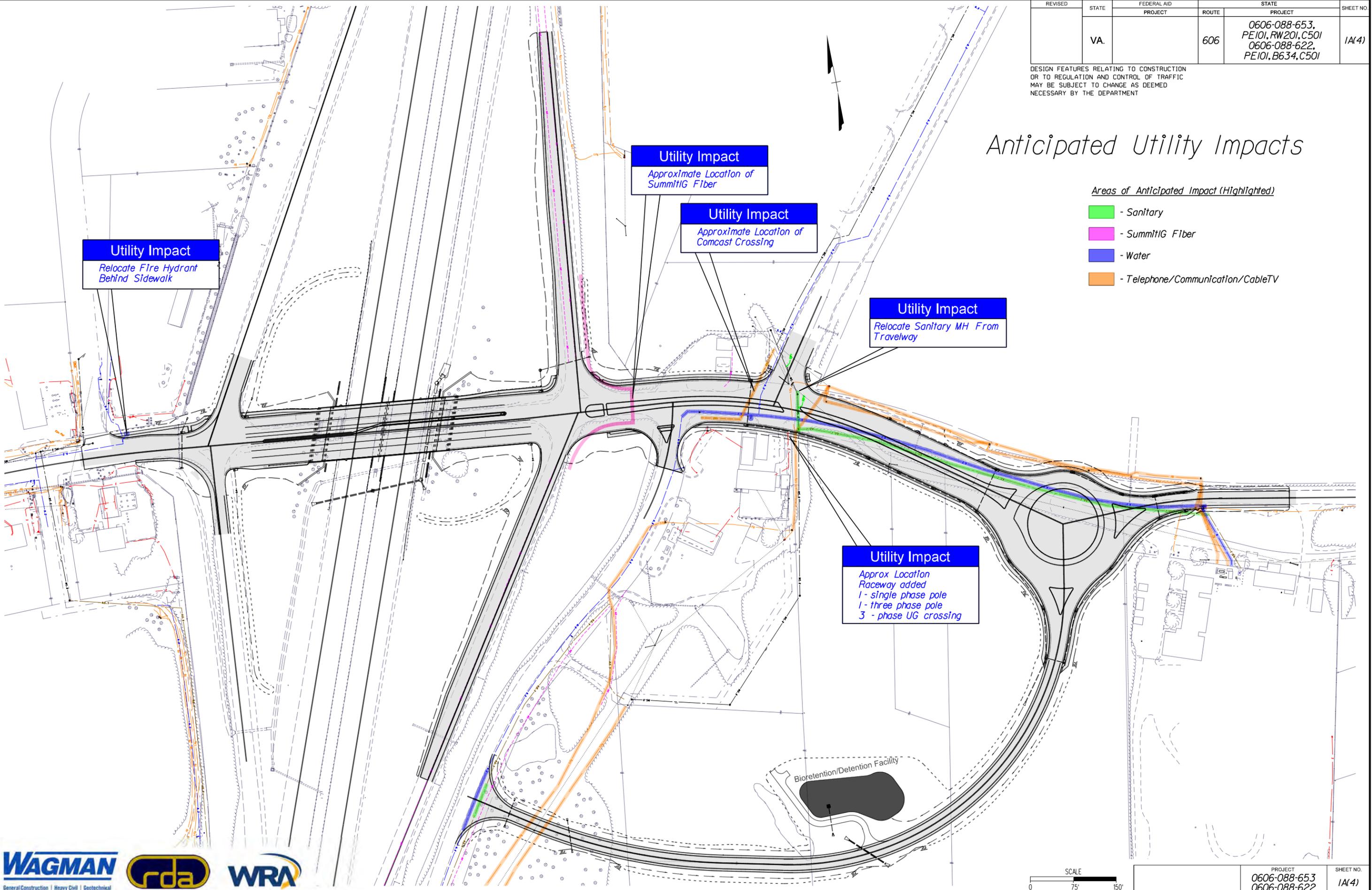
REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	1A(4)

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

# Anticipated Utility Impacts

### Areas of Anticipated Impact (Highlighted)

- █ - Sanitary
- █ - SummitIG Fiber
- █ - Water
- █ - Telephone/Communication/CableTV



PROJECT	SHEET NO.
0606-088-653 0606-088-622	1A(4)

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	2A(1)

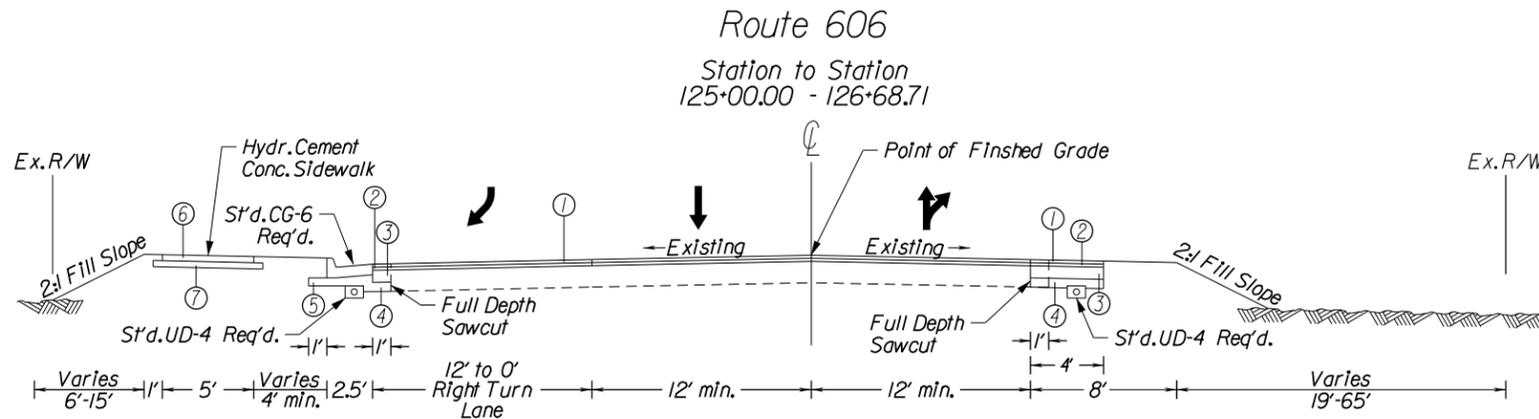
# TYPICAL SECTIONS

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

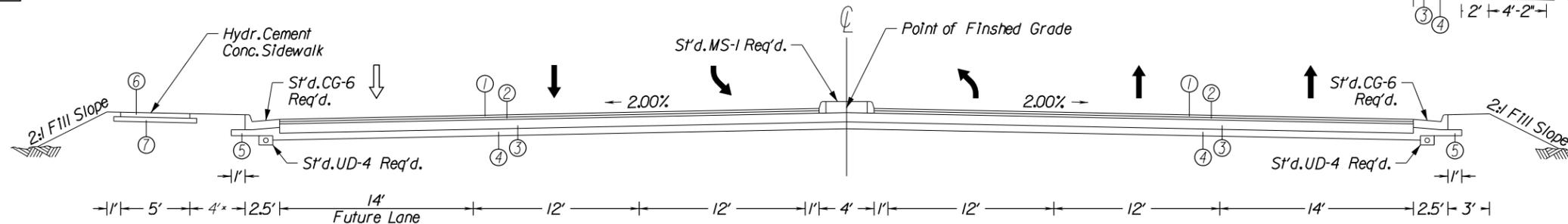
Note:  
An additional 3' shoulder in guardrail areas

### PAVEMENT DESIGN

- ① Surface: Asphalt Concrete Type, SM-12.5D @ 220 lbs per sq.yd.
- ② Intermediate: Asphalt Concrete Type, IM-19.0D @ 220 lbs per sq.yd.
- ③ Base: 8" Asphalt Concrete Type, BM-25.0A
- ④ Subbase: 6" Aggregate Base Material, Type I, Size No. 21B to be extended and day lighted for ramp widening only. Route 606 subbase layer to be tied to UD-4
- ⑤ Variable Depth Aggregate Base Material Type I, No. 21B (Under Curb & Gutter)
- ⑥ 4" Hydraulic Cement Concrete, Class A3
- ⑦ 4" Aggregate Base Material, Type I, 21B Extended 6" passed edges of sidewalk

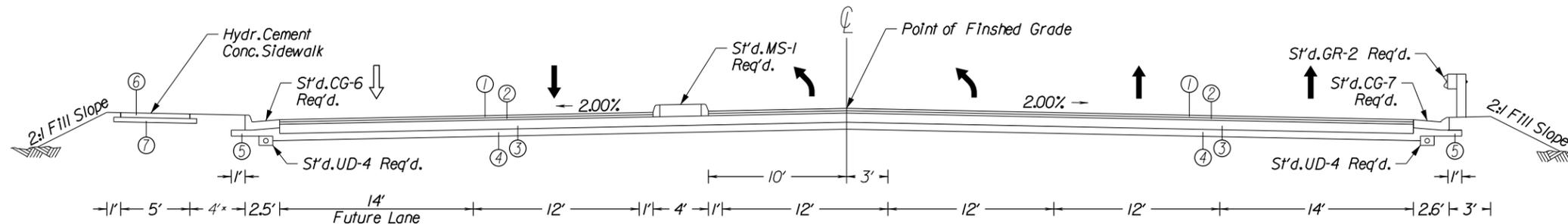


Route 606  
Station to Station  
127+50.00 - 130+00.00



\* Varies to 4' - 0' on Approach to Bridge (See Approved Design Waiver)

Route 606  
Station to Station  
130+00.00 - 133+50.00



\* Varies to 0' - 4' on Approach to Bridge (See Approved Design Waiver)

**DESIGN CONCEPT**  
Typical Curb Offset Layout For A Tangent Guardrail Terminal (RDM 1-22 Figure I-3-3)

**DESIGN CONCEPT**  
Added Stone Beyond Sidewalk Width for Conductibility

Not to Scale



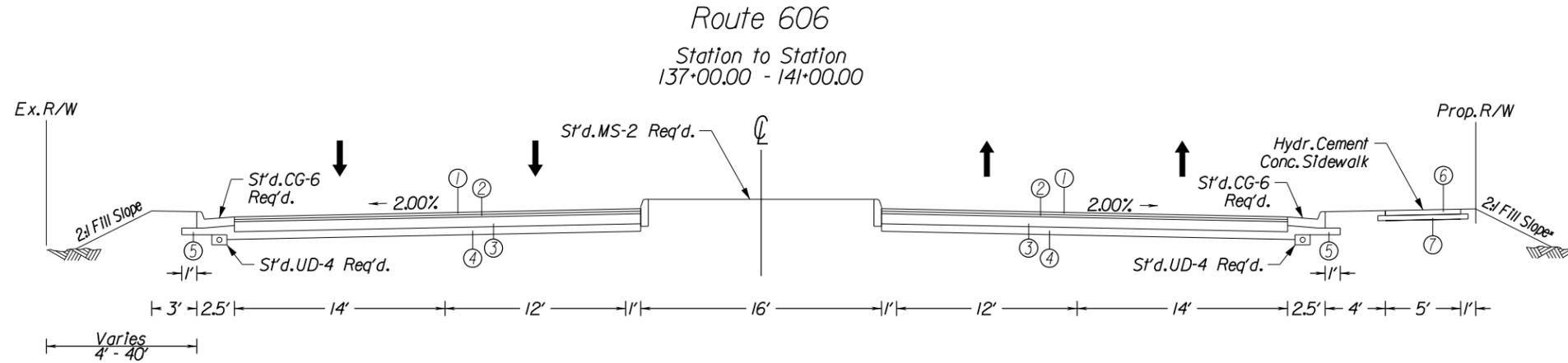
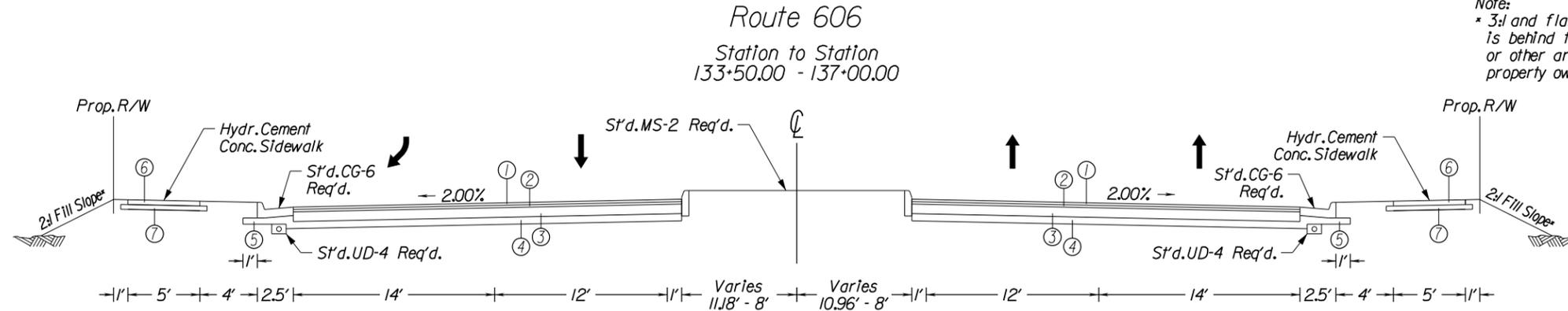
PROJECT	SHEET NO.
0606-088-653 0606-088-622	2A(1)

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	2A(2)

# TYPICAL SECTIONS

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

**Note:**  
\* 3:l and flatter slopes will be used when right-of-way is behind the sidewalk (or sidewalk space) in residential or other areas where the slope will be maintained by the property owner.

