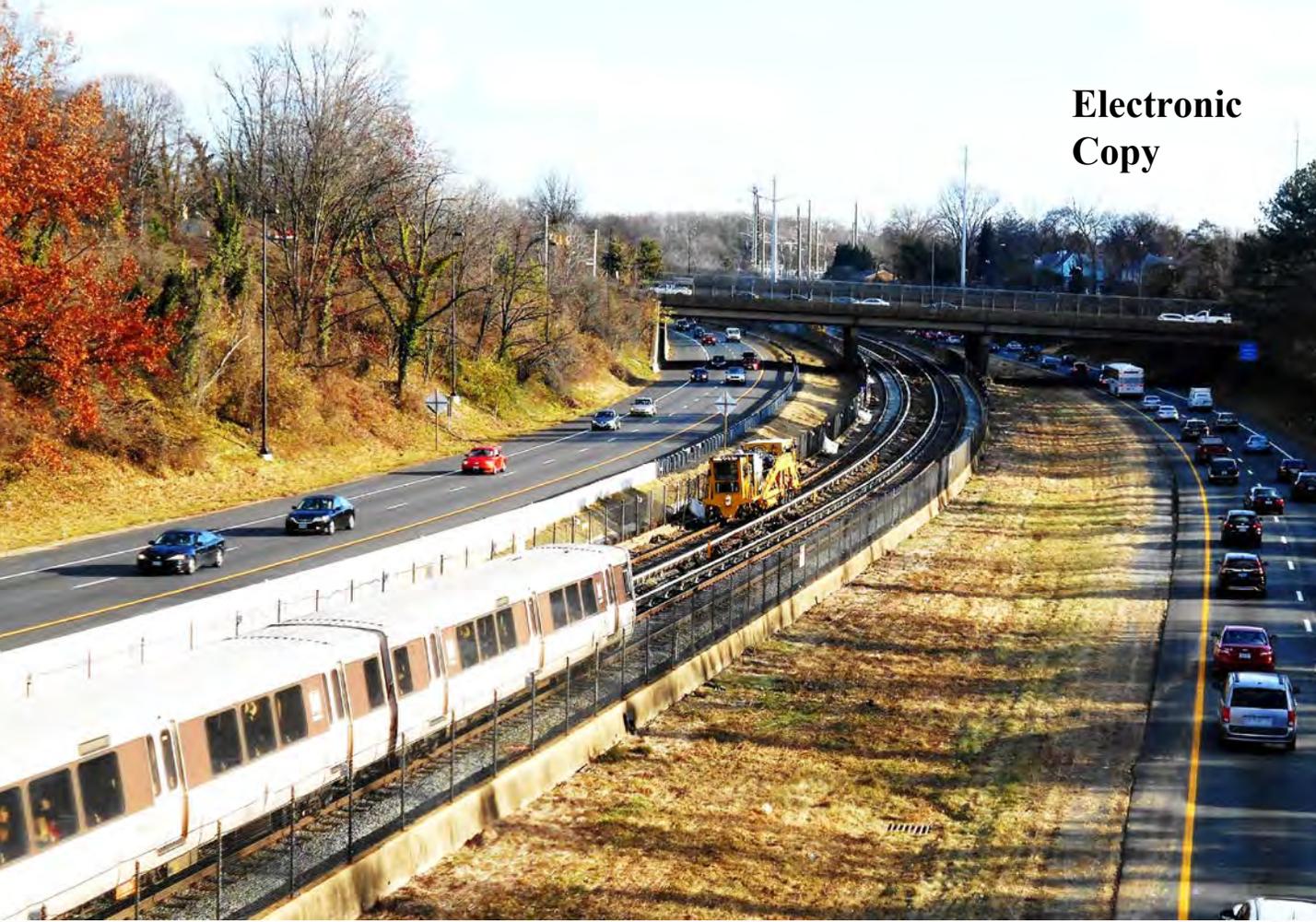


Electronic
Copy



I-66 Eastbound Widening Inside the Beltway DESIGN - BUILD



Volume I Technical Proposal
September 2017

Led by:



In association with:



State Project No. 0066-96A-417, P101, R201, C501 | FHWA Project No. NHPP-066-1(365)
Contract ID No. C00108424DB92

Section 4.1.1.1

Technical Proposal Checklist and Contents



ATTACHMENT 4.0.1.1
I-66 EASTBOUND WIDENING INSIDE THE BELTWAY
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

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

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Technical Proposal Checklist and Contents	Attachment 4.0.1.1	Section 4.0.1.1	no	4.0-i – iii
Acknowledgement of RFP, Revisions, and/or Addenda	Attachment 3.6 (Form C-78-RFP)	Sections 3.6, 4.0.1.1	no	4.0-iv
Letter of Submittal	NA	Sections 4.1		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
Interim Milestone and Final Completion Date(s)	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	i - iv
Certification Regarding Debarment Forms	Attachment 11.8.6(a) Attachment 11.8.6(b)	Section 4.1.8	no	v - xvi
Offeror's Qualifications	NA	Section 4.2		4.2-

ATTACHMENT 4.0.1.1
I-66 EASTBOUND WIDENING INSIDE THE BELTWAY
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
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	1
Organizational chart with any updates since the SOQ submittal clearly identified	NA	Section 4.2.2	yes	1
Revised narrative when organizational chart includes updates since the SOQ submittal	NA	Section 4.2.2	yes	1
Design Concept	NA	Section 4.3		4.3-
Conceptual Roadway Plans and description	NA	Section 4.3.1	yes	1 – 15
Conceptual Structural Plans and description	NA	Section 4.3.2	yes	15 – 19
Project Approach	NA	Section 4.4		4.4-
Environmental Management	NA	Section 4.4.1	yes	1 – 6
Structures	NA	Section 4.4.2	yes	6 – 9
Quality Assurance/ Quality Control (QA/QC)	NA	Section 4.4.3	yes	9 - 17
Construction of Project	NA	Section 4.5		4.5-
Sequence of Construction	NA	Section 4.5.1	yes	2 – 4
Transportation Management Plan	NA	Section 4.5.2	yes	5 - 8

ATTACHMENT 4.0.1.1
I-66 EASTBOUND WIDENING INSIDE THE BELTWAY
TECHNICAL PROPOSAL CHECKLIST AND CONTENTS

Technical Proposal Component	Form (if any)	RFP Part 1 Cross Reference	Included within page limit?	Technical Proposal Page Reference
Disadvantaged Business Enterprises (DBE)	NA	Section 4.6		4.1-
Written statement of percent DBE participation	NA	Section 4.6	yes	1
Proposal Schedule	NA	Section 4.7		4.7-
Proposal Schedule	NA	Section 4.7	no	1-24
Proposal Schedule Narrative	NA	Section 4.7	no	1-10
Proposal Schedule in electronic format (CD-ROM)	NA	Section 4.7	no	Original back cover

Section 4.1

Letter of Submittal



Volume I Technical Proposal
September 2017





General Construction | Heavy Civil | Geotechnical

Wagman Heavy Civil
3290 N. Susquehanna Trail
York, PA 17406-9754

27 September 2017

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

RE: **Response to Request for Proposals (RFP)**
I-66 Eastbound Widening Inside the Beltway
Fairfax and Arlington Counties, Virginia
A Design-Build Project
RFQ No.: C00108424DB92

Dear Mr. Stevenson:

Wagman Heavy Civil, Inc. (Wagman) is pleased to submit our Proposal for the above referenced project.

4.1.1 Offeror’s Official Information. The full legal name and address of Wagman is as follows:

Wagman Heavy Civil, Inc. Phone: 717.767.8277
3290 N. Susquehanna Trail, York, PA 17406-9754 Fax: 717.767.5546

4.1.2 Declaration of Intent. If selected, Wagman intends 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, the offer represented by our Technical and Price Proposals will remain in full force and effect for one hundred twenty (120) days after the date the Technical Proposal is actually submitted to VDOT (“Technical Proposal Submission Date”).

4.1.4 Authorized Representative/Point of Contact
David Lyle, DBIA, VP, D-B/Major Pursuits
26000 Simpson Road, North Dinwiddie, VA 23803-8943
P. 804.631.0003 | F. 804.733.6281
Email. dwlyle@wagman.com

4.1.5 Principal Officer Information
Greg Andricos, PE, President/COO
3290 N. Susquehanna Trail, York, PA 17406-9754
P. 717.767.8292 | F. 717.767.5546
Email. gmandricos@wagman.com

4.1.6 Interim Milestone and Final Completion Date(s). In accordance with RFP Section 2.3.1, the Wagman Team proposes an interim completion date of **10 November 2020** and a final completion date of **2 September 2021**.

4.1.7 Proposal Payment Agreement or Waiver of Proposal Payment. An executed Proposal Payment Agreement (Attachment 9.3.1) can be found in the tab following this letter.

4.1.8 Certification Regarding Debarment Forms. Certificates Regarding Debarment for the Primary firms (Attachment 11.8.6 (a)) and the Lower Tier firms (Attachment 11.8.6 (b)) are included in the tab following this letter.

4.6 Disadvantaged Business Enterprises (DBE) Commitment (15%). The Wagman Team supports the DBE program and is committed to achieving or exceeding the fifteen percent (15%) DBE participation goal for the entire value of the contract.

The Wagman Team partners each have long and successful histories serving Virginians on numerous projects. As a single, integrated team, we will design and construct the I-66 Eastbound Widening Inside the Beltway Design-Build Project with a focus on maintaining safe and consistent operations throughout the corridor while minimizing impacts to the environment. We will create a transparent relationship with VDOT and third-party stakeholders to promote trust, confidence, and collaboration to deliver the project within budget and ahead of schedule providing overall **best value to VDOT and the public**.

Thank you for the opportunity to submit our Proposal.

Respectfully,
Wagman Heavy Civil, Inc.

David W. Lyle, DBIA
Vice President

Section 4.1

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 27th day of September, 2017, by and between the Virginia Department of Transportation (“VDOT”), and Wagman Heavy Civil, Inc. (“Offeror”).

WITNESSETH:

WHEREAS, Offeror is one of the entities who submitted Statements of Qualifications (“SOQs”) pursuant to VDOT’s November 18, 2017 (Addendum #1 December 16, 2016) Request for Qualifications (“RFQ”) and was invited to submit proposals in response to a Request for Proposals (“RFP”) for the **I-66 Eastbound Widening Inside the Beltway Project No. 0066-96A-417, P101, R201, C501** (“Project”), under a design-build contract with VDOT (“Design-Build Contract”); and

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

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

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

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

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

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

3. **Proposal Payment.** VDOT agrees to pay Offeror the lump sum amount of **Forty thousand dollars and 00/100 Dollars (\$40,000.00)** ("Proposal Payment"), which payment constitutes payment in full to Offeror for the conveyance of Offeror's Intellectual Property to VDOT in accordance with this Agreement. Payment of the Proposal Payment is conditioned upon: (a) Offeror's Proposal being, in the sole discretion of VDOT, responsive to the RFP; (b) Offeror complying with all other terms and conditions of this Agreement; and (c) either (i) Offeror is not awarded the Design-Build Contract, or (ii) VDOT cancels the procurement or decides not to award the Design-Build Contract to any Offeror.

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

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

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

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

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

9. **Miscellaneous.**

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

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

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

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

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

of the Commonwealth of Virginia.

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

VIRGINIA DEPARTMENT OF TRANSPORTATION

By: _____

Name: _____

Title: _____

[Insert Offeror's Name]

By: David W. Lyle

Name: David Lyle, DBIA

Title: Vice President, Wagman Heavy Civil, Inc.

Section 4.1

11.8.6(a) Certification Regarding Debarment

11.8.6(b) Certification Regarding Debarment



ATTACHMENT 11.8.6(a)
CERTIFICATION REGARDING DEBARMENT
PRIMARY COVERED TRANSACTIONS

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501, B686

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.

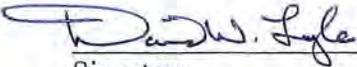
b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under 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.

 September 25, 2017 Vice President
Signature Date Title

Wagman Heavy Civil, Inc.
Name of Firm

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

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501,
B686

- 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

September 25, 2017
Date

Vice President
Title

Johnson, Mirmiran & Thompson, Inc.
Name of Firm

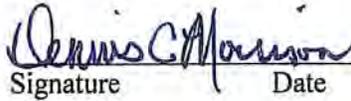
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501, B686

- 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.

	August 10, 2017	Senior Vice President
Signature	Date	Title

Volkert, Inc.
Name of Firm

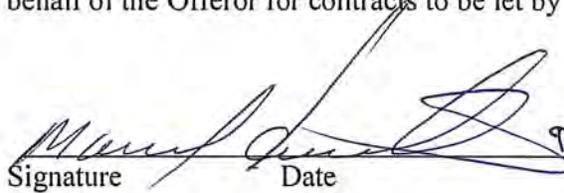
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501,
B686

- 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.

 9/27/17 Senior Vice President
Signature Date Title

Fort Myer Construction Corporation
Name of Firm

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

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501, B686

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

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

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

_____ Signature	 Date	6/20/2017 Date	_____ Title
			President Title

CES CONSULTING, LLC
Name of Firm

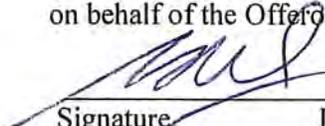
ATTACHMENT NO. 3.2.7(b)

**CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS**

Project No.: 066-96A-417

- 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.

 9/6/17 VICE PRESIDENT
Signature Date Title

DMY Engineering Consultants
Name of Firm

ATTACHMENT NO. 3.2.7(b)

**CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS**

Project No.: 066-96A-417

- 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.

 _____
Signature Date Title

Elite Contracting Group, Inc.

Name of Firm

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

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501, B686

- 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.

	9/25/17	Director
_____ Signature	_____ Date	_____ Title

Endesco, Inc.

Name of Firm

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

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501,
B686

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

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

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

	<u>9/25/17</u>	<u>Vice President & COO</u>
Signature	Date	Diana B. Wasiuk Title

Harris Miller Miller & Hanson Inc.
Name of Firm

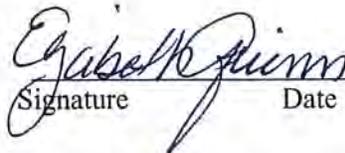
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

**Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501,
B686**

- 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.

	August 22, 2017	President
Signature	Date	Title

Quinn Consulting Services, Inc.
Name of Firm

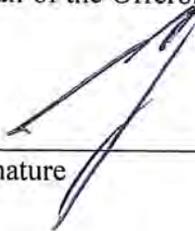
ATTACHMENT 11.8.6(b)
CERTIFICATION REGARDING DEBARMENT
LOWER TIER COVERED TRANSACTIONS

Project No.: 0066-96A-417, P101, R201, C501 & 0066-96A-493, P101, C501,
B686

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.

	August 22, 2017	VP of Business Development
Signature	Date	Title

Specialized Engineering
Name of Firm

Section 4.2

Offeror's Qualifications



4.2 | OFFEROR'S QUALIFICATIONS

4.2.1 Confirmation of True and Accurate Information

We have modified the structure of our team per VDOT approval on **29 August 2017**, identifying Wagman Heavy Civil, Inc. as the D-B contractor. We have included the approval letter in the Appendix.

4.2.2 Organizational Chart and Revised Narrative

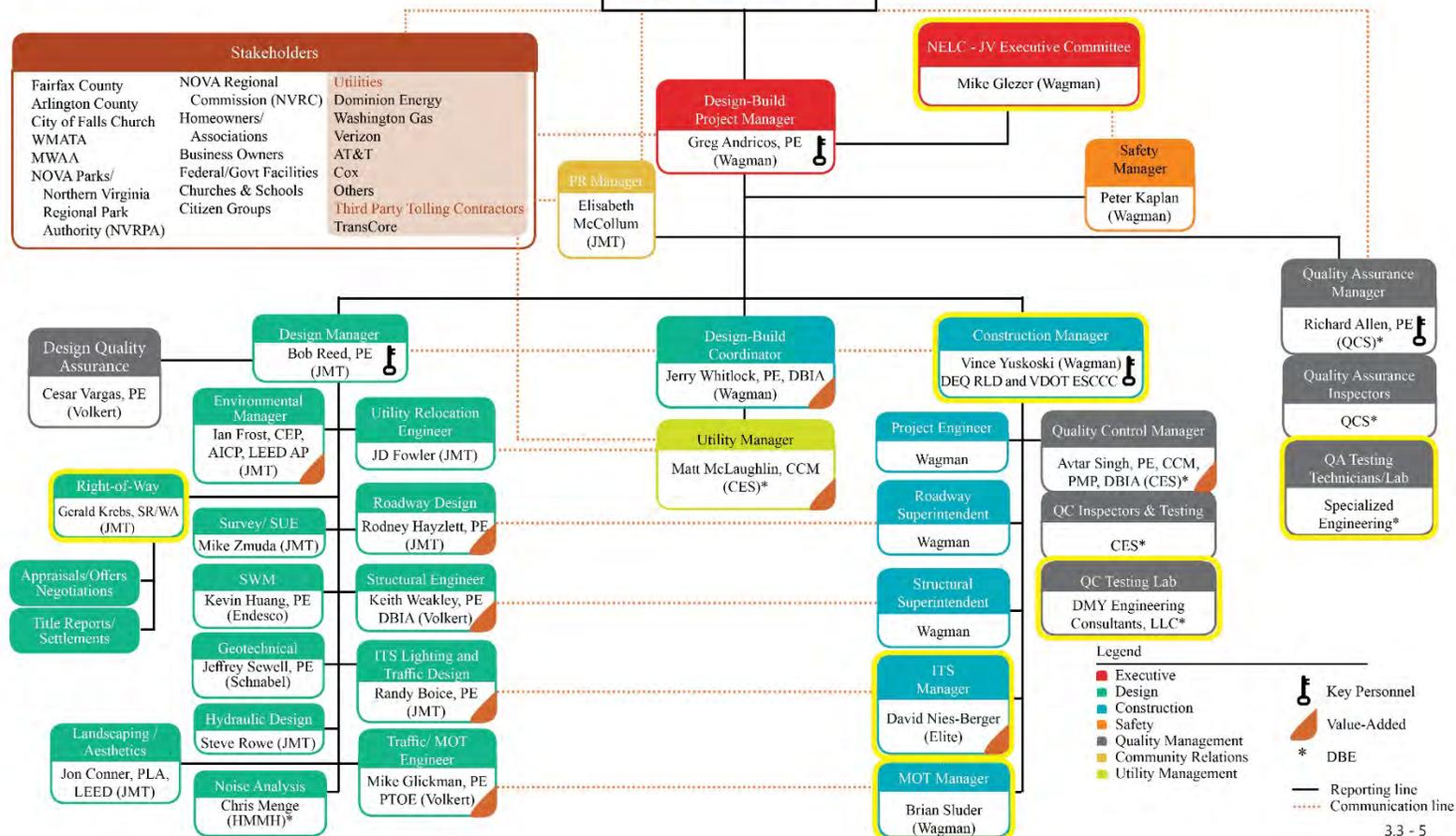
Our organizational chart below incorporates the structure modification above as well as personnel changes (indicated in yellow boxes below) as approved by VDOT on **6 September 2017**. We have included the approval letter in the Appendix. We have identified our AMRL approved laboratories for Quality Assurance: Specialized Engineering and Quality Control: DMY Engineering Consultants, LLC, respectively. The utilities list has been updated. **The functional relationships between positions and roles as described in our SOQ narrative remain unchanged, true, and accurate.**



The Wagman Team is committed to staying intact for the duration of the project.



Organizational Chart for Design-Build of I-66 Eastbound Widening Inside the Beltway (Contract ID Number: C00108424DB92)



Section 4.3

Design Concept



4.3 | DESIGN CONCEPT

The Wagman Team has evaluated the preliminary plans and information provided in the RFP documents and has developed a design concept that both meets or exceeds the design standards for the Project and meets or exceeds the project’s scope of work to benefit end users, particularly in terms of safety, operations, schedule, construction, and public acceptance. We have considered alternative materials and methods to implement optimal functionality in this Corridor that reduces future inspection and routine maintenance activities, providing VDOT full confidence in long term asset performance and durability.

Our team’s shared experience in both design and construction within the I-66 Corridor further enhances the synergy of our team to successfully deliver this project utilizing the D-B process. Numerous team members have strong, recent Northern Virginia (NOVA) presence. The Wagman Team is distinguished by our collective ***I-66 Corridor*** experience. Our staff live and work in the project area and travel I-66 on a regular basis.

Table 4.3-1: Team Experience on or adjacent to I-66 Corridor

Project	Wagman Team involvement on or adjacent to I-66 Corridor
I-66 OTB Tier 1 EIS	Design Mgr., Bob Reed, PE, (JMT): Led preliminary alternative development. JMT: SUE Services
Idea 66 & I-66 ITB	Design Mgr., Bob Reed, PE (JMT): Provided concept development.
I-66/Route 234 Park & Ride	Design Mgr., Bob Reed, PE (JMT): Developed plans for P&R facility.
I-66 Multimodal Improvements (MMI)	Dedicated Sub, Fort Myer Construction Co. (FMCC): Prime contractor where their dedicated personnel gained in-depth understanding of the technical and logistical complexities associated with working on I-66 ITB. Utility Mgr., Matt McLaughlin, CCM (CES): Served as Utility Relocation Manager, where he assisted VDOT with development of utility relocation strategies and served as a VDOT representative for utility relocations on other roadway construction projects within this corridor.
I-66 Pavement Rehabilitation D-B	Dedicated Sub, FMCC served as Prime Contractor for this award-winning D-B project. Dedicated Sub, Volkert served as Lead Designer & QA Firm for this award-winning D-B project.
I-66 Active Traffic Management (ATM) D-B Project	Prime Contractor, Wagman: Served as the foundation contractor responsible for installation of over 80 reinforced shafts on this \$34M project improving 22 miles of I-66 in NOVA.
Route 7 Widening/Bridge Rehabilitation over the Dulles Toll Road D-B Project	DBPM, Greg Andricos, PE; CM, Vincent Yuskoski; D-B Coordinator, Jerry Whitlock, PE, DBIA; and Brian Sluder, MOT Manager (Wagman). QAM, Richard Allen, PE (Quinn)
Fairfax County Parkway Phases I, II, & IV D-B <i>Award-Winner: VTCA & ACEC/MW</i>	The following dedicated staff were involved in the exact same roles on this award-winning D-B project as proposed for I-66 EBW & EDA: DBPM, Greg Andricos, PE and Jerry Whitlock, PE, DBIA (Wagman). Rodney Hayzlett, PE; Ian Frost, CEP, AICP, LEED AP; Randy Boice, PE; and Jon Conner, PLA, LEED (JMT). JMT served as the Lead Designer
I-66 Spot 1 & 2 Improvements	Utility Mgr., Matt McLaughlin, CCM (CES): Served as Utility Relocation Manager.
I-66/Route 29 Gainesville Interchange D-B Project	Utility Mgr., Matt McLaughlin, CCM (CES): Served as Utility Relocation Manager.

The I-66 EBW & EDA Project will benefit from the collective experience and existing relationship of these team members as the Wagman Team has already established highly effective communication protocols that ensure the efficient development, review, and implementation of a high-quality design. The Wagman Team will require no learning curve throughout any phase of this project as we are an established, well-functioning team. This team has delivered similarly challenging projects in NOVA within budget and schedule and will satisfy the I-66 EBW & EDA interim milestone and achieve final completion before Labor Day weekend 2021.

The Wagman Team’s design for the I-66 Eastbound Widening (EBW) and Option-1 Eastbound Direct Access (EDA) Project builds upon our overall D-B and corridor experience to deliver overall best value to VDOT and other stakeholders as evidenced by some of the key elements of our approach to design, coordination, and construction highlighted below.



Safety Improvement Elements

- A roadside protection system that incorporates MASH-tested barriers and guardrails.
- Temporary Traffic Control design provides safe, reliable and predictable traffic flow through the project.
- Design meets AASHTO superelevation standards for 55-mph design speed.
- Engineered superelevation improvements at horizontal curves.



Operations Improvement Elements

- Provides bus travel in the right lane thru the corridor.
- Reduces impacts to Custis Trail and 4(f) park property.
- ITS/Toll systems are not interrupted during construction.
- Our TMP minimizes the number of lane shifts affecting toll collection by eliminating one of the allowed shifts at structure EB-3.



Schedule Improvement Elements

- Incorporates existing MSE wall (vicinity of B-679) into new design eliminating the need to reconstruct the entire wall.
- Minimizes lane shifts at toll gantries reduce MOT requirements.
- Achieves final completion prior to Labor Day Weekend 2021.
- Partial Depth removal for overhang widening will reduce MOT requirements.
- Project is divided into segments (based on physical drainage areas and location of existing toll gantries) to maximize the benefits afforded by the “rolling” D-B process.



Construction Improvement Elements

- Incorporates proven means and methods into the design through constructability reviews and task force meetings.
- Maintains existing MSE wall (vicinity of B-679) eliminating the need to reconstruct the entire wall.
- Hydrodemolition will be used on bridge modifications to reduce construction duration and noise.
- All new deep foundations will be drilled to minimize noise, vibration, and work zone footprint.
- Eliminates the need for full depth bridge deck removal and replacement adjacent to the overhang at 4 locations reducing the construction duration and temporary impacts to bicycle, pedestrian, and vehicular traffic beneath the bridge(s).



Public Acceptance Improvement Elements

- Minimizes impacts to trails and sidewalks.
- Reduces impacts to 4(f), park properties, and Custis Trail.
- Minimizes lane shifts at toll gantries reduce MOT requirements.
- Continued formal outreach to the DBE/SWaM community through our regular small business, relationship and networking roundtables.



Performance/Durability Improvement Elements

- Existing drainage systems will be analyzed and upgraded to extend service life.
- Landscaping design incorporates robust low-maintenance plantings.
- Elimination of open joints reduces long term maintenance, water/salt intrusion, and corrosion.

The I-66 EBW & EDA Project will benefit from the collective experience and existing relationship of these team members as the Wagman Team has already established highly effective communication protocols that ensure the efficient development, review, and implementation of a high-quality design. The Wagman Team will require no learning curve throughout any phase of this project as we are an established, well-functioning team. This team has delivered similarly challenging projects in NOVA within budget and schedule and will

satisfy the I-66 EBW & EDA interim milestone and achieve final completion before Labor Day weekend 2021.

4.3.1 Conceptual Roadway Plans and Description

The Wagman Team will develop a design for the roadway that meets or exceeds the design standards for the I-66 EBW & EDA Project conforming to the RFP requirements, including those listed in *Part 2, Attachment 2.2*. The Wagman Team will advance and refine the conceptual design from the current completion level into final design, providing VDOT full confidence in the Project’s long-term asset performance and durability while satisfying the needs of the traveling public.

Lead Roadway Designer, Rodney Hayzlett, PE has 10 + years working on VDOT projects with our DBPM, Greg Andricos, PE, and other key members of the Wagman Team.

Our design optimizes the benefits to the end user by employing detailed constructability reviews prior to each submittal and establishing task force groups with subject matter experts from our design and construction teams to perform bi-weekly over-the-shoulder reviews and expedite the development of specific design elements. This process was successfully implemented by the Wagman Team on other fast track D-B Projects. Anticipated specific task force groups for this project include: Roadway/Drainage/Permitting, Right-of-Way (ROW)/Utility Coordination, MOT/ITS/Traffic, and Structures/Geotechnical/Foundations.

Design staff will use MicroStation CADD and Geopak/OpenRoads. All our design submissions undergo a rigorous ISO-9001certified Design Quality process, which exceed VDOT requirements (*Section 4.4.3*). Electronic submissions of plans, reports, and calculations will follow VDOT’s process; our staff is experienced in using FALCON and CADAC for document control, comment/responses, and submittals. The design effort will include finalizing typical sections; refining horizontal and vertical alignment including ties to existing roadways; preparing curb geometry tables; identifying geotechnical boring needs; developing ROW plans; developing special design details; and preparing plan and profile details, notes and call-outs. Roadway design efforts will be coordinated with other design disciplines including drainage design, hydrologic and hydraulic (H&H) analysis, utility coordination and design, traffic engineering, and bridge design. **Input from VDOT, other reviewing agencies, and the public are expected for this high-profile project and will be a key consideration during the design process.**

We have provided detailed explanations (highlighted) for the enhancements made to the RFP plans (*Volume II Conceptual Plans*). Our design concept, including proposed stormwater management (SWM) facilities, falls completely within the ROW limits identified in the RFP conceptual plans (with the exception of temporary and/or permanent easements as allowed by the RFP). Our design applies all standard and/or above standard elements (e.g., stopping-sight distance) eliminating the need for time consuming approval of additional design exceptions or waivers beyond those identified in the RFP.

4.3.1 Conceptual Roadway Plans

Conceptual Roadway Plans are provided in *Volume II* of our Technical Proposal.

Design team members recently provided services to VDOT using CADAC for general Document Control and coordination of plan reviews for multiple, concurrent D-B Projects.

4.3.1 Conceptual Roadway Description

General Geometry (A)

This section describes horizontal curve data and associated design speeds, number and widths of lanes and shoulders.

The I-66 EBW project includes adding a through lane along approximately four (4) miles of EB I-66 between the Dulles Connector Road (Route 267) and Fairfax Drive (Route 237). I-66 EDA adds an additional auxiliary lane to the existing I-66 EB exit ramp and constructing a new slip ramp from the I-66 EB exit ramp to the Route 7 southbound (SB) entrance flyover ramp.

The improvements to I-66 EBW include pavement build-ups and overlay of existing travel lanes to correct deficiencies in the existing superelevation cross-slopes meeting AASHTO standards for 55-mph design speed. Other work includes the demolition and replacement of existing shoulders with full-depth pavement, widening the road to accommodate an additional through-lane along I-66 EB for approximately four (4) miles. The ultimate typical section for I-66 will include three (3) 12-foot wide travel lanes EB except for the approach and area around bridge B-679 where the two leftmost travel lanes will be 11-foot wide and the rightmost travel lane will be 12-foot wide to accommodate buses. A minimum 4-foot wide paved shoulder will be provided to the left of traffic in addition to a minimum 8-foot wide paved shoulder to the right of traffic. Roadway typical sections have been provided in our *Volume II Conceptual Plans* identifying the number of lanes, lane widths, and shoulder widths as required by the RFP.

Design Elements (General Geometry, Horizontal Alignment & Maximum Grade)

- ✓ **Safety.** Corrects cross-slope, achieves appropriate sight distances.
- ✓ **Operations.** Achieves appropriate sight distances.
- ✓ **Schedule, & Construction.** Maintains existing MSE wall in vicinity of B-679.
- ✓ **Public Acceptance.** Minimizes 4(f) and park impacts.

Table 4.3.1A-1 presented below summarizes key geometric features for the major roadway components. Furthermore, the additional criteria listed in the RFP *Part 2 Attachment 2.2* shall be implemented. **These design elements meet or exceed the specified RFP requirements.**

Table 4.3.1A-1: Geometric Features

Roadway Name	Roadway Functional Classification	Geometric Design Standard	Design Speed (mph)	Access Control	Minimum Lane Width (feet)	Min/Max Profile Grade (%)	**Max. Rate of Superelevation (%)
I-66 Eastbound Lanes	Urban Principal Arterial	GS-5	60	Limited	12 *	0.5/6.0	4.0
Off-Ramp (Exit 68) N. Westmoreland St.	Interchange Ramp	GS-R	40	Limited	16	0.5/6.0	4.0
Off-Ramp (Exit 69) N. Washington St/Lee Hwy	Interchange Ramp	GS-R	45	Limited	16	0.5/5.0	4.0
On-Ramp (Exit 70) N.Sycamore St.	Interchange Ramp	GS-R	45	Limited	16	0.5/5.0	4.0
Off-Ramp (71) Fairfax Dr.	Interchange Ramp	GS-R	50	Limited	16	0.5/5.0	4.0
On-Ramp (Ramp A) Route 7 SB to I-66 EB	Interchange Ramp	GS-R	30	Limited	16 (1-Lane Segment) 12(2-Lane Segment)	0.5/7.0	8.0
Off-Ramp (Exit 66- Ramp B) Route 7	Interchange Ramp	GS-R	35	Limited	16 (1-Lane Segment) 12(2-Lane Segment)	0.5/7.0	8.0
Off-Ramp (Exit 66- Ramp W) Garage Connector Ramp	Interchange Ramp	GS-R	30	Limited	16	0.5/7.0	8.0

*Lane width is reduced to 11ft for two left-most lanes of I-66 to reduce construction impacts to Bon Air Park Section 4(f) property from approx. Station 259+00 to Station 274+00.

**Mainline I-66 EB is designed for 55-mph superelevation.

Horizontal Alignments (B)

There are 16 horizontal curves along the EB alignment for I-66 within the project limits. The Wagman Team’s design concept incorporates safety improvements by correcting the superelevation of the roadway to meet current AASHTO standards for 55-mph. As a result, driver comfort, drainage, and safety will all be improved throughout the project limits.

A major advantage of our innovative design concept is the **elimination of risk of impacts related to the reconstruction of the retaining wall adjacent to the Custis Trail** near bridge B-679. The Wagman Team’s concept flattens the horizontal alignment for I-66 EB from the RFP plans, thereby improving safety, while adhering to the RFP requirements for a 55-mph design speed and the required 495-feet of stopping-sight distance. The horizontal alignment shift, combined with the use of a replaced barrier/moment slab, allows for the existing retaining wall along I-66 to remain; construction impacts to the adjacent trails and 4(f) park property (Bon Air Park) are reduced; construction duration is accelerated; and construction impacts to the traveling public are reduced improving safety.

Maximum Grade for All Segments and Connectors (C)

The I-66 EBW mainline profile will be engineered to follow the existing roadway profile and meet VDOT and AASHTO criteria. Grades will be refined to accommodate corrections to superelevation and avoid full-depth pavement removal. The Wagman Team’s design satisfies the RFP requirements for 0.5% minimum grade. Our design concept does not exceed the maximum proposed vertical grades for each roadway alignment (*Table 4.3.1A-1 and Part 2 Attachment 2.2*); **actual maximum grades** are shown in tables in *Volume II Conceptual Plans*.

Typical Sections (D)

The geometry of each roadway element is described above and typical sections for each roadway element are included in *Volume II Conceptual Plans*. I-66 EBW will include three (3) 12-foot wide travel lanes EB except for the approach and area around bridge B-679 where the two left-most travel lanes will be 11-foot wide and the right-most travel lane will be 12-foot wide for buses. A minimum 4-foot wide paved shoulder to the left of traffic and a minimum 10-foot wide paved shoulder to the right of traffic are provided. Interchange ramps will have a 16-foot wide travel lane with 4-foot wide left side paved shoulder and a 10-foot wide right side paved shoulder. Exceptions have already been granted for reduced shoulders in certain locations.

Design Element (Typical Sections)

- ✓ **Safety, Operations & Public Acceptance.** Provides permeant (and temporary) emergency pull-off areas.
- ✓ **Schedule & Construction.** Maintains existing MSE wall in vicinity of B-679, eliminating full reconstruction.
- ✓ **Public Acceptance.** Minimizes 4(f) and park impacts.

As noted above, the horizontal alignment surrounding bridge B-679 has been flattened improving safety and allows the left (inside) paved shoulder to be reduced to 6-feet to accommodate the required 495-foot minimum sight distance required for 55-mph design speed. This combined with the use of a proposed moment slab eliminates the need to replace the existing retaining wall adjacent to Custis Trail, reducing 4(f) impacts, as depicted in *Figure 4.3.1D-1*.

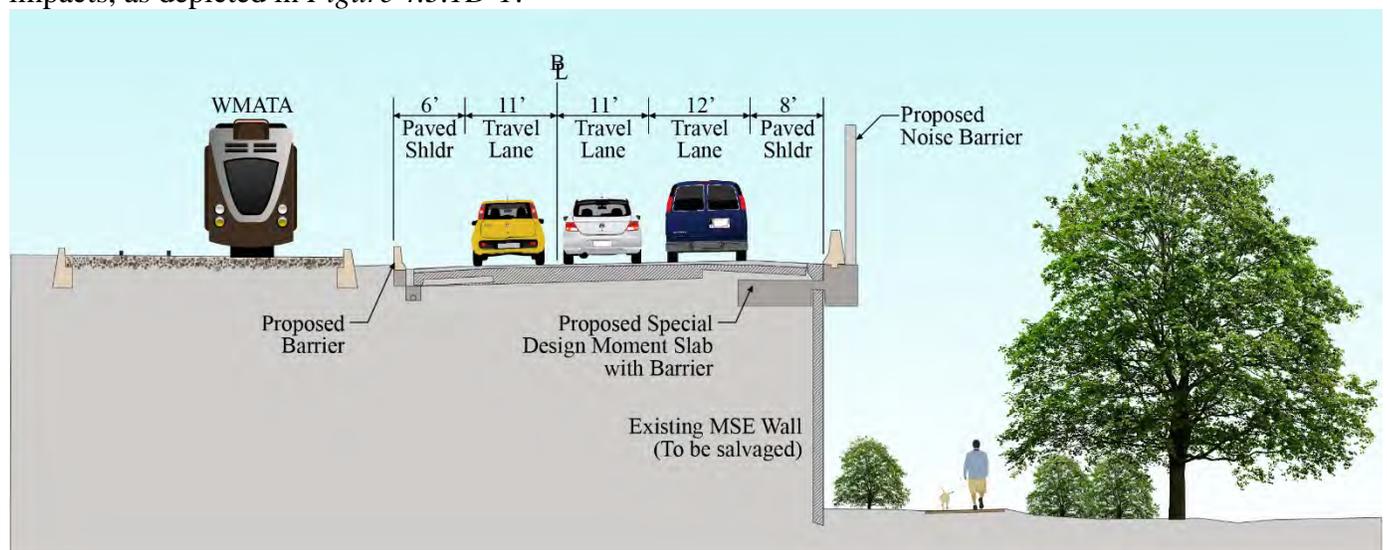


Figure 4.3.1D-1: Existing retaining wall adjacent to Custis Trail.

To improve safety, our superelevation and cross-slope corrections will incorporate pavement wedging to achieve the final cross-slopes and transitions. The existing surface course will be milled and intermediate or surface mix asphalt will be used to achieve the correction, accept temporary traffic markings, and allow traffic to run on partially completed build-up pavements if required. After the cross-slope is established, a final, uniform depth, surface asphalt will be provided in the final pavement section. Minimum cross-slopes on tangents will be set at 2%.