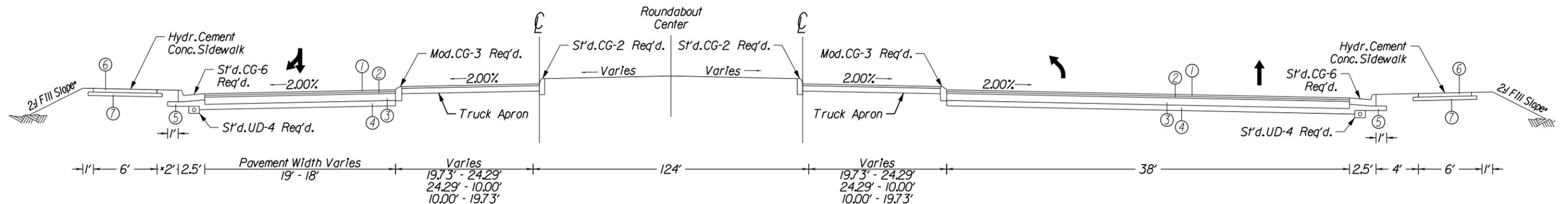


- PAVEMENT DESIGN**
- ① Surface: Asphalt Concrete Type, SM-12.5D @ 220 lbs per sq.yd.
  - ② Intermediate: Asphalt Concrete Type, IM-19.0D @ 220 lbs per sq.yd.
  - ③ Base: 8" Asphalt Concrete Type, BM-25.0A
  - ④ Subbase: 6" Aggregate Base Material, Type 1, Size No. 21B to be extended and daylighted for ramp widening only. Route 606 subbase layer to be tied to UD-4
  - ⑤ Variable Depth Aggregate Base Material Type 1, No. 21B (Under Curb & Gutter)
  - ⑥ 4" Hydraulic Cement Concrete, Class A3
  - ⑦ 4" Aggregate Base Material, Type 1, 21B Extended 6" passed edges of sidewalk

**DESIGN CONCEPT**

Added Stone Beyond Sidewalk Width for Conductibility

## Roundabout



**Note:**  
\* Station 2+64J3 to 3+61J4  
Buffer space on right of roundabout reduced to 2' to avoid impacts on adjacent property. See Approved Design Waiver

Not to Scale



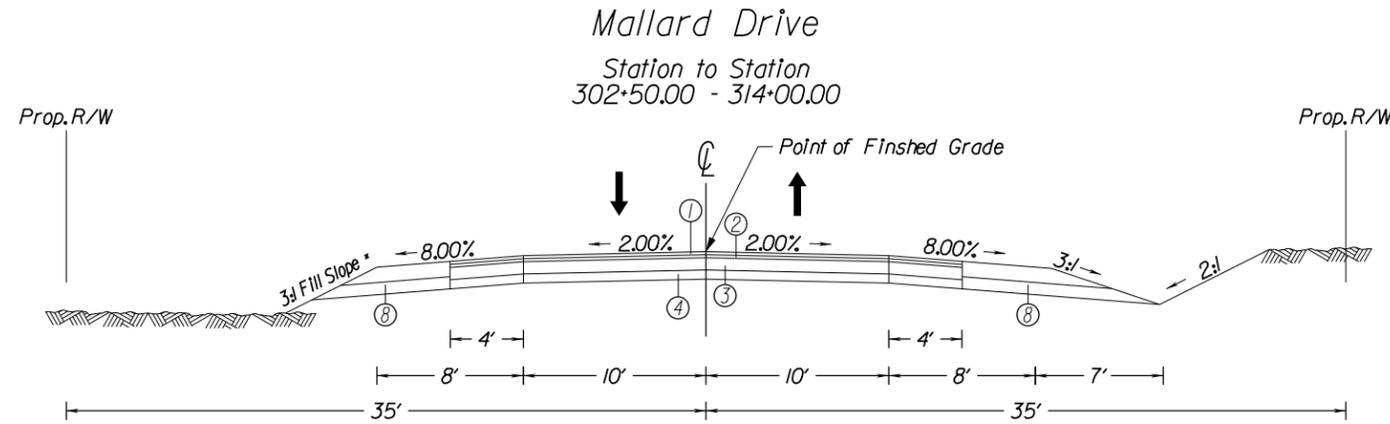
PROJECT	SHEET NO.
0606-088-653 0606-088-622	2A(2)

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	2A(3)

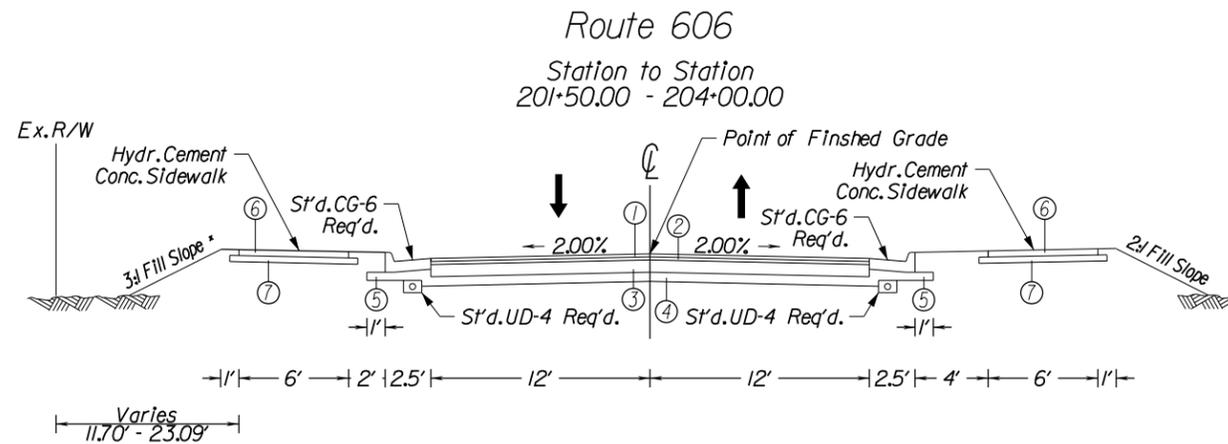
# TYPICAL SECTIONS

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

**Note:**  
\* 3:1 and flatter slopes will be used when right-of-way is behind the sidewalk (or sidewalk space) in residential or other areas where the slope will be maintained by the property owner.



- PAVEMENT DESIGN**
- ① Surface: Asphalt Concrete Type, SM-12.5D @ 220 lbs per sq.yd.
  - ② Intermediate: Asphalt Concrete Type, IM-19.0D @ 220 lbs per sq.yd.
  - ③ Base: 8" Asphalt Concrete Type, BM-25.0A
  - ④ Subbase: 6" Aggregate Base Material, Type 1, Size No. 21B to be extended and day lighted for ramp widening only. Route 606 subbase layer to be tied to UD-4
  - ⑤ Variable Depth Aggregate Base Material Type 1, No. 21B (Under Curb & Gutter)
  - ⑥ 4" Hydraulic Cement Concrete, Class A3
  - ⑦ 4" Aggregate Base Material, Type 1, 21B Extended 6" passed edges of sidewalk
  - ⑧ 8" Aggregate Base Materials, Type 1, 21B



Not to Scale



PROJECT	SHEET NO.
0606-088-653 0606-088-622	2A(3)

# TYPICAL SECTIONS

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	2A(4)

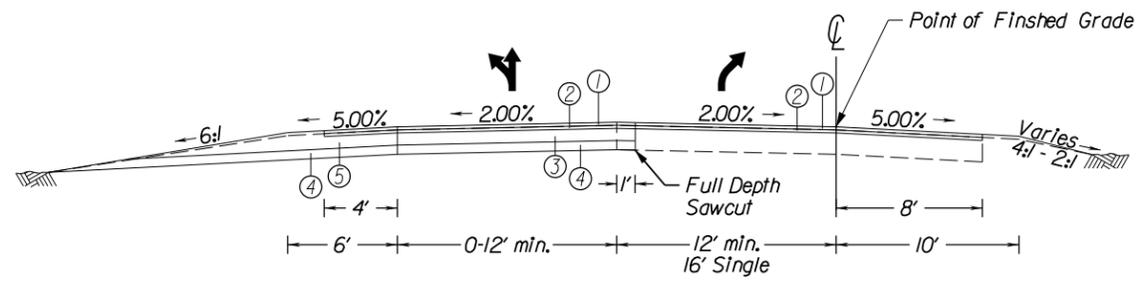
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

### PAVEMENT DESIGN

- ① Surface: Asphalt Concrete Type, SM-12.5D @ 220 lbs per sq.yd.
- ② Intermediate: Asphalt Concrete Type, IM-19.0D @ 220 lbs per sq.yd.
- ③ Base: 8" Asphalt Concrete Type, BM-25.0A
- ④ Subbase: 6" Aggregate Base Material, Type I, Size No. 21B to be extended and day lighted for ramp widening only, Route 606 subbase layer to be tited to UD-4
- ⑤ Base: 8" Aggregate Base Material, Type I, Size No. 21B

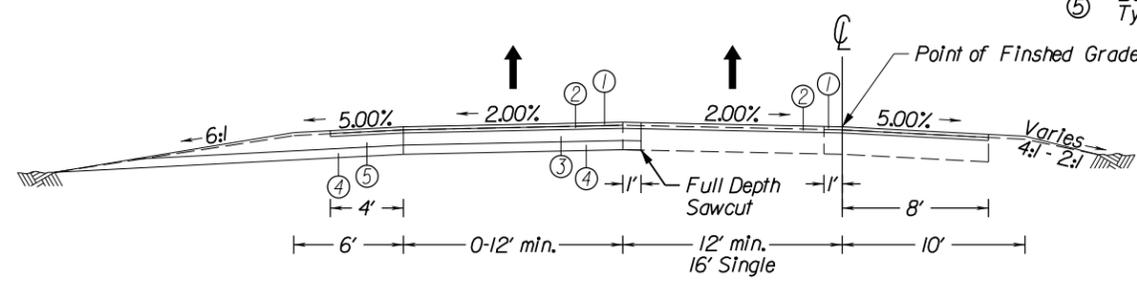
### Ramp A - I-95 NB Exit Ramp

Station to Station  
22+67.87 - 29+09.38



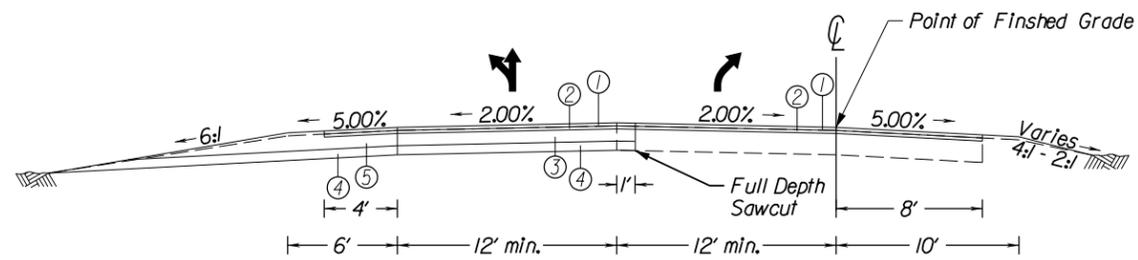
### Ramp B - I-95 NB Entrance Ramp

Station to Station  
21+39.73 - 15+18.28



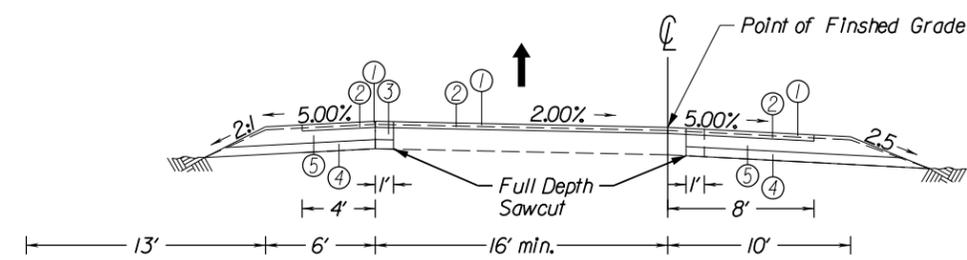
### Ramp C - I-95 SB Exit Ramp

Station to Station  
21+00.66 - 22+15.88



### Ramp D - I-95 SB Entrance Ramp

Station to Station  
15+59.81 - 16+79.23



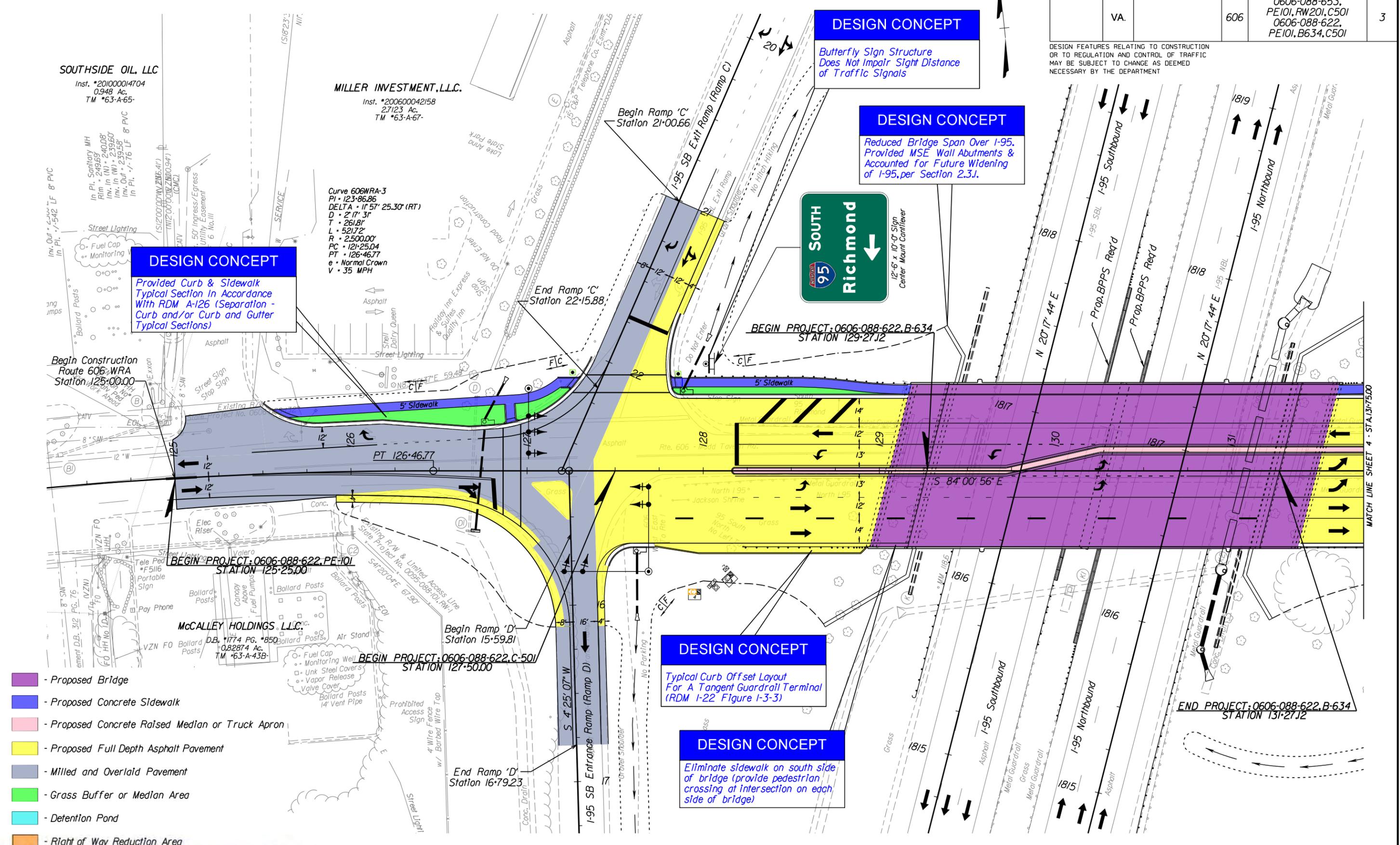
Not to Scale



PROJECT	SHEET NO.
0606-088-653 0606-088-622	2A(4)

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	3

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



**DESIGN CONCEPT**  
 Provided Curb & Sidewalk Typical Section In Accordance With RDM A-126 (Separation - Curb and/or Curb and Gutter Typical Sections)

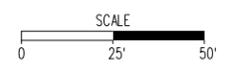
**DESIGN CONCEPT**  
 Butterfly Sign Structure Does Not Impair Sight Distance of Traffic Signals

**DESIGN CONCEPT**  
 Reduced Bridge Span Over I-95. Provided MSE Wall Abutments & Accounted for Future Widening of I-95, per Section 2.3.1.

**DESIGN CONCEPT**  
 Typical Curb Offset Layout For A Tangent Guardrail Terminal (RDM I-22 Figure I-3-3)

**DESIGN CONCEPT**  
 Eliminate sidewalk on south side of bridge (provide pedestrian crossing at intersection on each side of bridge)

- Proposed Bridge
- Proposed Concrete Sidewalk
- Proposed Concrete Raised Median or Truck Apron
- Proposed Full Depth Asphalt Pavement
- Milled and Overlaid Pavement
- Grass Buffer or Median Area
- Detention Pond
- Right of Way Reduction Area

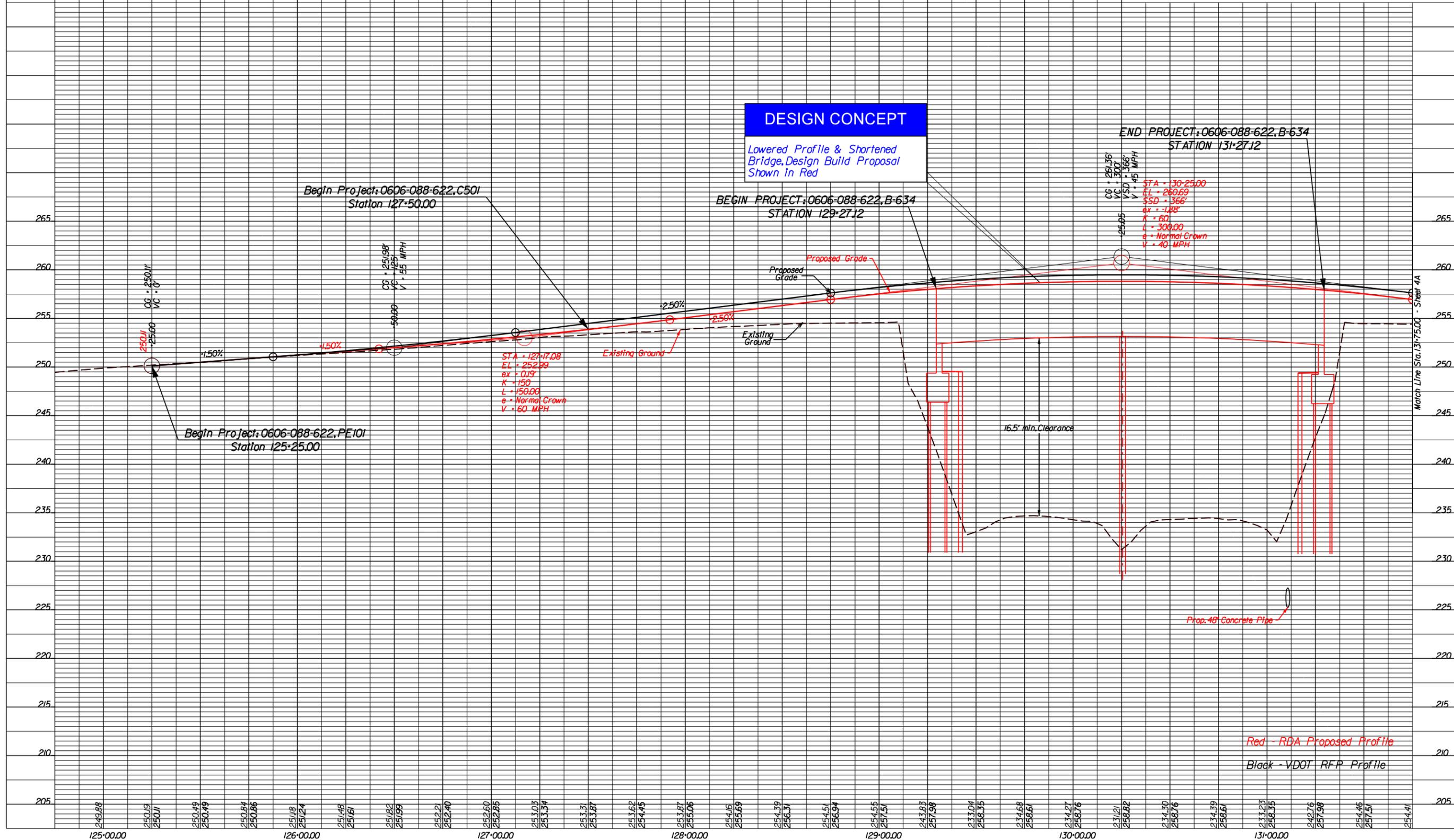


PROJECT	SHEET NO.
0606-088-653 0606-088-622	3

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	3A

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

### Route 606 WRA Sta. 124+75.00 to 131+75.00



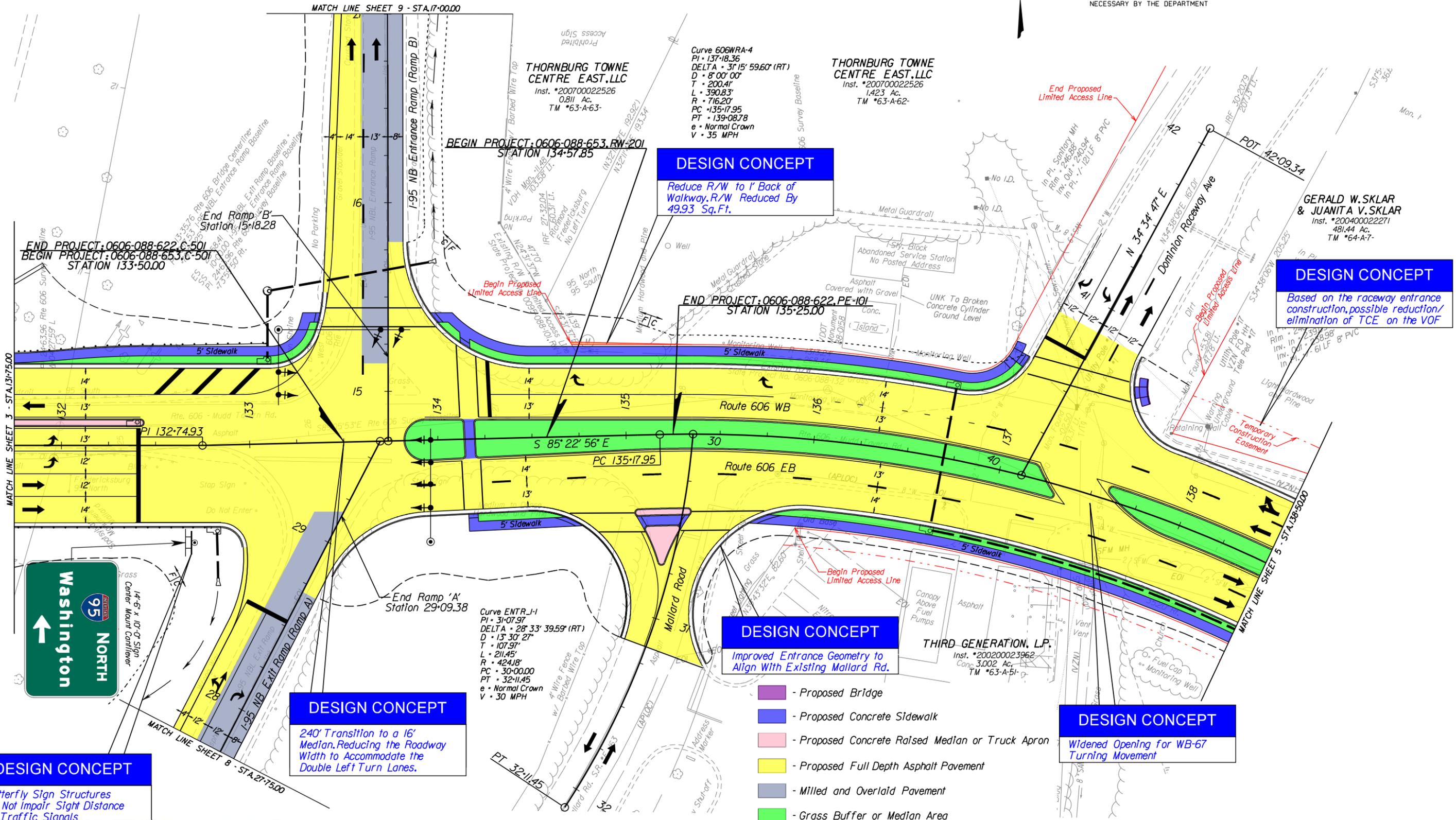
1"=5' Vert.  
Scale 1"=25' Horz.