Emergency Pull-Off. Permanent emergency pull-off areas are provided as identified in *Volume II Conceptual Roadway Plans* at two (2) existing and two (2) proposed locations. These areas provide refuge for stranded motorists and emergency vehicles. Unsafe parking on the shoulder will no longer be necessary for stranded motorists on mainline I-66 due to the limited access, reduced right shoulder widths and closed barrier typical section of I-66. These emergency pull-offs also serve to keep the shoulder areas clear for emergency vehicles to utilize the shoulder sections at all times.

During construction, additional temporary emergency pull-off areas will be provided as required per the *Virginia Work Area Protection Manual* to promote motorist safety and a safe work zone.

Conceptual Hydraulic and Stormwater Management Design (E)

Drainage & Stormwater Management Design

Our drainage and SWM design for this project meet or exceed criteria stipulated in the RFP. Our design applies Virginia Law, the *VDOT Drainage Manual*, applicable IIM's and specifically the technical criteria outlined in Part IIC of the *Virginia Stormwater Management Program (VSMP) Regulations for I-66 EBW* and Technical Part IIB of the VSMP Regulations for I-66 EDA, Arlington County Ordinance, and the Four Mile Run Program administered by the Northern Virginia Regional Commission (NVRC).

Stormwater Drainage Design. The intent of our drainage design is to maintain the existing drainage patterns and natural divides while managing the additional runoff attributed to the increases in impervious area. One of the risks identified by the team was the hydraulic and structural adequacy of existing storm sewer network given the structure's age and the existing pipe network's ability to accommodate the additional flow from the proposed improvements. **To mitigate this risk, the Wagman Team has already performed a detailed analysis of the existing storm sewer network including culverts – Volume II Conceptual Plans** identify pipes needing repair or replacement.

The Wagman Team has identified where new structures are needed (*Volume II Conceptual Plans*). The proposed conveyance system will consist of pipe extensions, cross pipes and culverts. **To mitigate the risk pertaining to structural adequacy, the Wagman Team has also reviewed the pipe inspection reports and videos that were included with the RFP package in detail and have identified pipes that have ratings of S4 and S5 to be repaired or replaced.**

New and existing storm sewer systems will be used to effectively drain the proposed SWM facilities. Each drainage system has been designed and located to maintain the existing drainage patterns within each Hydraulic Unit Code (HUC) boundary, while conveying runoff to either a SWM facility or an adequate outfall. **Our design minimizes impacts to adjacent properties and natural resources.** (*Volume II Conceptual Plans*)

Stormwater Quality Management. The proposed SWM facilities along I-66 EBW are grandfathered and have been designed to be constructed in accordance with Part IIC of the *VSMP Requirements*. Performance based criteria for evaluation of stormwater quality requirements were used. Since there are two- 6th Order

Design Elements (Hydraulic & SWM)

- ✓ **Operations.** Eliminates manufactured treatment devices to maximum extent practical for easier BMP operation.
- ✓ **Schedule.** Early coordination with VDOT, NVRC, and Arlington County to expedite SWM approach concurrence.
- ✓ **Construction.** Construction and maintenance access were considered in identifying locations of the proposed BMPs.
- ✓ **Public Acceptance.** Minimizes impacts to private property owners and BMP footprint; also eliminates one bioretention basin.
- ✓ **Performance/Durability.** Future maintenance and inspection requirements were key factors in selecting proposed BMP types.

HUC boundaries within the project limits, pollutant load reduction requirements were determined independently within each HUC. The Station ranges for the HUC boundaries are shown in *Table 4.3.1E-1*.

Table 4.3.1E-1. HUC Boundaries for I-66 EBW

Watershed (6th Order HUC)	Starting Station	End Station
Pimmit Run (PL-24)	120+00	126+15
Four Mile Run (PL-25)	126+15	312+50

The project is anticipated to disturb no more than 40.52 acres which creates a total required phosphorous removal requirement of 12.1 lbs/yr. *Table 4.3.1E-2* summarizes the required removal for each HUC, the anticipated BMPs used to meet that requirements as well as the anticipated removal rate.

Table 4.3.1E-2. Pollutant Removal and Proposed BMP Types for I-66 EBW

HUC	Req. Phosphorous Removal (lbs./yr.)	BMP Type	Pollutant Removal (lbs./yr.)
Pimmit Run	0.1	Grass Swale	0.5
Four Mile Run	12.0	Water Quality Swales Bioretention Basin Manufactured Filtering BMPs	9.0
Nutrient Credit Purchase (Max 25%)			3.0
TOTAL	12.1		12.5

Since VDOT has already purchased 3.6 lbs/yr of nutrient credits for I-66 EBW, the Wagman Team will take advantage of these credits by strategically applying them, to the maximum extent possible (25%), reducing the number of BMPs to be constructed, reducing maintenance costs for VDOT. The proposed SWM facilities have been evaluated to minimize the number of SWM facilities and impacts to private properties which result in construction, maintenance and ROW savings for the Commonwealth. Consideration to proper ingress and egress for maintenance vehicles/equipment was performed in the identification of BMP locations. All proposed BMPs, except for the bioretention basin, can be accessed for future maintenance via the roadway shoulders. The proposed bioretention basin will have a maintenance access entrance. SWM facilities include water quality swales and manufactured filtering BMPs with 50% removal efficiency. **The Wagman Team’s innovative SWM design eliminates the need for three (3) of the six (6) Manufactured Treatment Devices (MTDs) exceeding the RFPs conceptual design.** Significant construction time savings and long-term maintenance cost savings will be realized.

The Wagman Team’s innovative SWM design eliminates the need for three (3) of the six (6) Manufactured Treatment Devices (MTDs) exceeding the RFPs conceptual design.

I-66 EDA’s SWM facility shall be designed in accordance with Part IIB of the VSMP Requirements. Therefore, Virginia Runoff Reduction Method (VRRM) was used for evaluating stormwater quality requirements. I-66 EDA improvement is located within Pimmit Run and the estimated post construction phosphorus reduction requirement is 1.6 lbs/yr. Therefore, a bioretention basin is proposed to satisfy water quality requirements for this portion of the project. **No additional nutrient credit purchases are required.**

Stormwater Quantity Management and Hydrologic and Hydraulic Analysis (H&HA). All design work will be done in accordance with the latest version of IIM-LD-195, Chapter 11 SWM of the VDOT Drainage Manual, as well as the additional standards and reference documents listed in *Part 2, Section 2.1* including; the Virginia SWM Program Law and Regulations, Arlington County Ordinance, and the Four Mile Run Program administered by NVRC.

Since seven (7) out of the eight (8) outfalls are discharging into the Four Mile Run watershed, the SWM plan must be approved by NVRC. NVRC administers the Four Mile Run Watershed Management Program to

address flood control mitigation. NVRC reviews and approves any development within the Four Mile Run watershed. NVRC has conditionally approved VDOT’s RFP concept plans.

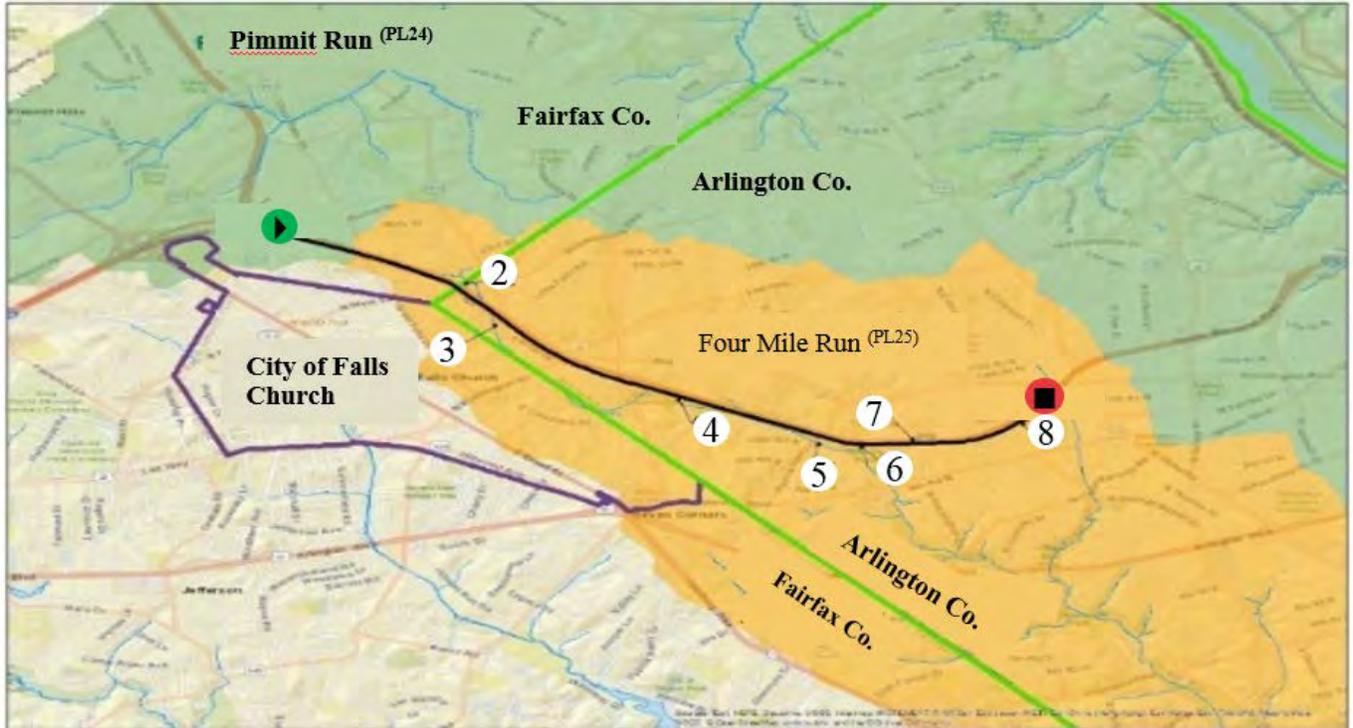


Figure 4.3.1E-1: Project outfalls within Pimmit Run and Fourmile Run Watersheds

Attenuation of the 100-year storm flows to the Four Mile Run watershed will be required. The Wagman Team has evaluated the pre and post development flows for the 100-year storm event. Findings from the analysis indicate that retrofitting the riser structure of the Sycamore Pond would decrease the 100-year flow by 22.17 CFS from the existing condition. The proposed retrofit is sufficient to mitigate the 100-year storm event and that increasing the size and/or footprint of the pond is not warranted. A summary of the analysis is shown in *Table 4.3.1E-3*.

Table 4.3.1E-3. 100 Year Flow Attenuation Analysis for Four Mile Run

Outfall No.	Pre vs Post Development, 100 Year Flow (Net Change)
2	Decrease by 0.6 cfs
3	Increase by 20.57 cfs
4	No change
4A (Sycamore Pond Retrofit)	Decrease by 45.8 cfs
5	No change
6	No change
7	Increase by 3.12 cfs
8	No change
Net Change	Decrease by 22.17 cfs

The Wagman Team has already conferred with NVRC, Fairfax & Arlington Counties regarding flooding and SWM.

Public Agency Acceptance. The Wagman Team has already engaged NVRC, Arlington County and Fairfax County in discussions pertaining to their respective agency’s concerns. Arlington County will be key in reviewing SWM and drainage design and NVRC is primarily concerned with flooding in the Four Mile Run drainage basin. Fairfax County stated that they will not have direct review responsibilities for the project.

The Wagman Team has a thorough understanding of NVRC and Arlington County requirements. We will continue to perform early coordination with both entities to make sure that there is continued concurrence with the Wagman Team’s approach to SWM.

In addition, channel and drainage system adequacy were analyzed and met using the *Virginia E&S Control Regulations Minimum Standard 19 (MS-19) criteria* and *Part IIC of the VSMP for I-66 EBW and Part IIB requirements for I-66 EDA*. There are two (2) types of receiving channels for this project, man-made systems (roadside ditches and piped network) and natural channels. The receiving channels were evaluated using the 2 and 10-year storm. The limits of these analyses were either where the channel enters a mapped flood plain or the drainage area is one hundred times greater than the contributing drainage area (1% of area or flow Rule). A summary of the Wagman Team’s outfall analysis is summarized in *Table 4.3.1E-4*.

Table 4.3.1E-4. Outfall Analysis for I-66 EBW

Outfall No.	Watershed	1% Rule	2-year and 10-year Storm Analysis
1	Pimmit Run	NA	2-year storm will not cause channel bed erosion 10-year storm will not overtop channel banks
2	Four Mile Run	NA	No increase in 2-year and 10-year storm
3	Four Mile Run	NA	2-year storm will not cause channel bed erosion 10-year storm will not overtop channel banks
4	Four Mile Run	Yes	1% Rule Applied
4A (Sycamore Pond)	Four Mile Run	NA	Retrofit riser to mitigate 100-year storm to Four Mile Run
5	Four Mile Run	Yes	1% Rule Applied
6	Four Mile Run	Yes	1% Rule Applied
7	Four Mile Run	NA	10-year storm will be contained within the pipe
8	Four Mile Run	NA	No increase in 2-year and 10-year storm

For I-66 EDA, the outfall discharges to a manmade conveyance system. Based on the Wagman Team’s analysis, the post development peak flow rate for the 2-year, 24-hour storm event will not cause any erosion of the system and no overtopping from the 10-year storm is anticipated. Therefore, Part IIB channel and flood protection requirements for manmade conveyance system will be satisfied.

Erosion and Sediment (E&S) Control

The Wagman Team will contain all sediment on-site in accordance with our E&S plans. The Wagman Team anticipates at least a two-phase E&S control plan to be required; other phases may be needed to accommodate segmented construction phasing. A Phase I and II E&S Control Plan consisting primarily of silt fencing, inlet protection and outlet protection will be developed and provided to VDOT for their review and approval. In addition, due to land disturbance on temporary construction easements within Arlington County, the E&S Control Plan for these areas will be provided to the County for their review. During any land disturbing operations, the Wagman Team will have an individual or individuals onsite holding the following Certifications; VA DEQ ESC Inspector, VA DEQ SWM Inspector, VDEQ Responsible Land Disturber (RLD) and a VDOT Erosion and Sediment Control Contractor (ESCCC) to ensure compliance with all VDEQ and VDOT E&S control plan implementation requirements.

Proposed Right of Way Limits (F)

The conceptual design for the roadway including SWM facilities will be contained within the ROW or permanent easement limits shown on the RFP Plans. Permanent utility easements and temporary construction easements will be identified as the design progresses. Upon VDOT approval land acquisition will commence. Replacement easements for utility relocations will be acquired for those with prior and/or compensable rights and currently in easements. Permanent easements will also be considered in order to provide requested access behind noise barriers. Our design only differs from VDOT’s RFP conceptual ROW

limits on *Sheets 5 and 14 of Volume II Conceptual Plans* for a short section of permanent retaining wall easement. **See Sheet 14(1) of Volume II Conceptual Plans for temporary construction easements (TCE) reductions.**

JMT recently completed the acquisition of ROW for VDOT’s Route 3 D-B Project (60 parcels) and as Wagman’s Lead Design Firm for Odd Fellows Road D-B (37 parcels).



The relevant experience and depth of JMT’s ROW acquisition staff is one of the main reasons the Wagman Team can provide all the ROW acquisition services, including appraisals and appraisal reviews, required for this contract. Meeting the proposed interim and final completion date proposed herein while remaining within budget will be our priority. We will accomplish this by providing a staff that has a proven track record based on successful past performance. We have a veteran staff of former ROW agents and managers who are ROW Utility Management System (RUMS) certified and intimately familiar with VDOT policy and procedures for the variety of ROW services required for this D-B Project. Additionally, our ROW manager, Gerald Krebs, SR/WA, worked directly with DBPM, Greg Andricos, PE, and D-B coordinator, Jerry Whitlock, PE, DBIA, to successfully acquire the ROW and easements required to deliver the Mark Center Short and Mid-Term Improvements D-B project in Alexandria, VA.

Design Elements (ROW)

- ✓ **Schedule & Public Acceptance.** The Wagman Team is already conferring with both the I-66 OTB and I-66 MMI projects about optimal best practices.
- ✓ **Public Acceptance.** Reduces Custis Trail TCE.

Lessons Learned. During the development of this technical proposal the Wagman Team has extensively studied the ROW requirements of this project relative to those of other projects throughout the state including various NOVA District mega-projects such as I-66 OTB. We have compiled the collective lessons learned from these ROW managers to develop a strategy to implement successful ROW clearance not only prior to completion of the project, but in advance, to support the optimized construction schedule.

Proposed Utility Impacts (G)

There is a significant amount of utilities that could impact this project. The utilities are public and privately-owned facilities that include watermains, sanitary sewer mains, fiber optic duct banks, gas mains, transmission and distribution power as well as VDOT fiber and power supplies. The systems cross the interstate and some of them run parallel to the EB lanes and the final location of the W&OD Trail bridge will determine additional locations. Additional information is included in the Utility Matrix in *Section 4.4*.

Design Elements (Utility Coordination)

- ✓ Our team has intimate knowledge of I-66 Mainline utilities from the I-66 MMI Project.
- ✓ **Operations.** Proposed relocation of VDOT utilities provides for future maintenance with minimal lane closures.

It appears at this stage, that all the VDOT owned fiber optic and power supplies located parallel to the EB lanes will be in conflict with the excavation to build the future pavement.

The Wagman Team’s dedicated subcontractor, FMCC, has extensive first-hand knowledge of these systems through their work on the construction of the I-66 MMI Project for VDOT and has already developed relationships with all the utility owners within the corridor. This knowledge has been incorporated within our conceptual design to provide numerous betterments inclusive of relocating utilities behind the proposed noise barriers. Locations will be verified by test pitting before plans are developed to relocate these facilities. The systems that cross the interstate should be clear of conflict on the inside widening and most of the outside widening. Further investigations, including test holes, will be made on some of the outside widening to determine if they were installed shallower. This will reduce the risk to the construction operation by avoiding “utility surprises” which could have monetary and schedule impacts.

Overhead Dominion Energy transmission and distribution systems are in close proximity to the proposed noise barrier operations as well as the pedestrian bridge. The Wagman Team’s strategy is to facilitate open communication and frequent coordination between Dominion Energy, the Designers, and the construction

Our Utility Coordinator, Matt McLaughlin, has relevant corridor experience on the I-66 MMI, the I-66 Spot 1 & 2 Improvements Projects, and the I-66/Route 29 Gainesville Interchange project.

management team via utility task force meetings every two weeks. This approach has been successfully performed on other D-B projects performed by Wagman and JMT.

The Wagman Team’s design successfully avoids impacting all existing cell towers.

Our strategy mitigates issues with VDOT-owned fiber optic and power supplies by installing new facilities in areas that will

be out of conflict. New facilities will be mapped using the latest RFID and GPS technologies. This provides an accurate utility as-built record for both maintenance and future widening use. The cutover splicing will be coordinated with all the stakeholders to minimize impacts.

The construction of the proposed pedestrian bridge for the W&OD Trail has some inherent utility risks, but these have been substantially mitigated based on proposed relocation concepts. The AT&T conduits are close or in conflict with the bridge pier and the foundation for the MSE walls. As such, we have modified the bridge design to conform to the protection standards that were outlined by AT&T. If forthcoming test pits show that the facilities are in a different location than that is shown on the as-built plans then further design modifications may be performed, the utility will be protected in-place or relocated. After field investigation, the final solution could incorporate some or all these methods. It is anticipated that a Dominion Energy transformer and a distribution pole will have to be relocated. This is not believed to be a significant impact to land rights or the schedule. There is also a Cox Communication coax cable that will have to be placed underground to avoid the bridge and then reattached to the relocated Dominion Energy pole. The *Addendum 3* change to the proposed location of the pedestrian bridge successfully avoided conflicts with the water main, sanitary sewer main, gas main and the other underground CATV/fiber optic cables.

The Wagman Team will utilize the strategies developed and implemented on the Route 7 Widening/Bridge Rehabilitation over the Dulles Toll Road D-B Project which successfully mitigated over 40 utility conflicts while maintaining project schedule.

While I-66 EBW does present a number a utility challenges, there is nothing anticipated on this project that the Wagman Team has not successfully resolved on other complex projects with the region. **Our approach is based on proactively identifying and mitigating utility conflicts from pre-investigation through design development and construction operations.**

Noise Barrier Locations (H)

Noise barriers will be designed to meet the requirements determined as a result of the Final Noise Analysis process. Foundations for walls must consider varying conditions: ground mounted with drilled foundations, bridge mounted behind concrete traffic barriers, and noise barriers mounted on existing retaining walls including a new moment slab. All noise barriers will be backed with a minimum 10-foot maintenance path accessible from local streets. See *Volume II Conceptual Plans*.

Trail Horizontal and Vertical Alignment (I)

Sidewalks and Shared Use Paths. See *Volume II Conceptual Plans*. We have exceeded the requirements of the RFP by refining the Custis Trail alignments while accommodating a design speed of 12-mph; all other trails, including the W&OD Trail, will accommodate a design speed of 18-mph. Sidewalks will be designed to comply with ADA requirements. Design, MOT, and construction staging affecting pedestrian, bicycle, and equestrian facilities will be coordinated with VDOT and local jurisdictions.

Design Elements (Trail Alignment)

- ✓ **Construction.** Our approach eliminates the need to reconstruct the MSE wall (vicinity B-679).
- ✓ **Public Acceptance.** Reduces impact the 4(f) and park property.

Sidewalks and shared use path connections to the W&OD Trail near bridge B-680 shall conform to the Landscape Concept Plan rendering provided by VDOT.

Other Key Project Features (J)

Traffic Control Devices

ITS/ETC Design Concept. The existing traffic management systems and the new electronic toll collection systems (termed “ITS elements” through this proposal) are critical for the management of traffic through the corridor. Since the corridor interlocks with the OTB portion of I-66, I-495, Route 110, and Washington, DC, mobility in and around the Metropolitan Washington Region is heavily dependent on the corridor functioning efficiently.

The existing communications system for the ITS elements runs along both the left and right shoulder through the project area with crossings at various points that cross the EB and WB lanes of I-66 as well as the Metrorail in the median. The Wagman Team has confirmed that the frames and covers for the vaults for these crossings can be adjusted to the proposed grades and will not need to be replaced.



Figure 4.3.1J-1: ITS Communications Systems crossings.

Design Elements (Other Key Features)

- ✓ **Operations.** Relocate ITS communication and power outside proposed noise barrier, maintaining operation for duration of project.
- ✓ **Construction.** Wagman Team’s experience with existing ITS system on I-66 ATM and I-66 MMI.

The distribution fiber cables for the detection and CCTV subsystems run along the left shoulder at the western end of the project and conflict with the first phase of our work to complete this project. The Wagman Team plans to relocate these facilities out of the way of the I-66 EBW project prior to approval for construction. As explained in *Section 4.5*, our plan is to proceed with construction along the inside of the corridor first and then transition to the outside. As such, our ITS element relocation work will be done using temporary shoulder closures in advance of the roadway work,

similar to a conventional utility relocation prior to roadway expansion work. The downtime for any component will be limited to the switch-over time from old to new in a matter of a single event during an overnight work period.

The ramp metering system in place at the ramp from Sycamore Street may be impacted by the work. If impacts cannot be avoided, we are dedicated to maintaining the existing system through all stages of construction.

A significant part of our plan for the ITS communication system is to relocate the appropriate communications and power distribution lines behind the proposed noise barriers. This will allow the system to remain in an area that will not be impacted by foreseeable future work

Our MOT plan minimizes the number of lane shifts that would impact the tolling system. Our MOT plan involves only two (2) toll shifts during construction and one (1) final shift. The Wagman Team’s ongoing relationship with the toll system integrator enhances our ability to coordinate and

execute these shifts efficiently, effectively, and with little to no impact on toll revenue.

Our team will ensure that access for maintenance is available for VDOT ITS and power systems through access panels and junction boxes.

The Wagman Team includes Elite Contracting (Elite) who currently has a contract to maintain the existing electrical and communications systems throughout northern Virginia, including I-66. This addition to our team gives us a unique insight to these critical elements of the project which will allow us to maintain the existing and connect the new components efficiently and quickly.

The Wagman Team includes Elite who currently has a contract to maintain the existing electrical and communications systems throughout NOVA, including I-66.

The toll collection system, including the toll gantries (EB-2 and EB-3), have been installed outside of the roadway work area and is not anticipated to be impacted during the work. **The Wagman Team’s intricate knowledge of the system allows us to know exactly where the facilities are. These systems will remain active through the construction period.**

Lighting Design Concept. The Wagman Team has reviewed the LED lighting I-66 EBW concept provided with the RFP and have determined that the overall concept is in accordance with the goals and requirements of the RFP. The widening performed by this project will impact most of the existing lighting infrastructure including conduits, cables, poles and service panels. Like the ITS, the Wagman Team will schedule the work to limit any downtime to the existing lighting system and will provide temporary lighting in merge and diverge areas where lighting is needed for the safe movement of traffic. The Wagman Team will also locate the power facilities outside of potential future work areas. Lighting concepts for I-66 EDA are in *Volume II Conceptual Plans*.

Additional Roadway Design Concept

Barrier/Guardrail Design Concept. Where appropriate, new guardrail and traffic barriers used on this project will be MASH-compliant for enhanced safety. All substandard guardrail/barrier within the I-66 EBW Project Limits along I-66 EB and within the I-66 EDA project limits shall be upgraded to meet current standards including segments on connecting roadway to the nearest logical termination point.

Pavement Design Concept. The Geotechnical Data Report (GDR) provides several different minimum pavement sections including pavement sections for the I-66 EBW & EDA which are shown in *Volume II Conceptual Plans*. Final pavement designs will be determined subsequent to collection of more detailed geotechnical data.

Superelevation corrections will require pavement wedging to achieve the final cross-slopes and transitions. Minimum cross-slopes on tangents will be set at 2%. The existing surface course will be milled and intermediate or surface mix asphalt will be used to achieve the correction to accept temporary traffic markings and allow traffic to run on partially completed built-up pavements if required. After the cross-slope is established, a final, uniform depth, surface asphalt will be provided in the final pavement section.

Surveying

Our success lies in the fact that we take safety very seriously, especially working in and around limited access corridors and interstate highways. Similarly, JMT performed surveying and subsurface designation of a 7-mile corridor of I-66 OTB. Our field staff coordinated with VDOT’s Operation Center, the NOVA District Survey Manager, and the contractors also working to the east and west of our corridor in the daily performance of our field work. The coordination with the contractors involved sign placement and ensuring safety protocols were in place as well as assuring there was enough overlap between project boundaries for the field work. In short, a safe work zone was created and there were no safety-related accidents or delays over the course of the project. Our survey effort will be coordinated with VDOT’s LCAMS.

In order to minimize impacts to the traveling public, the Wagman Team employs reflector-less technologies within our conventional total stations or scanning instruments. We will employ a mobile scanning system capable of collecting pavement elevations to survey grade, while driving with moving traffic. The mobile scanner can be driven at night when traffic volumes are at their lowest to minimize impacts to traffic. Through the use of the scanning technologies, JMT will develop a survey representing the existing pavement surface in 3-D, to validate the VDOT-supplied data and design this project using OpenRoads.

However, there will be times when the surveyors will have to directly access the roadway to collect elevations or features that are obscured from the scanner. We are very mindful of the impacts of the work zone, we reinforce each safety protocol implemented through advanced notification to VDOT and our contracting partners.

Geotechnical

General Conditions. The site is generally along the boundary of the Piedmont and Coastal Plain Physiographic Provinces and is underlain by variable amounts of existing fill soils overlying residual materials of either the Sykesville or Indian Run Formations. These formations consist of residual soils that are predominately fine sandy silts and silty sands with traces of mica that have developed in-place from the weathering of the underlying migmatite, micaceous schist, and gneiss bedrock. The weathering occurs in an irregular fashion and creates a zone of decomposed or ‘disintegrated’ rock that can possess rock-like qualities and can extend to a significant depth. Eastern portions of the project alignment may be underlain by alluvial and/or Terrace Deposit soils.

During the preliminary subsurface exploration, bedrock was encountered along the project alignment at variable depths ranging from about 15-ft to 86-ft below the existing ground surface. Rock excavation is not expected throughout the majority of the project alignment, with the exception of the installation of new drilled-in-place foundation systems for support of the new bridge foundations.

Groundwater was encountered during the preliminary subsurface exploration at depths ranging from 8 to 58-ft below the ground surface. Long-term stabilized groundwater readings ranged from about 10 to 48-ft below the ground surface. Groundwater is not expected to impact the majority of the project construction.

Wagman maintains local supervision, craft and equipment required to self-perform the installation of all foundation types anticipated for this project. Foundation types will be selected to minimize noise, vibration, and work zone footprint, including but not limited to: drilled piles, augercast piles, micropiles, and drilled shafts with either slurry or casing. These same team members have successfully completed similar drill foundations on the I-66 corridor (I-66 ATM D-B and I-66 MMI Projects).

Approach. A total of 106 standard penetration test borings were drilled as part of the GDR prepared by VDOT. However, additional borings and pavement cores will be required in order to meet the requirements of VDOT’s Chapter 3 of the Materials Division MOI. The exploration program will be sufficient to identify and assess the geologic materials and groundwater conditions within the project limits. Anticipated additional borings will be needed for roadway widening and pavements, bridge widenings and new foundations, noise barriers, retaining walls, SWM basins, new or extended culverts (36 inches in diameter or larger), and traffic signs.

The GDR provides several different minimum pavement sections including pavement sections for I-66 EBW & EDA. Accordingly, our approach includes the necessary soil laboratory testing to support the project pavement designs including additional CBR tests. The pavement sections for the I-66 EBW presented in the GDR consists of 10-inches of asphalt, overlying 6-inches of CTA and 6-inches of cement stabilized soil or of 10-inches of asphalt, overlying 6-inches of cement stabilized soil and 6-inches of CTA or 10-inches of asphalt, overlying 12-inches of CTA. Underdrains will be provided where required by the VDOT MOI.

The GDR indicates that unsuitable soils will be encountered more frequently along the western portion of the project alignment, roughly from Station 130+00 to Station 175+00. The soils along this portion of the alignment at proposed pavement subgrade elevation generally were considered unsuitable due to being highly plastic as well as being soft/loose and exhibiting SPT N-values of less than four (4). The supplemental subsurface exploration will be used to further define the extent of unsuitable soils along the project alignment included, but not limited to, at pavement subgrades, retaining and noise barrier wall foundation subgrades, and fill embankment subgrades. The extent of unsuitable soils will be provided in the final geotechnical engineering report as well as in the roadway cross-sections to aid the contractor and project QC in identifying these areas prior to construction and to streamline subgrade preparation and evaluation.

Modifications to the superstructure, extension of abutments, and/or construction of new piers will be required to accommodate the I-66 widening at the Williamsburg Boulevard Bridge, Westmoreland Street Bridge, N. Sycamore Street Bridge, and the I-66 Bridge over Custis Trail and Bon Air Park. The as-built plans indicate that the existing bridge foundations are supported on either cast-in-place piles, spread footings, or steel H-piles. The supplemental subsurface exploration and analyses will be used to provide foundation recommendations for the new foundations resulting from the I-66 widening; however, we generally anticipate that recommended foundations will match the existing with the exception of structures supported on steel H-piles as the driving of piles will likely result in excessive vibrations on the adjacent WMATA structures. Following our supplemental subsurface exploration, which will include additional borings at the bridge abutments and piers, we will perform analyses to determine the effects of the proposed widenings on the existing foundations as well as to determine foundation systems that will limit differential settlements of the bridge foundations.

Landscape Design

The landscape design for this project will implement Context Sensitive Design/Solutions to reflect the aesthetics of the project corridor. Our design emphasizes appropriate landscape provisions that enhance safety and visual appeal for those using and living along the highway corridor. Using native plant species indigenous to the area, disturbed areas within the project limit will be vegetated in accordance with the specifications defined in the *Landscape Architecture Design Report and Requirements* and in conformance with the Conceptual Landscape Plans. Where necessary and appropriate, coordination with the Arlington County Department of Parks and Recreation and NOVA Parks will occur to facilitate that work associated within Bon Air Park and W&OD Trail Property is reviewed by the appropriate agencies. Fencing, noxious weed control, and urban nutrient management requirements defined in the project specifications will be met.

Design Elements (Landscaping)

- ✓ **Performance/Durability.** Low-maintenance strategies will be implemented and safe long-term access to various project elements will be incorporated into the design.

Coordination with all design disciplines involved in the project will be critical to achieve a successful planting design for the project. In particular, coordination with SWM design, environmental compliance and permitting, and utility design is important since these disciplines have the potential to significantly impact landscape design for the project. Similarly, project implementation, including phasing and construction methods will be considered during design so that preservation of, and minimization of impacts to, existing vegetation along the project corridor can be effectively accomplished during project construction.

Future maintenance of the vegetation on the project will be a critical consideration in the design of the landscape. The landscape design team will ensure that effective, timely communication regarding landscape issues occurs throughout the duration of the project. **Our design will implement low-maintenance strategies and provide for safe long-term access to the various project elements.**

Public Acceptance and Outreach. The Wagman Team has led over 100 public meetings in NOVA and will actively pursue public outreach and acceptance throughout the design and construction of the project.

4.3.2 Conceptual Structural Plans and Description

4.3.2 Conceptual Structural Plans

Please see the conceptual Structural Plans are provided in *Volume II*.

4.3.2 Conceptual Structural Narrative

The Wagman Team has exceeded the minimum requirements of the RFP and all structural plans will conform to the RFP designs and meet or exceeded the criteria set forth in the RFP as well as *AASHTO LRFD Bridge Design Specifications (7th Edition)* and *VDOT Modifications as identified in VDOT I&IM*

Design Elements (Structural)

- ✓ **Safety.** Minimizes duration of construction utilizing innovative construction techniques.
- ✓ **Performance/Durability.** Use of link slabs to eliminate existing deck joints.

S&B80 (including the *Additional Foundation Criteria-Attachment 2.3*), and VDOT standards. The designs will focus on emphasizing low maintenance alternatives, ease of inspection, and constructability. MOT for all phases will be coordinated with the TMP. Load rating for each structure will be prepared and provided prior to any phase of a structure being opened to traffic, in addition to final as-built load ratings.

Modifications to Eastbound Structures

Modifications to the EB structures will include widening for capacity, as well as overhang reconstruction to accommodate the addition of noise barriers, joint eliminations, and the installation of under bridge lighting and bridge conduit system for lighting and VDOT communications. These structures will also be repaired in accordance with the RFP and the most current bridge safety inspection reports. All design will carefully consider any potential impacts to the adjacent WMATA structures and guidance in the WMATA “Adjacent Construction Project Manual”.

I-66 EB over Williamsburg Boulevard (B-675) is a 3-span steel girder bridge with seven (7) existing girder lines. One additional steel girder line will be added on the median side, including the addition of a pier column at both existing piers and widening of both existing abutments to support the new girder line. The existing deck joints at the piers will be eliminated by utilizing link slabs, to satisfy VDOT’s low maintenance goals. The outside overhang will be replaced to install a new parapet and noise barrier. The Wagman Team will employ an innovative method to eliminate the need for full depth removal and reconstruction of the interior bays as detailed on *Figure 4.3.2-2*. Vertical clearance will not be adversely impacted by this additional widening.

Structures B-675 and B-677 incorporate link slabs to meet VDOT’s low maintenance goals.

I-66 EB over Westmoreland Street (B-677) is a 3-span steel girder bridge with seven (7) existing girder lines. One additional steel girder line will be added on the median side, including the additional of a pier column at each of the existing piers and widening of both abutments to support the girder line. The existing deck joints at the piers will be eliminated by utilizing link slabs, to achieve a low maintenance configuration. Vertical clearance will not be adversely impacted by this additional widening.

I-66 EB Over Sycamore Street (B-678) is a 2-span continuous concrete box girder bridge with 5 girder lines. The median side will be widened to accommodate the desired additional lane. The widening will be accomplished by utilizing steel tub girders with internal stiffeners and partial concrete fill to achieve equivalent stiffness. This meets the RFP and subsequent communication regarding non-use of shapes to accomplish the widening, while avoiding the use of concrete box beams. Box beams are currently prohibited for use on the interstate system per the S&B Manual (*Vol. 5, part 2, Ch. 12*). The pier will utilize a single drilled shaft with a column and cap in a hammerhead configuration to support the additional girder line, which minimizes excavation and potential impacts to utilities.

I-66 EB over Bon Air Park (B-679) is a single span 3-line steel tub girder bridge. The entire deck will be replaced on this structure, which will be in addition to widening of the superstructure to the inside and slightly to the outside. The MOT configuration was closely coordinated with the Traffic Engineers and the CM, Vincent Yuskoski, to ensure that the deck construction joints were located on the girder flanges. Please refer to *Section 4.5.2* for the proposed configuration. The inside widening will be accomplished with steel a single plate girder and will maintain sufficient space between the WMATA bridge and the widened portion. The outside (right) widening will be accomplished via a slightly extended overhang, and no additional girder line will be required. This will match the roadway geometrics and shoulder.

W&OD Trail over Lee Highway (B-680). The Wagman Team’s approach to design and construction of the W&OD Trail Pedestrian Bridge minimizes impacts this bridge work will have on the traveling public while satisfying the Project objectives and completion dates. The proposed concept for the bridge demonstrates a thorough and well-integrated approach in both design and construction.

The design of the pedestrian bridge will be performed in accordance with AASHTO’s *LRFD Guide Specifications for Design of Pedestrian Bridges, 2nd Edition, 2009*, including interims through 2015 and

VDOT Modifications. In addition, the design will meet the specific unique requirements described in the *RFP Part 2* and RFP conceptual plans.

The construction of the pedestrian bridge will be performed in a manner to minimize impacts to the traveling public such as vehicles along Route 29 and local roads, pedestrians and cyclists on the W&OD Trail and Route 29, and public transportation and emergency response providers. Excavations for foundation construction will be clearly defined and protected. Drilled-in deep foundation systems will be evaluated to minimize vibrations and avoid impacts to surrounding structures. Erection of superstructure elements will be performed in low traffic time periods to provide a safe construction site while minimizing impacts to the traveling public.

The Wagman Team has considered the types of materials, methods, and functionality used to reduce the need for future inspection and maintenance providing VDOT full confidence in the bridge’s long-term asset performance and durability. Highlights of these considerations for long-term performance include:

- Providing a jointless bridge – anticipated to be a Virginia abutment to meet bridge length and curvature characteristics.
- Use of low permeability concrete.
- Use of lightweight aggregate concrete (LWAC) in the superstructure elements. LWAC provides both a more durable and less permeable concrete than normal weight concrete.
- Use of corrosion resistant reinforcing (CRR) steel in superstructure and substructure neat elements.
- Support of all girders by bearings that accommodate anticipated loads and movements.
- Not incorporating any fracture critical members, truss structures, post-tensioning, or a fiber-reinforced polymer (FRP) deck as stated in the RFP documents.
- Providing the required vertical clearance above Route 29 and pedestrian areas as well as the required vertical separation to electrical conductors above the bridge.
- Providing a 30’ minimum horizontal clearance from Route 29 to avoid using bridge pier protection while minimizing potential impacts from vehicles.

The Wagman Team also understands that it is critical that the public be satisfied with the proposed bridge and has incorporated the following elements with this goal in mind:

- Incorporating elements and details as shown in renderings presented to the public during the meeting held on June 13, 2017 into the design.
- Use of open, concrete V-piers.
- Use of MSE walls with aesthetic finish and color around the abutments and along the approach fills.
- Maintaining the RFP plan span configuration to provide “openness” in the vicinity of surrounding structures.
- Maintaining the span over Route 29 to avoid using bridge pier protection while providing an “open” environment under the bridge.
- Using drilled-in foundation system to minimize ground vibrations and disturbances to adjacent structures such as the historically significant Benjamin Elliott’s Coal Trestle, the hotel property, and the residential apartment building.
- Using an aesthetically pleasing “grey” color on superstructure and substructure elements.
- Providing a minimal superstructure depth that meets live load deflection criteria and vertical clearance requires while also providing a graceful structure silhouette.
- Providing a unique railing and fence system with lighting satisfy both safety and aesthetic considerations.

Wagman specializes in self-performing drilled foundation systems including auger cast piles, micro piles, drilled shafts, and pre-drilled piles.



Figure 4.3.2-1: Open Pier

Hiking & Biking Trail No. 4 over I-66 (B-681). Modifications to this Hiking & Biking Trail Bridge include the relocation of Pier 3 to accommodate the widening of I-66 EB. The new pier is anticipated to consist of 2 drilled shafts located laterally outside of the footprint of the existing pier to avoid conflicts with the existing footing. The existing superstructure will be analyzed and strengthened/modified as necessary to ensure the superstructure will adequately carry all loading. Once engaged on the new pier and bearings, the existing pier will be removed in accordance with VDOT specifications, and pier protection will be installed.



Modifications to Westbound Structures

The WB structures consist primarily of replacement of the outside overhangs to accommodate proposed noise barrier replacements. The RFP's proposed concept required the removal and replacement of the first interior bay in addition to the overhang. However, the Wagman Team developed a concept which eliminates the need to replace the entire deck in the first exterior bay of each bridge. The Wagman Team's innovative approach uses deep hydrodemolition to remove concrete, allowing for the installation of additional reinforcement as determined by structural analysis of the addition of the noise barrier and the yield line analysis of the barrier section due to the extension of the overhang past the 0.3 ratio to the beam spacing. The elimination of the demolition of the deck slab in the first exterior bay, installation of formwork and recasting of the deck slab, will reduce construction duration and risk to bike, pedestrian, and vehicular traffic beneath the bridge.

An additional benefit of this innovative approach is the mitigation of risk to utilities, as there are utilities present in the exterior bay on Williamsburg Boulevard (B-682) and Westmoreland Street (B-683). Removal of the deck would have exposed these utilities to risk during demolition operations. The Wagman Team's

innovative approach eliminates this risk, as no full depth demolition of the existing deck in the first exterior bay for these structures is required.

I-66 WB over Bon Air Park (B-684) is a single-span tub girder with an 8'-3" exterior bay and a variable overhang. This option proposed by our design eliminates complications related to bracing of the tub girder and other constructability challenges associated with removal of the deck on the first exterior tub girder.

I-66 EB Ramp A over Route 7 (B-686) is a 2-span steel girder with four (4) existing girder lines. One additional steel girder line will be added on the south side, including the additional of a pier column support to the proposed girder line. The proposed column is located in a narrow median in the high traffic corridor of Route 7. The foundation type will be selected to ensure ease of construction and minimize disruption to traffic. Additional repairs will be performed on the structure in accordance with the RFP and current bridge safety inspection reports, and the slope protection will be extended to accommodate the widening.

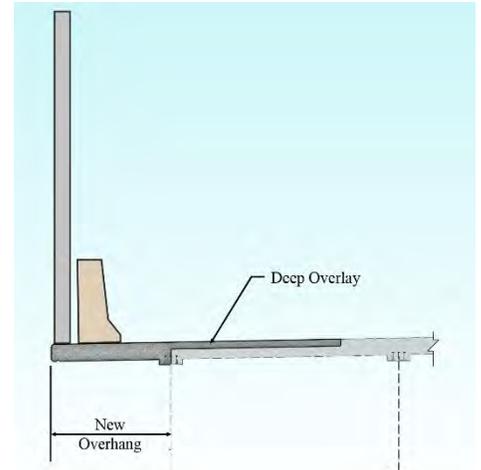


Figure 4.3.2-2: Deep overlay

Retaining Walls & Major Drainage Structures

Culverts. The roadway widening and MOT configurations have resulted in a design concept that has eliminated all culvert extensions on the project. This has significantly reduced the impacts of construction duration as well as environmental impacts to the streams.

Minimizing risk to existing utilities and traffic impacts by using partial depth hydrodemolition.

Retaining Walls. Several locations throughout the project will require retaining walls to minimize impacts to adjacent facilities and avoid additional ROW impacts. Six (6) locations throughout the project limits have been identified, from the RFP concepts. Each location has been evaluated to identify the most appropriate type of wall from a constructability standpoint.

The most notable is the wall at B-679 (Bon Air Park). The RFP plans anticipated the rebuilding of this wall due to the widening of the roadway to the outside. The Wagman Team's concept avoids the reconstruction of this MSE wall, and the constructability challenges associated with it, the most significant of which would have been the temporary support of I-66 in excess of 18' while the new wall was constructed. The minimal widening to this side of I-66 EB will be accomplished by replacing the moment slab with a special design moment slab that incorporates the minimal widening. This innovative solution avoids the impacts to 4(f) park property and Custis Trail below, as well as the lengthy construction time to replace the wall.

The list of retaining walls is included in the table below. (*Volume II Conceptual Plans*)

Table 4.3.2-1: Retaining Walls

Anticipated Retaining Wall Type	Sheet No.	Traffic Direction	Retaining Wall Length (ft)	
I-66 EBW	Standard RW-3	3	EB	52
	Modified MB-8A	5	EB	151
	Soldier Pile Wall	7 (Ramp I)	EB	479
	Soldier Pile Wall	8	EB	684
	Special Design Moment Slab*	14	EB	328
	Special Design Moment Slab*	14	EB	341
	Special Design Moment Slab*	14 & 15	WB	1,350
	Special Design Gravity Wall	15	EB	50
I-66 EDA	MSE Wall/Noise Barrier replacement	4 (I-66 EDA)	EB	199

*Mitigated retaining wall reconstruction

Section 4.4

Project Approach



4.4 | PROJECT APPROACH

The Wagman Team has thoroughly reviewed the RFP documents. Our integrated approach to managing the I-66 EBW & EDA project throughout its lifecycle from design through construction and ultimately final acceptance is summarized below. Our approach is compliant; we have developed appropriate plans based on our team’s extensive experience performing design and construction for VDOT and the NOVA District.



Safety Improvement Elements

- Enhances railing and fence system with lighting for W&OD Trail.
- Extension of stop work authority to all project personnel onsite.
- A roadside projection system that incorporates MASH-tested barriers and guardrails.
- A safe and easily understood Temporary Traffic Control design.
- No additional waivers needed beyond those identified in the RFP.



Operations Improvement Elements

- Provisions are provided for bus travel in the right lane thru the corridor.
- ITS/Toll systems are not interrupted during construction.
- Our MOT minimizes the number of lane shifts affecting toll collection.



Schedule Improvement Elements

- Rolling D-B process (refer to 4.7.2)
- Duration of work at Custis Trail shortened.
- Partial Depth removal for overhang widening will reduce MOT requirements.



Construction Improvement Elements

- Incorporates anticipated means and methods into the design through constructability reviews and task force meetings.
- Maintains existing MSE wall in vicinity of B-679.
- Partial Depth removal for overhang widening reduces noise, vibration, and construction duration.
- Teams experience with I-66 MMI Project.



Public Acceptance Improvement Elements

- Minimize impact to trails and sidewalks.
- Reduces 4(f) and park impacts.
- The permanent foundation will be designed using low-vibration and low-noise systems (micropile, drilled shaft, etc.) in lieu of conventional driven piles. Low impact pile driving for noise and vibration.



Performance/Durability Improvement Elements

- Existing drainage systems will be analyzed and upgraded to extend service life.
- Robust plant selection for low maintenance landscaping.
- Eliminates open joints reduces long term maintenance, water/salt intrusion, and corrosion.

4.4.1 Environmental Management

The Wagman Team has developed a comprehensive integrated approach to environmental management, and environmental permitting that anticipates, avoids, minimizes and mitigates potential impacts to resources/areas of concern and anticipates and mitigates for potential delays to the project. The Wagman Team’s project schedule integrates the environmental activities and key milestones into the overall schedule. Several strategies to expeditiously secure the environmental permits have been implemented to mitigate any potential delays to delivery of the I-66 EBW & EDA projects.

Approach to Environmental Management during Design and Construction

The Wagman Team will use proven environmental management strategies that we have implemented on other successful D-B projects in Virginia to meet the environmental/NEPA commitments on the project.

These management strategies will help to secure required environmental permits and approvals expeditiously so that the project’s schedule is not delayed, and is constructed in compliance with the environmental requirements. JMT will take the lead on the environmental permitting and environmental management on behalf of the Wagman Team. We will employ similar environmental management strategies used for other complex Virginia D-B projects including the Route 3 Widening D-B in Culpeper, the Odd Fellows Interchange Improvements D-B (Wagman/JMT Team) in Lynchburg, and the Fairfax County Parkway Phases 1, 2 & 3 D-B in Fairfax.

Our Environmental Compliance Matrix identifies:

- ✓ Required environmental permits
- ✓ Environmental commitments
- ✓ Amendments and the Environmental Assessment/FONSI and the EQ 103
- ✓ Categorical Exclusion for I-66 EDA

Strategies and mitigation Methods are summarized below:

Streamline NEPA re-evaluation by avoiding disturbance outside existing ROW. Our design avoids expansion of the ROW from that in the RFP Conceptual Plans, and we do not expect to expand the Area of Probably Effect (APE) from that studied in the NEPA documents. As our design progresses, we will minimize the limits of disturbance, study area, and ROW so they do not expand beyond the APE; thereby avoiding additional NEPA studies and avoiding project delays.

Environmental Management Plan During Design. The Wagman Team has prepared a preliminary Environmental Management Plan (EMP) which identified areas of environmental concern, recognized environmental conditions, identified required environmental permits, and documented the environmental commitments made in the contract documents (RFP with addenda, the preliminary EQ 103, and the Environmental Assessment/FONSI for the I-66 EBW and Categorical Exclusion for the I-66 EDA). The Wagman Team will use this EMP to monitor environmental permit acquisitions and approvals, track

environmental activities in the Project schedule, and assist with environmental compliance.

The Wagman Team will stay within the limits of disturbance, study area, and ROW as stipulated in the Environmental Assessment/ FONSI and RFP.

The EMP identifies areas of environmental concern which are illustrated in *Table 4.4.1-1* below. For example, for the W&OD Trail it describes required measures to minimize and avoid

adverse impacts to the 4(f) resources. The EMP lists environmental deliverables such as the need to provide VDOT with a set of the final plans for DHR review to document avoidance of the W&OD Railroad Historic District. The EMP will be expanded to include identification of new noise barriers that could be required by the final Noise Analysis Design Report. In addition, it identifies and will track the need for replacement of existing noise barriers in disrepair and the existing metal noise barriers as well as define the timing requirements for construction of the noise barriers.

Environmental Training During Design and Construction. Before construction begins, our environmental team will assist Wagman in developing a comprehensive project specific Environmental Health & Safety Plan. Initial half-day training session regarding environmental management and compliance will be provided to all construction personnel. The training session will include which resources require complete avoidance, which resources required mitigation measures including fulfillment of NEPA commitments, and discuss compliance issues associated with environmental permits. A video of the training will be used as refresher training during construction and incorporated into new project personnel and subcontractor orientation. We seek to instill an environmental culture that will heighten awareness by each individual on the Wagman Team to environmental conditions, resources, and commitments in order to minimize potential risks due to environmental non-compliance. Wagman successfully implemented and executed an aggressive environmental compliance plan on the ICC D-B projects, these projects received regional and national environmental compliance recognition.

Approach to Environmental Permitting During Design and Construction

The Wagman Team will use the following approach to environmental permitting during design and construction to minimize potential risks due to environmental non-compliance.

Complete Environmental Resource Surveys/Analysis Early in the Design. The Wagman Team will coordinate with the regulatory/consulting agencies to determine if additional special status species studies are required, and complete any additional environmental studies early in the project schedule. Based on the RFP and Addenda, we know that a bat inventory is required in accordance with VDOT’s Bat Inventory Guidelines for Bridges and Buildings. We will complete required additional environmental studies (i.e. cultural resource surveys, wetlands and WOUS) shortly after NTP to incorporate construction access, borrow sites, and staging and laydown areas. Early in the design process, Phase II Environmental Site Assessments will be conducted for the five (5) properties identified in the RFP as well as necessary asbestos inspections. **Early coordination yields early completion of these items which will be critical to avoid potential delays in the project schedule.**

Develop Avoidance and Minimization Measures Early in the Design. The Wagman Team will hold a workshop to get agency “buy-in” on the avoidance and minimization measures early in the design process. This will help to identify potential agency concerns early in the design process and mitigate the associated risks. We will seek to avoid or minimize wetland and stream impacts during the design process. We have already successfully reduced the wetland and stream impacts associated with our Conceptual Plans, from those identified in the RFP. We will continue to analyze and implement additional cost-effective avoidance and minimization measures in order to mitigate potential risks due to project permitting.

Early Agency Involvement in Design. We will begin agency coordination with the permitting and other consulting agencies (EPA, USFWS, NMFS, DHR, DGIF, DCR, VDACS, & VIMS) immediately upon NTP to proactively address avoidance and minimization measures and to get “buy in” for the mitigation measures and compensation requirements. Our proactive approach will verify that the permits are “reasonable” and do not present conditions or limitations that negatively impact the constructability of the project. We will establish an introductory meeting then schedule frequent coordination meetings with the effected agencies.

Identify Suitable Mitigation Early in the Design. The Wagman Team will work with the regulatory agencies to find acceptable compensation for unavoidable impacts to jurisdictional wetlands and waters. The Wagman Team has already consulted with the approved banks in the appropriate HUC codes to verify that available credits for the types of potential wetland and stream impacts are available. In addition, we will get concurrence from the agencies that compensation for temporary wetland impacts will not be required. These actions will help assist in obtaining a timely permit process and minimize the potential risk construction delays due to permitting.

Environmental Permit Compliance Monitoring during Construction. If required by the Water Protection Permit or Section 404 permit, the Wagman Team will continuously monitor environmental compliance during construction activities. The compliance monitoring will be conducted in accordance with the terms and conditions of the issued permits.

The combination of Bioretention Basins for I-66 EBW & EDA and several Water Quality Swales allowed the Wagman Team to eliminate 3 out of 6 RFP Manufactured Treatment Devices, which can result in significant initial, operational, and long-term maintenance cost savings for the Commonwealth.

If continuous compliance monitoring is not required as a condition of the permits, **the Wagman Team will conduct monthly compliance monitoring during construction** to verify that the environmental permit conditions are being met. Required E&S control and SWPPP compliance inspections and SPCC inspections will be completed during construction. The Wagman Team will notify VDOT of any non-compliant situations and suggest remedial alternatives for resolution. Exclusion fencing will be used along the boundary of sensitive resources or areas of concern to prevent potential impacts from construction activities beyond the expected limits of disturbance. This exclusion fencing will protect resources including the non-impacted wetlands, the W&OD Trail, Bon Air Park/Curtis Trail, and the W&OD Railroad Historic District.

Environmental Conditions/Area of Concern and Mitigation Strategies

The Wagman Team has identified environmental conditions within the project area, analyzed the risk of impact to that environmental condition/area of concern, and identified mitigation strategies to ensure that we

do not cause adverse effects to the environment condition or resource. *Table 4.4.1-1* summarizes this analysis.

Table 4.4.1-1. Environmental Conditions Mitigation Strategies

Environmental Condition/Area of Concern	Mitigation Strategy
Section 4(f) Resources	<ul style="list-style-type: none"> • Ensure design plans incorporate required minimization and mitigation measures, and coordinate final design plans with VDOT for VDOT to coordinate with FHWA to maintain de minimis impact to 4(f) resources; W&OD Trail, Bon Air Park, and Curtis Trail. • Include 4(f) Resources as design constraints in the EMP and environmental training.
Noise	<ul style="list-style-type: none"> • Complete and furnish a final Noise Analysis Design Report (NADR) and final design noise analysis and required certification in compliance with the effective VDOT State Noise Abatement Policy, VDOT Highway Traffic Noise Impact Analysis Guidance Manual, and VDOT Noise Report Development and Guidance Document. • Design and construct noise barriers recommended by FHWA, Chief Engineer and Noise Abatement Design Report. • Design and construct existing noise barriers in disrepair and existing metal barriers. • Complete noise barrier construction in accordance with the scheduling requirements in the RFP and Addenda. • Implement temporary noise mitigation measures if nighttime construction occurs.
Historic Properties	<ul style="list-style-type: none"> • Implement the required vibration control and monitoring per Special Provision, interpretive sign on the pedestrian bridge, and connection to the picnic shelter/seating area for the Benjamin Elliott’s Coal Trestle per the RFP and Addenda. Coordinate with NOVA Parks. • Coordinate with VDOT regarding DHR’s review final design plans in the vicinity of the W&OD Railroad Historic District/Benjamin Elliot’s Coal Trestle. • Coordinate with VDOT regarding proposed borrow, staging, laydown, and access sites if they are within the viewshed of the 5 historic properties within the Area of Potential Effect and for the I-66 EDA project. Include these five properties as environmental constraints within the EMP and include in the environmental training to ensure they are not impacted by construction.
Threatened and Endangered Species	<ul style="list-style-type: none"> • Conduct bat inventory per the VDOT Bat Inventory Guidelines. • Coordinate with VDOT and USFWS/DGIF if exclusionary devise would be used for bats.
Wetlands and WOUS	<ul style="list-style-type: none"> • Early coordination/consultation with USACE, DEQ, and possibly VMRC on avoidance and minimization in a workshop. • Notify VDOT/regulatory agencies 14 days prior to the start of construction in jurisdictional areas and at the end of construction. • Evaluate and incorporate avoidance and minimization measures through agency workshop. • Develop restoration approaches for temporary impact areas. • Early preparation of Joint Permit Application concurrent with ROW Plan development.
Hazardous Materials	<ul style="list-style-type: none"> • Compliance with Section 411.09 in the 2016 Road and Bridge Specifications for Type B structures and VDOT Special Provisions for asbestos inspection and abatement. • Conduct a Phase II ESA in accordance with the Special provision for the 5 properties identified in the RFP. • Perform asbestos inspections on structures and lead paint inspection on barriers. • Prepare a project specific SPCC Plan. • Remove and dispose of any discovered hazardous material in compliance with all applicable federal, state, and local regulations.

Project Schedule Integration with Environmental Milestones

Obtaining environmental permits and environmental approvals in a timely manner is always a schedule and pre-emptive priority for any project because construction cannot start in jurisdictional areas until permits are issued. As described below and in *Section 4.7 Project Schedule*, the Wagman Team has integrated these critical environmental activities into our proposed schedule.

Integration of Environmental Activities with Project Schedule. Our Proposal Schedule includes all the environmental milestones, hold points, and environmental activities to ensure that these activities and their projected durations are integrated in the schedule and tracked.

Integration of Environmental Milestones into Project Schedule. We have integrated key environmental permits, environmental hold points, and approval activities into the project schedule, including:

- Hold points for environmental permits and Phase II ESAs
- JPA application preparation and submittal
- JPA application review and issuance of environmental permits
- VPDES General Permit issuance and preparation of SWPPP
- EQ103, EQ200, EQ201 reviews
- Nationwide Permit 6 (NWP) application for test piles and geotechnical borings
- NWP 6 issuance for geotechnical borings and test piles
- Wetland delineations, cultural resource surveys, and special status studies for construction access points, laydown, borrow sites and staging areas
- Phase II Environmental Site Assessments prior to ROW acquisition
- Bat inventory
- Avoidance and minimization workshops
- Environmental permit compliance monitoring

The Wagman Team will track environmental activities throughout the design and construction phases to promote rapid permit acquisition thus preserving the integrity of the overall project schedule and delivery.

4.4 Utilities

As noted in *Section 4.3* the I-66 EBW presents a number of challenges related to utilities. However, there is nothing anticipated on this project that the Wagman Team has not successfully resolved on other complex projects within the region. Our approach to utility coordination is based on proactively identifying and mitigating utility conflicts beginning pre-bid and continuing through early field investigation, design development, refinement, and physical construction operations. On VDOT’s Route 7 Widening/Bridge Rehabilitation over the Dulles Toll Road D-B Project, the Wagman Team proactively elected to provide and install the infrastructure (fourteen individual conduits with pull cable, hangers, and associated hand boxes) across the new bridge and through the approach roadway for the existing utilities (including Cox and AT&T) to relocate into. This was done to maintain the project schedule, with all costs to the account of the Wagman Team in lieu of waiting for the private utilities to perform this work at prorated cost based on their availability.

Approach to Potential Utility Conflicts and Mitigation Measures

The figure below is an excerpt for the comprehensive utility conflict matrix developed by the Wagman Team showing utilities identified as being in conflict. Upon award, the team will perform field investigations required to verify any assumption made during development of this matrix. We will continually refine the matrix to monitor the evolution of our design and further mitigate conflicts beyond those measures already identified.

Figure 4.4-1– Excerpt from I-66 Utility Conflict Matrix (conflicts only)

Location	Route No.	Shoulder/ Median/B arrier	Utility in Conflict	Risk Level	Solution	Method	Notes
MULTIPLE SEGMENTS							
Light Poles	I-66 EB	shoulder	Street lights	low	Relocate	Rebuild	
Noise Barriers	I-66 EB		Dominion Energy Transmission	Low	modify design/const		Modifications to design and engineering controls during construction will mitigate need to relocate.
SEGMENT 1							
Station 134+75 to 152	I-66 East Bound	Inside shoulder	VDOT Power and Comm 2-2" and 2-4" conduits	low	Relocate	rebuild	
Station 142+50	I-66 East Bound	crossing	VDOT Power and Comm 2=2" and 2-4" conduits	low	Relocate	rebuild	
Station 122+50 to 172	I-66 East Bound	Outside shoulder	VDOT Lighting Power 2-2" conduits	low	relocate	rebuild	
Station 130+25 to 132	I-66 East Bound	Outside shoulder	VDOT Toll Power and Comm 2-2" and 2-4" conduits	low	relocate	lower in place	

As previously noted in *Section 4.3* the Wagman Team has identified six (6) utilities that are potentially in conflict, two (2) of which are VDOT-owned communication and power.

The Wagman Team has spent a substantial amount of time coordinating with the four (4) private utilities potentially in conflict with the project and revising our design accordingly. As such, we have successfully reduced the anticipated number to private utility relocations down to only two (2); this reduces the risk to the overall project schedule.

Our team has already worked with AT&T to develop conduit protection measures in lieu of a full relocation. If post bid field investigations reveal that these agreed upon measures will not work as proposed, we have already worked out an alternate relocation scheme with AT&T (*Sheet S-19 Volume II Concept Plans*).

While our proposed design does not directly conflict with Dominion Energy Transmission (DET) lines we do have a strategy in place with DET to further coordinate design and construction that will allow construction of the noise barriers and B-680 in close proximity to their facilities.

The only anticipated direct conflicts with private utilities are in the vicinity of B-680. Construction of this bridge along the required alignment will result in minor relocations to a Dominion Energy (DE) Transformer and utility pole. This pole relocation results in relocation of a Cox Communication line that shares the pole. Both of these conflicts are considered to be low risk to both cost and schedule.

The most substantial relocations required by the project are associated with VDOT communication and power facilities that run parallel to I-66 EBW and the outside of B-686 and Ramp A of the I-66 EDA. The Wagman Team has drawn upon our extensive experience in the corridor to develop a relocation strategy that moves the VDOT utilities to the outside of I-66 EB and out of the roadway footprint. This approach was successfully implemented on the I-66 MMI project. Additionally, this relocation strategy can be implemented immediately upon approval of our SWPPP and TMP plans, prior to completion of final design, improving the construction schedule. The Wagman Team will apply this same approach to the TransCore ITS systems that will require relocation within the project limits.

Integration of Utilities into Schedule

The Wagman Team has incorporated the known private utility relocations into our proposed project schedule and allotted appropriate time for; the utilities to complete their Plan & Estimates (P&E), VDOT & Wagman Teams review and authorization of the P&Es, and the required procurement and physical relocations. The Proposal schedule does not add specific design activities for the VDOT owned utilities that required relocation for this project as this design is performed as part of the overall design. Activities for construction of the relocation are incorporated into the schedule to show this work as part of the pre-RFC construction activities.

4.4.2 Structures

The Wagman Team will utilize the structures expertise of Volkert and JMT engineers to develop quality structural design plans which will incorporate the Wagman Team's considerable experience, common-sense engineering, and innovation to deliver sustainable facilities. Plan development will continue to focus on the respective solutions to complex design and constructability issues efficiently and cost-consciously with particular attention to future maintenance and sustainability considerations.

Our design team is a leader in providing Complete Streets solutions that help define bridges and transportation facilities that address the locally-desired context.

General Approach. The Wagman Team's approach to structure design emphasizes long-term, low-maintenance designs while simultaneously integrating the sequence of bridge construction with the roadway MOT to minimize lane shifts and ensure optimal constructability thereby decreasing disruption to traffic as well as providing for expeditious construction.

This project will involve construction adjacent to existing facilities, widening of existing bridges, and construction along WMATA ROW for the length of the project limits. **The Wagman Team has already anticipated conceivable conflicts and our proposed designs for each site will not merely accommodate but minimize these potential impacts to adjacent facilities and traffic (vehicular, bicycle, and pedestrian).** Careful consideration has been taken to assure the reasonable movement of all modes of traffic during the construction phase while recognizing the ultimate performance parameters of the delivered structures to the future traveling public. The Wagman Team will select appropriate foundation types to minimize the need for shoring and construction space while achieving compatibility with the existing foundations. These foundations will exclude driven pile to reduce vibration, noise and work zone footprints. The high-volume of traffic on and under I-66 creates the risk of conflict between traffic and construction operations.

General Schedule. All structures (including bridges, retaining walls, noise barriers) in the I-66 EBW are committed to be completed and accepted prior to the Interim Milestone Date established in *Section 4.7*. The bridge, retaining wall, and noise barriers included in I-66 EDA will be completed and accepted prior to the Final Completion Date established in *Section 4.7*. In order to minimize noise impacts to nearby properties, the Wagman Team will schedule noise barrier construction to comply with the detailed restrictions for sequence of removal, delivery, and replacement stipulated in the RFP. Additionally, we will focus on constructing the noise barriers early in the overall schedule to provide increased benefit, early public acceptance and reduced both construction and long-term noise impacts. Wagman successfully utilized this same approach in both ICC D-B Projects.

Long-Term Performance and Durability. The Wagman Team will design and construct bridges, retaining walls, noise barriers and other structures that adhere to the requirements of the RFP and VDOT standard practices that provide long term low maintenance designs. Our designs will seek to minimize water and roadway salt intrusion to promote long-life solutions. Noise barriers will be placed behind traffic barriers to avoid damage during snow removal and a maintenance path will be provided to allow easy inspection of the rear of the noise barriers.

The Wagman Team has developed an innovative widening approach consisting of partial depth hydrodemolition to be applied on most bridges. Wagman has safely and efficiently used hydrodemolition in over 50 projects in the past 20 years. **This approach will minimize risks to traffic below the structures while reducing construction duration, and providing VDOT full confidence in the Project's long-term asset performance and durability.**

Our approach will minimize risks to traffic below the structures while reducing construction duration, and providing VDOT full confidence in the Projects long-term asset performance and durability.

W&OD Trail Pedestrian Bridge and the Arlington Gateway Feature. Arlington County planners have identified the area surrounding Lee Highway and the W&OD Trail crossing as a future gateway into the historic parts of the County. Arlington County plans to transform this area into a walkable neighborhood center that will serve as an economic and social hub with public spaces and alternative modes of travel. They envision streetscape enhancements including wider pedestrian zones, street plantings associated with specific open space elements that encourage and facilitate public gatherings. A key feature will be the proposed W&OD Trail Pedestrian Bridge and other associated features.

Wagman Team's approach to design and construction of the W&OD Trail Pedestrian Bridge hinges on refining the concepts developed during VDOT's public charrettes into a viable, functional bridge providing long-term durability and low maintenance along with aesthetics. A select subgroup of our team including Complete Street specialists, landscape designers, structural engineers, pedestrian ADA experts, roadway designers, lighting designers, and constructors will lead our efforts for this key project location. The location and alignment of the bridge offers many physical constraints but also offers many contextual opportunities such as the adjacent historic Coal Trestle and the associated former railroad use for the corridor. In addition to the bridge as a major feature, this gateway-type location also includes the blending of noise barriers, MSE walls, landscaping, and a decorative sidewalk system to establish an urban Public Open Space. Continued involvement by Arlington County, the Northern Virginia Regional Park Authority, and the general public is

expected including the requirement for a public meeting to present the preliminary bridge design prior to initiating final design. Our role will sometimes be to temper expectations when other constraints require the compromising of a stakeholder’s desires. Detailed review and approval of materials may be required – we would invite VDOT to help serve as an intermediary for review and approvals of subjective aesthetic elements.

The design of the pedestrian bridge will be performed in accordance with AASHTO’s *LRFD Guide Specifications for Design of Pedestrian Bridges, 2nd Edition, 2009*, including interims through 2015 and VDOT Modifications. In addition, the design will meet the specific unique requirements described in the RFP Part 2 and RFP conceptual plans. Locations of piers and abutments will be selected to preserve the original concept yet avoid underground utilities when possible. Pier types and abutments not only will be designed to comply with the selected aesthetics but also to meet VDOT standards for avoidance of joints and provide long-term durability.

The Wagman Team understands that it is critical that the public be satisfied with the proposed bridge and has incorporated the following elements with this goal in mind:

- Providing design elements and details as shown in renderings presented to the public during the meeting held on June 13, 2017.
- Using open, concrete V-piers to preserve open pedestrian views under the bridge.
- Using MSE walls with aesthetic finish and color that provide depth and texture that help create visual interest.
- Maintaining the RFP plan span configuration to provide “openness” in the vicinity of surrounding structures.
- Maintaining the span over Route 29 to avoid using bridge pier protection while providing an “open” environment under the bridge.
- Using drilled-in foundation system to minimize ground vibrations and disturbances to adjacent structures such as the historically significant Benjamin Elliott’s Coal Trestle, the hotel property, and the residential apartment building.
- Using an aesthetically pleasing “grey” color on superstructure and substructure elements to consolidate features and help define the public space.
- Providing passive recreation features such as benches and a mixtures of surfaces.
- Providing pedestrian scale lighting on and under the bridge to enhance public safety.
- Providing directional signs for bicyclists and pedestrians.
- Providing a minimal superstructure depth that meets live load deflection criteria and vertical clearance requires while also providing a graceful structure silhouette.
- Providing a detour for trail users to minimize inconvenience during construction and provide a safer route past on-going work.
- Providing a unique railing and fence system on the bridge with lighting for both safety and aesthetic considerations.

Wagman specializes in self-performing drilled foundation systems including auger cast piles, micro piles, drilled shafts, and pre-drilled piles.

The construction of the pedestrian bridge will be performed to minimize impacts to the traveling public such as vehicles along Route 29 and local roads, plus maintain pedestrians and cyclist on the heavily traveled W&OD Trail. A detour will be provided on local streets to avoid interrupting travel on the trail (*Volume II Conceptual Plans*). Work areas will be clearly defined and protected. Drilled-in deep foundation systems will be used to minimize vibrations and avoid impacts to surrounding structures. Erection of superstructure elements will be performed in low traffic time periods to provide a safe construction site while minimizing impacts to the traveling public.

Retaining Walls. Retaining walls will be provided at several locations within the project limits. Wall types will be selected for each location based on the respective constructability issues and potential impacts to adjacent facilities. Wall types could include MSE walls, standard gravity walls, soldier-pile and lagging walls with concrete facing, or other types of walls that minimize impacts to adjacent facilities. **Our approach mitigates the need to reconstruct the retaining walls adjacent to B-679.** Construction

of structures will be coordinated with WMATA based on final conditions of WMATAs Adjacent Construction Permit.

Noise Barriers. Locations for noise barriers will be determined during completion of the Final Noise Abatement Design Report which includes public polling to determine final acceptance of a specific wall. Barrier types and aesthetics will be as stipulated in the RFP and the Special Provision for Noise Barrier Walls Architectural Features. Noise barriers to be mounted on bridges will be lightweight with sound absorptive finishes on the roadway side and be a color complying with the RFP. A 10-foot wide clear area will be provided to grant access to the back side of noise barriers within right of way or permanent easements and access will be provided. Our construction sequence will abide by the scheduling restrictions stipulated in the RFP and look to expedite their installation in order to minimize temporary noise impacts to nearby properties.

4.4.3 Quality Assurance/Quality Control (QA/QC)

Introduction

The I-66 EBW & EDA will be constructed with a solid commitment to meet the specified quality requirements and providing VDOT full confidence in the Project's long-term asset performance and durability.

The Wagman Team's past experience on D-B Projects has led to the development of a proven Quality Program that provides complete comprehensive procedures which address all phases of project process, from design to construction and through final acceptance.

Our QA/QC approach has been customized to incorporate all the requirements of *VDOT's Minimum Quality Control & Quality Assurance Requirements for Design-Build & Public-Private Transportation Act (PPTA) Projects dated January 2012* (hereafter *VDOT's Minimum QA/QC Requirements Manual*), and has recently been enhanced to address QCIP criteria.

The Design-Builder, Wagman Heavy Civil (Wagman), in conjunction with their Construction Quality Control Consultant, CES, and Quality Assurance Consultant, Quinn Consulting Services, Inc. (QCS), will provide a finished product that meets the requirements of the contract documents and shall ensure that all materials provided for construction are approved for incorporation into the project and tested at the appropriate frequencies as prescribed in, *VDOT's Minimum QA/QC Requirements Manual*.

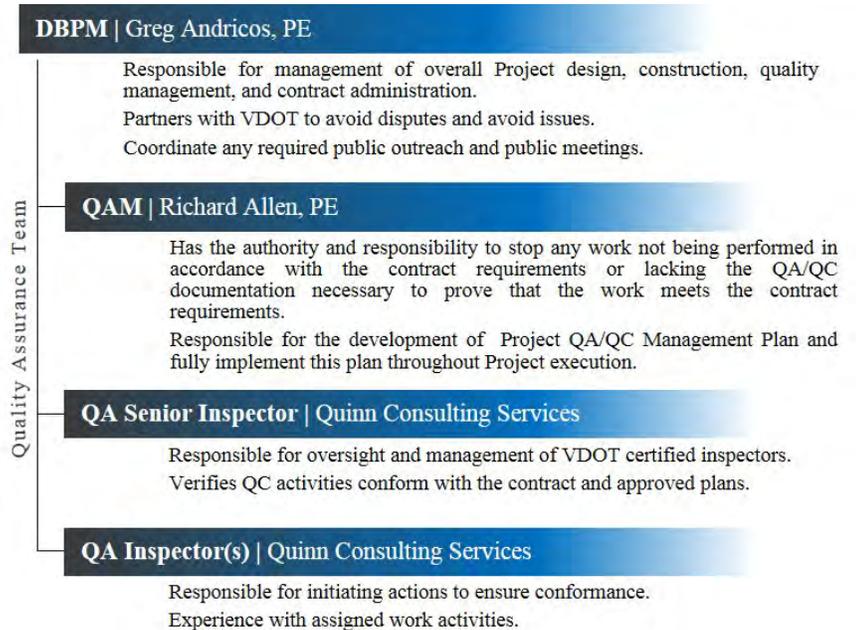
Organization and Management Control

Per the project organization chart, the following individuals and organizations will have primary responsibility for implementing the Quality Assurance (QA) and Quality Control (QC) program for Construction. Design-Build Project Manager (DBPM), Greg Andricos, PE; Construction Manager (CM), Vincent Yuskoski; Quality Assurance Manager (QAM), Richard Allen, PE, DBIA; Quality Control Manager (QCM), Avtar Singh, PE, CCM, PMP, DBIA; QC Inspectors and QC Laboratory; QA Inspectors; QA Testing and Laboratory.

The QAM reports directly to the DBPM and has the authority and responsibility to stop any work not being performed in accordance with the contract requirements or lacking the QA/QC documentation necessary to substantiate that the work meets the contract requirements. He is independent of all actual construction operation activities. The QAM will determine and report to VDOT whether the materials and work comply with the Contract Documents. The Quality Assurance team will consist of the QAM, QA Senior Inspector, QA Field inspectors as required, and an independent QA laboratory. These QA staff are likewise independent of all construction operations.

The Quality Control staff will report directly to the Construction Manager. The QC team will consist of the CM, QCM, Field Inspectors and Laboratory Testing personnel from an independent QC laboratory who will be utilized on an as-needed basis throughout the project. **See detailed Quality Staffing Plan in the QA/QC sections below.**

Construction Manager (CM) Role. The CM will manage the Construction Quality Control Program and will coordinate with the QAM for the preparatory, intermediate, completion, and punch out inspections. He will also meet with the DBPM, QAM, and QCM to discuss any quality issues and implement any recommendations to correct the issues. He will attend all meetings with the DBPM and the QAM as necessary to resolve any issues. The CM will ensure that all project daily reports and other requested information are sent to the QAM for his approval. The CM will also assure that all QC documentation is furnished to the QAM within 24 hours of receiving the information or the next business day.