PROJECT  
0606-088-653  
0606-088-622

SHEET NO.  
3A

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	4

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



**DESIGN CONCEPT**  
Improved Entrance Geometry to Align With Existing Mallard Rd.

- Proposed Bridge
- Proposed Concrete Sidewalk
- Proposed Concrete Raised Median or Truck Apron
- Proposed Full Depth Asphalt Pavement
- Milled and Overlaid Pavement
- Grass Buffer or Median Area
- Detention Pond
- Right of Way Reduction Area

**DESIGN CONCEPT**  
Widened Opening for WB-67 Turning Movement

**DESIGN CONCEPT**  
240' Transition to a 16' Median. Reducing the Roadway Width to Accommodate the Double Left Turn Lanes.

**DESIGN CONCEPT**  
Butterfly Sign Structures Do Not Impair Sight Distance of Traffic Signals



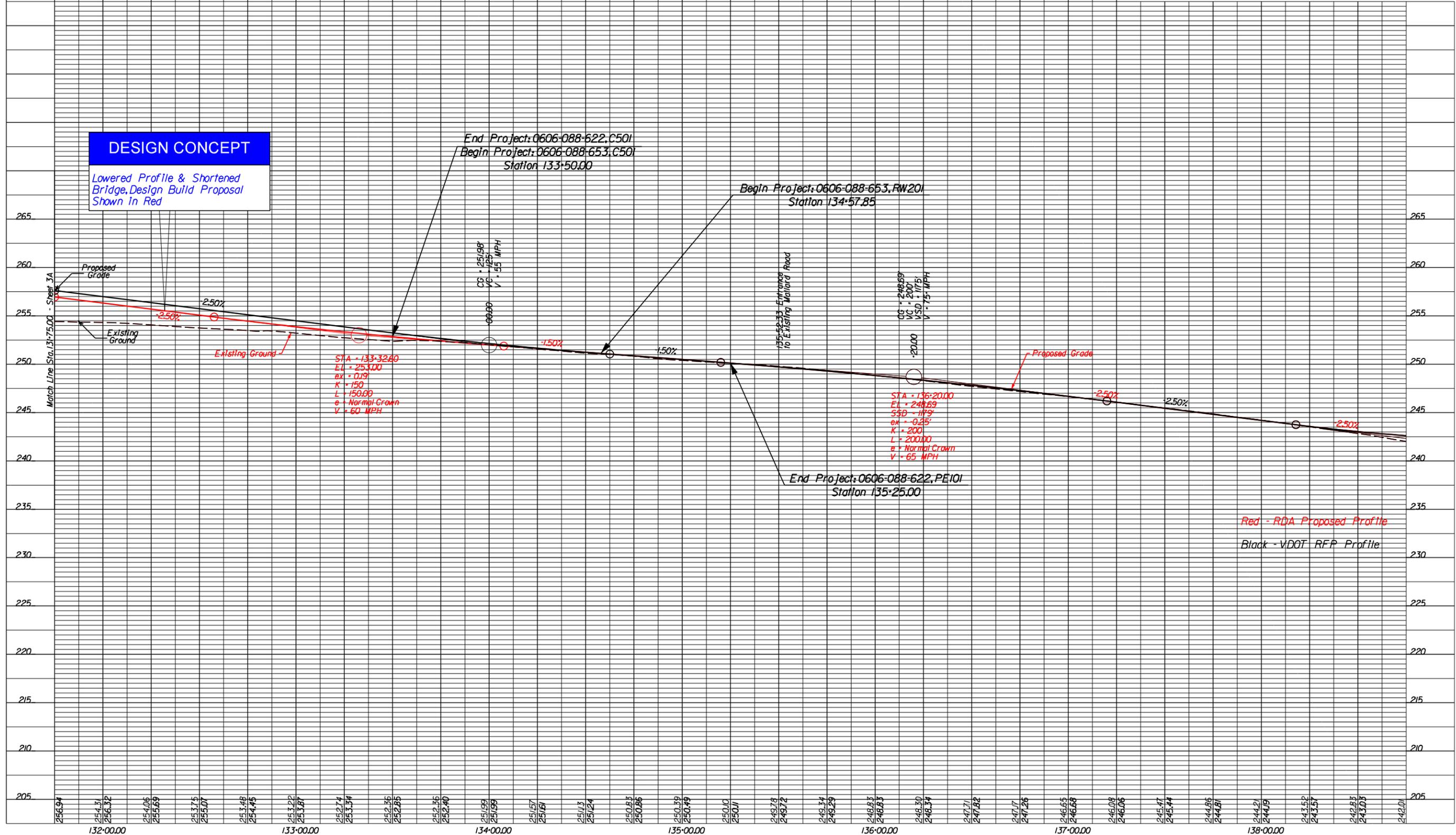
PROJECT	SHEET NO.
0606-088-653 0606-088-622	4

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE10I, RW20I, C50I 0606-088-622, PE10I, B634, C50I	4A

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

### Route 606 WRA Sta. 131+75.00 to 138+75.00

**DESIGN CONCEPT**  
Lowered Profile & Shortened Bridge, Design Build Proposal Shown In Red



1"=5' Vert.  
Scale 1"=25' Horz.

PROJECT  
0606-088-653  
0606-088-622

SHEET NO.  
4A

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

**DESIGN CONCEPT**

Based on the raceway entrance construction, possible reduction/elimination of TCE on the VOF

GERALD W. SKLAR & JUANITA V. SKLAR  
 Inst. #200400022271  
 481.44 Ac.  
 TM \*64-A-7-

**DESIGN CONCEPT**

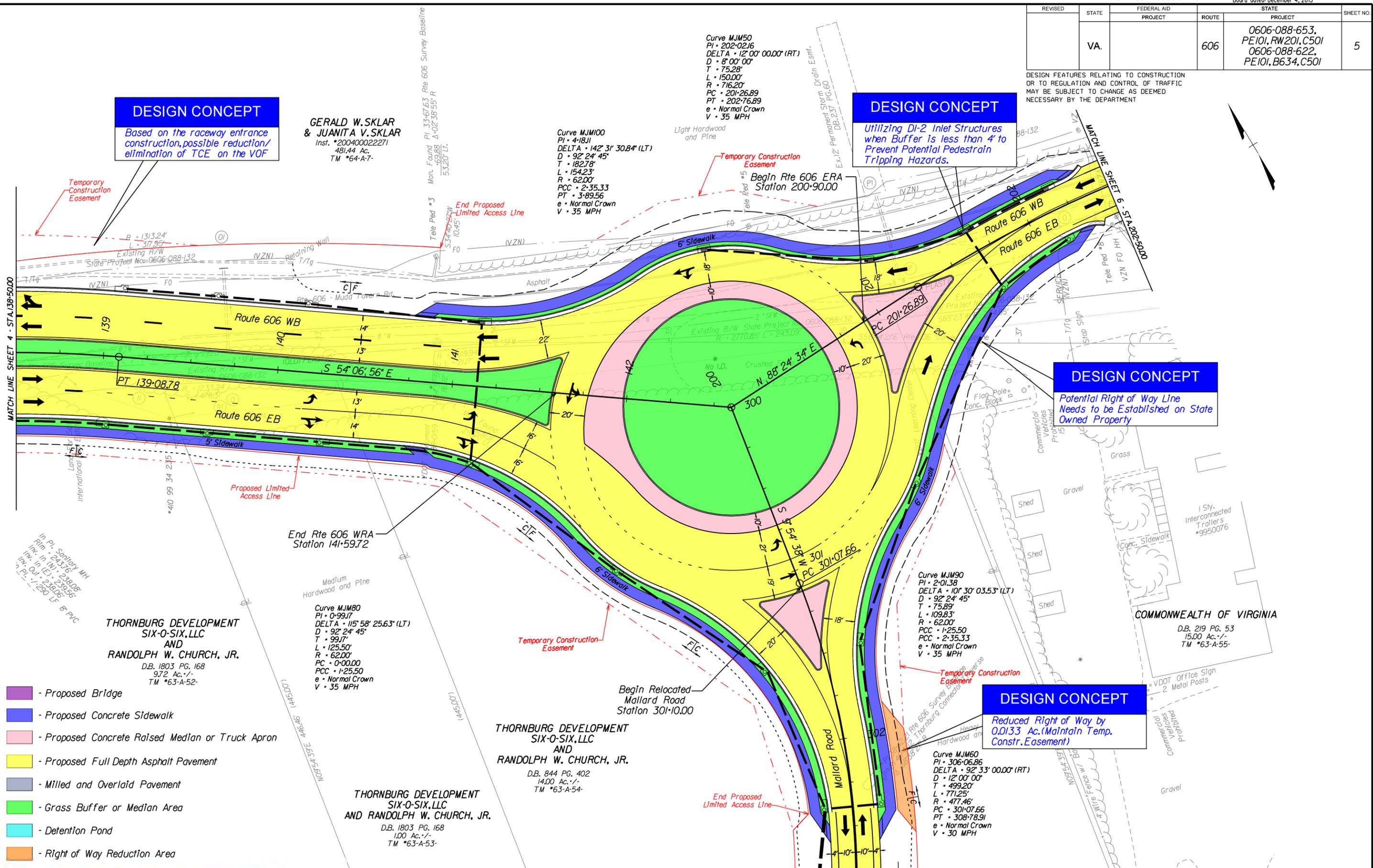
Utilizing DI-2 Inlet Structures when Buffer is less than 4' to Prevent Potential Pedestrian Tripping Hazards.

**DESIGN CONCEPT**

Potential Right of Way Line Needs to be Established on State Owned Property

**DESIGN CONCEPT**

Reduced Right of Way by 0.0133 Ac. (Maintain Temp. Constr. Easement)



MATCH LINE SHEET 4 - STA. 138+50.00



COMMONWEALTH OF VIRGINIA

D.B. 219 PG. 53  
 15.00 Ac. +/-  
 TM \*63-A-55-



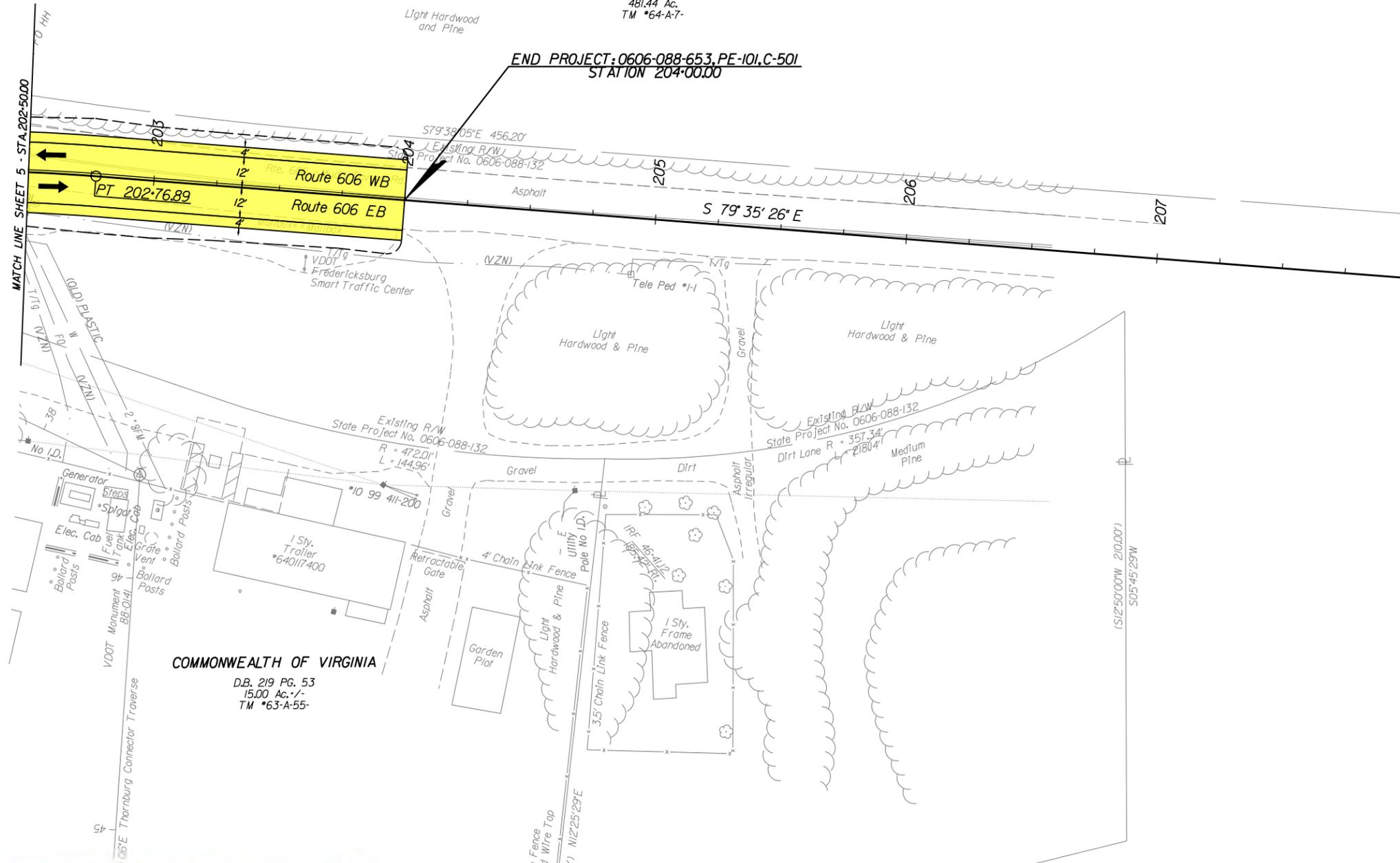
PROJECT	SHEET NO.
0606-088-653 0606-088-622	5