Quality Control Manager (QCM) Role.

The QCM will represent the Quality Control team on site and will report to the Construction Manager while reporting all QC sampling, testing, visual inspections, certifications, and daily diaries directly to the QAM. The QCM will oversee staffing needs, QC field/laboratory testing requirements, and will generally assist the CM in the administration of the QC inspection program.

Assisting the QCM will be various QC inspection personnel. All QC inspectors will be VDOT experienced and certified in the area of their inspection or testing. The QC inspection staff, totally independent of the QA staff, will consist of senior inspectors, regular inspectors, materials testing technicians and trainees as the workload dictates. The identity of the QC inspection staff and their corresponding resumes and certifications will be provided to the QAM prior to the start of each work activity.

The respective, QA and QC inspectors for each activity will be identified at the activity preparatory meetings and their respective resumes and certifications. Copies of all inspector certifications will be maintained in the QA/QC project documentation records.

4.4.3 Design Phase Quality Assurance/Quality Control

Design quality will be measured by how well we meet the goals established for this project. This includes meeting all criteria defined in the RFP, the project concept, and the project schedule as described in this Technical Proposal. The design must provide safe operations with reduced construction and property impacts while at the same time producing a final product within budget and on schedule.

A key component of our design approach is to provide internal QA/QC measures that do not rely on VDOT to ensure quality; **it's our job to do it right.**

Quality is a process that starts from the beginning of the project and is carried through to all phases. It isn't something that can be added at the end by simply filling out a checklist. Our goal is to do the design correctly, the first time. This requires coordination and effective communication with all design and construction personnel. One of the great benefits of the D-B process is gained from close coordination between the DM and the CM. Our D-B Coordinator, Jerry Whitlock, PE, DBIA will hold bi-weekly constructability reviews and coordination will take place involving the design and construction staff on the Wagman Team.

The DM, Robert Reed, PE, will be responsible for all aspects of design, including implementation and oversight of the design QA/QC processes. Mr. Reed will provide the leadership to establish the proper climate and process for delivery of a quality design and will communicate this to the design discipline leads and the Wagman Team. Mr. Reed will oversee the development of the Design QA/QC Plan, and establish that the

plan demonstrates a well-structured process with easily audited documents to simplify the review and coordination required by VDOT. He will ultimately certify that the design QA/QC process is satisfactorily completed and documented in conformance with Contract Documents and Standards prior to formal VDOT submittal.

Design Quality Control

At the initiation of the design effort, qualified staff will be assigned to each technical discipline. **Each submittal will have an internal QC check by qualified designers not directly working on the plans.** This includes reviews by senior staff, many of which are former VDOT employees with applicable expertise gained within the Department. Tools such as the VDOT Quality Control Checklist, Form LD-436, and other internal checklists with help the QC staff comply with all vital aspects of the design.

Elements of a detailed QC review include:

- Checking engineering computations and corresponding design assumptions.
- Checking math, geometry, and spelling.
- Checking technical accuracy.
- Reviewing form, content, and organization.
- Evaluating the suitability and compatibility of materials.
- Reviewing for coordination with other design disciplines.
- Reviewing the sequence of construction.
- Verifying conformance to contract requirements, VDOT and other stakeholders design standards and specifications, special provisions, and applicable portions of the Design QC Plan.



Documentation of the QC activities also includes using a plan check stamp on each sheet as plans are reviewed. A date of review and initial are also included on the document. Should the design team need to address any comments from a review, they will also initial the check stamp box below the QC reviewer along with the date, and indicate that the comment was addressed by marking the comment with blue highlighter or pen. These documents are kept in project files, allowing for easily audited documents.

Design Quality Assurance

Compliance with all QC procedures will be periodically audited by our qualified QA staff identified in this Technical Proposal. In addition to the audits, the QA staff will provide oversight to ensure the criteria and goals established in the RFP are met.

Design QA reviews look at the “big picture” during the design phase of the project. These reviews assess whether the design has been correctly conceived, all relevant factors have been considered, and that the appropriate disciplines were utilized. The Wagman Team has identified Cesar Vargas, PE, to assist the DM in the facilitation of QA reviews for all aspects of design. Mr. Vargas will independently monitor work quality, code compliance, and conformance to relevant standards. In addition, he will be responsible for periodic QA reviews throughout the design process, prior to each phase of design submission, and through the construction phase.

Prior to any VDOT submittal, Mr. Vargas, PE will perform a design QA review of completed documents, and confirm that the constructability, QC, and comment resolution processes are complete. His review will include “Big Picture” items such as:

- Assessing whether qualified personnel were assigned to the design and QC tasks.
- Evaluating whether the designer used the proper design methodologies and applied the correct analyses.
- Evaluating whether the solution is practical and cost effective.
- Evaluating whether the design is within an appropriate range based on experience and preliminary estimates.

- Assessing whether the design, plans, specifications, and special provisions are complete.
- Verifying adherence to the contract requirements and stated design objectives and goals.
- Complete the QA Review segment of the design checklist.

If a QA review identifies an element in the design (e.g., engineering computation, plan drawing, specification, report, etc.) that they feel does not meet the design criteria of the project, then the element will be returned to the design team for further review and correction as necessary. The design team will address the QA Reviewer's comments, make corrections as necessary, and develop written responses. Corresponding QA/QC reviews will then be completed.

Upon successful completion of all Design QA/QC reviews for a submission, the design documents will be certified by the DM, QAM, and DBPM prior to submission to VDOT. Following receipt of review comments from VDOT the design submission will be returned to the design team, if necessary, and revisions made for further QA/QC reviews as described above.

Design QA Independent of Design QC. The Design QA/QC Process described above clearly states how the QA activities will be performed independently of QC activities. Design Quality Control managers will perform detailed reviews prior to any QA activities. The design QA manager will perform subsequent, broad reviews to confirm that QC reviews and the comment and resolution process are complete. Prior to submission to VDOT and Stakeholders, the Design QA manager will perform a final review to ensure that all QA/QC activities have been performed. This process will be documented which also facilitates audits by VDOT or external ISO staff.

Design QA/QC Staffing Plan

A key role of our DM, Bob Reed, PE, will be to oversee and certify the quality program for the design disciplines and firms serving the Wagman Team. He has performed this role as a consultant for VDOT on major projects including the Elizabeth River Crossing, multiple reviews under a NOVA District Plan Review contract, and most recently three pavement rehabilitation projects in the Hampton Roads District. The Design Manager will be assisted by a Design QA Lead (Mr. Vargas, PE) who will monitor, audit, and document that QC measures are fully implemented and any comments by VDOT are fully resolved; we anticipate that this role will be full-time during key submittal phases. QC reviews will be performed by qualified engineers or scientists not otherwise engaged on the task to be reviewed; these roles will be part-time and occur in association with each submittal.

A QC reviewer will be assigned for each discipline reflected in a submittal. QC reviewers will coordinate their comments with the design staff to acquire concurrence with each comment and provide final verification that a comment has been incorporated. The review process will be documented along each step by the QC reviewer, the lead engineer, the production staff responsible for the change and finally verified by the QC reviewer that the change was incorporated. Documented QC reviews will be in turn be reviewed by the Design QA Lead and certified by the DM prior to submittal to the DBPM and QAM and prior to submitting the corrected documents to VDOT.

Example of QA/QC Procedures for One Design Element

The use of lane shifts to facilitate construction along I-66 EBW, between the Dulles Connector Road and Fairfax Drive

The use of lane shifts to facilitate construction along I-66 EBW, between the Dulles Connector Road and Fairfax Drive, will be an essential MOT strategy for inclusion in the TMP for this project. Given the inherent constraints of the existing corridor, as well as those related to the I-66 tolling system currently being installed, the Wagman Team has identified the minimization of lane shifts during construction as a key project element requiring careful planning, scheduling, and coordination to reduce impacts to the traveling public, on-site construction personnel, and TransCore.

The project scope includes the widening of I-66 EB to incorporate an additional through lane by utilizing varying portions of the existing inside and outside shoulder areas throughout the corridor. The existing shoulders lanes will be reconstructed to include full-depth pavement so the lane may ultimately be converted into a third travel lane. To facilitate this work, the reconstruction of the existing shoulders will require shifting of travel lanes left and/or right from their existing alignments to establish work zones within the project corridor. This will be accomplished by placing concrete barrier along the edge of the travel lanes and/or shoulders to maintain a safe separation between the construction work zones and the vehicles traveling along I-66 EB. Establishment of temporary pavement, shoulder strengthening, slope corrections and installation of temporary drainage in the form of trench drains and/or barrier slots may be required, including a full review of spread. In addition, coordination of portions of the project that contain narrow roadway sections with steep

A fundamental Design Goal for the MOT is to restrict the number of temporary lane shifts affecting the tolls to no more than 2.

embankments, retaining walls, noise barriers and transmission lines in close proximity to traffic and work zones.

Within the project limits, TransCore is nearing completion of tolling equipment installation on gantries along I-66 EB near Great Falls Street and N. George Mason Drive, respectively. These gantry structures are a significant consideration with regards to the lane shifts as the tolling facilities will be operational throughout the construction of this project. Accordingly, each time a lane shift occurs as a result of the I-66 EBW, TransCore will need to adjust the tolling sensors to align with the appropriate travel lane. This being the case, the number of lane shifts utilized on this project will have a direct impact on construction-related costs. Lane shifts will potentially move traffic closer to the gantry structures which may necessitate the placement or relocation of barrier to protect vehicles along I-66 EB, yet simultaneously allowing enough area for the shoulder construction to be completed. For these reasons, our Sequence of Construction and MOT plan have been developed to minimize the number of lane shifts. The Wagman Team has restricted the number of temporary lane shifts to a maximum of two. Details and guidance for these lanes shifts will also be provided as a part of the project's Transportation Management Plan (TMP) as described in *Section 4.5.2* of this Technical Proposal.

QA/QC Procedure. The QA/QC process is critical to the design of the lane shifts and subsequent successful construction of this design element. The review of the MOT requires close coordination between roadway design, drainage design, geotechnical design, structural design, and utility coordination. The following design and QA/QC procedures for this element will be implemented:

- Layout concept design
- Develop initial MOT/TMP plan
- Over the shoulder review of plans by construction team and design team
- Field verification of MOT plans vs Existing Conditions
- Revisions to plans as required
- Production of revised plans following internal design QC guidelines
- Independent design QC review of revised plans including construction team
- Post-QC updates to plans
- Design Manager approval
- Design Quality Assurance Manager Review
- Design Quality Assurance Manager Revisions or Approval
- Design Manager release for submittal after QAM Approval
- Project QAM certification of the Design QA/QC process
- DBPM release for submittal

Moving the known large volumes of traffic safely and efficiently through the work zone is of paramount importance. The design and use of lane shifts will be closely monitored and coordinated with all disciplines. Strict adherence to the design QA/QC process thoroughly verifies conformance with Contract Documents, considers the ramifications of this design element on other design elements (and the converse), and addresses potential constructability issues to support the feasibility of this design element and its contribution to successful project delivery.

4.4.3 Construction Phase Quality Assurance/Quality Control

Project Quality Management Plan

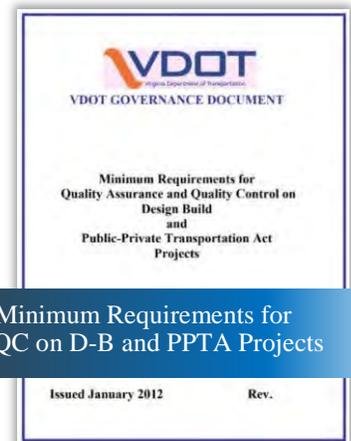
The purpose of the Project Quality Management Plan (PQMP) is to establish clear and complete procedures for inspection of construction and testing of materials to ensure that the completed project meets the requirements of the approved contract documents and provides a long-lasting, low-maintenance end product, and **minimizes the likelihood of additional VDOT QA/QC, contract administration efforts and increases VDOT’s confidence in the Wagman Team’s process.** The inspection and testing elements will conform to *Minimum Requirements for Quality Assurance and Quality Control on D-B and PPTA Projects - January 2012* (VDOT’s *Minimum QA/QC Requirements Manual*) and other documents which include *VDOT’s Materials Division Manual of Instructions, Construction Manual*, and applicable Virginia Testing Methods (VTM’s).

Quality Assurance

The proposed QAM, Richard Allen, PE, DBIA with Quinn Consulting Services (QCS), and his QA inspection staff are independent of the Designer, QC, and the Contractor. The QAM is responsible for providing quality assurance of the work and ensuring conformance with the Contract Documents. The QAM and QA inspection staff are responsible for providing independent assurance inspections and verification of material sampling and testing duties, independent of QC activities, in accordance with the rates and frequency of testing prescribed in *Appendix 3, Table A-3 of VDOT’s Minimum QA/QC Requirements Manual*. The QA inspection staff will provide periodic observation and monitoring of the performance of field materials tests performed by the Wagman Team’s QC staff. The QAM and QA inspection staff shall comply with all safety requirements mandated by the Design-Build Contractor, Wagman.

The QAM will facilitate Preparatory Inspection Meetings (PIMs) prior to the start of any new work activity. PIMs will be classified as hold points in the construction schedule. PIM attendees, to include; the QAM and his relevant QA field inspection staff, VDOT representative(s) to include the Project Construction Manager and Owner Independent Assurance (OIA) and Owner Verification Sampling and Testing (OVST) personnel (at their discretion), Design-Builder’s Project Manager, Construction Manager, field superintendents, safety personnel, subcontractors, and relevant QC personnel involved in the work to discuss and develop a clear understanding of the plan of operations, testing procedures, and acceptance requirements.

Other project stakeholders will be invited and encouraged to attend and participate as these meetings. At these meetings, the proper inspection checklist (developed by the QCM and reviewed by the QAM or as available in *Appendix 6 of VDOT’s Minimum QA/QC Requirements Manual* by default) to be used for monitoring the work will be identified and distributed to meeting attendees. Witness and hold points will be identified at each PIM and their schedules will be distributed in conjunction with the Contractor’s weekly project look ahead schedule. VDOT will be notified of the time and place of witness and hold points, should VDOT decide to have a representative attend the inspection. The QAM will finalize PIM minutes and distribute to all attendees and other project stakeholders that could not be in attendance.



VDOT Minimum Requirements for QA & QC on D-B and PPTA Projects

The Wagman Team has delivered positive results using VDOT’s new D-B CPE and CQIP initiatives on Route 7 Bridge Rehabilitation and Odd Fellows Road D-B Projects. On Route 7 D-B Project in particular, Greg Andricos, PE (DBPM) and Richard Allen, PE (QAM) have consistently delivered CQIP Scores over 90% for the NOVA District.

The QAM will be responsible for overseeing and directing the independent QA testing technicians who will perform on-site materials testing. QA materials tests are then compared to QC results to ensure that they are within the tolerances established by *VDOT’s Road & Bridge Standards* and that the minimum testing rates as set forth in *VDOT’s Minimum QA/QC Requirements Manual* have been satisfied. All testing equipment shall

be certified and calibrated with proper documentation on file in the project records. All QA/QC inspections and tests shall be performed by properly certified inspectors and the QAM will confer with the QCM to review testing results and procedures throughout the prosecution of the work.

All QA inspection staff shall complete inspector daily reports (IDR's) and QA testing reports of all quality assurance inspections in accordance with *VDOT's Minimum QA/QC Requirements Manual*. The QAM will determine and report to VDOT whether the materials and work comply with the approved drawings, specifications, and applicable Standards as outlined in the Contract requirements and any other applicable specifications and documents. The QAM shall also ensure that all inspectors have sufficient certifications related to the construction activity being inspected and tested (as required). All certification copies are to be maintained in the QA project files on site.

Quality Control

The QCM will ensure that QC functions are carried out in accordance with the Approved PQMP, VDOT's Minimum QA/QC Requirements Manual, VDOT's Materials Manual of Instructions, VDOT's new *Materials Division Memorandum MD 407-17* specifically issued to provide guidance for Materials documentation on D-B project, *VDOT's Road and Bridge Standards and Specifications*. QC inspectors will be provided to ensure inspection of work performed including inspection of all E&S and MOT.

The QCM shall establish and maintain a comprehensive system for the project documentation (diaries, testing logs, Materials Book, project photos, NCR logs, Deficiency logs, MOT work zone checklists, C-107s, up to date SWPPP) at the Project Field Office that will organize and track all Construction QC, QA, OIA and OVST documentation. All documentation shall be adequately identified and cross-referenced to support a field audit by the QAM and VDOT during the life of the Project as well as final audit after project completion. The QAM and/or his designated full-time field representative shall periodically audit the project records for QC testing and inspection QA/QC Plan compliance and report any deficiencies to the Contractor and VDOT.

Materials Testing

All materials used on the project must fulfill the requirements of the Contract Documents. To ensure compliance, the CM will submit all materials documentation to the QAM or his designated representative for review and verification. The QAM or his designated representative shall be responsible for verification of the information provided on the completed C-25 and then forward to VDOT for their use in identifying and scheduling required inspections. The QCM will collect and provide to the QAM or his designated representative all materials documentation related to the work performed; the QAM will then verify all documents are accurate and complete and then record all the materials documents in the Project's Materials Notebook.

The Wagman Team will work closely with VDOT to insure appropriate quality assurance and quality control testing of all materials manufactured off-site is performed as outlined in the PQMP.

Laboratory Testing

The QC materials testing firm for this project will be DMY Engineering Consultants, LLC (DMY). DMY technicians will conduct all laboratory QC materials testing on the project to include all sampling and testing work normally performed by VDOT and in accordance with the *Construction Manual, Inspection Manual, Materials Manual of Instructions, VDOT's Minimum QA/QC Requirements Manual* and all applicable Contract Documents. The DMY laboratory will be available for inspection by the QAM or VDOT at all times and copies of all current certification and equipment calibration records will be maintained at the DMY facility located at **45662 Terminal Drive, Suite 110, Dulles, Virginia 20166**. DMY will provide the QC Manager with a monthly summary of laboratory activities, which he will then review and submit to the QAM.



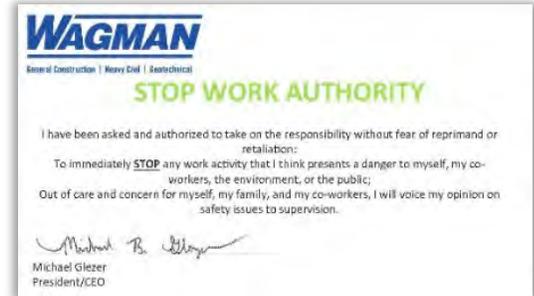
DMY | Materials Testing (I-66 ATM Project)

The QA independent materials testing firm will be Specialized Engineering (SE). SE will work under the direction of the full time QA Lead Inspector from QCS and will perform all the QA laboratory testing.

The independent QA and QC testing shall be completed at random locations and at frequencies meeting or exceeding the requirements of *VDOT's Minimum QA/QC Requirements Manual*, respectively. These respective testing locations will be selected based on the randomization procedures detailed in the *Virginia Test Methods Manual* for the appropriate material.

Suspension of Work

The QAM shall have the authority to suspend the work, wholly or in part, by written order for such period as necessary to correct any condition considered by him to be unfavorable for the suitable prosecution of the work or failure on the part of the D-B or their subcontractor(s) to perform any provision of the Contract. The Wagman Team will provide a letter confirming the QAM's authority to suspend work with the PQMP. **In addition, the Wagman Team formally extends this stop work authority to all project personnel onsite for both quality and safety** by issuing cards with contact information for company executives for notification and reporting purposes.



Deficient and Non-Conforming Work

The QAM, QCM, and VDOT have the authority to enforce the requirements of the Contract when deficient materials or unsatisfactory finished products fail to conform to the Contract Documents. The QA and QC teams, in accordance with their assignments, shall monitor, test and inspect the work as it progresses and record their observations and test results (as applicable). VDOT will also perform Independent Assurance (IA) and Independent Verification (IV) inspections and provide the results to the QAM to be stored with the project records.

Work that is not acceptable to QC will be brought to the immediate attention of the construction supervisor overseeing/performing the work. He will remedy the situation prior to performing any continued construction work that will restrict access to the non-conforming work thereafter.

Non-conforming work where all parties agree that the work will be removed and replaced per the Contract requirements will be considered a “deficiency” and recorded as such for quality tracking purposes in the form of a Deficiency Notice (DN) and closed out through verification by the QAM or his field representative once properly replaced or repaired per plan requirements. All DN’s will be recorded in a Deficiency Notice Log with the date of deficiency, type of work activity, reason for deficiency, and corrective action. The Deficiency Notice Log will be tracked throughout the project and any items that are not completed will become part of the Project's final punch list.

Non-conforming work where all parties agree that the work may be accepted in a format that does not meet original plan requirements at time of construction will be considered “non-conforming” work and recorded as such for quality tracking purposes in the form of a Non-Conformance Report (NCR). NCR’s may be resolved by the Contractor by Use-As-Is, Repair, or Rework depending on circumstances and appropriate approvals by the Engineer of Record and VDOT.

All NCRs, referenced by a unique number, will be forwarded to Design-Builder and VDOT within forty-eight (48) hours of discovery of the Non-Conformance, or sooner if there is an imminent hazard. NCR's can be initiated by the QAM, QCM, or VDOT. In order to maintain project continuity, all NCR issues will be submitted to and coordinated by the QAM for issuance and resolution.

Corrective and Recovery Action

For each non-conformance, the CM shall investigate the cause of the non-conforming work to identify potential causes for the non-conforming work. Once the causes are determined, the Construction Manager shall

implement changes to the work process and procedures including additional control and preventive actions to minimize the risk of repeat deficiencies.

In reference to *Section 5.10.2 of VDOT's Minimum QA/QC Requirements Manual*, in the event that submittal register submissions have been delayed by more than 60 days or have undergone more than two submissions, the QAM will address the issue with the DBPM and facilitate a plan of action to reach a final submission.

Construction QA/QC Staffing Plan

The Wagman Team anticipates that the QA staff will consist of a part time QAM, one full time QA Lead Inspector, and one QA inspector with part time inspectors as schedule and work activities dictate. The Wagman Team anticipates the QC staff will consist of a part time QCM, one full time QC Lead inspector, and three full time QC Inspectors with additional part time QC Inspectors as schedule and work activities dictate. The final Staffing levels will be determined by the Approved Project Quality Management Plan in conjunction with the Approved Project Schedule.

Example of QA/QC Procedures for One Construction Element

Construction of Drilled Shaft Foundations

While there may be more critical elements of work on this project, the most critical construction element from a QA/QC perspective is inspection of the specialized geotechnical techniques under consideration for this project. These techniques include drilled shaft, micro pile, soil nail and drilled pile.

For illustrative purposes, we have chosen the drilled shaft as we feel this presents the greatest risk to the project schedule and budget should there be a deficiency or non-conformance. To ensure quality, the QA/QC team will follow the PQMP and conduct a thorough PIM meeting to ensure all project staff understand the quality process associated with installation of drilled shafts. The QA and QC staffs will respectively ensure that the drilled shafts are constructed per the approved installation plan that will be submitted per VDOT's special provisions as well as following the FHWA Manual for Drilled Shaft Construction and Design Methods and any supplement provided by the Geotechnical Engineer and Design Manager. The inspectors will be using the drilled shaft daily log to record depth/rate of drilling, type of material removed, down pressure used and any other observable anomalies. In addition, Wagman's standard practice is for the foreman performing the installation to document the drilling process with a similar drilling log. The inspectors will ensure that the plan tip elevation is attained.



Drill shaft installation

The inspection will ensure that the horizontal tolerance (in inches) and the vertical tolerance (in percentage) are attained. The reinforcing cage will be checked to make sure it is installed and centered with the correct number of spacers and will not move during the concreting operations. Prior to concrete operations, a slump loss test will be carried out to determine the allowable time for the concrete placement. Concrete placement will be inspected per the specification (based on method of pour) and measurements taken to ensure that there is no loss of concrete to fissures or openings and that the rebar cage is in correct alignment during the pour and immediately after the pour. The removal of the steel casing will be checked to ensure that there is no contamination of the shaft bottom that could affect the quality of the shaft. The quality of the shaft will be checked after the completion using sonic cross hole logging or as required by the Geotechnical Engineer and Design Manager.

Section 4.5

Construction of Project



Section 4.6

Disadvantaged Business Enterprises (DBE)

**Refer to Section 4.1 Letter of Submittal*



Section 4.7

Proposal Schedule Narrative



4.7 | PROJECT 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.



4.7.1 Project Schedule

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, FHWA Plan reviews and approvals, environmental permitting and constraints, ROW acquisition, utility relocation, construction activities, and QA/QC inspection and testing. Our Interim Milestone Date of **10 November 2020** and Final Completion Date of **2 September 2021** are within the required time frame as listed in RFP *Section 2.3.1*.

The Proposal Schedule depicts the Wagman Team’s proposed overall sequence of work and duration for each work task and deliverables 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 Project 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 conducted, pre-proposal meetings were attended, proprietary meeting discussions occurred, and the schedule task force was developed to build a comprehensive schedule for the I-66 EBW Project.

The Wagman Team is committed to providing
VDOT with a completed project by
2 September 2021.

Project Milestones

Table 4.7-1: Project Milestones

Notice of Intent to Award	11/3/2017
Notice of Award	12/6/2017
Notice to Proceed	1/8/2018
QA/QC Plan Approval	1/29/2018
RFC Plans Segment 1	6/1/2018

Start Construction I66 EBW	6/5/2018
RFC Plans B-675 & B-677	7/27/2018
RFC Plans B-681	10/3/2018
RFC Plans B-686	10/11/2018
Private Utility Relocations Complete	10/18/2018
RFC Plans I66 EDA	10/19/2018
RFC Plans B-678	11/16/2018
RFC Plans B-679	11/16/2018
RFC Plans B-675, B-677, B-678, B-679 & B-686 Repairs	1/8/2019
RFC Plans B-682, B-683, B-684	1/11/2019
RFC Plans Segment 2 & 3	2/11/2019
RFC Plans B-680	2/15/2019
Start Construction I66 EDA	10/1/2020
Interim Milestone Completion	11/10/2020
Final Completion	9/2/2021

Work Breakdown Structure (WBS)

The following WBS provided by the Wagman Team integrates all preconstruction activities as well as construction activities for the I-66 EBW & I-66 EDA into the schedule. The following is a summary overview of the Phases of Construction succeeded by the complete WBS layout. See *Table 4.7-2* for detailed WBS.

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 Activities

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 for both I-66 EBW & EDA:

The Wagman Team will work to obtain permits and approvals required to start construction in advance of the final design.

- **Structures & Bridges.** Preliminary and final design of the Route 7 bridge and the Shared-Use Path structures.
- **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 4 Segments built around the drainage divides. Each segment is further subdivided into 2 phases. MOT phases are subdivided by roadway features, thus MOT phases will overlap and have different Stationing than project segments. See *Table 4.7-3* for a correlation between MOT Phasing and Construction Segments.

Segment 1. This segment will involve construction of the new project from the western limit to approximately Station 172, including B-675 and B-677. This segment is further broken down into two phases:

- Segment IA is inclusive of VDOT utility relocations from the inside shoulder to the outside shoulder and the inside widening work.
- Segment IB includes the remaining outside work.
- Structure widening will happen concurrently with both Phases.

Preliminary construction activities in Segment I will occur prior to Final Design. These preliminary activities include MOT, utility relocation, drainage improvements, excavation, and support of excavation in preparation for the foundation activities. This will allow new construction to begin immediately upon receiving Approved for Construction (AFC) plans.

Segment 2. This involves construction from approximately Station 172 to approximately Station 238, including structure B-638. This segment is broken down into two phases similar to those for Segment 1. Preliminary work for this Segment will occur prior to completion of Segment 1 such as MOT, utility relocations, drainage improvements and support of excavation.

Segment 3. This involves construction from approximately Station 238 to the eastern limit of the project, including structure B-679. This Segment is broken down into two phases similar to those for Segment 1. Preliminary work for this Segment will occur prior to completion of Segment 2 such as MOT, utility relocations, drainage improvements and support of excavation.

Segment 4. This includes the remaining items of work that are independent of I-66 EBW such as, I-66 EDA, WB noise walls and bridge widenings, structure B-680, and the Custis Trail realignment.

Table 4.7-3: Segments of the Transform 66 Program

Construction Segment	MOT Phases		
Segment 1	Phase 1 (Station 129 to 172)		
Segment 2	Phase 1 (Station 172 to 179)	Phase 2 (Station 172 to 204)	Phase 3 (Station 204 to 238)
Segment 3	Phase 3 (Station 238 to 312+42)		

Project Work Breakdown Structure

Table 4.7-2: Work Breakdown Structure

WBS Code	WBS Name
C00108424DB92	I-66 Eastbound Widening Inside the Beltway Technical Proposal
C00108424DB92.1	Milestones

Table 4.7-2: Work Breakdown Structure

WBS Code	WBS Name
C00108424DB92.2	Quality Assurance
C00108424DB92.B	I-66 EBW Design Phase
C00108424DB92.B.1	Scope Validation
C00108424DB92.B.2	Existing Drainage Culverts
C00108424DB92.B.3	Design
C00108424DB92.B.3.1	Design Waivers & Exceptions
C00108424DB92.B.3.2	Supplemental Survey
C00108424DB92.B.3.2.1	Mobile Scanning Surveys
C00108424DB92.B.3.2.2	Field Surveys
C00108424DB92.B.3.3	Geotechnical Engineering & Subsurface Investigations
C00108424DB92.B.3.4	Roadway Design
C00108424DB92.B.3.4.1	Develop ROW Plans
C00108424DB92.B.3.4.2	Segment 1 A & B - Sta 129 to Sta 172
C00108424DB92.B.3.4.2.1	ITS Replacement / Relocation Modification Segment 1A Inside Widening
C00108424DB92.B.3.4.2.2	Roadway Plan Development
C00108424DB92.B.3.4.3	Remainder of Segments Roadway & Trail Plan Development - Sta 172 to Sta 312+42
C00108424DB92.B.3.5	Bridge Design
C00108424DB92.B.3.5.1	Segment 1 Bridges B-675 & B-677 Widening
C00108424DB92.B.3.5.2	Segment 3 Bridge B-678 Widening
C00108424DB92.B.3.5.3	Segment 3 Bridge B-679 Widening & Deck Replacement
C00108424DB92.B.3.5.4	Bridge B-680 & Retaining Wall W&OD Trail Over US 29
C00108424DB92.B.3.5.5	Bridge B-681 Trail Over I-66
C00108424DB92.B.3.5.6	Bridge B-682, B-683 & B 684 Noise Wall Replacement/Addition
C00108424DB92.B.3.5.7	Bridge B-675, B-677, B-678, B-679 & B-686 Repairs
C00108424DB92.B.3.6	Retaining Wall Design
C00108424DB92.B.3.6.1	Segment 1 Retaining Walls Sta 130+50 to 131 (RW 1) & Sta 146 to 147+50 (RW 2)
C00108424DB92.B.3.6.2	Segment 2B Retaining Walls Sta 12+28 to 16+50 Ramp I (RW 3) & Sta 193+10 to 198+90 (RW 4)
C00108424DB92.B.3.6.3	Segment 3B Retaining Wall Sta 283+50 to 284+10 (RW7)
C00108424DB92.B.3.7	Landscape Architecture & Tree Preservation
C00108424DB92.B.4	Environmental
C00108424DB92.B.4.1	Hazardous Materials
C00108424DB92.B.4.2	Threatened & Endangered Species
C00108424DB92.B.4.2.1	Bat Species Inventory
C00108424DB92.B.4.3	Environmental Permits
C00108424DB92.B.4.3.1	Environmental Permit applications
C00108424DB92.B.4.3.2	Issuance & Approval of Environmental Permits
C00108424DB92.B.4.4	Noise Abatement
C00108424DB92.B.5	Right-of-Way

Table 4.7-2: Work Breakdown Structure

WBS Code	WBS Name
C00108424DB92.B.6	Utilities
C00108424DB92.B.6.1	Utility Delineation
C00108424DB92.B.6.2	Utility Coordination
C00108424DB92.B.6.3	Utility Design
C00108424DB92.B.6.3.1	Utility Relocation Design
C00108424DB92.B.6.3.2	Utility P&E Development
C00108424DB92.B.6.3.3	No Conflict Utilities
C00108424DB92.B.6.4	Utility Relocation Construction
C00108424DB92.B.7	Public Involvement
C00108424DB92.B.8	Construction Submittals
C00108424DB92.B.9	Acquisitions
C00108424DB92.O	I-66 EDA Design Phase
C00108424DB92.O.1	Scope Validation
C00108424DB92.O.2	Design
C00108424DB92.O.2.1	Design Waivers & Exceptions
C00108424DB92.O.2.2	Supplemental Survey
C00108424DB92.O.2.2.1	Mobile Scanning Surveys
C00108424DB92.O.2.2.2	Field Surveys
C00108424DB92.O.2.3	Geotechnical Engineering & Subsurface Investigations
C00108424DB92.O.2.4	Roadway Design
C00108424DB92.O.2.4.1	Line and Grade, Limits of Disturbance
C00108424DB92.O.2.4.2	Roadway Plan Development
C00108424DB92.O.2.5	Bridge Design
C00108424DB92.O.2.5.1	Bridge B-686 Widening
C00108424DB92.O.2.6	Retaining Wall Design Sta 28+50 to 30+50
C00108424DB92.O.2.7	Landscape Architecture & Tree Preservation
C00108424DB92.O.3	Environmental
C00108424DB92.O.3.1	Hazardous Materials
C00108424DB92.O.3.2	Threatened & Endangered Species
C00108424DB92.O.3.2.1	Bat Species Inventory
C00108424DB92.O.3.3	Environmental Permits
C00108424DB92.O.3.3.1	Environmental Permit applications
C00108424DB92.O.3.3.2	Issuance & Approval of Environmental Permits
C00108424DB92.O.3.4	Noise Abatement
C00108424DB92.O.4	Public Involvement
C00108424DB92.O.5	Construction Submittals
C00108424DB92.O.6	Acquisitions

Table 4.7-2: Work Breakdown Structure

WBS Code	WBS Name
C00108424DB92.C	Construction
C00108424DB92.C.1	Construction Engineering Design Services
C00108424DB92.C.2	Quality Control
C00108424DB92.C.3	Mobilization
C00108424DB92.C.4	Segment 1 Sta 120+00 to 272+00
C00108424DB92.C.4.1	Segment 1A
C00108424DB92.C.4.2	Segment 1B
C00108424DB92.C.4.3	B-675
C00108424DB92.C.4.4	B-677
C00108424DB92.C.4.5	Final Surface / Landscaping
C00108424DB92.C.5	Segment 2 Sta 272+00 to 238+00
C00108424DB92.C.5.1	Segment 2A
C00108424DB92.C.5.2	Segment 2B
C00108424DB92.C.5.3	B-678
C00108424DB92.C.5.4	Final Surface / Landscaping
C00108424DB92.C.5.5	B-681
C00108424DB92.C.6	Segment 3 238+00 to 312+42
C00108424DB92.C.6.1	Segment 3A
C00108424DB92.C.6.2	Segment 3B
C00108424DB92.C.6.3	B-679
C00108424DB92.C.6.5	Final Surface / Landscaping
C00108424DB92.C.7	Segment 4
C00108424DB92.C.7.1	B-680
C00108424DB92.C.7.2	B-682
C00108424DB92.C.7.3	B-683
C00108424DB92.C.7.4	B-684
C00108424DB92.C.7.5	Noise Barriers
C00108424DB92.C.7.6	I-66 EDA
C00108424DB92.C.7.6.1	Ramp B
C00108424DB92.C.7.6.2	Ramp W
C00108424DB92.C.7.6.3	Ramp A West
C00108424DB92.C.7.6.4	B-686
C00108424DB92.C.7.6.5	Retaining Wall / Ramp A East
C00108424DB92.C.7.6.6	Final Surface / Landscaping

Calendars

The Wagman Team has incorporated six (6) calendars into the Project Schedule:

- **7 Day.** This calendar holds every day as a working day. This calendar is only attached to non-production activities.
- **Workweek Weather.** This calendar is the base calendar for construction activities. It incorporates a standard workweek, including weather days.
- **Paving and Pavement Markings.** This calendar is present for applications that are constrained by temperature restrictions by VDOT. Additionally, paving operations are further affected by asphalt lay down temperature restrictions and material availability interruptions due to subcontractor plant shut downs. This calendar runs from the end of December to the beginning of March.
- **Grading.** This calendar is present for construction activities related to earthwork. The end of December through the beginning of March are normally difficult months to perform any earthwork related activities. If weather allows, work activities will continue during this calendar period. The schedule will be adjusted as necessary during these months to reflect actual progress.
- **Standard 5-Day Workweek.** This calendar is the base calendar for design activities and incorporates a standard workweek that does not include weather days.
- **Planting.** This calendar is based on the 5-day Workweek calendar and blocks out the no-planting season as defined in the RFP.

C00108424DB92 - 5 day
C00108424DB92 - 7 day
C00108424DB92 - Grading
C00108424DB92 - Paving
C00108424DB92 - Bridge Concrete
C00108424DB92 - Planting

Critical Path

The Critical Path Bar Charts for the project are provided following the Project Schedule bar chart. There are two critical paths for the project. One critical path for the Interim Milestone and one critical path for Final Completion. The critical path for the Interim Milestone runs through Widening of B-675 then Segment 2 and 3 Roadway Widening. The critical path for Final Completion runs through B-686 Widening.

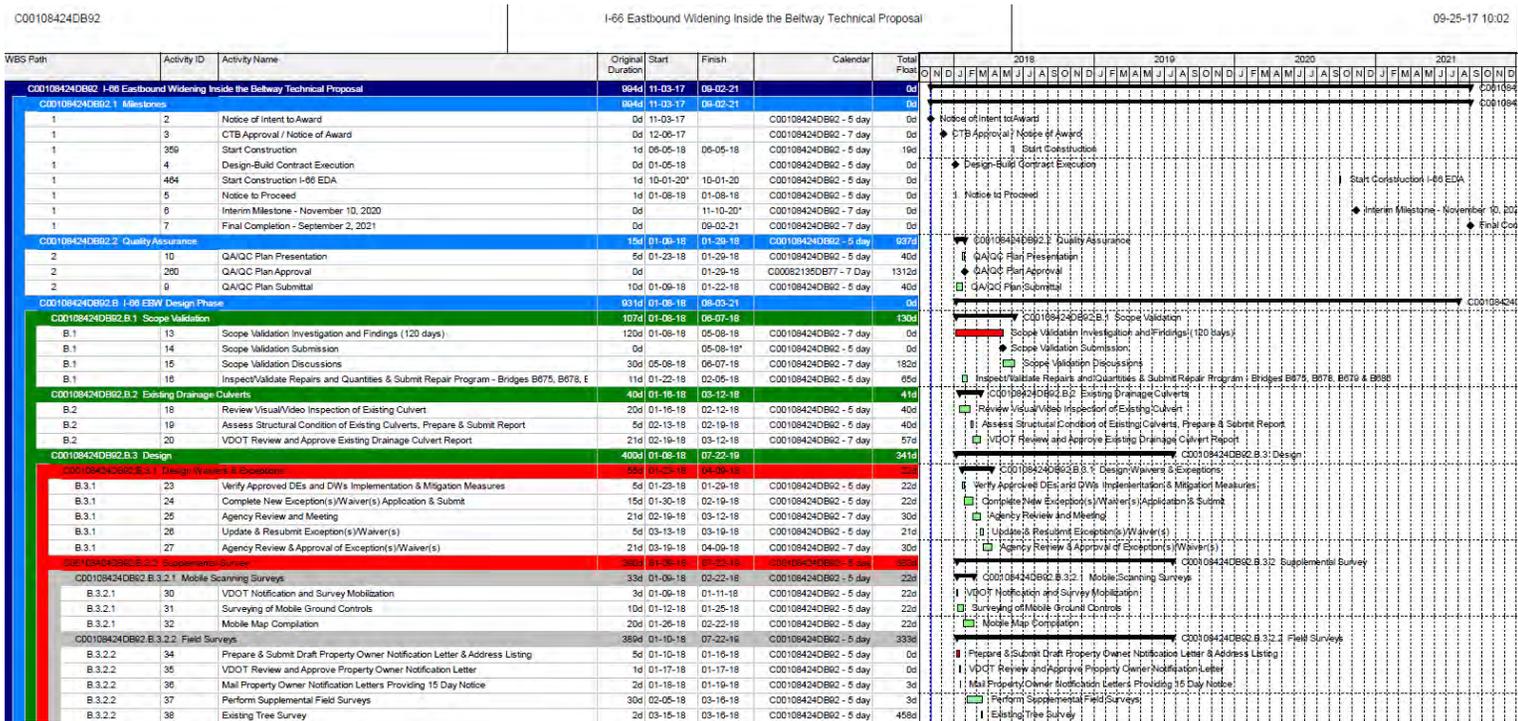


Figure 4.7-1: Sample portion of Schedule

Design

The Wagman Team will advance the design from the current RFP documents and incorporate 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 roadway design in three phases of design: preliminary design (PFI Plans), ROW design (FI Plans), and final design. Structure plans will have a Stage 1 and Stage 2 submittal. Design-related activities to be performed during each phase are outlined below.

Preliminary design activities will focus on expanding the RFP documents. 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.

Roadway plans will be developed including performing geometric design; preparing cross sections and defining limits of construction; completing SWM and E&S control design; preparing plans for traffic control devices as well as a TMP; 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 preliminary design activities. The ROW, environmental coordination and approval, and utility relocation plan activities will be 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 include the items required to start construction activities that can be completed prior to receiving RFC documents.

Construction Plan 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 that; identifies milestone dates and integrates those into the project schedule; identifies the responsible party; and summarizes requirements.



The final noise analysis will be conducted including the public polling of property owners which are effected and benefited by the effected noise abatement measures.

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. The Wagman Team 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 Virginia Stormwater Management Permit will be submitted immediately following the SWPPP development.

Other agency approvals are needed from NVRC in regard to flooding in Four Mile Run and modifications to Sycamore Pond. Arlington County will review and approve SWM quality and quantity.

Right-of-Way

The Wagman Team will evaluate the proposed ROW, permanent easements, and temporary 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 Wagman 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. The Wagman 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 & 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 and task force 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 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 any further conflict.

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 D-B field with the ability to recognize and react to any issues. The Wagman Team also possesses regional equipment and manpower resources available to assist as needed. 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.

The Wagman Team in partnership with VDOT will aggressively manage the project and, mitigate any issues that affect the construction schedule.

Subcontractor & Material Supplier Scheduling

Subcontractors & 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.

4.7.3 Proposal Schedule in electronic format (CD-ROM)

In addition to the hard copy located inside the back cover of the *Original Volume I Technical Proposal*, the Wagman Team has provided a copy of the Proposal Schedule and narrative in PDF format as well as a back-up copy of the Proposal Schedule's source document in XER format on a CD-ROM, which is located in the sleeve on the back cover.

Section 4.7

Proposal Schedule



WBS Path	Activity ID	Activity Name	Original Duration	Start	Finish	Calendar	Total Float	2018												2019												2020												2021																
								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	J	F	M	A	M	J	J	A	S	O	N	D		
C00108424DB92 I-66 Eastbound Widening Inside the Beltway Technical Proposal								994d	11-03-17	09-02-21		0d	C00108424DB92																																															
C00108424DB92.1 Milestones								994d	11-03-17	09-02-21		0d	C00108424DB92																																															
1	2	Notice of Intent to Award	0d	11-03-17		C00108424DB92 - 5 day	0d	◆ Notice of Intent to Award																																																				
1	3	CTB Approval / Notice of Award	0d	12-06-17		C00108424DB92 - 7 day	0d	◆ CTB Approval / Notice of Award																																																				
1	359	Start Construction	1d	06-05-18	06-05-18	C00108424DB92 - 5 day	19d	Start Construction																																																				
1	4	Design-Build Contract Execution	0d	01-05-18		C00108424DB92 - 5 day	0d	◆ Design-Build Contract Execution																																																				
1	464	Start Construction I-66 EDA	1d	10-01-20*	10-01-20	C00108424DB92 - 5 day	0d	Start Construction I-66 EDA																																																				
1	5	Notice to Proceed	1d	01-08-18	01-08-18	C00108424DB92 - 5 day	0d	Notice to Proceed																																																				
1	6	Interim Milestone - November 10, 2020	0d		11-10-20*	C00108424DB92 - 7 day	0d	◆ Interim Milestone - November 10, 2020																																																				
1	7	Final Completion - September 2, 2021	0d		09-02-21	C00108424DB92 - 7 day	0d	◆ Final Completion																																																				
C00108424DB92.2 Quality Assurance								15d	01-09-18	01-29-18	C00108424DB92 - 5 day	937d	C00108424DB92.2 Quality Assurance																																															
2	10	QA/QC Plan Presentation	5d	01-23-18	01-29-18	C00108424DB92 - 5 day	40d	QA/QC Plan Presentation																																																				
2	260	QA/QC Plan Approval	0d	01-29-18	01-29-18	C00082135DB77 - 7 Day	1312d	◆ QA/QC Plan Approval																																																				
2	9	QA/QC Plan Submittal	10d	01-09-18	01-22-18	C00108424DB92 - 5 day	40d	QA/QC Plan Submittal																																																				
C00108424DB92.B I-66 EBW Design Phase								931d	01-08-18	08-03-21		0d	C00108424DB92																																															
C00108424DB92.B.1 Scope Validation								107d	01-08-18	06-07-18		130d	C00108424DB92.B.1 Scope Validation																																															
B.1	13	Scope Validation Investigation and Findings (120 days)	120d	01-08-18	05-08-18	C00108424DB92 - 7 day	0d	Scope Validation Investigation and Findings (120 days)																																																				
B.1	14	Scope Validation Submission	0d		05-08-18*	C00108424DB92 - 5 day	0d	◆ Scope Validation Submission																																																				
B.1	15	Scope Validation Discussions	30d	05-08-18	06-07-18	C00108424DB92 - 7 day	182d	Scope Validation Discussions																																																				
B.1	16	Inspect/Validate Repairs and Quantities & Submit Repair Program - Bridges B675, B678, E	11d	01-22-18	02-05-18	C00108424DB92 - 5 day	65d	Inspect/Validate Repairs and Quantities & Submit Repair Program - Bridges B675, B678, B679 & B686																																																				
C00108424DB92.B.2 Existing Drainage Culverts								40d	01-16-18	03-12-18		41d	C00108424DB92.B.2 Existing Drainage Culverts																																															
B.2	18	Review Visual/Video Inspection of Existing Culvert	20d	01-16-18	02-12-18	C00108424DB92 - 5 day	40d	Review Visual/Video Inspection of Existing Culvert																																																				
B.2	19	Assess Structural Condition of Existing Culverts, Prepare & Submit Report	5d	02-13-18	02-19-18	C00108424DB92 - 5 day	40d	Assess Structural Condition of Existing Culverts, Prepare & Submit Report																																																				
B.2	20	VDOT Review and Approve Existing Drainage Culvert Report	21d	02-19-18	03-12-18	C00108424DB92 - 7 day	57d	VDOT Review and Approve Existing Drainage Culvert Report																																																				
C00108424DB92.B.3 Design								400d	01-08-18	07-22-19		341d	C00108424DB92.B.3 Design																																															
C00108424DB92.B.3.1 Design Waivers & Exceptions								55d	01-23-18	04-09-18		22d	C00108424DB92.B.3.1 Design Waivers & Exceptions																																															
B.3.1	23	Verify Approved DEs and DWs Implementation & Mitigation Measures	5d	01-23-18	01-29-18	C00108424DB92 - 5 day	22d	Verify Approved DEs and DWs Implementation & Mitigation Measures																																																				
B.3.1	24	Complete New Exception(s)/Waiver(s) Application & Submit	15d	01-30-18	02-19-18	C00108424DB92 - 5 day	22d	Complete New Exception(s)/Waiver(s) Application & Submit																																																				
B.3.1	25	Agency Review and Meeting	21d	02-19-18	03-12-18	C00108424DB92 - 7 day	30d	Agency Review and Meeting																																																				
B.3.1	26	Update & Resubmit Exception(s)/Waiver(s)	5d	03-13-18	03-19-18	C00108424DB92 - 5 day	21d	Update & Resubmit Exception(s)/Waiver(s)																																																				
B.3.1	27	Agency Review & Approval of Exception(s)/Waiver(s)	21d	03-19-18	04-09-18	C00108424DB92 - 7 day	30d	Agency Review & Approval of Exception(s)/Waiver(s)																																																				
C00108424DB92.B.3.2 Supplemental Survey								390d	01-09-18	07-22-19	C00108424DB92 - 5 day	333d	C00108424DB92.B.3.2 Supplemental Survey																																															
C00108424DB92.B.3.2.1 Mobile Scanning Surveys								33d	01-09-18	02-22-18		22d	C00108424DB92.B.3.2.1 Mobile Scanning Surveys																																															
B.3.2.1	30	VDOT Notification and Survey Mobilization	3d	01-09-18	01-11-18	C00108424DB92 - 5 day	22d	VDOT Notification and Survey Mobilization																																																				
B.3.2.1	31	Surveying of Mobile Ground Controls	10d	01-12-18	01-25-18	C00108424DB92 - 5 day	22d	Surveying of Mobile Ground Controls																																																				
B.3.2.1	32	Mobile Map Compilation	20d	01-26-18	02-22-18	C00108424DB92 - 5 day	22d	Mobile Map Compilation																																																				
C00108424DB92.B.3.2.2 Field Surveys								389d	01-10-18	07-22-19		333d	C00108424DB92.B.3.2.2 Field Surveys																																															
B.3.2.2	34	Prepare & Submit Draft Property Owner Notification Letter & Address Listing	5d	01-10-18	01-16-18	C00108424DB92 - 5 day	0d	Prepare & Submit Draft Property Owner Notification Letter & Address Listing																																																				
B.3.2.2	35	VDOT Review and Approve Property Owner Notification Letter	1d	01-17-18	01-17-18	C00108424DB92 - 5 day	0d	VDOT Review and Approve Property Owner Notification Letter																																																				
B.3.2.2	36	Mail Property Owner Notification Letters Providing 15 Day Notice	2d	01-18-18	01-19-18	C00108424DB92 - 5 day	3d	Mail Property Owner Notification Letters Providing 15 Day Notice																																																				
B.3.2.2	37	Perform Supplemental Field Surveys	30d	02-05-18	03-16-18	C00108424DB92 - 5 day	3d	Perform Supplemental Field Surveys																																																				
B.3.2.2	38	Existing Tree Survey	2d	03-15-18	03-16-18	C00108424DB92 - 5 day	458d	Existing Tree Survey																																																				
B.3.2.2	39	Stake Geotechnical Boring Locations	5d	02-08-18	02-14-18	C00108424DB92 - 5 day	0d	Stake Geotechnical Boring Locations																																																				
B.3.2.2	40	Prepare Updates Survey Files	20d	02-12-18	03-09-18	C00108424DB92 - 5 day	11d	Prepare Updates Survey Files																																																				
B.3.2.2	41	Set ROW Monumentation Prior to Contract Completion	30d	06-10-19	07-22-19	C00108424DB92 - 5 day	333d	Set ROW Monumentation Prior to Contract Completion																																																				
C00108424DB92.B.3.3 Geotechnical Engineering & Subsurface Investigations								206d	01-10-18	10-25-18		361d	C00108424DB92.B.3.3 Geotechnical Engineering & Subsurface Investigations																																															
B.3.3	43	Prepare and Submit Geotechnical Boring Location Plan	10d	01-11-18	01-24-18	C00108424DB92 - 5 day	0d	Prepare and Submit Geotechnical Boring Location Plan																																																				
B.3.3	44	VDOT Review Geotechnical Boring Location Plan	21d	01-24-18	02-14-18	C00108424DB92 - 7 day	27d	VDOT Review Geotechnical Boring Location Plan																																																				
B.3.3	45	Prepare Property Owner Notification Letters for Geotechnical Investigations	1d	01-18-18	01-18-18	C00108424DB92 - 5 day	0d	Prepare Property Owner Notification Letters for Geotechnical Investigations																																																				
B.3.3	46	Secure Permits and Clear Utilities as Required	15d	01-25-18	02-14-18	C00108424DB92 - 5 day	0d	Secure Permits and Clear Utilities as Required																																																				
B.3.3	47	Field Investigations, Boring Logs and Lab Analysis for Scope Validation	39d	02-15-18	04-11-18	C00108424DB92 - 5 day	19d	Field Investigations, Boring Logs and Lab Analysis for Scope Validation																																																				
B.3.3	48	Perform Geotechnical Field Investigations	39d	02-15-18	04-11-18	C00108424DB92 - 5 day	0d	Perform Geotechnical Field Investigations																																																				
B.3.3	49	Boring Logs, Laboratory Testing & Analysis	49d	02-22-18	05-02-18	C00108424DB92 - 5 day	0d	Boring Logs, Laboratory Testing & Analysis																																																				
B.3.3	50	Prepare/Submit Bridge Geotechnical Engineering Report B-675 & 677	19d	03-07-18	04-03-18	C00108424DB92 - 5 day	0d	Prepare/Submit Bridge Geotechnical Engineering Report B-675 & 677																																																				
B.3.3	51	Prepare/Submit Bridge Geotechnical Engineering Report B-678	20d	05-03-18	05-31-18	C00108424DB92 - 5 day	391d	Prepare/Submit Bridge Geotechnical Engineering Report B-678																																																				

█ Remaining Level of Effort
 █ Actual Work
 █ Critical Remaining ...
█ Actual Level of Effort
 █ Remaining Work
 ◆ Milestone

WBS Path	Activity ID	Activity Name	Original Duration	Start	Finish	Calendar	Total Float	2018												2019												2020												2021														
								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	J	F	M	A	M	J	J	A	S	O	N	D
C.5.2	817	Complete Electrical (Sta 172 to B 678)(Segment 2B)	5d	05-07-20	05-13-20	C00108424DB92 - 5 day	74d	Complete Electrical (Sta 172 to B 678)(Segment 2B)																																																		
C.5.2	818	Install SOE (Ramp I)(Segment 2B)	10d	10-23-19	11-05-19	C00108424DB92 - 5 day	170d	Install SOE (Ramp I)(Segment 2B)																																																		
C.5.2	819	Install RW-3 (Ramp I)(Segment 2B)	12d	11-06-19	11-21-19	C00108424DB92 - 5 day	170d	Install RW-3 (Ramp I)(Segment 2B)																																																		
C.5.2	820	Install Remaining Drainage (Ramp I)(Segment 2B)	5d	11-22-19	11-29-19	C00108424DB92 - 5 day	170d	Install Remaining Drainage (Ramp I)(Segment 2B)																																																		
C.5.2	821	Demo Existing Pavement (Ramp I)(Segment 2B)	2d	12-02-19	12-03-19	C00108424DB92 - 5 day	170d	Demo Existing Pavement (Ramp I)(Segment 2B)																																																		
C.5.2	822	Install Rough Electrical (Ramp I)(Segment 2B)	5d	12-04-19	12-10-19	C00108424DB92 - 5 day	170d	Install Rough Electrical (Ramp I)(Segment 2B)																																																		
C.5.2	823	Install Soil Cement (Ramp I)(Segment 2B)	6d	12-11-19	12-18-19	C00108424DB92 -	128d	Install Soil Cement (Ramp I)(Segment 2B)																																																		
C.5.2	824	Install CTA (Ramp I)(Segment 2B)	6d	12-19-19	12-27-19	C00108424DB92 -	128d	Install CTA (Ramp I)(Segment 2B)																																																		
C.5.2	825	Install MB-7F (Ramp I)(Segment 2B)	8d	12-30-19	01-09-20	C00108424DB92 - 5 day	170d	Install MB-7F (Ramp I)(Segment 2B)																																																		
C.5.2	826	Install Asphalt to IM Layer (Ramp I)(Segment 2B)	5d	03-16-20	03-20-20	C00108424DB92 - Paving	124d	Install Asphalt to IM Layer (Ramp I)(Segment 2B)																																																		
C.5.2	827	Install Guardrail (Ramp I)(Segment 2B)	2d	03-23-20	03-24-20	C00108424DB92 - 5 day	124d	Install Guardrail (Ramp I)(Segment 2B)																																																		
C.5.2	828	Install Impact Attenuator (Ramp I)(Segment 2B)	1d	03-25-20	03-25-20	C00108424DB92 - 5 day	124d	Install Impact Attenuator (Ramp I)(Segment 2B)																																																		
C.5.2	829	Complete Electrical (Ramp I)(Segment 2B)	3d	03-26-20	03-30-20	C00108424DB92 - 5 day	124d	Complete Electrical (Ramp I)(Segment 2B)																																																		
C.5.2	830	Install Permanent Signage (Ramp I)(Segment 2B)	3d	03-31-20	04-02-20	C00108424DB92 - 5 day	124d	Install Permanent Signage (Ramp I)(Segment 2B)																																																		
C.5.2	831	Install Portion of Phase 3B MOT (B678 to Sta 238)(Segment 2B)	2d	10-16-19	10-17-19	C00108424DB92 - 5 day	0d	Install Portion of Phase 3B MOT (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	832	Replace Remaining Portion of Crossing Sta 211+50 (B678 to Sta 238)(Segment 2B)	4d	10-18-19	10-23-19	C00108424DB92 - 5 day	0d	Replace Remaining Portion of Crossing Sta 211+50 (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	833	Install Remaining Drainage (B678 to Sta 238)(Segment 2B)	4d	10-24-19	10-29-19	C00108424DB92 - 5 day	0d	Install Remaining Drainage (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	834	Demo Existing Pavement (B678 to Sta 238)(Segment 2B)	4d	10-30-19	11-04-19	C00108424DB92 - 5 day	0d	Demo Existing Pavement (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	835	Install Rough Electrical (B678 to Sta 238)(Segment 2B)	3d	11-05-19	11-07-19	C00108424DB92 - 5 day	0d	Install Rough Electrical (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	836	Install Soil Cement (B678 to Sta 238)(Segment 2B)	6d	11-08-19	11-15-19	C00108424DB92 -	0d	Install Soil Cement (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	837	Install CTA (B678 to Sta 238)(Segment 2B)	6d	11-18-19	11-25-19	C00108424DB92 -	0d	Install CTA (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	838	Install MB-7F (B678 to Sta 238)(Segment 2B)	6d	11-26-19	12-04-19	C00108424DB92 - 5 day	0d	Install MB-7F (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	839	Install MB-7A (B678 to Sta 238)(Segment 2B)	6d	12-05-19	12-12-19	C00108424DB92 - 5 day	0d	Install MB-7A (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	840	Install Asphalt to IM Layer (B678 to Sta 238)(Segment 2B)	5d	12-13-19	03-19-20	C00108424DB92 - Paving	0d	Install Asphalt to IM Layer (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	841	Complete Electrical (B678 to Sta 238)(Segment 2B)	3d	03-20-20	03-24-20	C00108424DB92 - 5 day	0d	Complete Electrical (B678 to Sta 238)(Segment 2B)																																																		
C.5.2	842	Retrofit BMP 9-1 (B678 to Sta 238)(Segment 2B)	10d	03-25-20	04-07-20	C00108424DB92 - 5 day	161d	Retrofit BMP 9-1 (B678 to Sta 238)(Segment 2B)																																																		
C00108424DB92.C.5.3 B678			119d	05-16-19	10-29-19		246d	C00108424DB92.C.5.3 B678																																																		
C.5.3	843	Install MOT (B678)	1d	05-16-19	05-16-19	C00108424DB92 - 5 day	223d	Install MOT (B678)																																																		
C.5.3	844	Saw Cut and Demo Existing Approach Slab Abt A (B678)	1d	05-17-19	05-17-19	C00108424DB92 - 5 day	229d	Saw Cut and Demo Existing Approach Slab Abt A (B678)																																																		
C.5.3	845	Install SOE Abt A (B678)	4d	05-20-19	05-23-19	C00108424DB92 - 5 day	229d	Install SOE Abt A (B678)																																																		
C.5.3	846	Demo Existing Abutment Abt A (B678)	1d	05-24-19	05-24-19	C00108424DB92 - 5 day	233d	Demo Existing Abutment Abt A (B678)																																																		
C.5.3	847	Install New Foundation Abt A (B678)	8d	05-28-19	06-06-19	C00108424DB92 - 5 day	233d	Install New Foundation Abt A (B678)																																																		
C.5.3	848	Form, Pour, Strip & Cure New Pile Cap Abt A (B678)	5d	06-07-19	06-13-19	C00108424DB92 - 5 day	233d	Form, Pour, Strip & Cure New Pile Cap Abt A (B678)																																																		
C.5.3	849	Form, Pour, Strip & Cure New Abutment Stem Abt A (B678)	5d	06-14-19	06-20-19	C00108424DB92 - 5 day	233d	Form, Pour, Strip & Cure New Abutment Stem Abt A (B678)																																																		
C.5.3	850	Form, Pour, Strip & Cure Beam Seat Abt A (B678)	5d	06-21-19	06-27-19	C00108424DB92 - 5 day	233d	Form, Pour, Strip & Cure Beam Seat Abt A (B678)																																																		
C.5.3	851	Saw Cut and Demo Existing Approach Slab Abt B (B678)	5d	05-17-19	05-23-19	C00108424DB92 - 5 day	229d	Saw Cut and Demo Existing Approach Slab Abt B (B678)																																																		
C.5.3	852	Install SOE Abt B (B678)	4d	05-24-19	05-30-19	C00108424DB92 - 5 day	229d	Install SOE Abt B (B678)																																																		
C.5.3	853	Demo Existing Abutment Abt B (B678)	1d	05-31-19	05-31-19	C00108424DB92 - 5 day	229d	Demo Existing Abutment Abt B (B678)																																																		
C.5.3	854	Install New Foundation Abt B (B678)	8d	06-03-19	06-12-19	C00108424DB92 - 5 day	229d	Install New Foundation Abt B (B678)																																																		
C.5.3	855	Form, Pour, Strip & Cure New Pile Cap Abt B (B678)	5d	06-13-19	06-19-19	C00108424DB92 - 5 day	229d	Form, Pour, Strip & Cure New Pile Cap Abt B (B678)																																																		
C.5.3	856	Form, Pour, Strip & Cure New Abutment Stem Abt B (B678)	5d	06-20-19	06-26-19	C00108424DB92 - 5 day	229d	Form, Pour, Strip & Cure New Abutment Stem Abt B (B678)																																																		
C.5.3	857	Form, Pour, Strip & Cure Beam Seat Abt B (B678)	5d	06-27-19	07-03-19	C00108424DB92 - 5 day	229d	Form, Pour, Strip & Cure Beam Seat Abt B (B678)																																																		
C.5.3	858	Install MOT N. Sycamore St (B678)	1d	05-17-19	05-17-19	C00108424DB92 - 5 day	223d	Install MOT N. Sycamore St (B678)																																																		
C.5.3	859	Install Pier SOE (B678)	4d	05-20-19	05-23-19	C00108424DB92 - 5 day	223d	Install Pier SOE (B678)																																																		
C.5.3	860	Excavate for Pier (B678)	1d	05-24-19	05-24-19	C00108424DB92 - 5 day	223d	Excavate for Pier (B678)																																																		
C.5.3	861	Install Pier Foundation (B678)	8d	05-28-19	06-06-19	C00108424DB92 - 5 day	223d	Install Pier Foundation (B678)																																																		
C.5.3	862	Form, Pour, Strip & Cure Pier Pile Cap (B678)	5d	06-07-19	06-13-19	C00108424DB92 - 5 day	223d	Form, Pour, Strip & Cure Pier Pile Cap (B678)																																																		
C.5.3	863	Form, Pour, Strip & Cure Pier Stem (B678)	5d	06-14-19	06-20-19	C00108424DB92 - Bridge	180d	Form, Pour, Strip & Cure Pier Stem (B678)																																																		
C.5.3	864	Form, Pour, Strip & Cure Pier Cap (B678)	5d	06-21-19	06-27-19	C00108424DB92 - Bridge	180d	Form, Pour, Strip & Cure Pier Cap (B678)																																																		
C.5.3	865	Form, Pour, Strip & Cure Pier Beam Seat (B678)	5d	06-28-19	07-05-19	C00108424DB92 - Bridge	180d	Form, Pour, Strip & Cure Pier Beam Seat (B678)																																																		
C.5.3	866	Demo SOE Abts & Pier (B678)	1d	07-08-19	07-08-19	C00108424DB92 - 5 day	223d	Demo SOE Abts & Pier (B678)																																																		
C.5.3	867	Perform Existing Bridge Repairs (B678)	25d	05-20-19	06-24-19	C00108424DB92 - Bridge	273d	Perform Existing Bridge Repairs (B678)																																																		
C.5.3	868	Saw Cut Deck (B678)	1d	07-09-19	07-09-19	C00108424DB92 - 5 day	223d	Saw Cut Deck (B678)																																																		
C.5.3	869	Demo Deck and Parapet (B678)	3d	07-10-19	07-12-19	C00108424DB92 - 5 day	223d	Demo Deck and Parapet (B678)																																																		
C.5.3	870	Erect Girder Lines (B678)	4d	07-15-19	07-18-19	C00108424DB92 - 5 day	223d	Erect Girder Lines (B678)																																																		

█ Remaining Level of Effort
█ Actual Work
█ Critical Remaining ...
█ Actual Level of Effort
█ Remaining Work
◆ Milestone

WBS Path	Activity ID	Activity Name	Original Duration	Start	Finish	Calendar	Total Float	2018												2019												2020												2021											
								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	J	F	M	A	M	J	J	A	S
C00108424DB92 I-66 Eastbound Widening Inside the Beltway Technical Proposal								C00108424DB92.1 Milestones																																															
C00108424DB92.1 Milestones								C00108424DB92.1 Milestones																																															
1	2	Notice of Intent to Award	0d	11-03-17		C00108424DB92 - 5 day	0d	◆ Notice of Intent to Award																																															
1	3	CTB Approval / Notice of Award	0d	12-06-17		C00108424DB92 - 7 day	0d	◆ CTB Approval / Notice of Award																																															
1	4	Design-Build Contract Execution	0d	01-05-18		C00108424DB92 - 5 day	0d	◆ Design-Build Contract Execution																																															
1	464	Start Construction I-66 EDA	1d	10-01-20*	10-01-20	C00108424DB92 - 5 day	0d	Start Construction I-66 EDA																																															
1	5	Notice to Proceed	1d	01-08-18	01-08-18	C00108424DB92 - 5 day	0d	Notice to Proceed																																															
1	6	Interim Milestone - November 10, 2020	0d		11-10-20*	C00108424DB92 - 7 day	0d	◆ Interim Milestone - November 10, 2020																																															
C00108424DB92.B I-66 EBW Design Phase								C00108424DB92.B I-66 EBW Design Phase																																															
C00108424DB92.B.1 Scope Validation								C00108424DB92.B.1 Scope Validation																																															
B.1	13	Scope Validation Investigation and Findings (120 days)	120d	01-08-18	05-08-18	C00108424DB92 - 7 day	0d	Scope Validation Investigation and Findings (120 days)																																															
B.1	14	Scope Validation Submission	0d		05-08-18*	C00108424DB92 - 5 day	0d	◆ Scope Validation Submission																																															
C00108424DB92.B.3 Design								C00108424DB92.B.3 Design																																															
C00108424DB92.B.3.2 Supplemental Survey								C00108424DB92.B.3.2 Supplemental Survey																																															
C00108424DB92.B.3.2.2 Field Surveys								C00108424DB92.B.3.2.2 Field Surveys																																															
B.3.2.2	34	Prepare & Submit Draft Property Owner Notification Letter & Address Listing	5d	01-10-18	01-16-18	C00108424DB92 - 5 day	0d	Prepare & Submit Draft Property Owner Notification Letter & Address Listing																																															
B.3.2.2	35	VDOT Review and Approve Property Owner Notification Letter	1d	01-17-18	01-17-18	C00108424DB92 - 5 day	0d	VDOT Review and Approve Property Owner Notification Letter																																															
B.3.2.2	39	Stake Geotechnical Boring Locations	5d	02-08-18	02-14-18	C00108424DB92 - 5 day	0d	Stake Geotechnical Boring Locations																																															
C00108424DB92.B.3.3 Geotechnical Engineering & Subsurface Investigations								C00108424DB92.B.3.3 Geotechnical Engineering & Subsurface Investigations																																															
B.3.3	43	Prepare and Submit Geotechnical Boring Location Plan	10d	01-11-18	01-24-18	C00108424DB92 - 5 day	0d	Prepare and Submit Geotechnical Boring Location Plan																																															
B.3.3	45	Prepare Property Owner Notification Letters for Geotechnical Investigations	1d	01-18-18	01-18-18	C00108424DB92 - 5 day	0d	Prepare Property Owner Notification Letters for Geotechnical Investigations																																															
B.3.3	46	Secure Permits and Clear Utilities as Required	15d	01-25-18	02-14-18	C00108424DB92 - 5 day	0d	Secure Permits and Clear Utilities as Required																																															
B.3.3	48	Perform Geotechnical Field Investigations	39d	02-15-18	04-11-18	C00108424DB92 - 5 day	0d	Perform Geotechnical Field Investigations																																															
B.3.3	49	Boring Logs, Laboratory Testing & Analysis	49d	02-22-18	05-02-18	C00108424DB92 - 5 day	0d	Boring Logs, Laboratory Testing & Analysis																																															
B.3.3	50	Prepare/Submit Bridge Geotechnical Engineering Report B-675 & 677	19d	03-07-18	04-03-18	C00108424DB92 - 5 day	0d	Prepare/Submit Bridge Geotechnical Engineering Report B-675 & 677																																															
B.3.3	61	VDOT Review/Approve Bridge Geotechnical Engineering Report B-675 & 677	90d	04-03-18	07-02-18	C00108424DB92 - 7 day	0d	VDOT Review/Approve Bridge Geotechnical Engineering Report B-675 & 677																																															
C00108424DB92.B.3.4 Roadway Design								C00108424DB92.B.3.4 Roadway Design																																															
C00108424DB92.B.3.4.1 Develop ROW Plans								C00108424DB92.B.3.4.1 Develop ROW Plans																																															
B.3.4.1	75	Right-of-Way/Roadway Plan Development 1st Submittal	56d	01-08-18	03-26-18	C00108424DB92 - 5 day	0d	Right-of-Way/Roadway Plan Development 1st Submittal																																															
C00108424DB92.B.3.5 Bridge Design								C00108424DB92.B.3.5 Bridge Design																																															
C00108424DB92.B.3.5.1 Segment 1 Bridges B-675 & B-677 Widening								C00108424DB92.B.3.5.1 Segment 1 Bridges B-675 & B-677 Widening																																															
B.3.5.1	136	Prepare B-675 & B-677 Reports/Const Stages/TS&L (Stage I) Submission	16d	01-22-18	02-12-18	C00108424DB92 - 5 day	0d	Prepare B-675 & B-677 Reports/Const Stages/TS&L (Stage I) Submission																																															
B.3.5.1	137	Submit B-675 & B-677 Stage I Submission	1d	02-13-18	02-13-18	C00108424DB92 - 5 day	0d	Submit B-675 & B-677 Stage I Submission																																															
B.3.5.1	139	Address Comments and Prepare B-675 & B-677 Final Plans (Stage II) Submission	78d	03-07-18	06-26-18	C00108424DB92 - 5 day	0d	Address Comments and Prepare B-675 & B-677 Final Plans (Stage II) Submission																																															
B.3.5.1	141	Load Rating Analysis for Partial Demolition	3d	06-22-18	06-26-18	C00108424DB92 - 5 day	0d	Load Rating Analysis for Partial Demolition																																															
B.3.5.1	142	Design QA/QC B-675 & B-677 Stage II Submission	3d	06-27-18	06-29-18	C00108424DB92 - 5 day	0d	Design QA/QC B-675 & B-677 Stage II Submission																																															
B.3.5.1	143	Submit B-675 & B-677 Stage II Submission	1d	07-02-18	07-02-18	C00108424DB92 - 5 day	0d	Submit B-675 & B-677 Stage II Submission																																															
B.3.5.1	145	Final Revisions, Released for Construction(RFC) Plans	4d	07-24-18	07-27-18	C00108424DB92 - 5 day	0d	Final Revisions, Released for Construction(RFC) Plans																																															
C00108424DB92.C Construction								C00108424DB92.C Construction																																															
C00108424DB92.C.1 Construction Engineering Design Services								C00108424DB92.C.1 Construction Engineering Design Services																																															
C.1	569	Utility Coordination During Construction	619d	06-06-18	11-10-20	C00108424DB92 - 5 day	0d	Utility Coordination During Construction																																															
C.1	570	Respond to Request for Information and Submittal Review	619d	06-06-18	11-10-20	C00108424DB92 - 5 day	0d	Respond to Request for Information and Submittal Review																																															
C.1	571	Construction Engineering Design and Field Coordination	619d	06-06-18	11-10-20	C00108424DB92 - 5 day	0d	Construction Engineering Design and Field Coordination																																															
C00108424DB92.C.2 Quality Control								C00108424DB92.C.2 Quality Control																																															
C.2	572	Project Quality Control	825d	06-06-18	09-02-21	C00108424DB92 - 5 day	0d	Project Quality Control																																															
C00108424DB92.C.4 Segment 1 Sta 120+00 to 172+00								C00108424DB92.C.4 Segment 1 Sta 120+00 to 172+00																																															
C00108424DB92.C.4.3 B675								C00108424DB92.C.4.3 B675																																															
C.4.3	650	Install Pier 1 Foundation (B675)	8d	07-30-18	08-08-18	C00108424DB92 - 5 day	0d	Install Pier 1 Foundation (B675)																																															
C.4.3	651	Form, Pour, Strip & Cure Pier 1 Pile Cap (B675)	5d	08-09-18	08-15-18	C00108424DB92 - 5 day	0d	Form, Pour, Strip & Cure Pier 1 Pile Cap (B675)																																															
C.4.3	652	Form, Pour, Strip & Cure Pier 1 Stem (B675)	5d	08-16-18	08-22-18	C00108424DB92 - Bridge	0d	Form, Pour, Strip & Cure Pier 1 Stem (B675)																																															
C.4.3	653	Form, Pour, Strip & Cure Pier 1 Cap (B675)	5d	08-23-18	08-29-18	C00108424DB92 - Bridge	0d	Form, Pour, Strip & Cure Pier 1 Cap (B675)																																															
C.4.3	654	Form, Pour, Strip & Cure Pier 1 Beam Seat (B675)	5d	08-30-18	09-06-18	C00108424DB92 - Bridge	0d	Form, Pour, Strip & Cure Pier 1 Beam Seat (B675)																																															
C.4.3	663	Demo SOE Abt A & Pier 1 (B675)	1d	09-07-18	09-07-18	C00108424DB92 - 5 day	0d	Demo SOE Abt A & Pier 1 (B675)																																															
C.4.3	664	Demo SOE Abt B & Pier 2 (B675)	1d	09-10-18	09-10-18	C00108424DB92 - 5 day	0d	Demo SOE Abt B & Pier 2 (B675)																																															
C.4.3	665	Saw Cut Deck (B675)	1d	09-11-18	09-11-18	C00108424DB92 - 5 day	0d	Saw Cut Deck (B675)																																															

█ Remaining Level of Effort
█ Actual Work
█ Critical Remaining ...
█ Actual Level of Effort
█ Remaining Work
◆ Milestone