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	6

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

**GERALD W. SKLAR  
& JUANITA V. SKLAR**  
Inst. #200400022271  
481.44 Ac.  
TM #64-A7-

**END PROJECT: 0606-088-653, PE-101, C-501  
STATION 204+00.00**



- Proposed Bridge
- Proposed Concrete Sidewalk
- Proposed Concrete Raised Median or Truck Apron
- Proposed Full Depth Asphalt Pavement
- Milled and Overlaid Pavement
- Grass Buffer or Median Area
- Detention Pond
- Right of Way Reduction Area

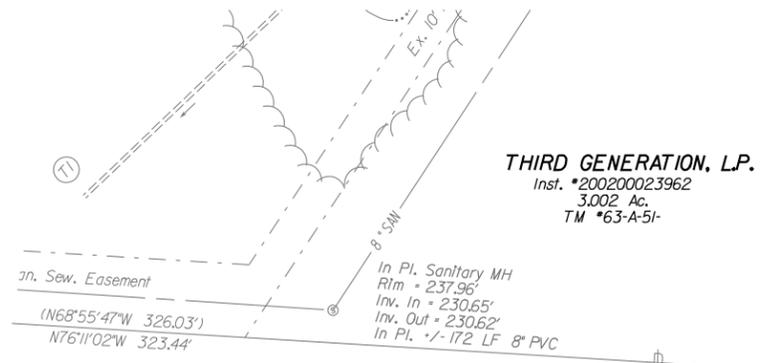
COMMONWEALTH OF VIRGINIA  
D.B. 219 PG. 53  
15.00 Ac. +/-  
TM #63-A-55-



PROJECT 0606-088-653 0606-088-622	SHEET NO. 6
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REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	7

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



**THIRD GENERATION, L.P.**  
Inst. \*200200023962  
3.002 Ac.  
TM \*63-A-51-

Medium  
Hardwood and Pine  
w/ Thickets and Deadfalls

**THORNBURG DEVELOPMENT  
SIX-O-SIX, LLC  
AND  
RANDOLPH W. CHURCH, JR.**  
D.B. 1803 PG. 168  
1.00 Ac. +/-  
TM \*63-A-53-

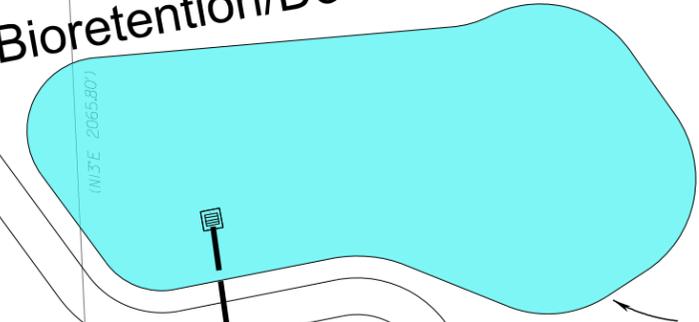
**THORNBURG DEVELOPMENT  
SIX-O-SIX, LLC  
AND  
RANDOLPH W. CHURCH, JR.**  
D.B. 1803 PG. 168  
1.00 Ac. +/-  
TM \*63-A-53-

**DESIGN CONCEPT**  
Reduced Right of Way by  
0.2299 Ac.

**THORNBURG DEVELOPMENT SIX-O-SIX, LLC  
AND  
RANDOLPH W. CHURCH, JR.**  
Inst. \*201000021785, 2 Ac. +/-  
TM \*63-A-50

**DESIGN CONCEPT**  
Reduced Right of Way by  
0.3229 Ac.

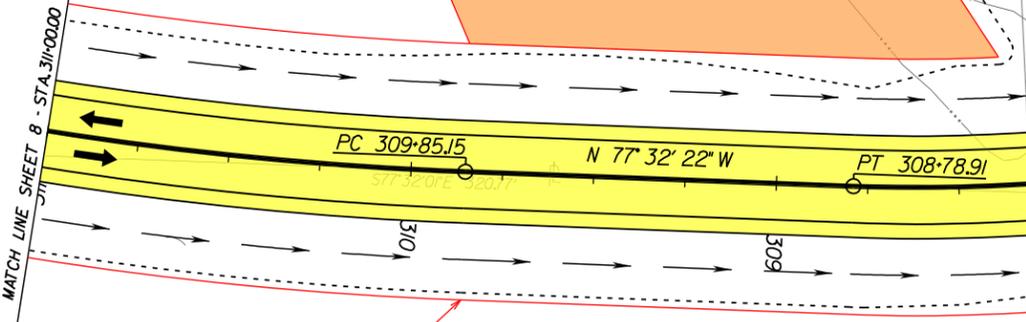
**Bioretention/Detention Facility**



Curve MJM70  
PI = 311+62.13  
DELTA = 27° 00' 00.00" (RT)  
D = 6' 00' 00"  
T = 176.99'  
L = 350.00'  
R = 954.93'  
PC = 309+85.15  
PT = 313+35.15  
e = Normal Crown  
V = 30 MPH

Curve MJM60  
PI = 306+06.86  
DELTA = 92° 33' 00.00" (RT)  
D = 12' 00' 00"  
T = 499.20'  
L = 771.25'  
R = 477.46'  
PC = 301+07.66  
PT = 308+78.91  
e = Normal Crown  
V = 30 MPH

**THORNBURG DEVELOPMENT  
SIX-O-SIX, LLC  
AND  
RANDOLPH W. CHURCH, JR.**  
D.B. 844 PG. 402  
14.00 Ac. +/-  
TM \*63-A-54-



**THORNBURG DEVELOPMENT  
SIX-O-SIX, LLC  
AND  
RANDOLPH W. CHURCH, JR.**  
D.B. 844 PG. 402  
2.00 Ac.  
TM \*63-A-45B

- Proposed Bridge
- Proposed Concrete Sidewalk
- Proposed Concrete Raised Median or Truck Apron
- Proposed Full Depth Asphalt Pavement
- Milled and Overlaid Pavement
- Grass Buffer or Median Area
- Detention Pond
- Right of Way Reduction Area

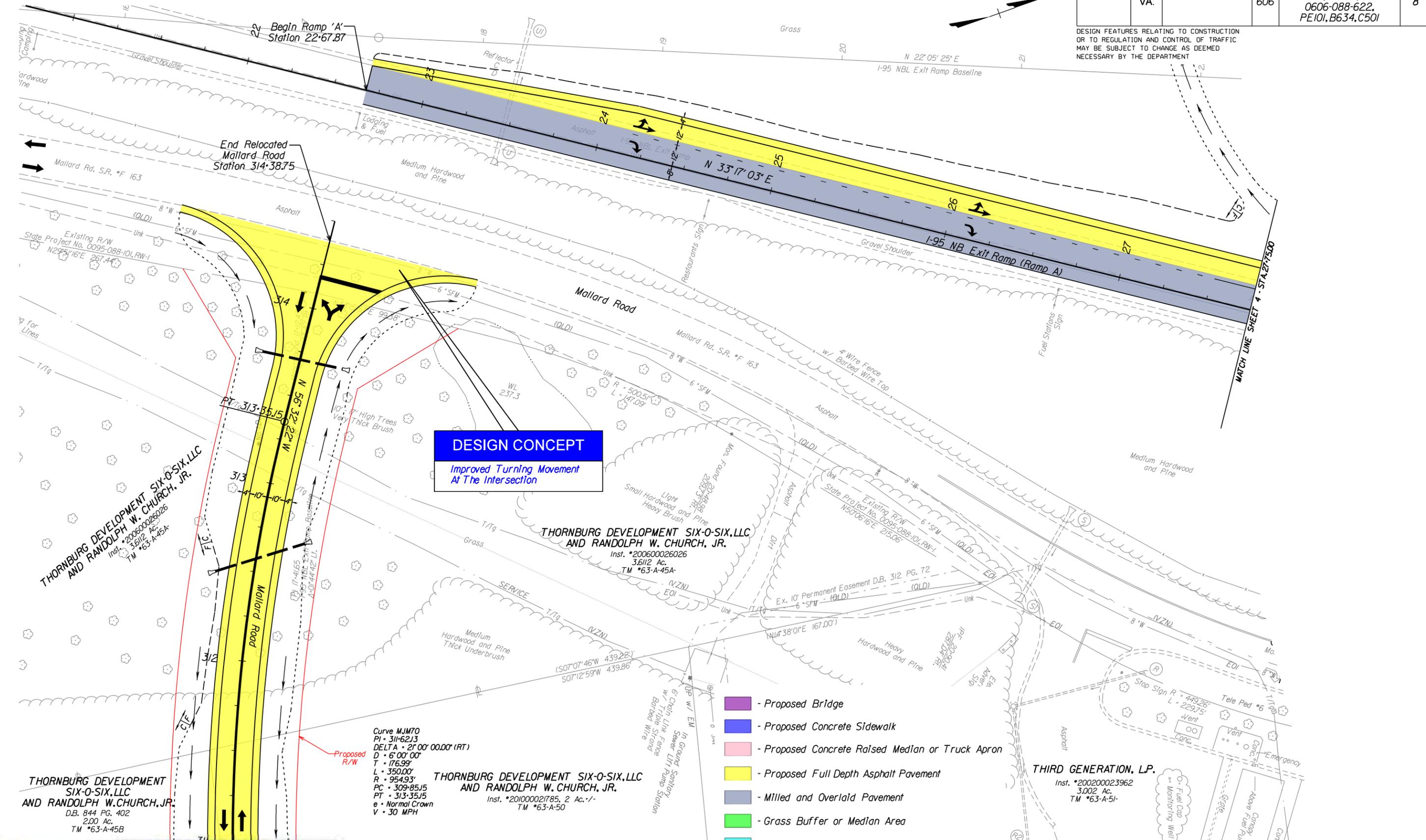


PROJECT	SHEET NO.
0606-088-653 0606-088-622	7



REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	8

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



**DESIGN CONCEPT**  
Improved Turning Movement  
At The Intersection

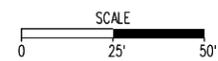
- Proposed Bridge
- Proposed Concrete Sidewalk
- Proposed Concrete Raised Median or Truck Apron
- Proposed Full Depth Asphalt Pavement
- Milled and Overlaid Pavement
- Grass Buffer or Median Area
- Detention Pond
- Right of Way Reduction Area

Curve MJM70  
 PI = 311+62.13  
 DELTA = 21° 00' 00.00" (RT)  
 D = 6' 00' 00"  
 T = 176.99'  
 L = 350.00'  
 R = 954.93'  
 PC = 309+85.15  
 PT = 313+35.15  
 e = Normal Crown  
 V = 30 MPH