WBS Path	Activity ID	Activity Name	Original Duration	Start	Finish	Calendar	Total Float	2018												2019												2020												2021																
								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	J	F	M	A	M	J	J	A	S	O	N	D		
C00108424DB92 I-66 Eastbound Widening Inside the Beltway Technical Proposal								994d	11-03-17	09-02-21		0d	C00108424DB92																																															
C00108424DB92.1 Milestones								994d	11-03-17	09-02-21		0d	C00108424DB92																																															
1	2	Notice of Intent to Award	0d	11-03-17		C00108424DB92 - 5 day	0d	◆ Notice of Intent to Award																																																				
1	3	CTB Approval / Notice of Award	0d	12-06-17		C00108424DB92 - 7 day	0d	◆ CTB Approval / Notice of Award																																																				
1	359	Start Construction	1d	06-05-18	06-05-18	C00108424DB92 - 5 day	19d	Start Construction																																																				
1	4	Design-Build Contract Execution	0d	01-05-18		C00108424DB92 - 5 day	0d	◆ Design-Build Contract Execution																																																				
1	464	Start Construction I-66 EDA	1d	10-01-20*	10-01-20	C00108424DB92 - 5 day	0d	Start Construction I-66 EDA																																																				
1	5	Notice to Proceed	1d	01-08-18	01-08-18	C00108424DB92 - 5 day	0d	Notice to Proceed																																																				
1	7	Final Completion - September 2, 2021	0d		09-02-21	C00108424DB92 - 7 day	0d	◆ Final Completion																																																				
C00108424DB92.B I-66 EBW Design Phase								931d	01-08-18	08-03-21		0d	C00108424DB92																																															
C00108424DB92.B.3 Design								94d	01-08-18	05-17-18		21d	C00108424DB92																																															
C00108424DB92.B.3.1 Design Waivers & Exceptions								55d	01-23-18	04-09-18		22d	C00108424DB92																																															
B.3.1	23	Verify Approved DEs and DWs Implementation & Mitigation Measures	5d	01-23-18	01-29-18	C00108424DB92 - 5 day	22d	Verify Approved DEs and DWs Implementation & Mitigation Measures																																																				
B.3.1	24	Complete New Exception(s)/Waiver(s) Application & Submit	15d	01-30-18	02-19-18	C00108424DB92 - 5 day	22d	Complete New Exception(s)/Waiver(s) Application & Submit																																																				
B.3.1	25	Agency Review and Meeting	21d	02-19-18	03-12-18	C00108424DB92 - 7 day	30d	Agency Review and Meeting																																																				
B.3.1	26	Update & Resubmit Exception(s)/Waiver(s)	5d	03-13-18	03-19-18	C00108424DB92 - 5 day	21d	Update & Resubmit Exception(s)/Waiver(s)																																																				
B.3.1	27	Agency Review & Approval of Exception(s)/Waiver(s)	21d	03-19-18	04-09-18	C00108424DB92 - 7 day	30d	Agency Review & Approval of Exception(s)/Waiver(s)																																																				
C00108424DB92.B.3.4 Roadway Design								94d	01-08-18	05-17-18		21d	C00108424DB92																																															
C00108424DB92.B.3.4.1 Develop ROW Plans								94d	01-08-18	05-17-18		21d	C00108424DB92																																															
B.3.4.1	75	Right-of-Way/Roadway Plan Development 1st Submittal	56d	01-08-18	03-26-18	C00108424DB92 - 5 day	0d	Right-of-Way/Roadway Plan Development 1st Submittal																																																				
B.3.4.1	81	Submit ROW Plans 1st Submittal	1d	04-10-18	04-10-18	C00108424DB92 - 5 day	22d	Submit ROW Plans 1st Submittal																																																				
B.3.4.1	82	VDOT Review and Comment ROW Plans 1st Submittal	21d	04-10-18	05-01-18	C00108424DB92 - 7 day	30d	VDOT Review and Comment ROW Plans 1st Submittal																																																				
B.3.4.1	83	Address Comments Develop ROW Plans Final	10d	05-02-18	05-15-18	C00108424DB92 - 5 day	21d	Address Comments Develop ROW Plans Final																																																				
B.3.4.1	84	Design QA/QC ROW Plans Final Submittal	2d	05-16-18	05-17-18	C00108424DB92 - 5 day	21d	Design QA/QC ROW Plans Final Submittal																																																				
C00108424DB92.B.3.4.2 Segment 1 A & B - Sta 129 to Sta 172								64d	01-09-18	04-09-18		19d	C00108424DB92																																															
C00108424DB92.B.3.4.2.2 Roadway Plan Development								64d	01-09-18	04-09-18		19d	C00108424DB92																																															
B.3.4.2.2	105	Develop Segment 1A & B Roadway 1st Submittal	30d	01-09-18	02-19-18	C00108424DB92 - 5 day	19d	Develop Segment 1A & B Roadway 1st Submittal																																																				
B.3.4.2.2	106	Develop Segment 1A & B Drainage/SWM, E&S Plans and Drainage/SWM Report 1st Subr	30d	01-09-18	02-19-18	C00108424DB92 - 5 day	19d	Develop Segment 1A & B Drainage/SWM, E&S Plans and Drainage/SWM Report 1st Submittal																																																				
B.3.4.2.2	107	Develop Seg. 1A & B Sign., Marking, Lighting, Signal Design, ITS/ETC (1B), MOT& TMP (25d	01-16-18	02-19-18	C00108424DB92 - 5 day	19d	Develop Seg. 1A & B Sign., Marking, Lighting, Signal Design, ITS/ETC (1B), MOT& TMP (Traffic) 1st Submittal																																																				
B.3.4.2.2	108	Design QA/QC Segment 1A & B 1st Submittal	5d	02-20-18	02-26-18	C00108424DB92 - 5 day	19d	Design QA/QC Segment 1A & B 1st Submittal																																																				
B.3.4.2.2	111	Address Comments Develop Segment 1A & B Roadway Final Submittal	10d	03-26-18	04-09-18	C00108424DB92 - 5 day	19d	Address Comments Develop Segment 1A & B Roadway Final Submittal																																																				
C00108424DB92.B.3.6 Retaining Wall Design								30d	02-27-18	04-09-18		19d	C00108424DB92																																															
C00108424DB92.B.3.6.1 Segment 1 Retaining Walls Sta 130+50 to 131 (RW 1) & Sta 146 to 147+50 (RW 2)								30d	02-27-18	04-09-18		19d	C00108424DB92																																															
B.3.6.1	219	Prepare RW 1 & RW 2 Preliminary Submission	4d	02-27-18	03-02-18	C00108424DB92 - 5 day	19d	Prepare RW 1 & RW 2 Preliminary Submission																																																				
B.3.6.1	220	Submit RW 1 & RW 2 Preliminary Submission	1d	03-05-18	03-05-18	C00108424DB92 - 5 day	19d	Submit RW 1 & RW 2 Preliminary Submission																																																				
B.3.6.1	221	VDOT/FHWA Review, Comment & Approve RW1 & RW 2 Preliminary Submission	21d	03-05-18	03-26-18	C00108424DB92 - 7 day	28d	VDOT/FHWA Review, Comment & Approve RW1 & RW 2 Preliminary Submission																																																				
B.3.6.1	222	Address Comments and Prepare RW 1 & RW 2 Final Plans (Stage II) Submission	9d	03-27-18	04-09-18	C00108424DB92 - 5 day	19d	Address Comments and Prepare RW 1 & RW 2 Final Plans (Stage II) Submission																																																				
C00108424DB92.B.4 Environmental								41d	04-10-18	06-06-18		26d	C00108424DB92																																															
C00108424DB92.B.4.3 Environmental Permits								41d	04-10-18	06-06-18		26d	C00108424DB92																																															
C00108424DB92.B.4.3.1 Environmental Permit applications								27d	04-10-18	05-16-18		25d	C00108424DB92																																															
B.4.3.1	274	Develop and Submit VPDES Stormwater General Permit Application & SWPPP Segment 1	8d	04-10-18	04-19-18	C00108424DB92 - 5 day	19d	Develop and Submit VPDES Stormwater General Permit Application & SWPPP Segment 1A & B																																																				
B.4.3.1	276	Request EQ-201 NEPA Re-evaluation for ROW	1d	05-16-18	05-16-18	C00108424DB92 - 5 day	25d	Request EQ-201 NEPA Re-evaluation for ROW																																																				
C00108424DB92.B.4.3.2 Issuance & Approval of Environmental Permits								48d	04-19-18	06-06-18		36d	C00108424DB92																																															
B.4.3.2	281	Agency Reviews and Issuance of VPDES Stormwater General Permit & SWPPP Segmer	25d	04-19-18	05-14-18	C00108424DB92 - 7 day	27d	Agency Reviews and Issuance of VPDES Stormwater General Permit & SWPPP Segment 1A&B-Hold Point																																																				
B.4.3.2	283	VDOT Review and Approve EQ-201 NEPA Re-evaluation for ROW - Hold Point	21d	05-16-18	06-06-18	C00108424DB92 - 7 day	36d	VDOT Review and Approve EQ-201 NEPA Re-evaluation for ROW - Hold Point																																																				
B.4.3.2	284	VDOT Rvw.&Approve EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for C	21d	05-14-18	06-04-18	C00108424DB92 - 7 day	27d	VDOT Rvw.&Approve EQ-200 NEPA Re-eval.& EQ-103 NEPA Certify/Commitments for Const. Segment 1A & B - Hold Point																																																				
C00108424DB92.B.7 Public Involvement								846d	04-05-18	08-03-21		0d	C00108424DB92																																															
B.7	355	Public Information Preparation & Release and Content for Project Website	846d	04-05-18	08-03-21	C00108424DB92 - 5 day	0d	Public Information																																																				
B.7	357	Pardon Our Dust and Other Stakeholders Meetings	846d	04-05-18	08-03-21	C00108424DB92 - 5 day	0d	Pardon Our Dust																																																				
C00108424DB92.O I-66 EDA Design Phase								931d	01-08-18	08-03-21		0d	C00108424DB92																																															
C00108424DB92.O.2 Design								107d	01-08-18	06-06-18		26d	C00108424DB92																																															
C00108424DB92.O.2.1 Design Waivers & Exceptions								56d	01-22-18	04-09-18		22d	C00108424DB92																																															
O.2.1	367	Verify DEs and DWs Implementation & Mitigation Measures	6d	01-22-18	01-29-18	C00108424DB92 - 5 day	22d	Verify DEs and DWs Implementation & Mitigation Measures																																																				
O.2.1	368	Complete New Exception(s)/Waiver(s) Application & Submit	15d	01-30-18	02-19-18	C00108424DB92 - 5 day	22d	Complete New Exception(s)/Waiver(s) Application & Submit																																																				
O.2.1	369	Agency Review and Meeting	21d	02-19-18	03-12-18	C00108424DB92 - 7 day	30d	Agency Review and Meeting																																																				

█ Remaining Level of Effort
 █ Actual Work
 █ Critical Remaining ...
█ Actual Level of Effort
 █ Remaining Work
 ◆ Milestone

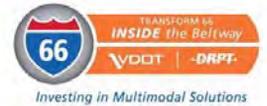
WAGMAN

General Construction | Heavy Civil | Geotechnical



VOLKERT

FMC FORT MYER
CONSTRUCTION
Since 1972



Volume I Technical Proposal

September 2017



I-66 Eastbound Widening Inside the Beltway DESIGN - BUILD



Volume II Conceptual Plans
September 2017

State Project No. 0066-96A-417, P101, R201, C501 | FHWA Project No. NHPP-066-1(365)
Contract ID No. C00108424DB92

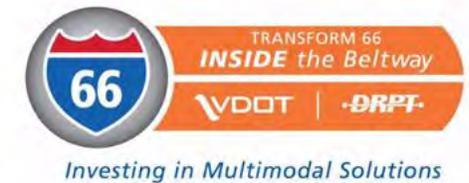
Led by:



In association with:



Section 4.3.1
Conceptual Roadway Plans
I-66 EBW



Volume II Conceptual Plans
September 2017



FHWA 534 DATA 41103

FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
3	VA.	NHPP-066-1(356)	66	(FO) 0066-96A-417 PI01, R201, C501	1
		See Tabulation Below For Section Numbers		See Tabulation Below For Section Numbers	

FUNCTIONAL CLASSIFICATION AND TRAFFIC DATA	
URBAN PRINCIPAL ARTERIAL - FREEWAY (STD GS-5) ROLLING 60 MPH MINIMUM DESIGN SPEED	
I-66 EB	From: I-495 To: N. GLEBE ROAD
ADT (2015)	63,000 EB
ADT (2040)	87,900 EB
DHV	0,000 (PM)
D (%) (design hour)	60
T (%) (design hour)	0.7
V (MPH)	See Plan & Profile for horizontal & vertical design speeds

PORTIONS OF THESE PLANS CONTAIN CRITICAL INFRASTRUCTURE INFORMATION/SENSITIVE SECURITY INFORMATION (CII/SSI). UNAUTHORIZED RELEASE OR REPRODUCTION OF THESE DOCUMENTS MAY RESULT IN CIVIL PENALTY OR OTHER ACTION.

Design Exception	Sta. to Sta.	Approval Date
DE-2016-37 Lane Width Reduction	Sta. 250+33 to Sta. 282+45	6/30/17
DE-2016-38 Shoulder Width Reduction On Bridge	Sta. 267+73 to Sta. 268+53	6/30/17
DE-2016-39 Stopping Sight Distance	Sta. 263+80.72 to Sta. 271+89.11	6/30/17
DE-2016-40 Shoulder Width Reduction	Sta. 252.06 to Sta. 279+00	6/30/17

Index of Sheets

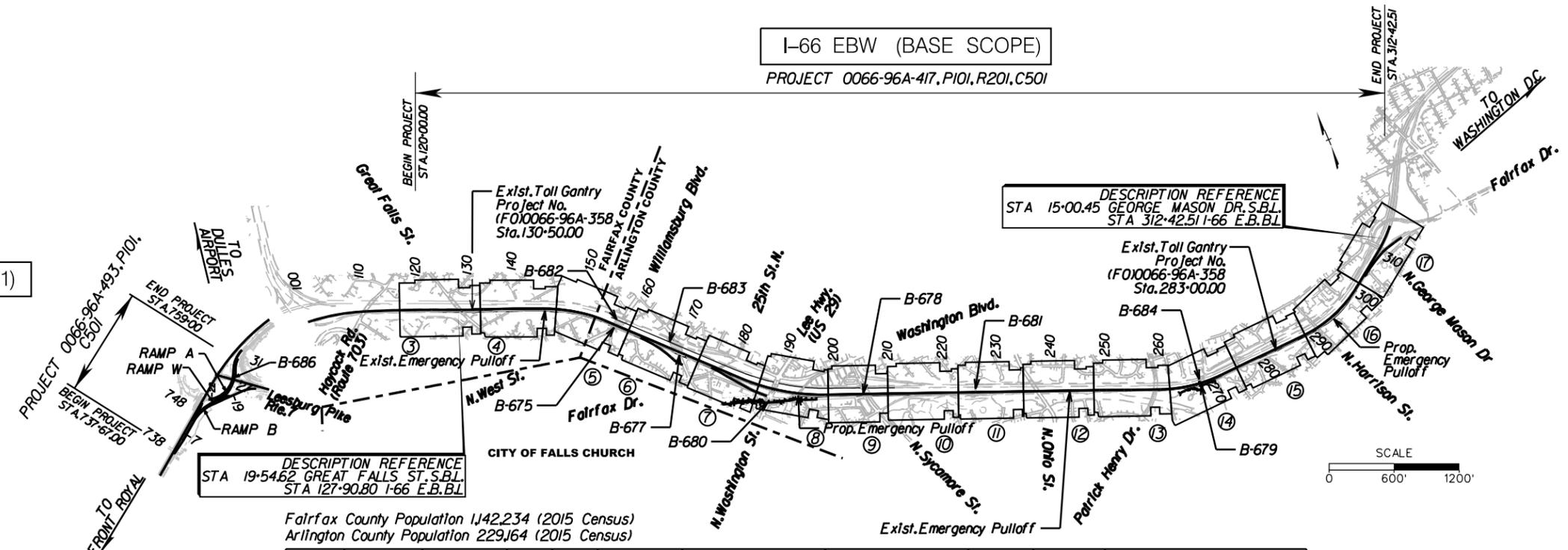
Sheet No.	Description of Sheets
1	Title Sheet
2A(1) thru 2A(4)	I-66 EB Typical Sections
2A(5)	Ramps & Tralls Typical Sections
3	Plan Sheet - I-66 EB Widening - Sta.122+50.00 - 132+00.00
4	Plan Sheet - I-66 EB Widening - Sta.132+00.00 - 146+00.00
5	Plan Sheet - I-66 EB Widening - Sta.146+00.00 - 160+00.00
6	Plan Sheet - I-66 EB Widening - Sta.160+00.00 - 174+00.00
7	Plan Sheet - I-66 EB Widening - Sta.174+00.00 - 186+00.00
8	Plan Sheet - I-66 EB Widening - Sta.186+00.00 - 199+00.00
8(1)	Plan Sheet - I-66 EB Widening - W & O.D.Trall Sta.50+45.00 - 59+50.00
8B	Profile Sheet I-66 EB Widening - Tralls
9	Plan Sheet - I-66 EB Widening - Sta.199+00.00 - 210+00.00
10	Plan Sheet - I-66 EB Widening - Sta.210+00.00 - 223+00.00
11	Plan Sheet - I-66 EB Widening - Sta.223+00.00 - 235+00.00
12	Plan Sheet - I-66 EB Widening - Sta.235+00.00 - 248+00.00
13	Plan Sheet - I-66 EB Widening - Sta.248+00.00 - 262+00.00
14	Plan Sheet - I-66 EB Widening - Sta.262+00.00 - 275+00.00
14(1)	Plan Sheet - I-66 EB Widening - Custis Trall
14B	Profile Sheet I-66 EB Widening - Tralls
15	Plan Sheet - I-66 EB Widening - Sta.275+00.00 - 289+00.00
16	Plan Sheet - I-66 EB Widening - Sta.289+00.00 - 303+00.00
17	Plan Sheet - I-66 EB Widening - Sta.303+00.00 - 315+01.79
I-66 EDA (OPTION 1)	
2A(1) - 2A(2)	Typical Sections
3	Plan Sheet - 3 - Sta.737+67.00 - 14+00.00
4	Plan Sheet - 4 - Sta.14+00.00 - 30+78.00

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

PLAN AND PROFILE OF PROPOSED
STATE HIGHWAY
DESIGN-BUILD PROJECT
I-66 EASTBOUND WIDENING INSIDE THE BELTWAY
FROM: DULLES CONNECTOR ROAD (ROUTE 267)
TO: FAIRFAX DRIVE (ROUTE 237)

I-66 EDA (OPTION 1)

I-66 EBW (BASE SCOPE)
PROJECT 0066-96A-417, PI01, R201, C501



Fairfax County Population 1,422,234 (2015 Census)
Arlington County Population 229,164 (2015 Census)

STATE PROJECT NO.	SECTION	FEDERAL AID PROJECT NO.	TYPE CODE	UPC NO.	LENGTH INCLUDING BRIDGE(S)		LENGTH EXCLUDING BRIDGE(S)		BRIDGE PLAN NO.	TYPE PROJECT	DESCRIPTION
					EQUALITIES FEET	FEET	MILES	FEET			
I-66 EBW (BASE SCOPE) 0066-96A-417	PI01	NHPP-066-1(356)	PENG	108424		19242.51	3.644	18403.27	3.485	PRELIMINARY ENGR.	FROM: 0.11 MI. WEST OF GREAT FALLS ST. (RTE. 694) TO: 0.04 MI. EAST OF GEORGE MASON DR.
	B675	NHPP-066-1(356)		108424		168.75	0.032			BRIDGE	I-66 E.B. BRIDGE WIDENING OVER WILLIAMSBURG BLVD.
	B677	NHPP-066-1(356)		108424		223.59	0.042			BRIDGE	I-66 E.B. BRIDGE WIDENING OVER WESTMORELAND ST.
	B678	NHPP-066-1(356)		108424		151.37	0.029			BRIDGE	I-66 E.B. BRIDGE WIDENING OVER N. SYCAMORE ST.
	B679	NHPP-066-1(356)		108424		80.53	0.016			BRIDGE	I-66 E.B. BRIDGE WIDENING OVER BON AIR PARK
	B680	NHPP-066-1(356)		108424		TBD	TBD			BRIDGE	PEDESTRIAN BRIDGE OVER US-29
	B681	NHPP-066-1(356)		108424		215.00	0.041			BRIDGE	PEDESTRIAN BRIDGE OVER I-66 E.B. AT STA. 226+14.49
	B682	NHPP-066-1(356)		108424		168.46	0.032			BRIDGE	I-66 WB BRIDGE OVER WILLIAMSBURG BLVD
	B683	NHPP-066-1(356)		108424		224.77	0.043			BRIDGE	I-66 WB BRIDGE OVER WESTMORELAND ST
	B684	NHPP-066-1(356)		108424		79.24	0.015			BRIDGE	I-66 WB BRIDGE OVER BON AIR PARK
*	PI01	CM-066-1(358)	PENG	110629	N/A	2133	0.404	1989	0.377	PRELIMINARY ENGR.	FROM: 0.315 MI. WEST OF LEESBURG PKE (ROUTE 7) TO: 0.089 MI. EAST OF LEESBURG PKE (ROUTE 7)
	B686	CM-066-1(358)		110629	N/A	144	0.027			BRIDGE	ROUTE 7 SB TO I-66 EB RAMP BRIDGE OVER ROUTE 7

Project Lengths are based on length along I-66 EB Constr. @

Bridge B686 Length is based on as-built plan.

THIS PROJECT IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE DEPARTMENT'S 2016 ROAD AND BRIDGE SPECIFICATIONS, 2016 ROAD AND BRIDGE STANDARDS, 2009 MUTCD, 2011 VIRGINIA SUPPLEMENT TO THE MUTCD, 2011 VIRGINIA WORK AREA PROTECTION MANUAL AND AS AMENDED BY CONTRACT PROVISIONS AND THE COMPLETE ELECTRONIC PDF VERSION OF THE PLAN ASSEMBLY.
ALL CURVES ARE TO BE SUPERELEVATED, TRANSITIONED AND WIDENED IN ACCORDANCE WITH STANDARD TC-5.11U AND TC-5.11R, EXCEPT WHERE OTHERWISE NOTED.

*I-66 EDA (OPTION 1)
0066-96A-493,
PI01, C501, B686

CONCEPTUAL PLANS

PRELIMINARY

DESIGN BUILDER
WAGMAN
General Construction Heavy Civil Geotechnical

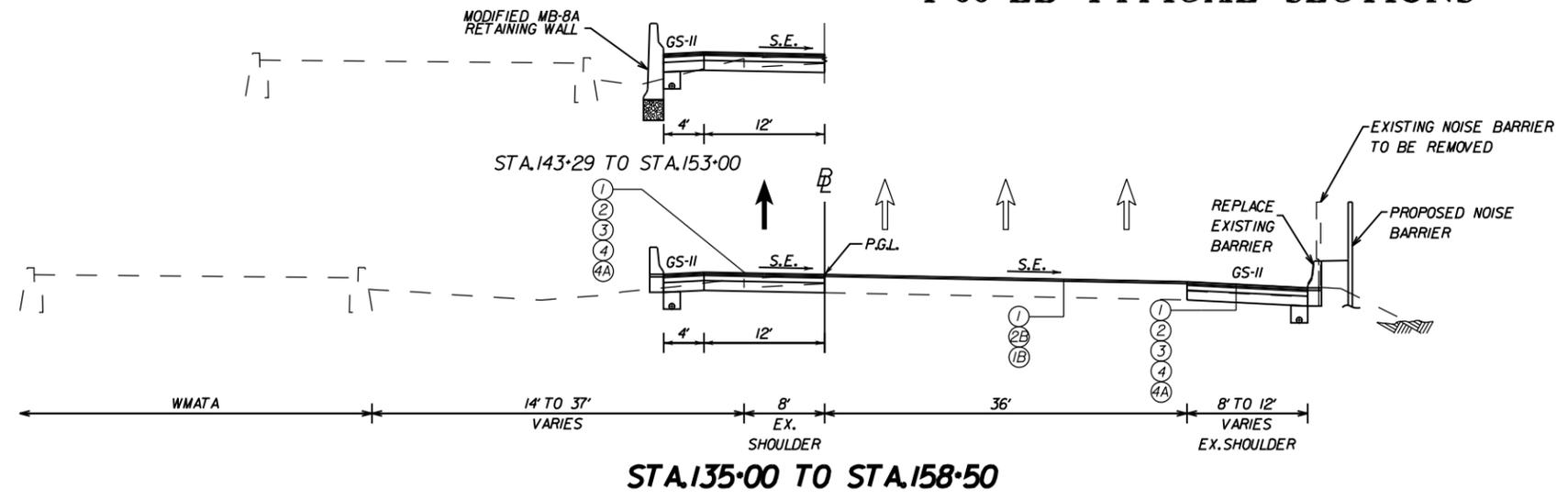
DESIGNED BY
JMT VOLKERT

STATE PROJECT
0066-96A-417, PI01, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-66 EASTBOUND WIDENING
INSIDE THE BELTWAY

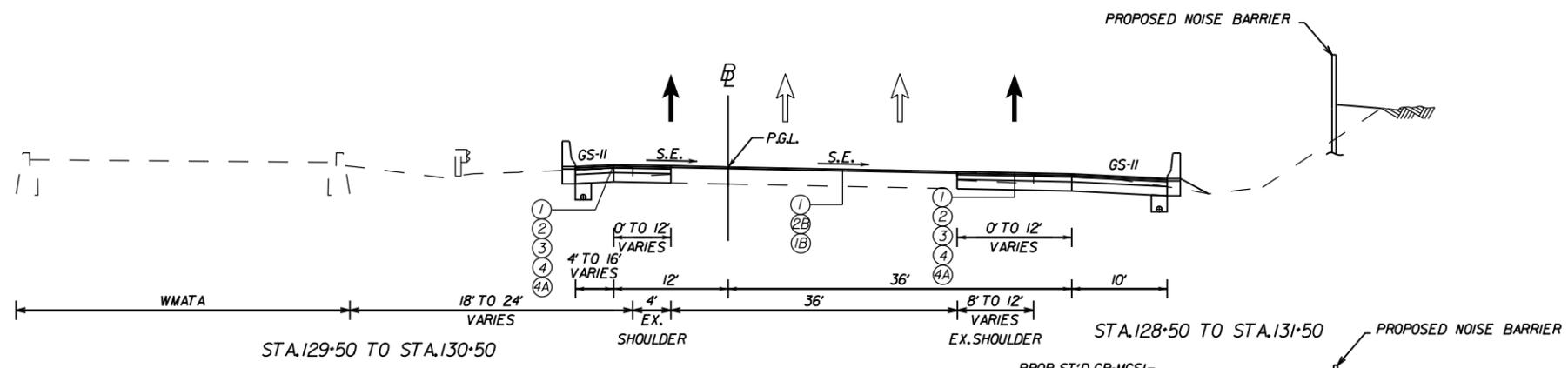
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Vol II-1

I-66 EB TYPICAL SECTIONS



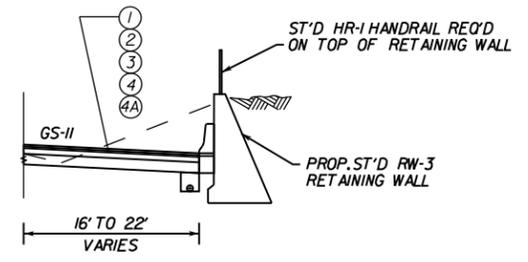
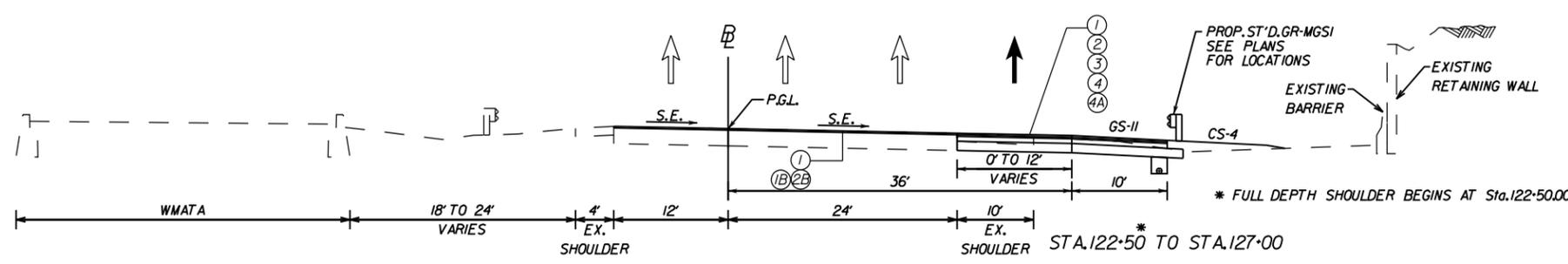
Pavement Legend

- ① 2" Asphalt Concrete, Type SM-12.5E @ 237 Lbs/Sq.Yd.
- ①A 1" Asphalt Concrete, Type SM-4.75A @ 118 Lbs/Sq.Yd.
- ①B Mill Existing Pavement 2" Depth
- ② 2" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 240 Lbs/Sq.Yd.
- ②A 3" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 360 Lbs/Sq.Yd.
- ②B Variable Depth Asphalt Concrete Intermediate Course, Type IM-19.0A (To be Used for Superelevation Corrections)
- ③ 6" Asphalt Concrete, Type BM-25.0A
- ④ 6" Aggregate Base Material, Type I, No. 21A, Pugmill Mixed with 4% by Weight Hydraulic Cement
- ④A 6" Cement Stabilized Subgrade with 12% Hydraulic Cement
- ④B 6" Aggregate Base Material, Type I, No. 21B



Superelevation > 2 inches correction will be accomplished utilizing a variable depth Asphalt Concrete Intermediate Course Type IM-19.0A for the following horizontal curves:
 66EB_5, 66EB_6, 66EB_7, 66EB_ALT10 & 66EB_ALT14

We Will Identify Limits of Existing Full-Strength Mainline Pavement Prior to Saw-Cutting or Setting Barriers to minimize the number of lane shifts.



A standard UD-4 edgedrain shall be provided beneath the outside edge of the paved shoulder. Modified UD-1 shall be provided in lieu of standard UD-4 edgedrains for pavement subdrainage in areas of high ground water, springs, or cuts in excess of 15 feet, the modification consists of wrapping the aggregate with geotextile fabric.

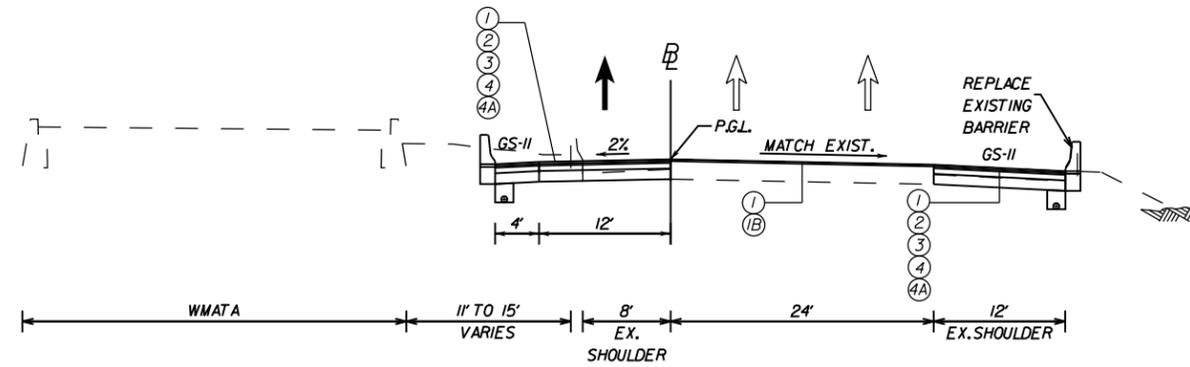


CONCEPTUAL PLANS
 PRELIMINARY
 NOT TO SCALE

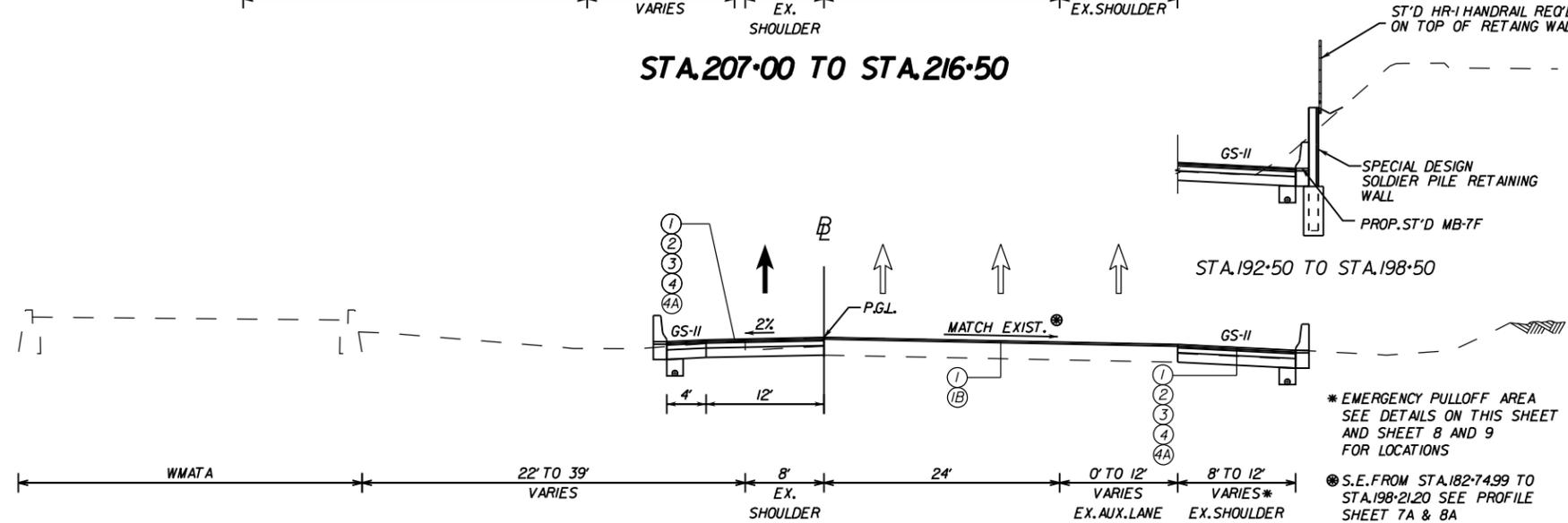
I-66 EB TYPICAL SECTIONS

Pavement Legend

- ① 2" Asphalt Concrete, Type SM-12.5E @ 237 Lbs/Sq.Yd.
- ①A 1" Asphalt Concrete, Type SM-4.75A @ 118 Lbs/Sq.Yd.
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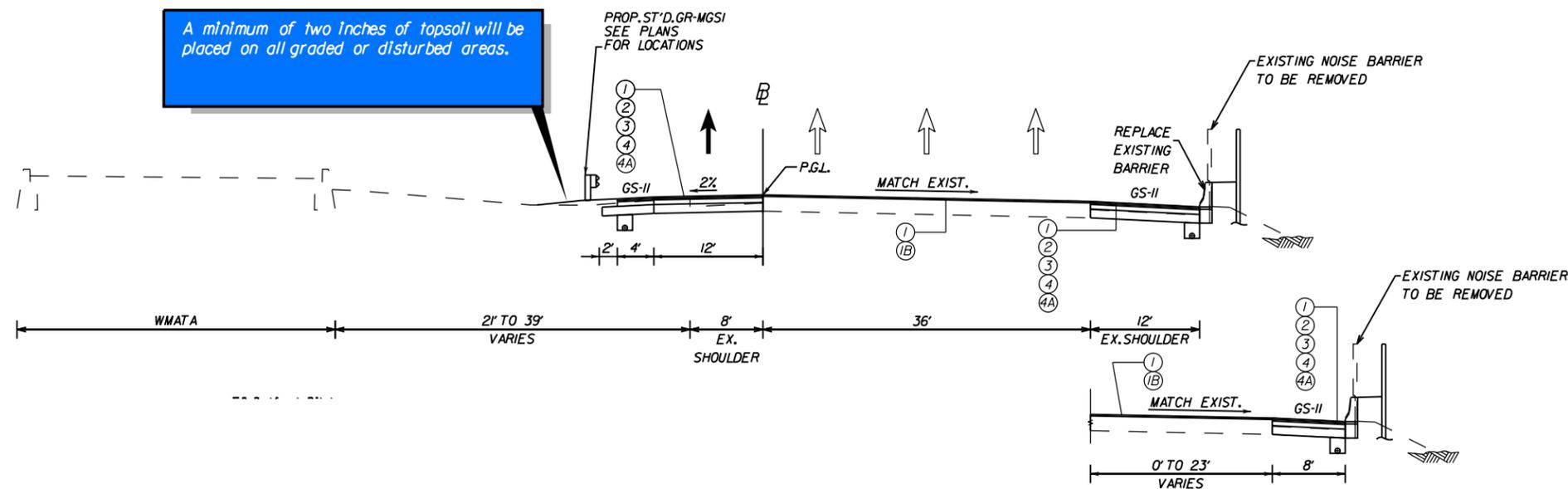


STA.207+00 TO STA.216+50



STA.168+00 TO STA.207+00

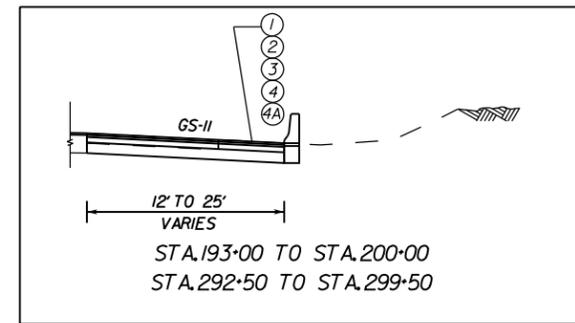
A minimum of two inches of topsoil will be placed on all graded or disturbed areas.