THORNBURG DEVELOPMENT SIX-O-SIX, LLC  
 AND RANDOLPH W. CHURCH, JR.  
 Inst. \*201000021785, 2 Ac. +/-  
 TM \*63-A-50

THORNBURG DEVELOPMENT SIX-O-SIX, LLC  
 AND RANDOLPH W. CHURCH, JR.  
 D.B. 844 PG. 402  
 2.00 Ac.  
 TM \*63-A-45B

THIRD GENERATION, L.P.  
 Inst. \*200200023962  
 3.002 Ac.  
 TM \*63-A-51

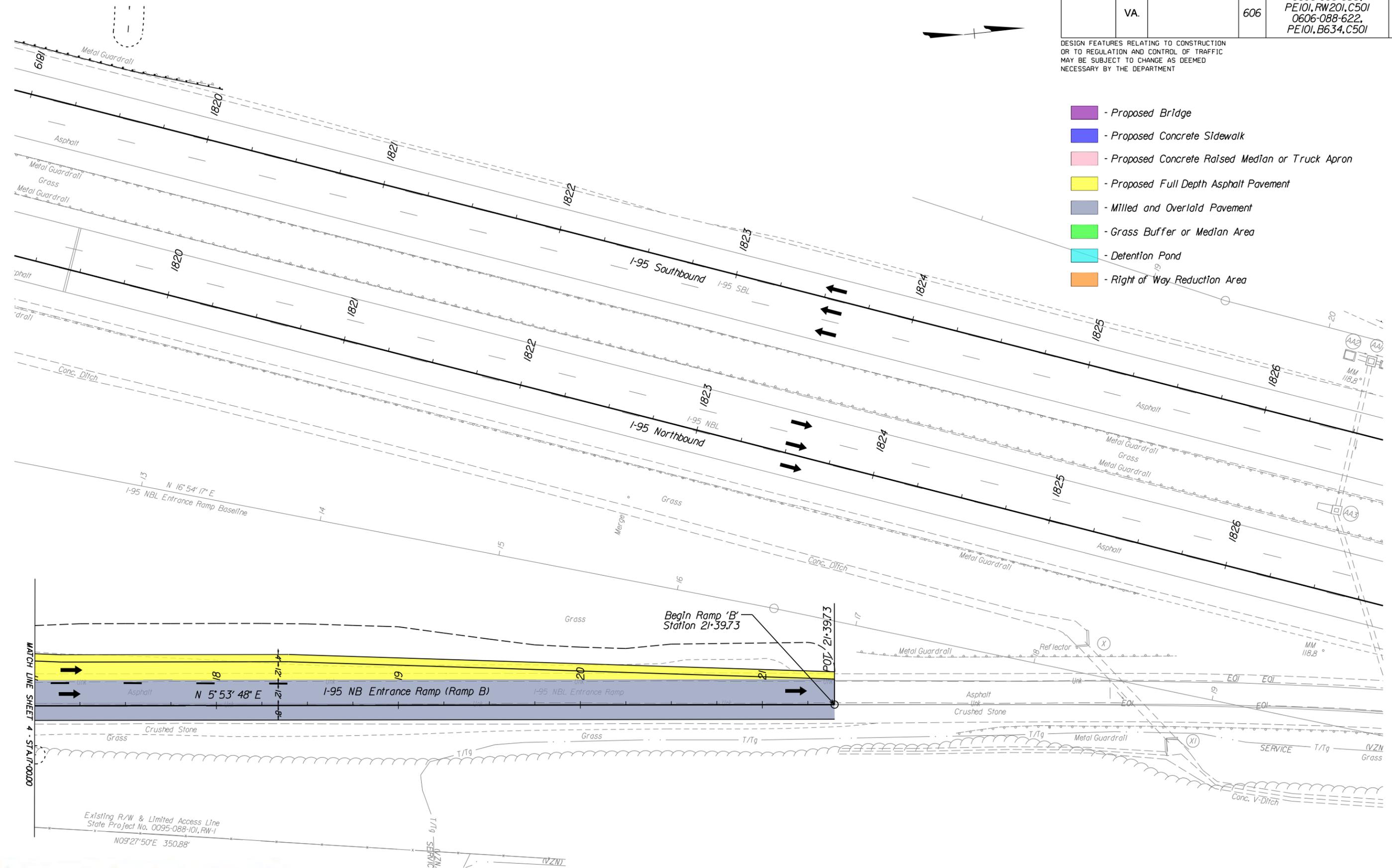


PROJECT	SHEET NO.
0606-088-653 0606-088-622	8

REVISED	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	VA.		606	0606-088-653, PE101, RW201, C501 0606-088-622, PE101, B634, C501	9

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

- Proposed Bridge
- Proposed Concrete Sidewalk
- Proposed Concrete Raised Median or Truck Apron
- Proposed Full Depth Asphalt Pavement
- Milled and Overlaid Pavement
- Grass Buffer or Median Area
- Detention Pond
- Right of Way Reduction Area



PROJECT	0606-088-653 0606-088-622	SHEET NO.	9
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Volume II

STATE	FEDERAL AID	STATE	SHEET NO.
ROUTE	PROJECT	ROUTE	PROJECT
VA.	BR-5111(237)	606	0606-088-622, B634
NBIS Number:	00000000029885	UPC No.	100829
Federal Oversight Code:	NFO	FHWA Construction and Scour Code:	

**DESIGN EXCEPTION(S):**

None

**GENERAL NOTES:**

Width: 6'-0" sidewalk, 41'-0" and varies roadway, 4'-0" median, 41'-0" and varies roadway. Overall width 92'-0" face-to-face of rails.

Span layout: 100'-0" - 100'-0" prestressed concrete bulb-T spans continuous for live load.

Capacity: HL-93 loading.

**Specifications:**

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2007.

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

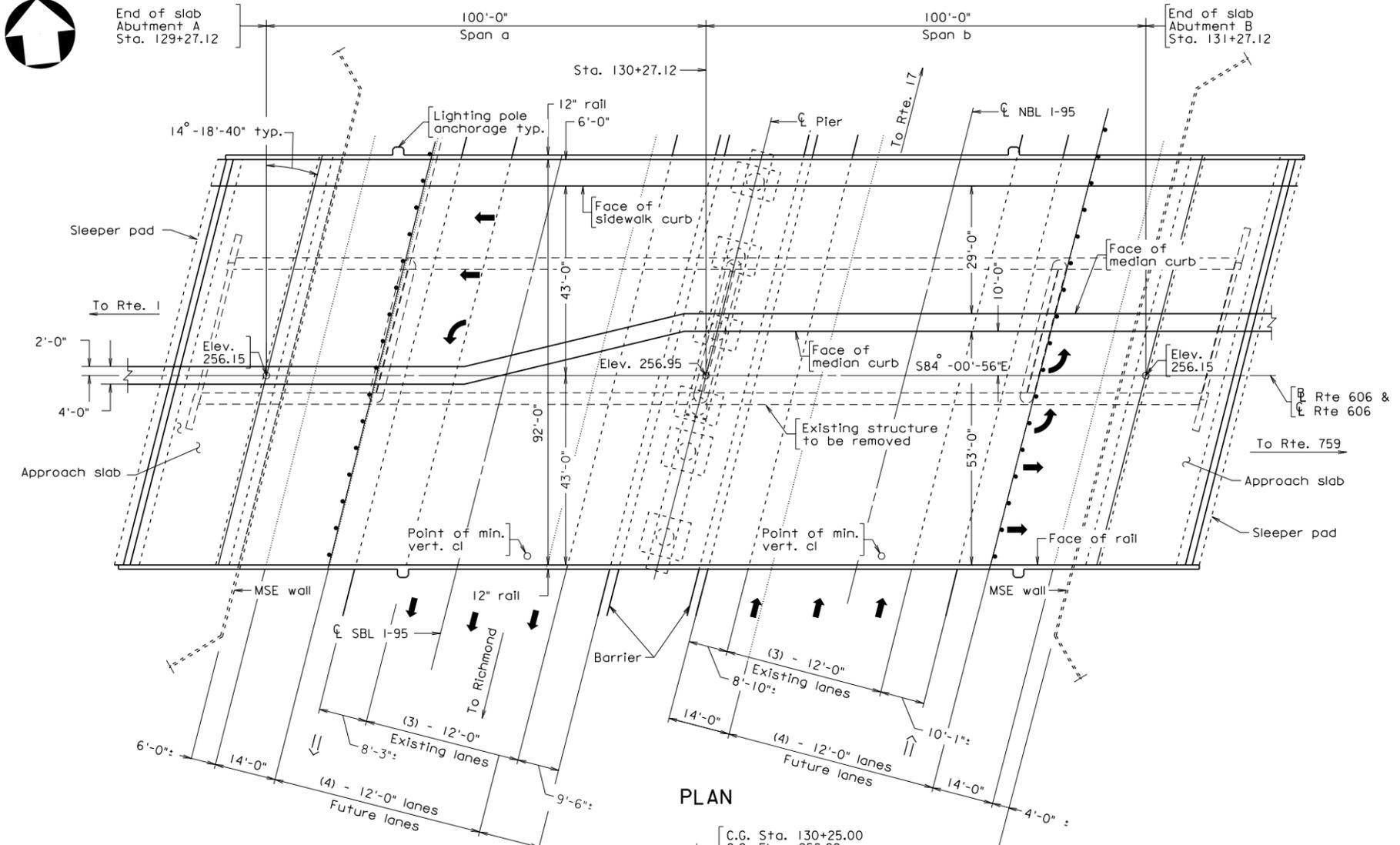
Standards: Virginia Department of Transportation Road and Bridge Standards, 2008.

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

This project shall be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, June 2011 and latest revisions.

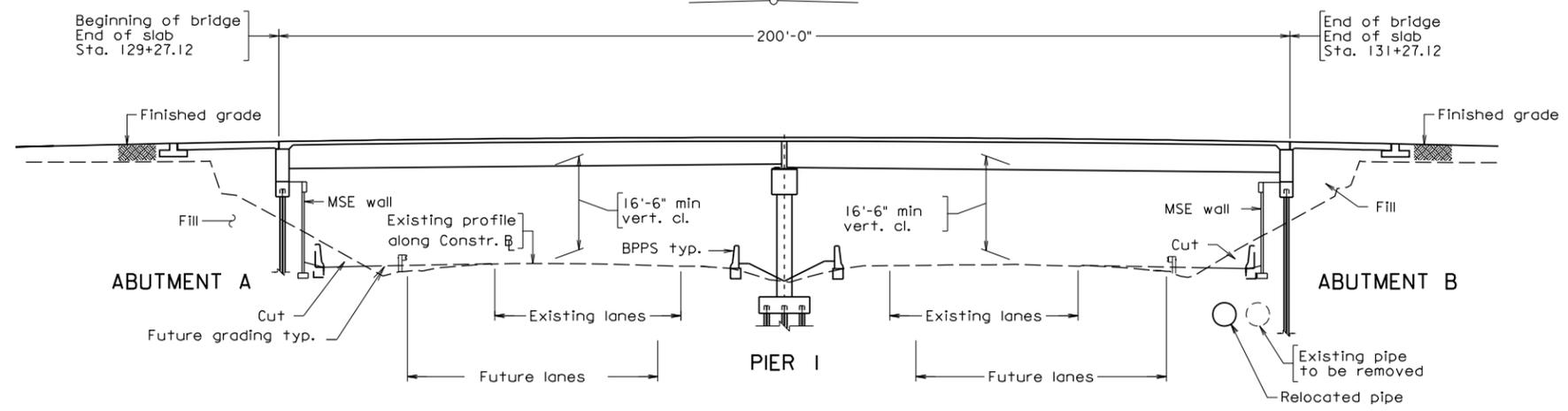
Bridge No. of existing bridge is 6080. Plan No. is 150-14.

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



**PLAN**

C.G. Sta. 130+25.00  
C.G. Elev. 258.82  
V.C. = 300'



**DEVELOPED SECTION ALONG B**

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

**PRELIMINARY PLANS**  
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

No.	Description	Date
REVISIONS		
For Table of Revisions, see Sheet 2.		



COMMONWEALTH OF VIRGINIA  
DEPARTMENT OF TRANSPORTATION  
PROPOSED BRIDGE ON  
RTE. 606 (MUDD TAVERN ROAD) OVER I-95  
SPOTSYLVANIA CO. - 0.1 Mi. W OF RTE 143  
PROJ. 0606-088-622, B634

Recommended for Approval: \_\_\_\_\_ Date \_\_\_\_\_  
State Structure and Bridge Engineer

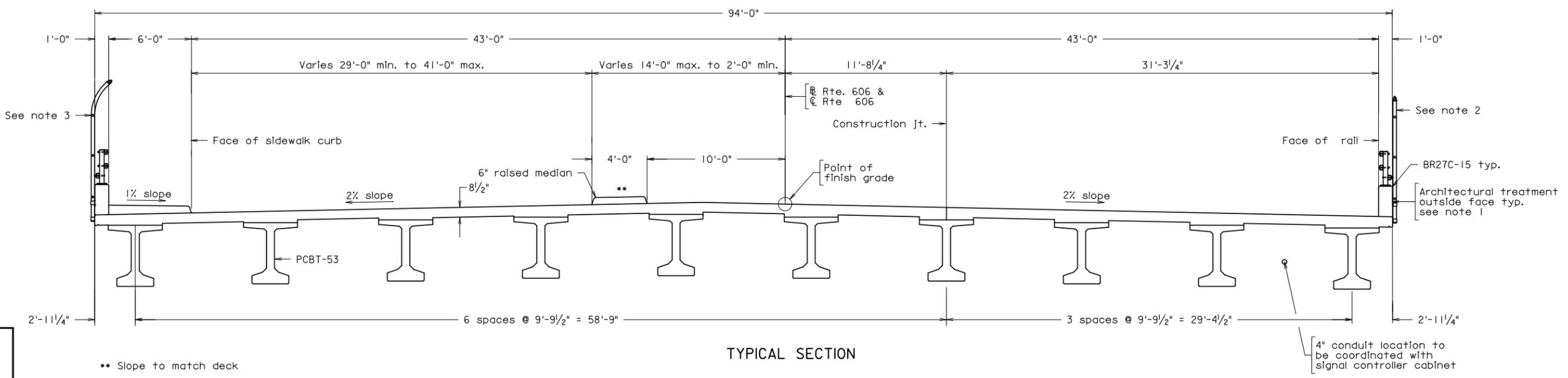
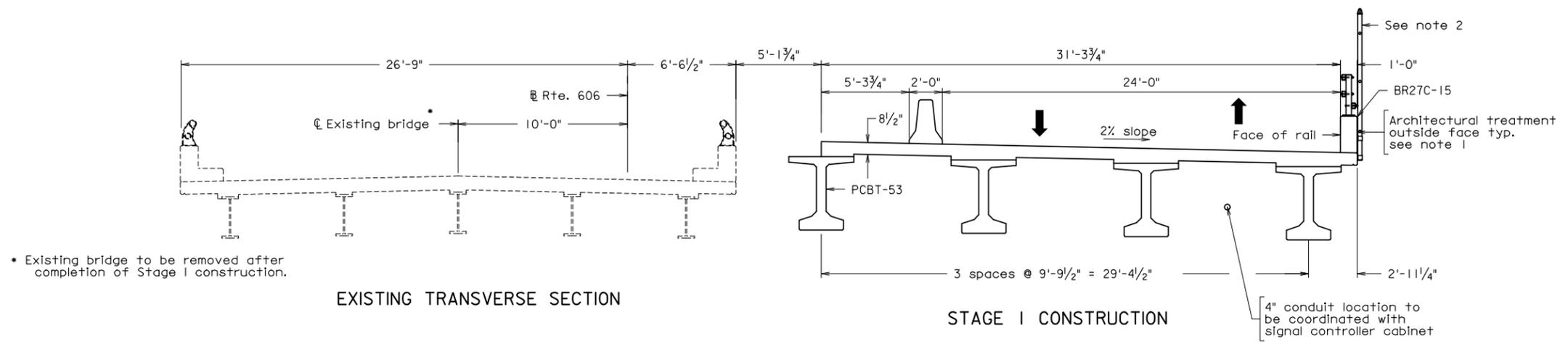
Approved: \_\_\_\_\_ Date \_\_\_\_\_  
Chief Engineer

296-59

Date: August 22, 2016 © 2016, Commonwealth of Virginia Sheet 1 of 3

Plan & Elevation.dgn

RECOMMENDED FOR APPROVAL FOR CONSTRUCTION
VDOT PROJECT MANAGER
DISTRICT CONSTRUCTION MANAGER
WHITMAN REQUARDT & ASSOCIATES RICHMOND, VA STRUCTURAL ENGINEER
PLANS BY:
COORDINATED:
SUPERVISED:
DESIGNED:
DRAWN:
CHECKED:



\*\* Slope to match deck

- Notes:
1. Architectural treatment shall be "DRystack" texture similar to pattern detailed on Structure & Bridge Standard Plan sheet BR27C-AT-9 texture shall not be stained or painted.
  2. Pedestrian fence BPF-4, shall be type C and black vinyl coated.
  3. Pedestrian fence BPF-5, shall be type C and black vinyl coated.

**PRELIMINARY PLANS**  
**THESE PLANS NOT TO BE USED FOR CONSTRUCTION**

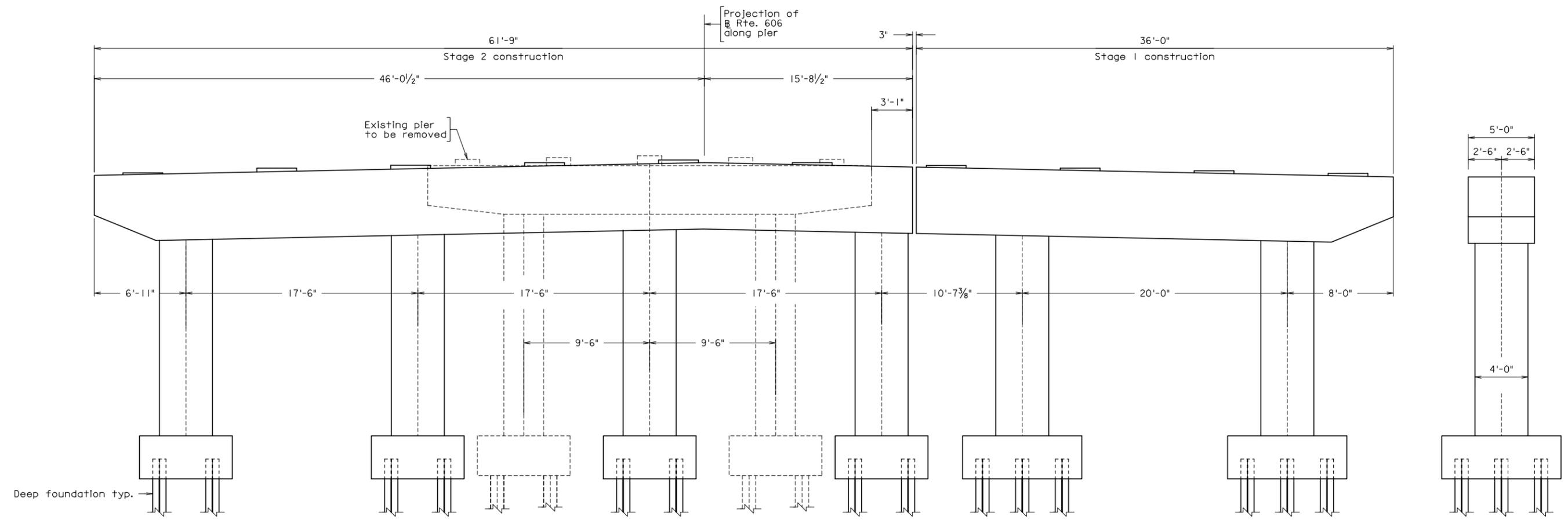
Scale: 1/8" = 1'-0" unless otherwise noted.

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COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION STRUCTURE AND BRIDGE DIVISION					
<b>SEQUENCE OF CONSTRUCTION &amp; TYPICAL SECTION</b>					
No.	Description	Date	Designed: WRA	Date	Plan No.
			Drawn: WRA	Aug. 2016	296-59
			Checked: WRA		2 of 3
Revisions					

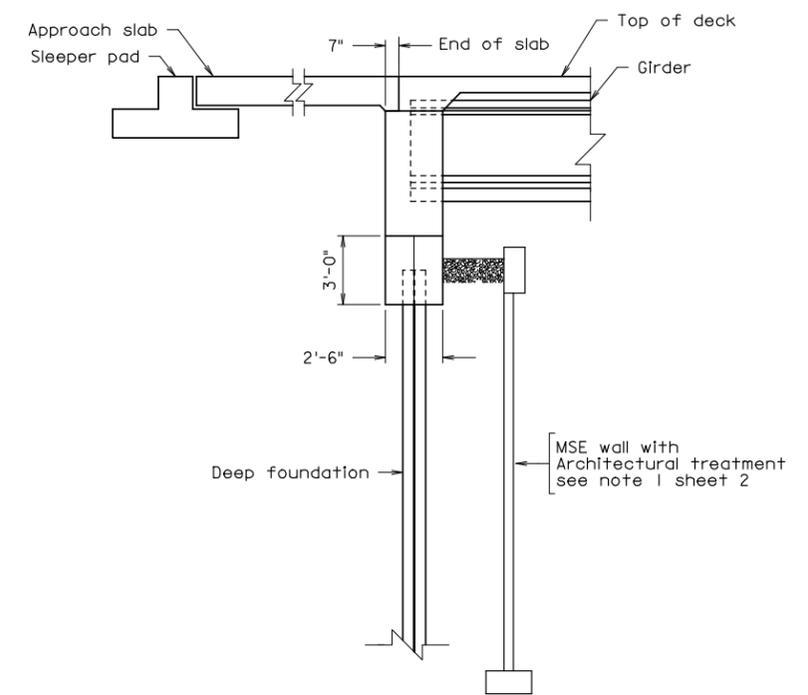
Staging.dgn

WHITMAN REQUARDT & ASSOCIATES  
 RICHMOND, VA  
 STRUCTURAL ENGINEER



Note: Superstructure is not shown for clarity.

PIER ELEVATION



FULL INTEGRAL ABUTMENT

Scale: 1/8" = 1'-0" unless otherwise noted.

PRELIMINARY PLANS  
THESE PLANS NOT TO BE USED FOR CONSTRUCTION

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COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION STRUCTURE AND BRIDGE DIVISION					
<b>PIER &amp; ABUTMENT DETAILS</b>					
No.	Description	Date	Designed: WRA.....	Date	Plan No.
			Drawn: .....WRA.....	Aug. 2016	296-59
			Checked: .WRA.....		3 of 3
Revisions					

Sub\_Structure.dgn

WHITMAN REQUARDT & ASSOCIATES  
RICHMOND, VA  
STRUCTURAL ENGINEER



Volume II

Activity ID	Activity Name	Original Duration	Start	Finish	Late Start	Late Finish	Total Float	2017												2018												2019												2020											
								N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O
<b>Route 606 Bridge Replacement over I-95 with 606 Improvements - Milestones and General Conditions</b>								18-Sep-19, Route 606 Bridge																																															
<b>Milestones</b>								18-Sep-19, Milestones and Ge																																															
<b>Project Milestones</b>								18-Sep-19, Milestones																																															
<b>Project Milestones</b>								18-Sep-19, Project Milestones																																															
A1000	Notice to Proceed	0	16-Dec-16			23-Feb-17		◆ Notice to Proceed																																															
A1020	Substantial Completion of Design	0		15-Sep-17			23-Nov-17	◆ Substantial Completion of Design																																															
A2800	Start Bridge Construction	0	16-Sep-17				05-Dec-17	◆ Start Bridge Construction																																															
A3850	Start Phase 1 Construction	0	16-Sep-17				15-Dec-17	◆ Start Phase 1 Construction																																															
A1040	Complete Phase 1 Construction	0		27-Jun-18			04-Sep-18	◆ Complete Phase 1 Construction																																															
A1060	Start Construction of Phase 2	0	28-Jun-18				05-Sep-18	◆ Start Construction of Phase 2																																															
A1070	Complete Phase 2 Construction	0		17-Jun-19			17-Jun-19	◆ Complete Phase 2 Construction																																															
A3660	Start Phase 3	0	18-Jun-19				18-Jun-19	◆ Start Phase 3																																															
A1110	Final Punchlist / Demobilization	20	30-Aug-19	18-Sep-19	30-Aug-19	18-Sep-19	18-Sep-19	■ Final Punchlist / Demobilization																																															
A1030	Final Completion	0		18-Sep-19			18-Sep-19	◆ Final Completion																																															
<b>Preconstruction</b>								12-Jan-18, Preconstruction																																															
<b>Design</b>								22-Dec-17, Design																																															
<b>Scope Validation</b>								05-May-17, Scope Validation																																															
D2030	Design-Builder Documants Possible Scope Validation Items	119	16-Dec-16	13-Apr-17	08-Mar-17	04-Jul-17	82	■ Design-Builder Documants Possible Scope Validation Items																																															
D2040	Design-Builder Submits Possible Scope Validation Item Letter to VDOT	1	14-Apr-17	14-Apr-17	05-Jul-17	05-Jul-17	82	■ Design-Builder Submits Possible Scope Validation Item Letter to VDOT																																															
D2050	Design-Builder Submits Cost and Time Impact Analysis	21	15-Apr-17	05-May-17	06-Jul-17	26-Jul-17	82	■ Design-Builder Submits Cost and Time Impact Analysis																																															
<b>Geotechnical</b>								24-Aug-17, Geotechnical																																															
D2070	Prepare Soil Boring Plan	5	16-Dec-16	22-Dec-16	24-Feb-17	02-Mar-17	50	■ Prepare Soil Boring Plan																																															
D2110	Review & Comment Soil Boring Plan (VDOT)	21	23-Dec-16	12-Jan-17	03-Mar-17	23-Mar-17	70	■ Review & Comment Soil Boring Plan (VDOT)																																															
D2080	Coordinate with Soil Boring Sub Prior to Start of Drilling	28	23-Dec-16	19-Jan-17	03-Mar-17	30-Mar-17	70	■ Coordinate with Soil Boring Sub Prior to Start of Drilling																																															
D2180	Address Comments - Soil Boring Plan	5	13-Jan-17	19-Jan-17	24-Mar-17	30-Mar-17	50	■ Address Comments - Soil Boring Plan																																															
D2190	Perform Soil Borings	15	20-Jan-17	09-Feb-17	31-Mar-17	20-Apr-17	50	■ Perform Soil Borings																																															
D2290	Lab Work	15	10-Feb-17	02-Mar-17	21-Apr-17	11-May-17	50	■ Lab Work																																															
<b>Bridge &amp; Retaining Walls</b>								24-Aug-17, Bridge & Retaining Walls																																															
D2330	Prepare Draft GER	10	03-Mar-17	16-Mar-17	12-May-17	25-May-17	50	■ Prepare Draft GER																																															
D2380	Submit for Approval Draft GER (Wagman)	5	17-Mar-17	23-Mar-17	26-May-17	01-Jun-17	50	■ Submit for Approval Draft GER (Wagman)																																															
D2390	Address Comments - Draft GER	5	24-Mar-17	30-Mar-17	02-Jun-17	08-Jun-17	50	■ Address Comments - Draft GER																																															
D2400	Submit for Approval Draft GER (VDOT)	10	31-Mar-17	13-Apr-17	09-Jun-17	22-Jun-17	50	■ Submit for Approval Draft GER (VDOT)																																															
D2410	Review & Comment Draft GER	21	14-Apr-17	04-May-17	23-Jun-17	13-Jul-17	70	■ Review & Comment Draft GER																																															
D2480	Advance to Final GER	10	05-May-17	18-May-17	14-Jul-17	27-Jul-17	50	■ Advance to Final GER																																															
D2510	Submit for Approval Final GER (Wagman)	10	19-May-17	01-Jun-17	28-Jul-17	10-Aug-17	50	■ Submit for Approval Final GER (Wagman)																																															
D2520	Address Comments - Final GER	5	02-Jun-17	08-Jun-17	11-Aug-17	17-Aug-17	50	■ Address Comments - Final GER																																															
D2540	Submit for Approval Final GER (VDOT)	10	09-Jun-17	22-Jun-17	18-Aug-17	31-Aug-17	50	■ Submit for Approval Final GER (VDOT)																																															
D2550	Review & Comment Final GER	21	23-Jun-17	13-Jul-17	01-Sep-17	21-Sep-17	70	■ Review & Comment Final GER																																															
D2560	Address Comments - Final GER	15	14-Jul-17	03-Aug-17	22-Sep-17	12-Oct-17	50	■ Address Comments - Final GER																																															
D2570	Review & Approve Final GER	21	04-Aug-17	24-Aug-17	13-Oct-17	02-Nov-17	70	■ Review & Approve Final GER																																															
<b>Roadway &amp; Drainage</b>								24-Aug-17, Roadway & Drainage																																															
D4910	Prepare Draft GER	10	03-Mar-17	16-Mar-17	01-Jun-17	14-Jun-17	64	■ Prepare Draft GER																																															
D4920	Submit for Approval Draft GER (Wagman)	5	17-Mar-17	23-Mar-17	15-Jun-17	21-Jun-17	64	■ Submit for Approval Draft GER (Wagman)																																															
D4930	Address Comments - Draft GER	5	24-Mar-17	30-Mar-17	22-Jun-17	28-Jun-17	64	■ Address Comments - Draft GER																																															
D4940	Submit for Approval Draft GER (VDOT)	10	31-Mar-17	13-Apr-17	29-Jun-17	12-Jul-17	64	■ Submit for Approval Draft GER (VDOT)																																															
D4950	Review & Comment Draft GER	21	14-Apr-17	04-May-17	13-Jul-17	02-Aug-17	90	■ Review & Comment Draft GER																																															
D4960	Advance to Final GER	10	05-May-17	18-May-17	03-Aug-17	16-Aug-17	64	■ Advance to Final GER																																															