STA.158+50 TO STA.168+00

STA.163+00 TO STA.167+00

EMERGENCY PULLOFF AREA



CONCEPTUAL PLANS

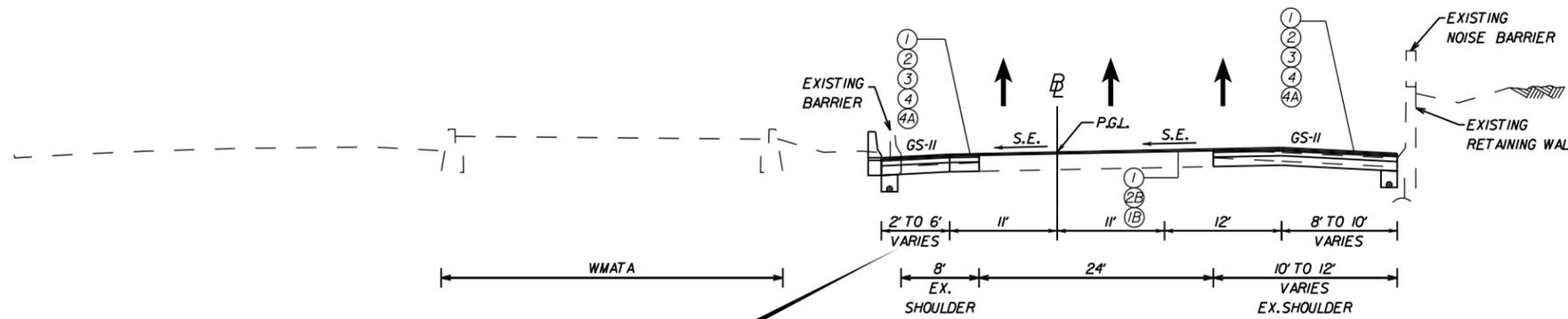
PRELIMINARY

NOT TO SCALE

I-66 EB TYPICAL SECTIONS

Pavement Legend

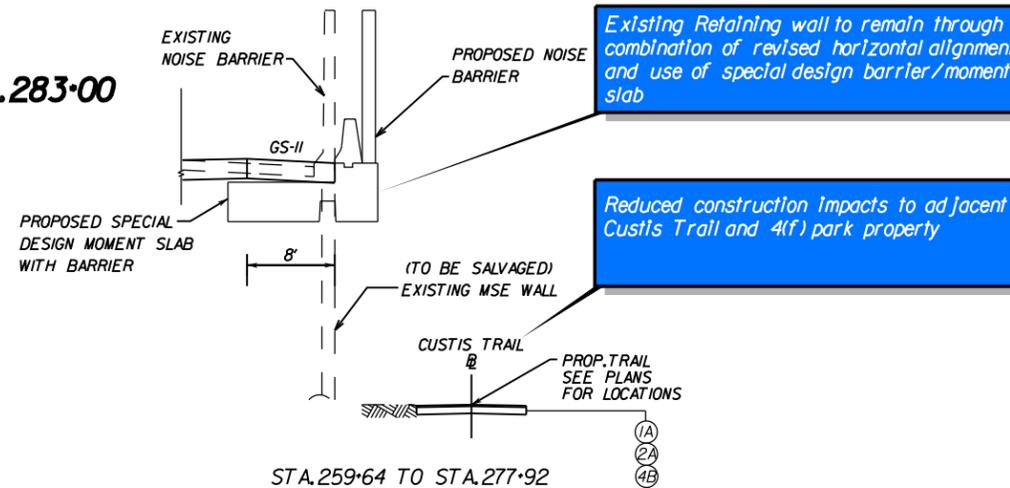
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- ④A 6" Cement Stabilized Subgrade with 12% Hydraulic Cement
- ④B 6" Aggregate Base Material, Type I, No. 21B



The radius of Horizontal Curve 66EB-10 has been increased so that a minimum shoulder width of only 6 feet is required to yield a minimum SSD for 55 mph.

Horizontal Sight Line Offset Calculation for Reduced Shoulder Width:
 $HSO = RL[1 - \cos(\frac{28.65 \times SSD}{R})]$
 R (Radius of Centerline of Lane)
 $11.5 \text{ FT} = 2654.5[1 - \cos(\frac{28.65 \times 495 \text{ FT}}{2654.5})]$
 $11.5 \text{ FT} - 6 \text{ FT Shoulder} = 5.5 \text{ FT} (\frac{1}{2} \times 11 \text{ FT travel lane})$

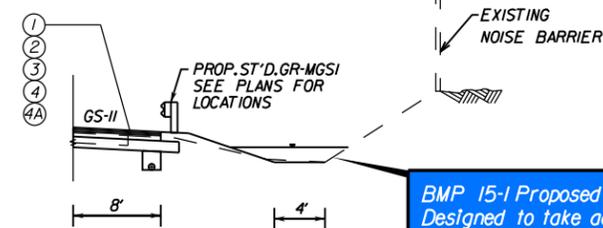
STA.249+00 TO STA.283+00



Existing Retaining wall to remain through combination of revised horizontal alignment and use of special design barrier/moment slab

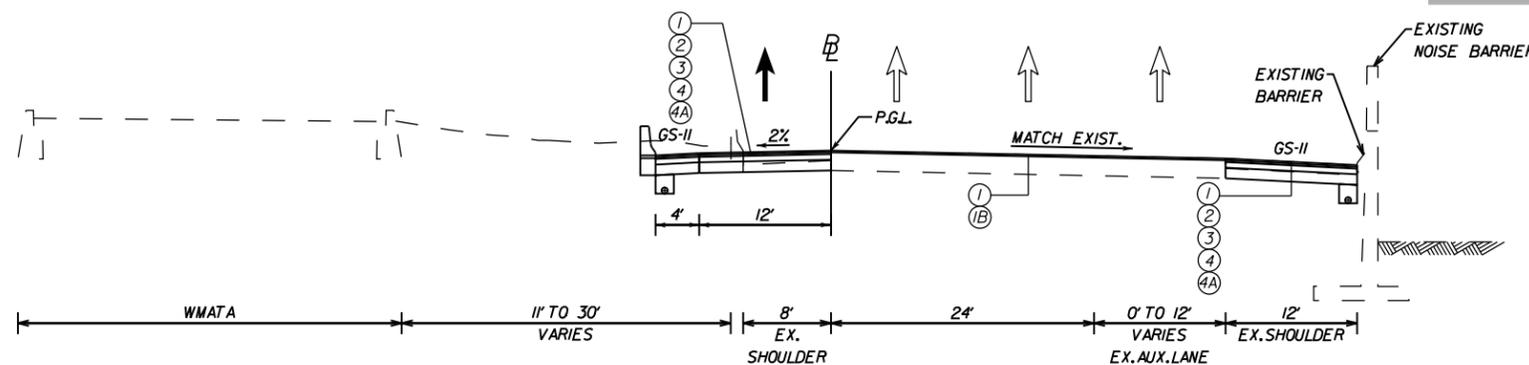
Reduced construction impacts to adjacent Custis Trail and 4(f) park property

STA.259+64 TO STA.277+92



BMP 15-1 Proposed Water Quality Swale Designed to take advantage of available ditch areas within the project limits to address project water quality needs versus the use of Manufactured Filtering Structures with higher long term maintenance costs.

STA.278+00 TO STA.283+00



STA.216+50 TO STA.249+00

CONCEPTUAL PLANS

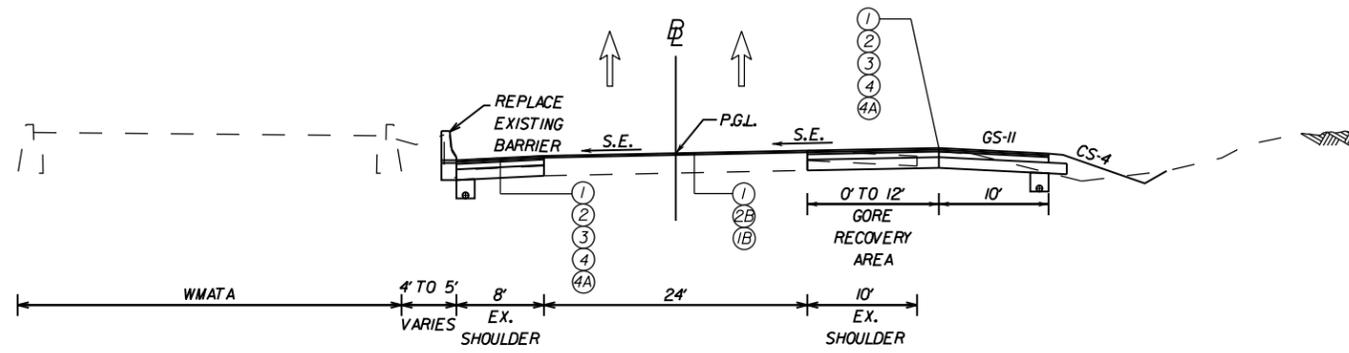
PRELIMINARY

NOT TO SCALE

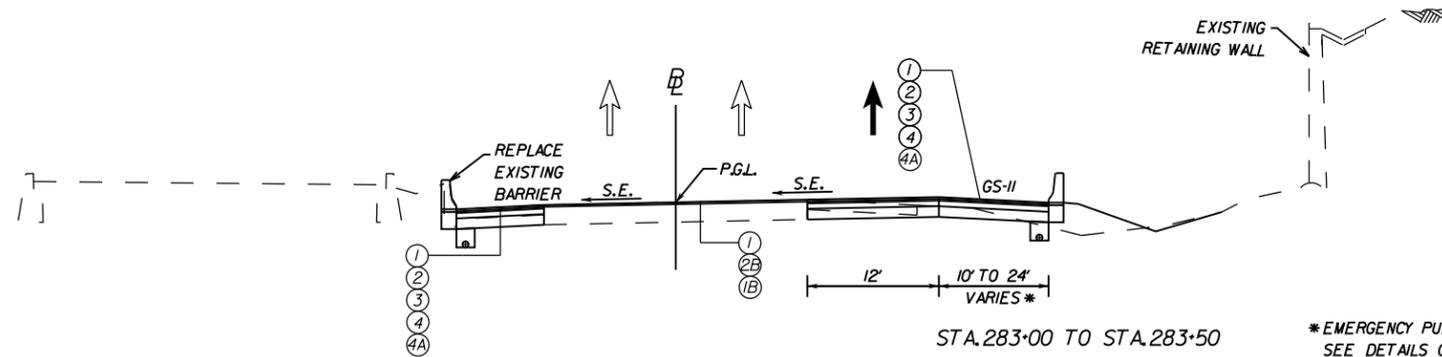
I-66 EB TYPICAL SECTIONS

Pavement Legend

- ① 2" Asphalt Concrete, Type SM-12.5E @ 237 Lbs/Sq.Yd.
- ①A 1" Asphalt Concrete, Type SM-4.75A @ 118 Lbs/Sq.Yd.
- ①B Mill Existing Pavement 2" Depth
- ② 2" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 240 Lbs/Sq.Yd.
- ②A 3" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 360 Lbs/Sq.Yd.
- ②B Variable Depth Asphalt Concrete Intermediate Course, Type IM-19.0A (To be Used for Superelevation Corrections)
- ③ 6" Asphalt Concrete, Type BM-25.0A
- ④ 6" Aggregate Base Material, Type I, No. 21A, Pugmill Mixed with 4% by Weight Hydraulic Cement
- ④A 6" Cement Stabilized Subgrade with 12% Hydraulic Cement
- ④B 6" Aggregate Base Material, Type I, No. 21B

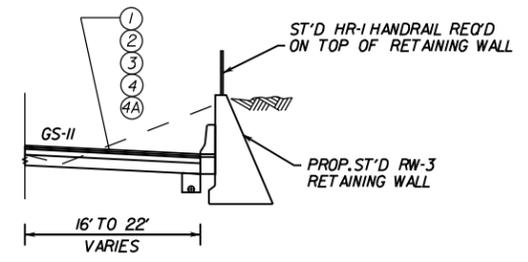
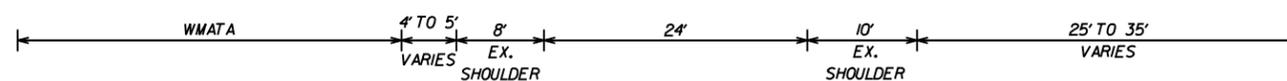


STA. 307+00 TO STA. 312+42



**STA. 283+00 TO STA. 283+50
STA. 284+00 TO STA. 307+00**

*EMERGENCY PULLOFF AREA
SEE DETAILS ON SHEET 2A(2) AND
SHEET 16 FOR LOCATION



STA. 283+00 TO STA. 307+00

STA. 283+10 TO STA. 284+00

CONCEPTUAL PLANS

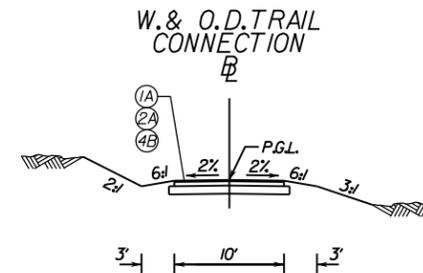
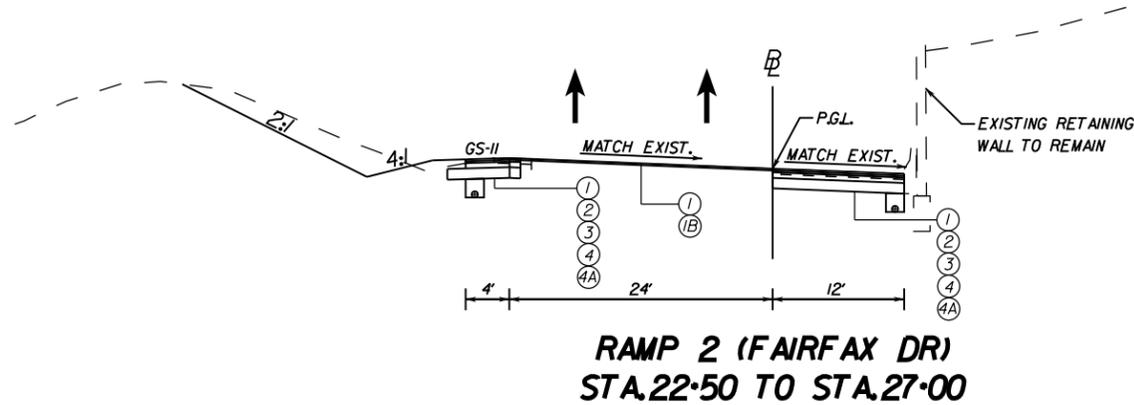
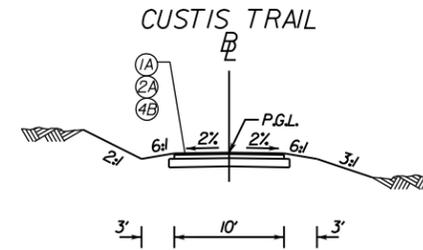
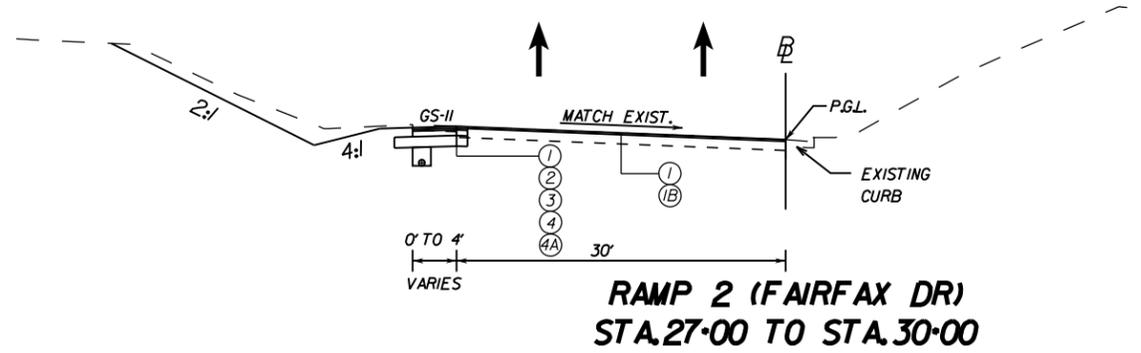
PRELIMINARY

NOT TO SCALE

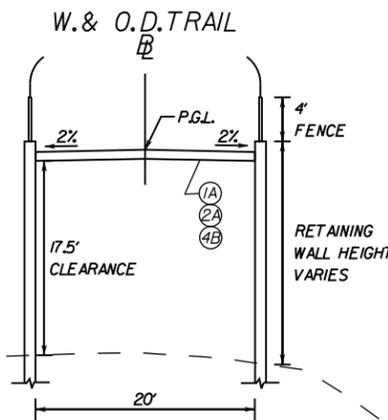
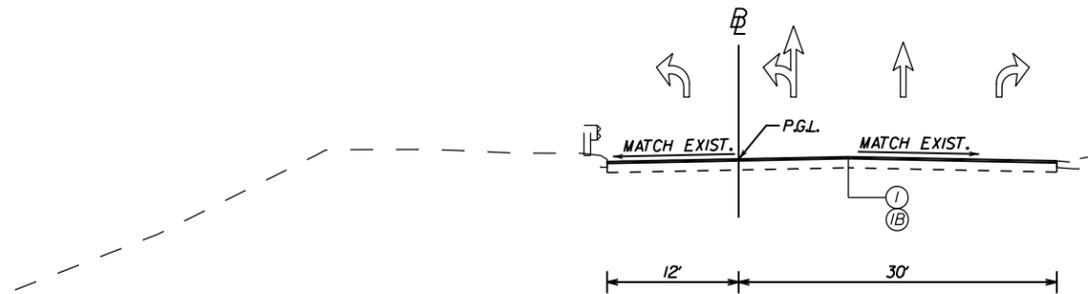
I-66 EB TYPICAL SECTIONS

Pavement Legend

- ① 2" Asphalt Concrete, Type SM-12.5E @ 237 Lbs/Sq.Yd.
- ①A 1" Asphalt Concrete, Type SM-4.75A @ 118 Lbs/Sq.Yd.
- ①B Mill Existing Pavement 2" Depth
- ② 2" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 240 Lbs/Sq.Yd.
- ②A 3" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 360 Lbs/Sq.Yd.
- ②B Variable Depth Asphalt Concrete Intermediate Course, Type IM-19.0A (To be Used For Superelevation Corrections)
- ③ 6" Asphalt Concrete, Type BM-25.0A
- ④ 6" Aggregate Base Material, Type I, No. 21A, Pugmill Mixed with 4% by Weight Hydraulic Cement
- ④A 6" Cement Stabilized Subgrade with 12% Hydraulic Cement
- ④B 6" Aggregate Base Material, Type I, No. 21B

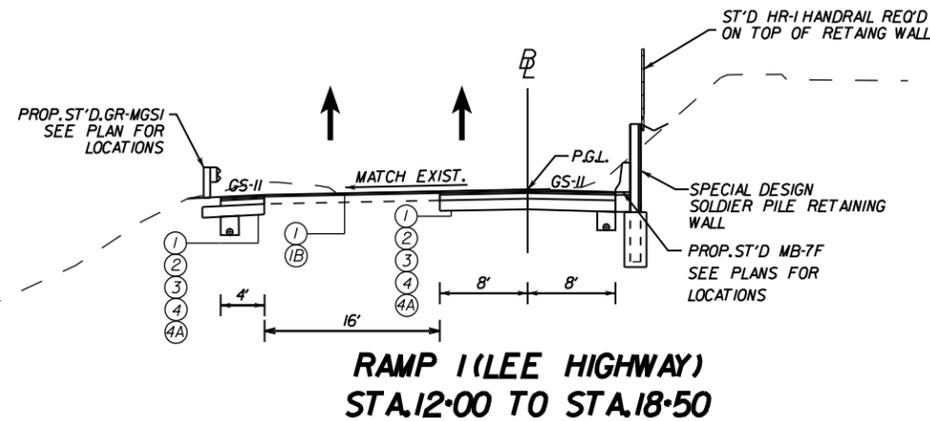


**W. & O.D. TRAIL (FAIRFAX DR)
STA.20-00 TO 26-81**



All retaining walls shall provide fall protection barriers for safety of maintenance personnel.

STA.55-26.91 to STA.61-50.00
(SEE BRIDGE PLANS B-680)



ST'D HR-1 HANDRAIL REQ'D ON TOP OF RETAINING WALL

CONCEPTUAL PLANS

PRELIMINARY

NOT TO SCALE

Curve (66EB_2)
 PI • 118-71.4
 DELTA • 2° 09' 33.00" (RT)
 D • 0' 15" 00"
 T • 431.66'
 L • 863.21'
 R • 22,906.31'
 PC • 114-39.48
 PT • 123-02.69
 V • 60 MPH
 e • N.C.

Curve (66EB_3)
 PI • 130-55.38
 DELTA • 1° 32' 30.12" (LT)
 D • 0' 22' 55"
 T • 201.82'
 L • 403.62'
 R • 15,000.00'
 PC • 128-53.56
 PT • 132-57.18
 V • 60 MPH
 e • N.C.

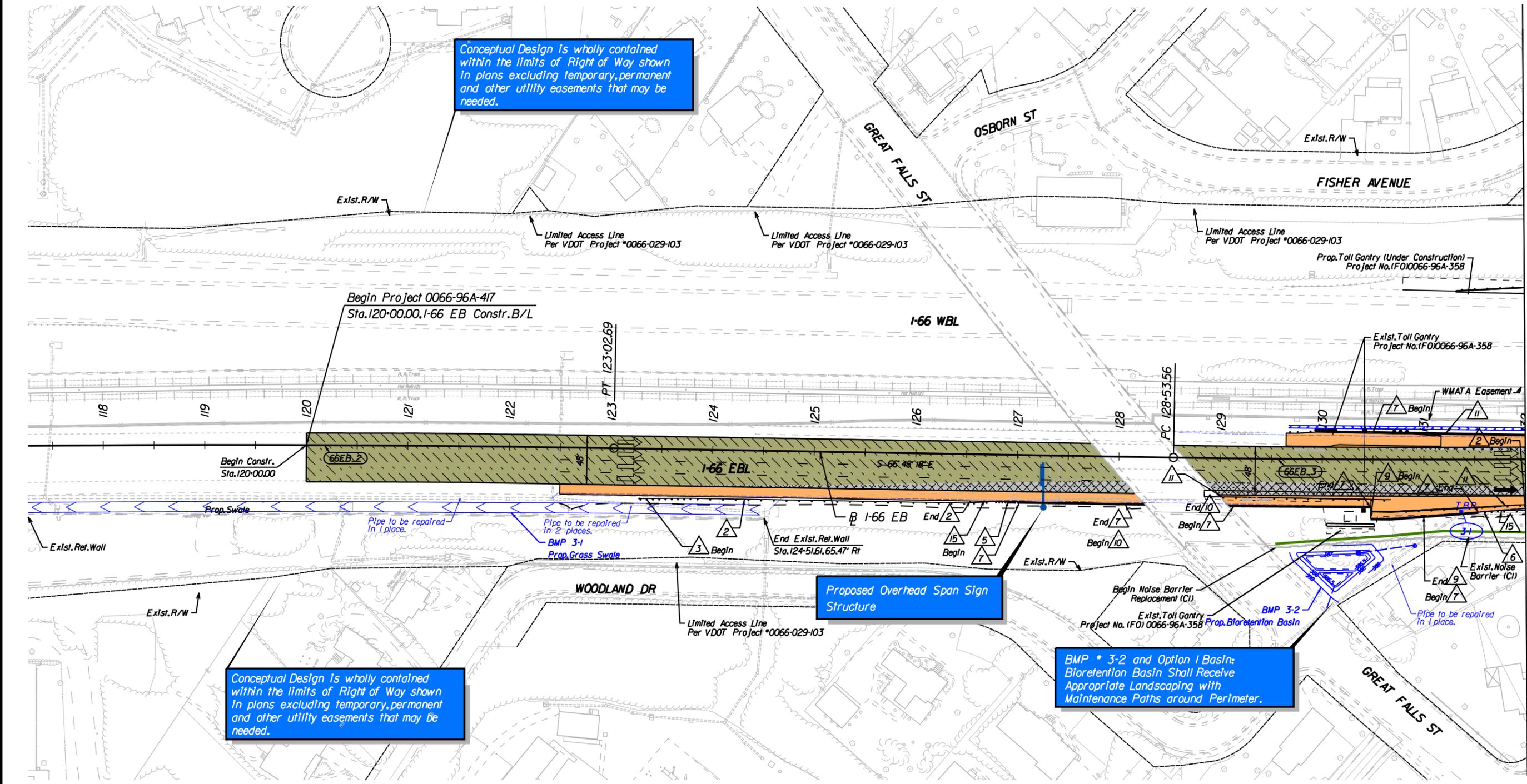
Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trall	5.00%

Conceptual Design Is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Conceptual Design Is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

BMP • 3-2 and Option 1 Basin: Bioretention Basin Shall Receive Appropriate Landscaping with Maintenance Paths around Perimeter.

Proposed Overhead Span Sign Structure



LEGEND

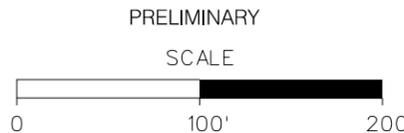
- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification

Denotes Construction Limits In Cuts
 Denotes Construction Limits In Fills

Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

- S'd.GR-MGS1 Req'd.
- S'd.GR-MGS2 Req'd.
- S'd.GR-FOA-2 (TY.I) Req'd.
- S'd.GR-FOA-2 (TY.II) Req'd.
- S'd.MB-7F Req'd.
- Retaining Wall
- S'd.BPPS-TL5 Req'd.
- Remove Ex.Guardrail
- S'd.GR-MGS4 Req'd.

CONCEPTUAL PLANS

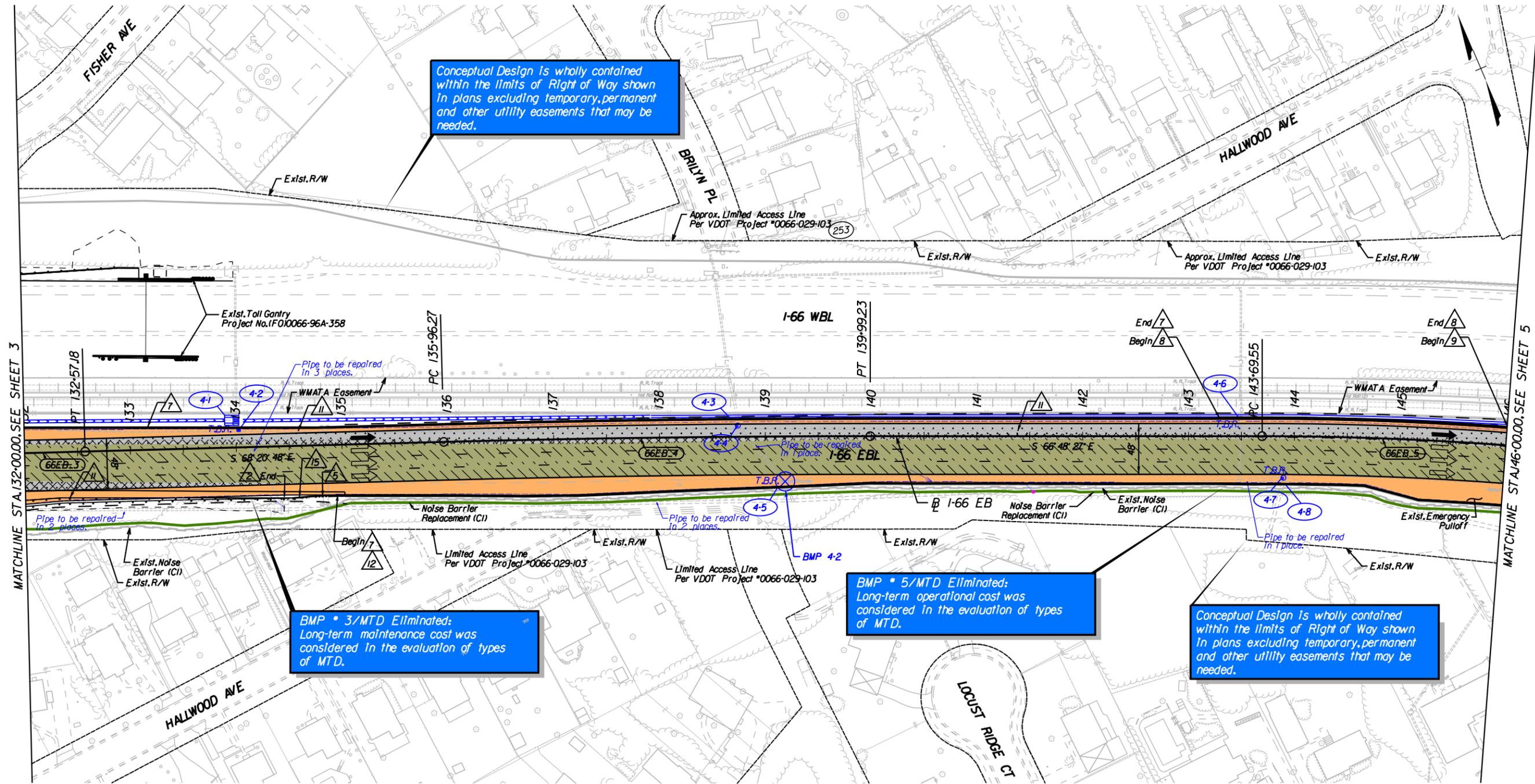


MATCHLINE STA./32-00.00, SEE SHEET 4

DESIGN BUILDER
WAGMAN
 General Construction | Heavy Civil | Geotechnical
 DESIGNED BY
JMT
 STATE PROJECT
 0066-96A-417, P101, R201, C501
 B675, B677, B678, B679, B680, B681,
 B682, B683, B684
 VIRGINIA DEPARTMENT OF TRANSPORTATION
**I-66 EASTBOUND WIDENING
 INSIDE THE BELTWAY**
 SHEET NO.
3
 PAGE NO.
 Vol II-7

Curve (66EB_3)	Curve (66EB_4)	Curve (66EB_5)
PI • 130-55.38	PI • 137-97.76	PI • 147-88.70
DELTA • 1° 32' 30.2" (LT)	DELTA • 1° 32' 21.7" (RT)	DELTA • 1° 25' 31.46" (RT)
D • 0' 22' 55"	D • 0' 22' 55"	D • 0' 5' 05"
T • 201.82'	T • 201.49'	T • 419.15'
L • 403.62'	L • 833.23'	L • 833.23'
R • 15,000.00'	R • 15,000.00'	R • 3,094.95'
PC • 128-53.56	PC • 135-96.27	PC • 143-69.55
PT • 132-57.18	PT • 139-99.23	PCC • 152-02.79
V • 60 MPH	V • 60 MPH	V • 60 MPH
e • N.C.	e • N.C.	e • 2.9%

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trail	5.00%



LEGEND

	Denotes Demolition of Pavement		Denotes Proposed Noise Barrier
	Denotes Full Depth Pavement		Denotes Proposed Temporary Easements
	Denotes Full Depth Shoulder Pavement		Denotes Proposed Permanent Easements
	Denotes Mill and Overlay		Denotes Proposed Right of Way
	Denotes Prop. Bridge Limits		Denotes Existing Right of Way
			Denotes Limits of Disturbance
			Property Owner Identification

	Manufactured Filtering Structure
	Sr'd.GR-MGS1 Req'd.
	Sr'd.GR-FOA-2 (TY.I) Req'd.
	Sr'd.GR-FOA-2 (TY.II) Req'd.
	Sr'd.MB-7F Req'd.
	Mod.MB-8A Req'd.
	Retaining Wall
	Remove Ex.Guardrail
	Sr'd.GR-MGS4 Req'd.

C - - - Denotes Construction Limits In Cuts
F - - - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

CONCEPTUAL PLANS

PRELIMINARY
SCALE

Curve **66EB_5**
 PI • 147-88.70
 DELTA • 15° 25' 31.46" (RT)
 D • 151' 05"
 T • 419.15'
 L • 833.23'
 R • 3,094.95'
 PC • 143-69.55
 PCC • 152-02.79
 V • 60 MPH
 e • 2.9%

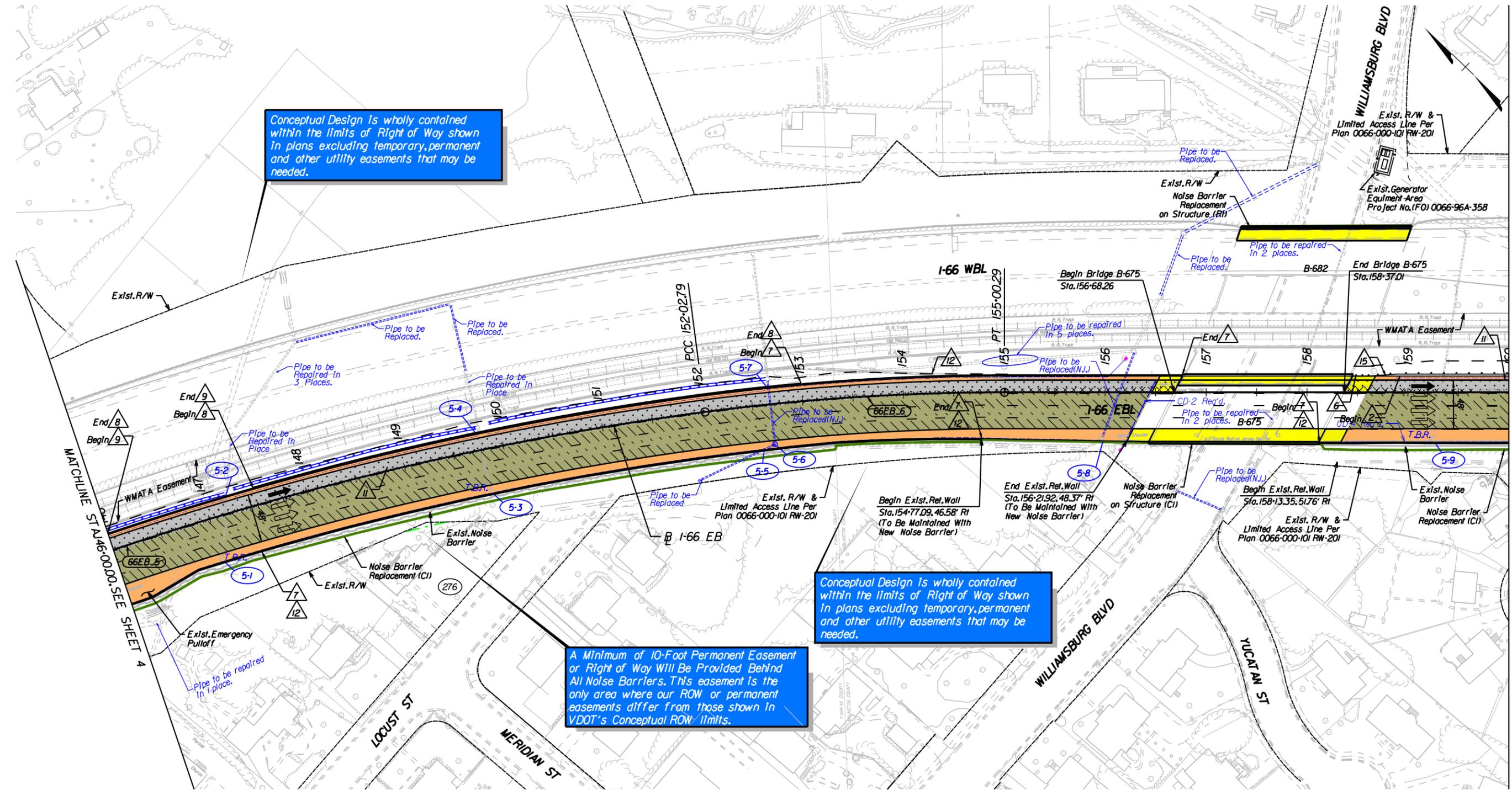
Curve **66EB_6**
 PI • 153-51.75
 DELTA • 7° 30' 26.43" (RT)
 D • 2° 31' 24"
 T • 148.96'
 L • 297.50'
 R • 2,270.53'
 PCC • 152-02.79
 PT • 155-00.29
 V • 60 MPH
 e • 3.4%

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	6.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trail	5.00%

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

A Minimum of 10-Foot Permanent Easement or Right of Way Will Be Provided Behind All Noise Barriers. This easement is the only area where our ROW or permanent easements differ from those shown in VDOT's Conceptual ROW limits.

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.



LEGEND

- EC-2 Lined Ditch
- Denotes Proposed Noise Barrier
- Denotes Demolition of Pavement
- Denotes Proposed Temporary Easements
- Denotes Full Depth Pavement
- Denotes Proposed Permanent Easements
- Denotes Full Depth Shoulder Pavement
- Denotes Existing Right of Way
- Denotes Mill and Overlay
- Denotes Limits of Disturbance
- Denotes Prop. Bridge Limits
- Property Owner Identification

C - - - Denotes Construction Limits In Cuts
F - - - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot - dot - dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot - dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot - dashed lines denote Permanent Utility Easements.

- S'd.GR-MGSI Req'd.
- S'd.GR-FOA-2 (TY,II) Req'd.
- S'd.MB-7F Req'd.
- Mod.MB-8A Req'd.
- Retaining Wall
- Remove Ex.Guardrail
- Remove Ex.Conc.Barrier
- S'd.GR-MGS4 Req'd.

EDWARD A. & SANDRA SEROSKIE
 DBI8087 PGI06
 10,384 SOFT
 Tax# 0404010036A

CONCEPTUAL PLANS

PRELIMINARY
 SCALE

MATCHLINE STA:60-00.00; SEE SHEET 6

STATE PROJECT

0066-96A-417, P101, R201, C501
 B675, B677, B678, B679, B680, B681,
 B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
**I-66 EASTBOUND WIDENING
 INSIDE THE BELTWAY**

SHEET NO.
5
 PAGE NO.
 Vol II-9

DESIGN BUILDER



DESIGNED BY

Curve (RAMP3_1) PI - 13-38.00
 DELTA - 19' 11" 04.36' (RT)
 D - 2' 51' 53"
 T - 338.00'
 L - 669.67'
 R - 2000.00'
 PC - 10+00.00
 PT - 16+69.67
 V - 60 MPH
 e - MATCH EXIST.

Curve (RAMP3_2) PI - 17-95.88
 DELTA - 19' 11" 04.36' (LT)
 D - 16' 22' 13"
 T - 591.5'
 L - 1171.9'
 R - 350.00'
 PC - 17+36.73
 PT - 18+53.92
 V - MATCH EXIST.
 e - MATCH EXIST.