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

4.7 PROPOSAL SCHEDULE



















Activity ID	Activity Name	Original Duration	Start	Finish	Late Start	Late Finish	Total Float	2017												2018												2019												2020													
								N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
A3060	Seeding	1	25-Jul-18	25-Jul-18	17-Jun-19	17-Jun-19	147	Seeding																																																	
<b>Race Track Entrance</b>		<b>54</b>	<b>03-Jul-18</b>	<b>14-Sep-18</b>	<b>03-Apr-19</b>	<b>17-Jun-19</b>	<b>196</b>	▼ 14-Sep-18, Race Track Entrance																																																	
A2680	Clear and Grub	5	03-Jul-18	09-Jul-18	03-Apr-19	09-Apr-19	196	Clear and Grub																																																	
A2690	Install E&S Controls	3	03-Jul-18	05-Jul-18	05-Apr-19	09-Apr-19	198	Install E&S Controls																																																	
A2700	Rough Grade	5	10-Jul-18	16-Jul-18	10-Apr-19	16-Apr-19	152	Rough Grade																																																	
A2710	Storm Sewer	15	17-Jul-18	06-Aug-18	17-Apr-19	07-May-19	196	Storm Sewer																																																	
A2720	Utilities	15	17-Jul-18	06-Aug-18	17-Apr-19	07-May-19	196	Utilities																																																	
A2730	Fine Grade	5	07-Aug-18	13-Aug-18	08-May-19	14-May-19	152	Fine Grade																																																	
A2740	Subbase	5	14-Aug-18	20-Aug-18	15-May-19	21-May-19	152	Subbase																																																	
A2750	Concrete Flatwork	10	21-Aug-18	03-Sep-18	22-May-19	04-Jun-19	196	Concrete Flatwork																																																	
A2760	BM Asphalt	2	04-Sep-18	05-Sep-18	05-Jun-19	06-Jun-19	110	BM Asphalt																																																	
A2770	IM Asphalt	2	06-Sep-18	07-Sep-18	07-Jun-19	10-Jun-19	110	IM Asphalt																																																	
A2780	Final Grading Prior to Seeding	3	10-Sep-18	12-Sep-18	11-Jun-19	13-Jun-19	152	Final Grading Prior to Seeding																																																	
A3150	Temp Striping	1	10-Sep-18	10-Sep-18	17-Jun-19	17-Jun-19	114	Temp Striping																																																	
A3160	Temp Signs	1	13-Sep-18	13-Sep-18	14-Jun-19	14-Jun-19	196	Temp Signs																																																	
A2790	Seeding	1	14-Sep-18	14-Sep-18	17-Jun-19	17-Jun-19	110	Seeding																																																	
<b>Phase 3</b>		<b>53</b>	<b>18-Jun-19</b>	<b>29-Aug-19</b>	<b>18-Jun-19</b>	<b>29-Aug-19</b>	<b>0</b>	▼ 29-Aug-19, Phase 3																																																	
A3840	Install MOT and Shift Traffic to Phase 3	3	18-Jun-19	20-Jun-19	18-Jun-19	20-Jun-19	0	Install MOT and Shift Traffic to Phase 3																																																	
<b>Concrete Median Construction</b>		<b>20</b>	<b>21-Jun-19</b>	<b>18-Jul-19</b>	<b>21-Jun-19</b>	<b>18-Jul-19</b>	<b>0</b>	▼ 18-Jul-19, Concrete Median Construction																																																	
A3750	Construct Center Median East of Route 606 Bridge to Roundabout	20	21-Jun-19	18-Jul-19	21-Jun-19	18-Jul-19	0	Construct Center Median East of Route 606 Bridge to Roundabout																																																	
A3760	Construct Raised Concrete Median at Existing Mallard Road Tie-In to Route 606	5	21-Jun-19	27-Jun-19	12-Jul-19	18-Jul-19	15	Construct Raised Concrete Median at Existing Mallard Road Tie-In to Route 606																																																	
A3770	Construct Raised Concrete Medians at Roundabout	20	21-Jun-19	18-Jul-19	21-Jun-19	18-Jul-19	0	Construct Raised Concrete Medians at Roundabout																																																	
<b>Final Paving, Signs, Striping, Signals &amp; Landscaping</b>		<b>30</b>	<b>19-Jul-19</b>	<b>29-Aug-19</b>	<b>19-Jul-19</b>	<b>29-Aug-19</b>	<b>0</b>	▼ 29-Aug-19, Final Paving, Signs, Striping, Signals & Landscaping																																																	
<b>Route 606 Mainline</b>		<b>25</b>	<b>19-Jul-19</b>	<b>22-Aug-19</b>	<b>19-Jul-19</b>	<b>29-Aug-19</b>	<b>5</b>	▼ 22-Aug-19, Route 606 Mainline																																																	
A2820	SM Asphalt - Route 606 EB Mainline & Roundabout	5	19-Jul-19	25-Jul-19	19-Jul-19	25-Jul-19	0	SM Asphalt - Route 606 EB Mainline & Roundabout																																																	
A2830	SM Asphalt - Route 606 WB Mainline & Roundabout	5	26-Jul-19	01-Aug-19	26-Jul-19	01-Aug-19	0	SM Asphalt - Route 606 WB Mainline & Roundabout																																																	
A3220	Final Striping - Route 606 EB Mainline & Roundabout	5	26-Jul-19	01-Aug-19	23-Aug-19	29-Aug-19	20	Final Striping - Route 606 EB Mainline & Roundabout																																																	
A3500	Final Signs - Route 606 EB Mainline & Roundabout	5	26-Jul-19	01-Aug-19	23-Aug-19	29-Aug-19	20	Final Signs - Route 606 EB Mainline & Roundabout																																																	
A3520	Traffic Signals & Lighting - Route 606 EB Mainline & Roundabout	15	26-Jul-19	15-Aug-19	09-Aug-19	29-Aug-19	10	Traffic Signals & Lighting - Route 606 EB Mainline & Roundabout																																																	
A2840	SM Asphalt - Race Track Entrance	2	02-Aug-19	05-Aug-19	02-Aug-19	05-Aug-19	0	SM Asphalt - Race Track Entrance																																																	
A3240	Final Striping - Route 606 WB Mainline & Roundabout	5	02-Aug-19	08-Aug-19	23-Aug-19	29-Aug-19	15	Final Striping - Route 606 WB Mainline & Roundabout																																																	
A3510	Final Signs - Route 606 WB Mainline & Roundabout	5	02-Aug-19	08-Aug-19	23-Aug-19	29-Aug-19	15	Final Signs - Route 606 WB Mainline & Roundabout																																																	
A3530	Traffic Signals & Lighting - Route 606 WB Mainline & Roundabout	15	02-Aug-19	22-Aug-19	09-Aug-19	29-Aug-19	5	Traffic Signals & Lighting - Route 606 WB Mainline & Roundabout																																																	
A3540	Final Landscaping - Roundabout	5	02-Aug-19	08-Aug-19	23-Aug-19	29-Aug-19	15	Final Landscaping - Roundabout																																																	
A3230	Final Striping - Race Track Entrance	2	06-Aug-19	07-Aug-19	28-Aug-19	29-Aug-19	16	Final Striping - Race Track Entrance																																																	
<b>I-95 Ramps</b>		<b>15</b>	<b>06-Aug-19</b>	<b>26-Aug-19</b>	<b>06-Aug-19</b>	<b>29-Aug-19</b>	<b>3</b>	▼ 26-Aug-19, I-95 Ramps																																																	
A3020	SM Asphalt - Ramp C	3	06-Aug-19	08-Aug-19	06-Aug-19	08-Aug-19	0	SM Asphalt - Ramp C																																																	
A2910	SM Asphalt - Ramp B	3	09-Aug-19	13-Aug-19	09-Aug-19	13-Aug-19	0	SM Asphalt - Ramp B																																																	
A3170	Final Striping - Ramp C	2	09-Aug-19	12-Aug-19	28-Aug-19	29-Aug-19	13	Final Striping - Ramp C																																																	
A3550	Final Signs - Ramp C	3	09-Aug-19	13-Aug-19	27-Aug-19	29-Aug-19	12	Final Signs - Ramp C																																																	
A2350	SM Asphalt - Ramp D	3	14-Aug-19	16-Aug-19	14-Aug-19	16-Aug-19	0	SM Asphalt - Ramp D																																																	
A3180	Final Striping - Ramp B	2	14-Aug-19	15-Aug-19	28-Aug-19	29-Aug-19	10	Final Striping - Ramp B																																																	
A3610	Final Signs - Ramp B	3	14-Aug-19	16-Aug-19	27-Aug-19	29-Aug-19	9	Final Signs - Ramp B																																																	
A2290	SM Asphalt - Ramp A	3	19-Aug-19	21-Aug-19	19-Aug-19	21-Aug-19	0	SM Asphalt - Ramp A																																																	
A3190	Final Striping - Ramp D	2	19-Aug-19	20-Aug-19	28-Aug-19	29-Aug-19	7	Final Striping - Ramp D																																																	
A3580	Final Signs - Ramp D	3	19-Aug-19	21-Aug-19	27-Aug-19	29-Aug-19	6	Final Signs - Ramp D																																																	
A3200	Final Striping - Ramp A	2	22-Aug-19	23-Aug-19	28-Aug-19	29-Aug-19	4	Final Striping - Ramp A																																																	

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