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 2	8.00%
Ramp 3	3.50%
W & O.D.	4.00%
Curtis Trail	5.00%

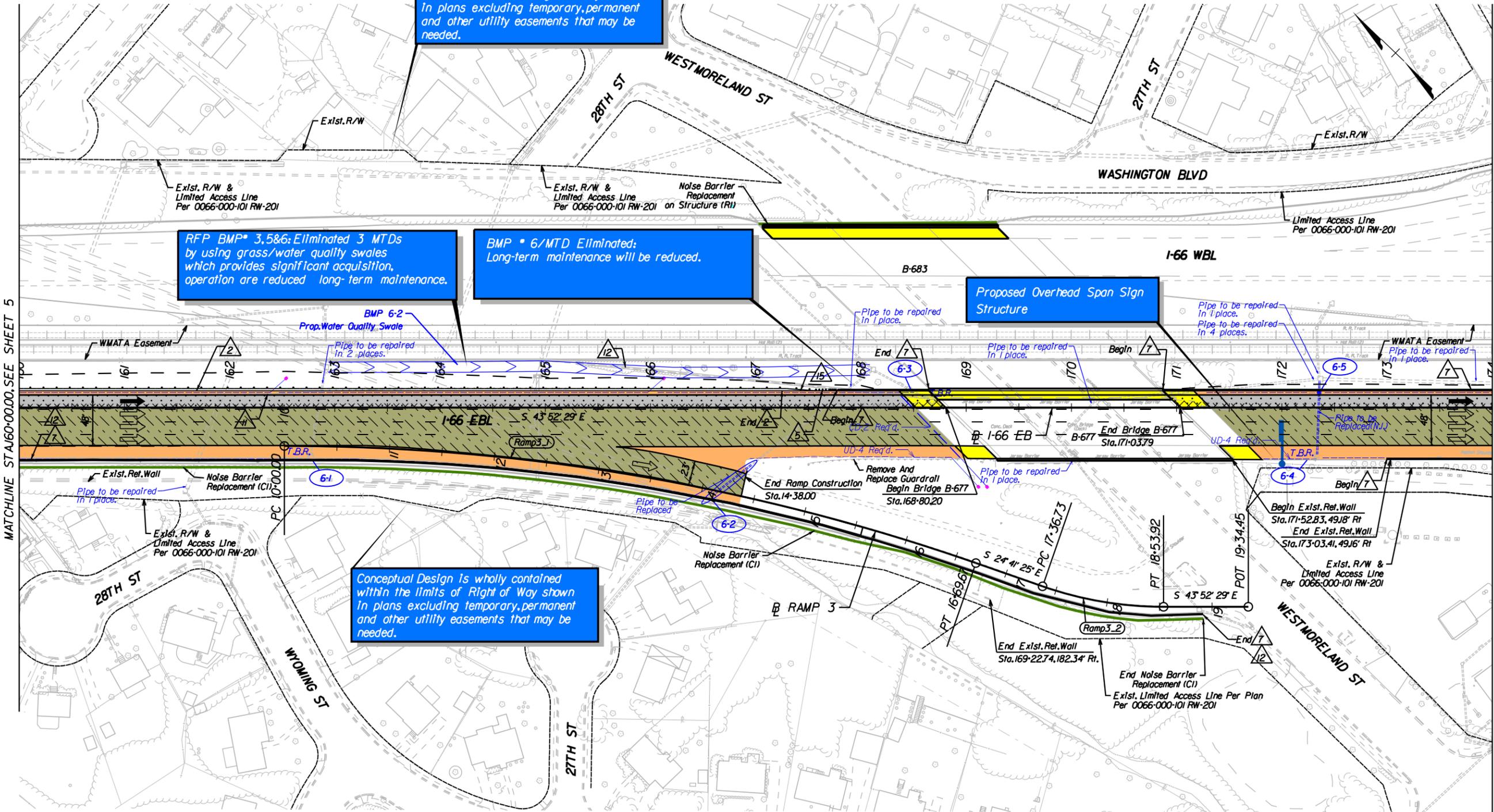
Conceptual Design Is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

RFP BMP* 3,5&6: Eliminated 3 MTDs by using grass/water quality swales which provides significant acquisition, operation are reduced long-term maintenance.

BMP * 6/MTD Eliminated: Long-term maintenance will be reduced.

Proposed Overhead Span Sign Structure

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LEGEND

	Denotes Demolition of Pavement
	Denotes Full Depth Pavement
	Denotes Full Depth Shoulder Pavement
	Denotes Mill and Overlay
	Denotes Prop. Bridge Limits
	Denotes Proposed Noise Barrier
	Denotes Proposed Temporary Easements
	Denotes Proposed Permanent Easements
	Denotes Proposed Right of Way
	Denotes Existing Right of Way
	Denotes Limits of Disturbance
	Property Owner Identification

	EC-2 Lined Ditch
	Denotes Proposed Noise Barrier
	Denotes Proposed Temporary Easements
	Denotes Proposed Permanent Easements
	Denotes Proposed Right of Way
	Denotes Existing Right of Way
	Denotes Limits of Disturbance
	Property Owner Identification

C - - - Denotes Construction Limits In Cuts
 F - - - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

- Manufactured Filtering Structure
- S'd.GR-MGS1 Req'd.
- S'd.GR-FOA-2 (TY.1) Req'd.
- S'd.MB-7F Req'd.
- Remove Ex.Guardrail
- Remove Ex.Conc.Barrier
- S'd.GR-MGS4 Req'd.

CONCEPTUAL PLANS

PRELIMINARY
SCALE

MATCHLINE STA160+00.00, SEE SHEET 5

MATCHLINE STA174+00.00, SEE SHEET 7

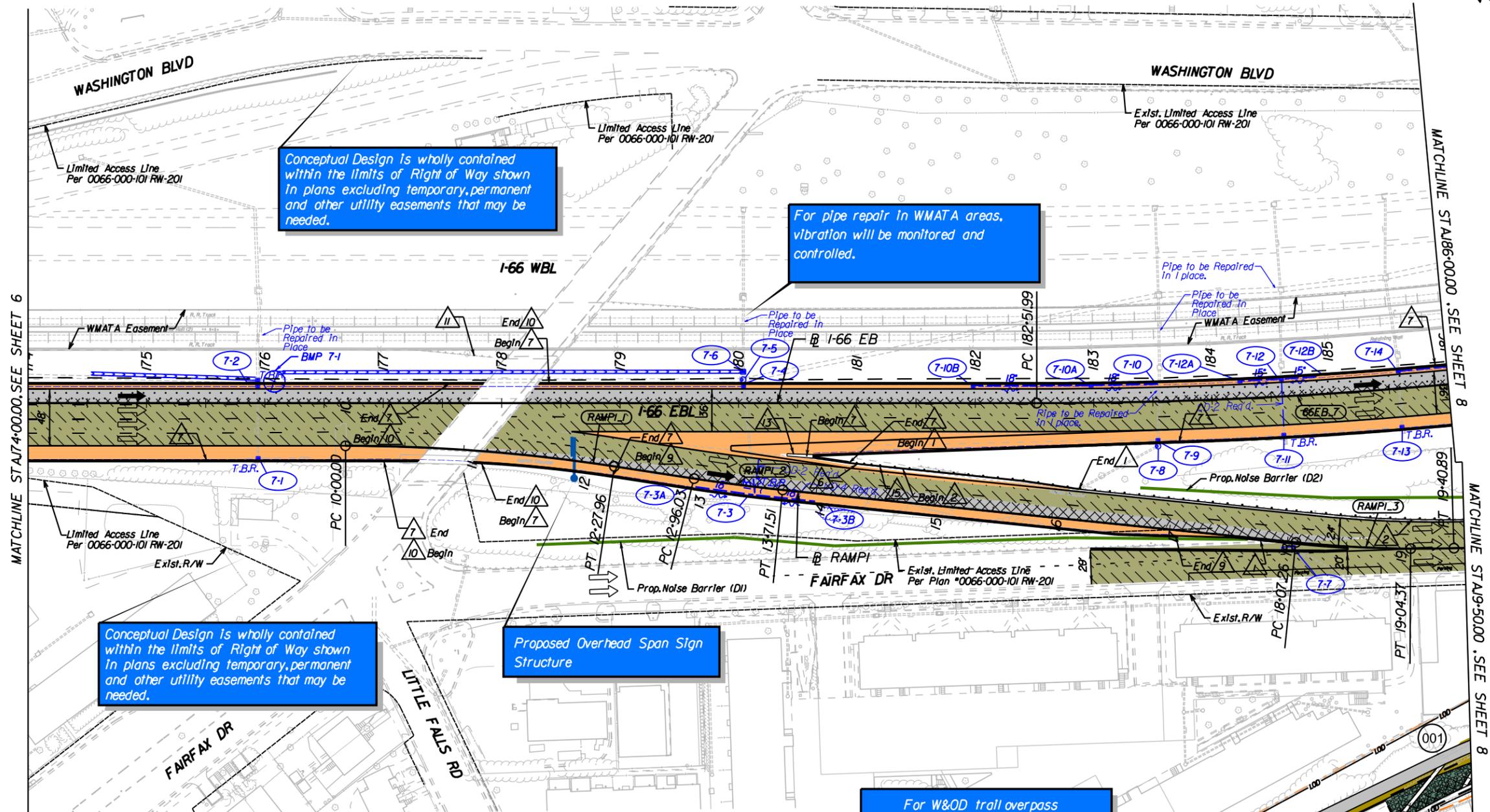
Curve (66EB_7)
 PI - 190.59.83
 DELTA - 23° 52' 58.93" (LT)
 D - 1' 30' 00"
 T - 807.83'
 L - 1,592.20'
 R - 3,819.72'
 PC - 182-51.99
 PT - 198-44.20
 V - 60 MPH
 e - 2.7%

Curve (RAMPI_1)
 PI - 11-14.20
 DELTA - 8° 42' 26.6" (RT)
 D - 3' 49' 11"
 T - 114.20'
 L - 227.96'
 R - 1,500.00'
 PC - 10-00.00
 PT - 12-27.96
 V - MATCH EXIST.
 e - MATCH EXIST.

Curve (RAMPI_2)
 PI - 13-33.78
 DELTA - 2° 52' 58.55" (LT)
 D - 3' 49' 11"
 T - 37.75'
 L - 75.47'
 R - 1,020.00'
 PC - 12-96.03
 PT - 13-71.51
 V - MATCH EXIST.
 e - MATCH EXIST.

Curve (RAMPI_3)
 PI - 18-55.85
 DELTA - 5° 27' 18.38" (LT)
 D - 5' 37' 02"
 T - 48.59'
 L - 97.11'
 R - 1,020.00'
 PC - 18-07.26
 PT - 19-04.37
 V - MATCH EXIST.
 e - MATCH EXIST.

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	6.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trail	5.00%



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For pipe repair in WMATA areas, vibration will be monitored and controlled.

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Proposed Overhead Span Sign Structure

For W&OD trail overpass geometric layout and details, see sheet 8(1)

- LEGEND**
- Denotes Concrete pavement with colored bands
 - Denotes Planting Bed
 - Denotes Gravel
 - Denotes Demolition of Pavement
 - Denotes Full Depth Pavement
 - Denotes Full Depth Shoulder Pavement
 - Denotes Mill and Overlay
 - Denotes Prop. Bridge Limits
 - EC-2 Lined Ditch
 - Denotes Proposed Noise Barrier
 - Denotes Proposed Temporary Easements
 - Denotes Proposed Permanent Easements
 - Denotes Proposed Right of Way
 - Denotes Existing Right of Way
 - Denotes Limits of Disturbance
 - Property Owner Identification

- 1 Sr'd.CG-2 Req'd.
 - 2 Sr'd.GR-MGS1 Req'd.
 - 6 Sr'd.GR-FOA-2 (TY.II) Req'd.
 - 7 Sr'd.MB-7F Req'd.
 - 8 Mod.MB-8A Req'd.
 - 9 Retaining Wall
 - 10 Sr'd.BPPS-TL5 Req'd.
 - 11 Remove Ex.Guardrail
 - 13 Prop.Impact Attenuator
 - 15 Sr'd.GR-MGS4 Req'd.
 - Manufactured Filtering Structure
- [C] - Denotes Construction Limits In Cuts
 [F] - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

CONCEPTUAL PLANS

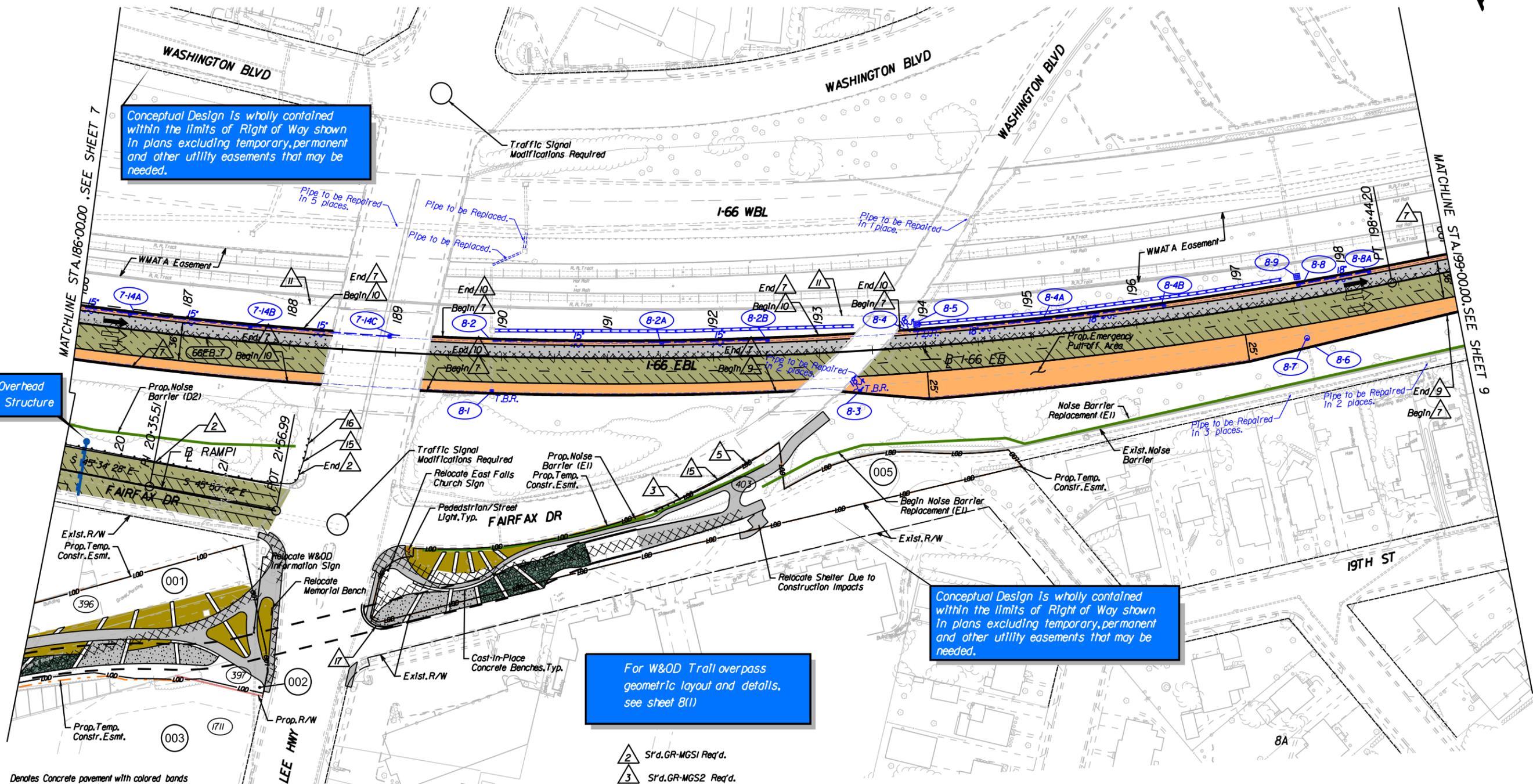
PRELIMINARY
 SCALE

Curve **66EB-7**
 P1 = 190-59.83
 DELTA = 23° 52' 58.93" (LT)
 D = 130' 00"
 T = 807.83'
 L = 1592.20'
 R = 3,819.72'
 PC = 182-51.99
 PT = 198-44.20
 V = 60 MPH
 e = 2.7%

Construction Baseline	Maximum Grade
I-66 EB Ramp 1	4.90%
Ramp 2	8.00%
Ramp 3	3.50%
W & O.D.	4.00%
Curtis Trail	5.00%

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Proposed Overhead Span Sign Structure



Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

For W&OD Trail overpass geometric layout and details, see sheet 8(1)

LEGEND

- Denotes Concrete pavement with colored bands
- Denotes Planting Bed
- Denotes Gravel
- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- EC-2 Lined Ditch
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- (123) Property Owner Identification

C - - - Denotes Construction Limits In Cuts
F - - - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

- S'd.GR-MGS1 Req'd.
- S'd.GR-MGS2 Req'd.
- S'd.GR-FOA-2 (TY,I) Req'd.
- S'd.MB-7F Req'd.
- Retaining Wall
- S'd.BPPS-TL5 Req'd.
- Remove Ex.Guardrail
- S'd.GR-MGS4 Req'd.
- S'd.GR-FOA-1 (TY,II) Req'd.
- S'd.CG-6 Req'd.

- NORTHERN VA REGIONAL PARK AUTHORITY
DB2070 PG1145
107,683.80 SQ.FT
Tax* 11065001
- VIRGINIA ELECTRIC & POWER COMPANY
DB1687 PG0400
2,613.6 SQ.FT
Tax* 11010029
- SHREVE SELF STORAGE LLC
DB4781 PG0720
74,053 SQ.FT
Tax* 11010191
- ARLINGTON COUNTY BOARD
DB2144 PG1761
27,878 SQ.FT
Tax* 11012028

CONCEPTUAL PLANS

PRELIMINARY

SCALE

W. & O. D. Trail Overpass

Curve (C10) PI - 54-07.61 DELTA - 3° 55' 20.42" (RT) D - 14' 19" 26" T - 13.70' L - 27.36' R - 400.00' PC - 53-93.91 PT - 54-21.29	Curve (C11) PI - 56-59.38 DELTA - 15° 38' 12.89" (RT) D - 9' 32" 57" T - 82.39' L - 163.78' R - 600.00' PC - 55-77.00 PT - 57-40.75	Curve (C12) PI - 57-76.57 DELTA - 16° 18' 30.59" (LT) D - 22' 55" 06" T - 35.82' L - 71.16' R - 250.00' PC - 57-40.75 PT - 58-11.91	Curve (C13) PI - 60-82.99 DELTA - 12° 17' 55.76" (LT) D - 22' 55" 06" T - 26.94' L - 53.88' R - 250.00' PC - 60-56.05 PT - 61-09.72	Curve (C14) PI - 61-35.91 DELTA - 11° 57' 48.63" (RT) D - 22' 55" 06" T - 26.94' L - 53.88' R - 250.00' PC - 61-09.72 PT - 61-61.92	Curve (C15) PI - 63-00.33 DELTA - 8° 03' 56.99" (LT) D - 57' 17" 45" T - 7.05' L - 14.08' R - 100.00' PC - 62-93.28 PT - 63-07.36	Curve (C16) PI - 63-35.63 DELTA - 8° 05' 03.09" (LT) D - 14' 19" 26" T - 28.27' L - 56.44' R - 400.00' PC - 63-07.36 PT - 63-63.80
Curve (C17) PI - 64-22.42 DELTA - 32° 21' 53.77" (RT) D - 28' 21" 57" T - 58.62' L - 114.10' R - 202.00' PC - 63-63.80 PT - 64-77.90	Curve (C18) PI - 65-48.32 DELTA - 14° 36' 52.71" (LT) D - 19' 05" 55" T - 38.47' L - 76.52' R - 300.00' PC - 65-09.85 PT - 65-86.37	Curve (C19) PI - 20-25.00 DELTA - 90° 00' 00.00" (RT) D - 229' 10" 59" T - 25.00' L - 39.27' R - 25.00' PC - 20-00.00 PT - 20-39.27	Curve (C20) PI - 21-04.67 DELTA - 3° 55' 20.42" (RT) D - 28' 38" 52" T - 6.85' L - 13.69' R - 200.00' PC - 20-97.82 PT - 21-11.51	Curve (C21) PI - 24-23.76 DELTA - 13° 55' 55.30" (RT) D - 9' 13" 35" T - 7.588' L - 15.100' R - 62.000' PC - 23-47.88 PT - 24-98.88	Curve (C22) PI - 25-10.28 DELTA - 13° 40' 40.08" (LT) D - 60' 18" 4" T - 11.39' L - 22.68' R - 95.00' PC - 24-98.88 PT - 25-21.56	

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Benjamin Elliott's Coal Trestle will be protected and open space will be maximized.

A potential detour on N. Westmoreland Street will be considered to maintain continuous safe access for pedestrian and bicycle traffic on the W&OD Trail during construction.

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

LEGEND

	Denotes Concrete pavement with colored bands		EC-2 Lined Ditch
	Denotes Planting Bed		Denotes Proposed Noise Barrier
	Denotes Gravel		Denotes Proposed Temporary Easements
	Denotes Demolition of Pavement		Denotes Proposed Permanent Easements
	Denotes Full Depth Pavement		Denotes Proposed Right of Way
	Denotes Full Depth Shoulder Pavement		Denotes Existing Right of Way
	Denotes Mill and Overlay		Denotes Limits of Disturbance
	Denotes Prop. Bridge Limits		Property Owner Identification

[C] - Denotes Construction Limits In Cuts
 [F] - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dot-dashed lines denote Permanent Utility Easements.

001 NORTHERN VA REGIONAL PARK AUTHORITY DB2070 PG1145 107,683.80 SQ.FT Tax# 11065001	003 SHREVE SELF STORAGE LLC DB4781 PG0720 74,053 SQ.FT Tax# 11010191
002 VIRGINIA ELECTRIC & POWER COMPANY DB1687 PG0400 2,613.6 SQ.FT Tax# 11010029	005 ARLINGTON COUNTY BOARD DB2144 PG1761 27,878 SQ.FT Tax# 11012028

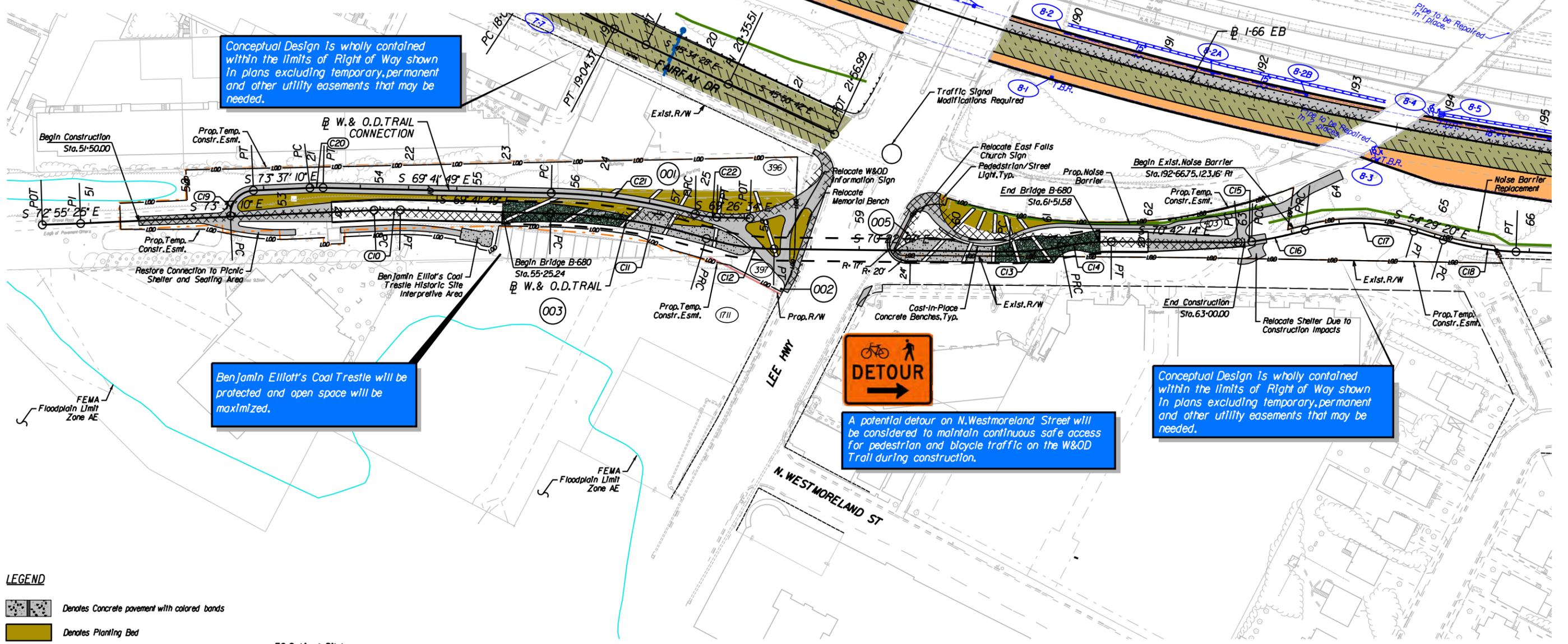
REFERENCES (PROFILES)

Profile W. & O.D. Trail	8B
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CONCEPTUAL PLANS

PRELIMINARY

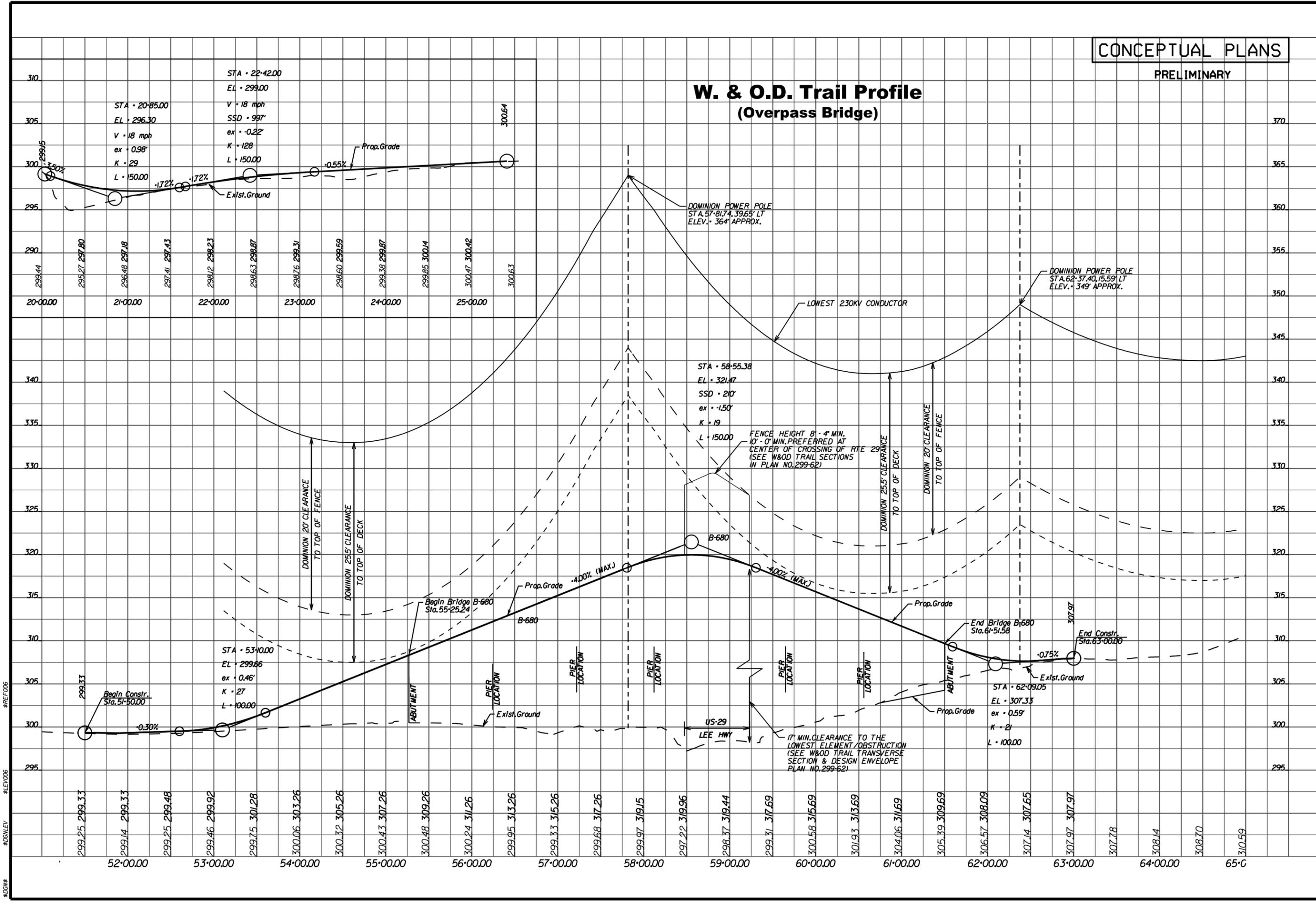
SCALE



CONCEPTUAL PLANS

PRELIMINARY

W. & O.D. Trail Profile
(Overpass Bridge)



DESIGN BUILDER



DESIGNED BY



STATE PROJECT

0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

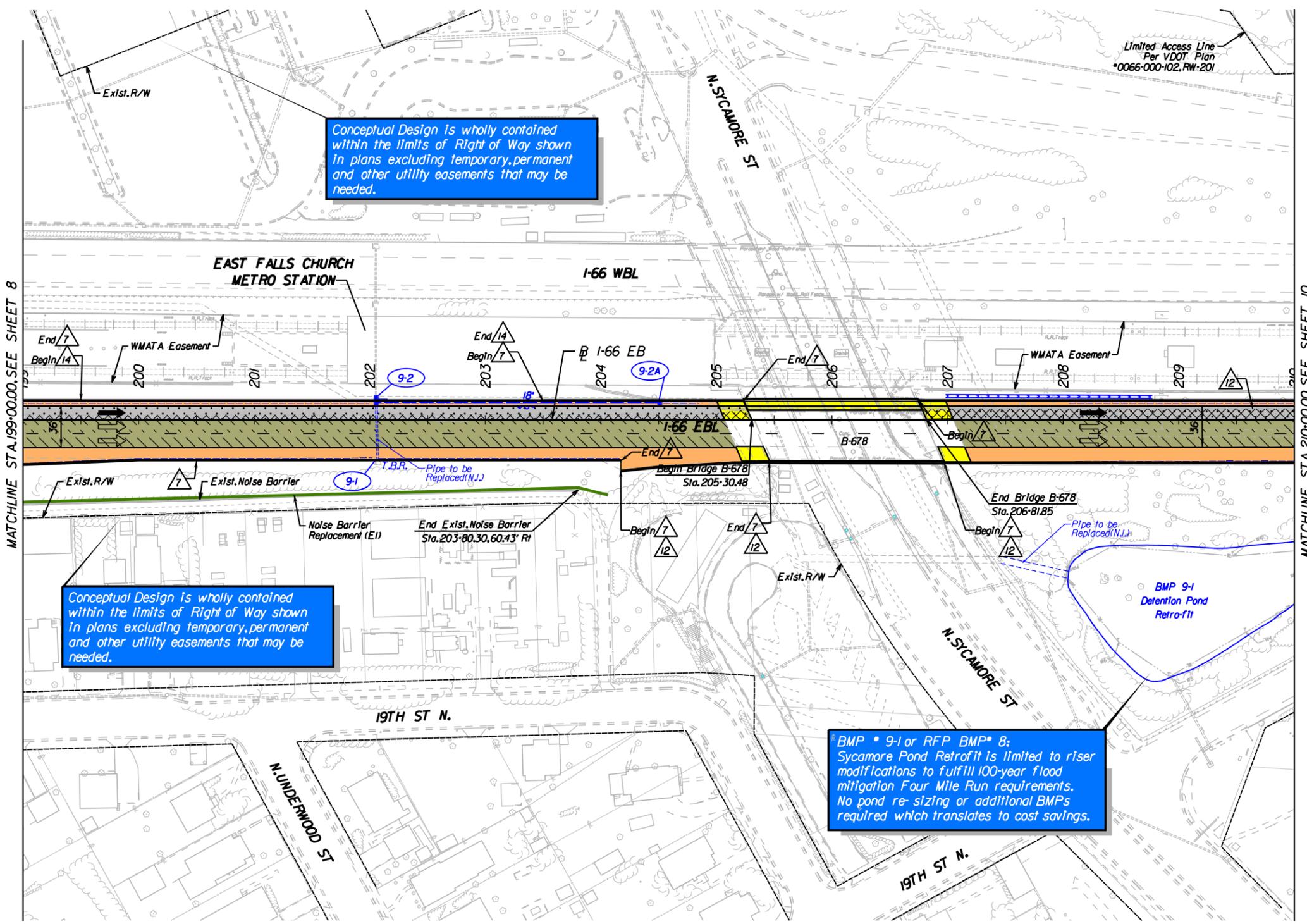
VIRGINIA DEPARTMENT OF TRANSPORTATION

I-66 EASTBOUND WIDENING
INSIDE THE BELTWAY

SHEET NO.
8B

PAGE NO.
Vol II-14

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trall	5.00%



Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

BMP * 9-1 or RFP BMP* 8: Sycamore Pond Retrofit is limited to riser modifications to fulfill 100-year flood mitigation Four Mile Run requirements. No pond re-sizing or additional BMPs required which translates to cost savings.

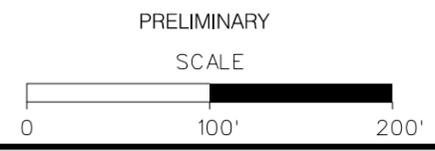
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- EC-2 Lined Ditch
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification

- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills
- Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
- Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
- Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

- S'd.MB-7F Req'd.
- Remove Ex.Guardrail
- Remove Ex.Conc.Barrier
- S'd.MB-12C Req'd.

CONCEPTUAL PLANS



DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT VOLKERT

STATE PROJECT
0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
**I-66 EASTBOUND WIDENING
INSIDE THE BELTWAY**

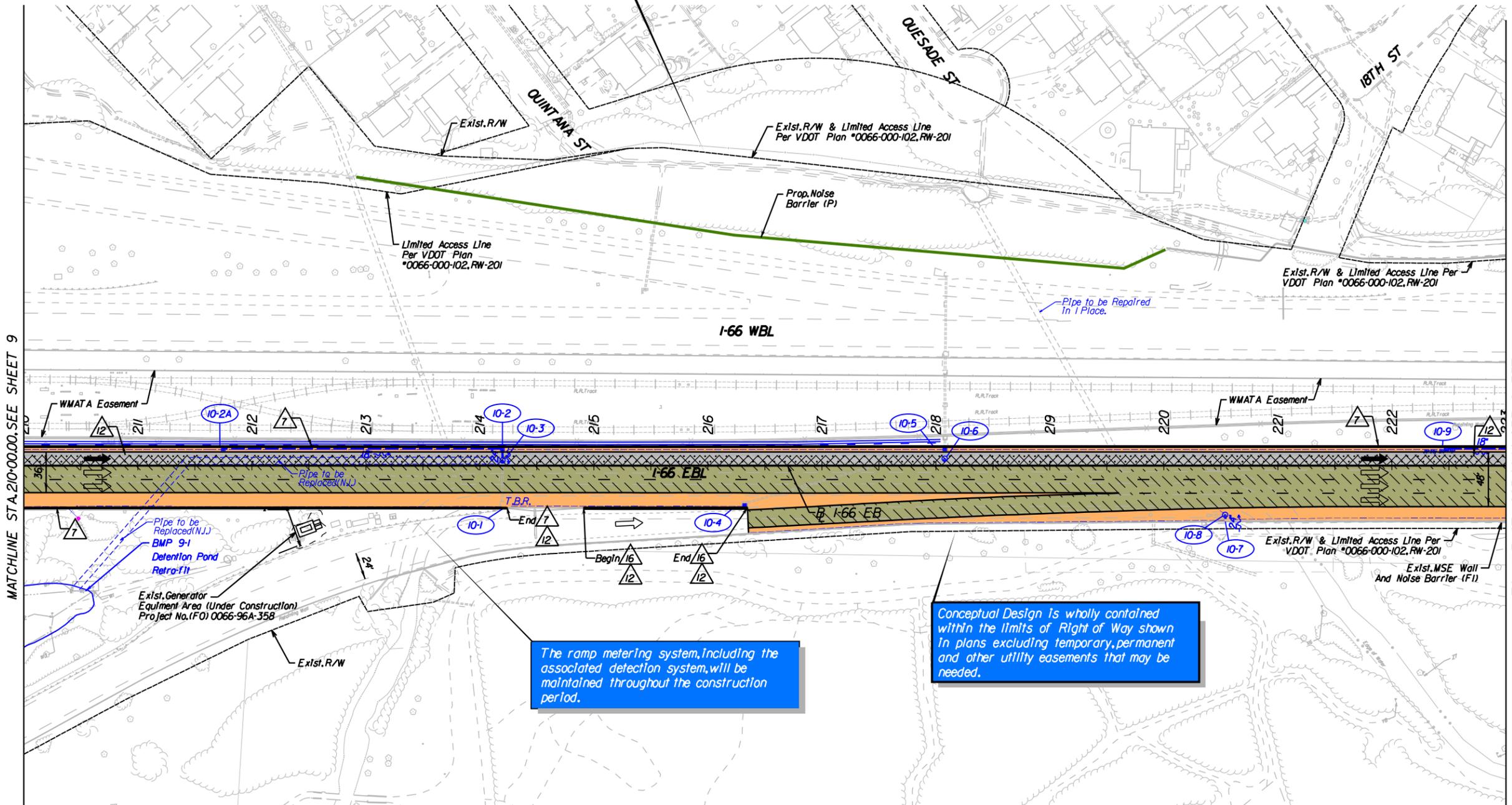
SHEET NO.
9
PAGE NO.
Vol II-15

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trail	5.00%

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

The ramp metering system, including the associated detection system, will be maintained throughout the construction period.

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.



MATCHLINE STA. 210+00.00, SEE SHEET 9

MATCHLINE STA. 223+00.00, SEE SHEET 11

LEGEND

	Denotes Demolition of Pavement
	Denotes Full Depth Pavement
	Denotes Full Depth Shoulder Pavement
	Denotes Mill and Overlay
	Denotes Prop. Bridge Limits
	Denotes Proposed Noise Barrier
	Denotes Proposed Temporary Easements
	Denotes Proposed Permanent Easements
	Denotes Proposed Right of Way
	Denotes Existing Right of Way
	Denotes Limits of Disturbance
	Property Owner Identification

C - - - Denotes Construction Limits In Cuts
F - - - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dash-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

S'd, MB-7F Req'd.
 Remove Ex. Conc. Barrier
 S'd, MB-7A Req'd.

CONCEPTUAL PLANS

PRELIMINARY

SCALE

DESIGN BUILDER

WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY

JMT

STATE PROJECT

0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

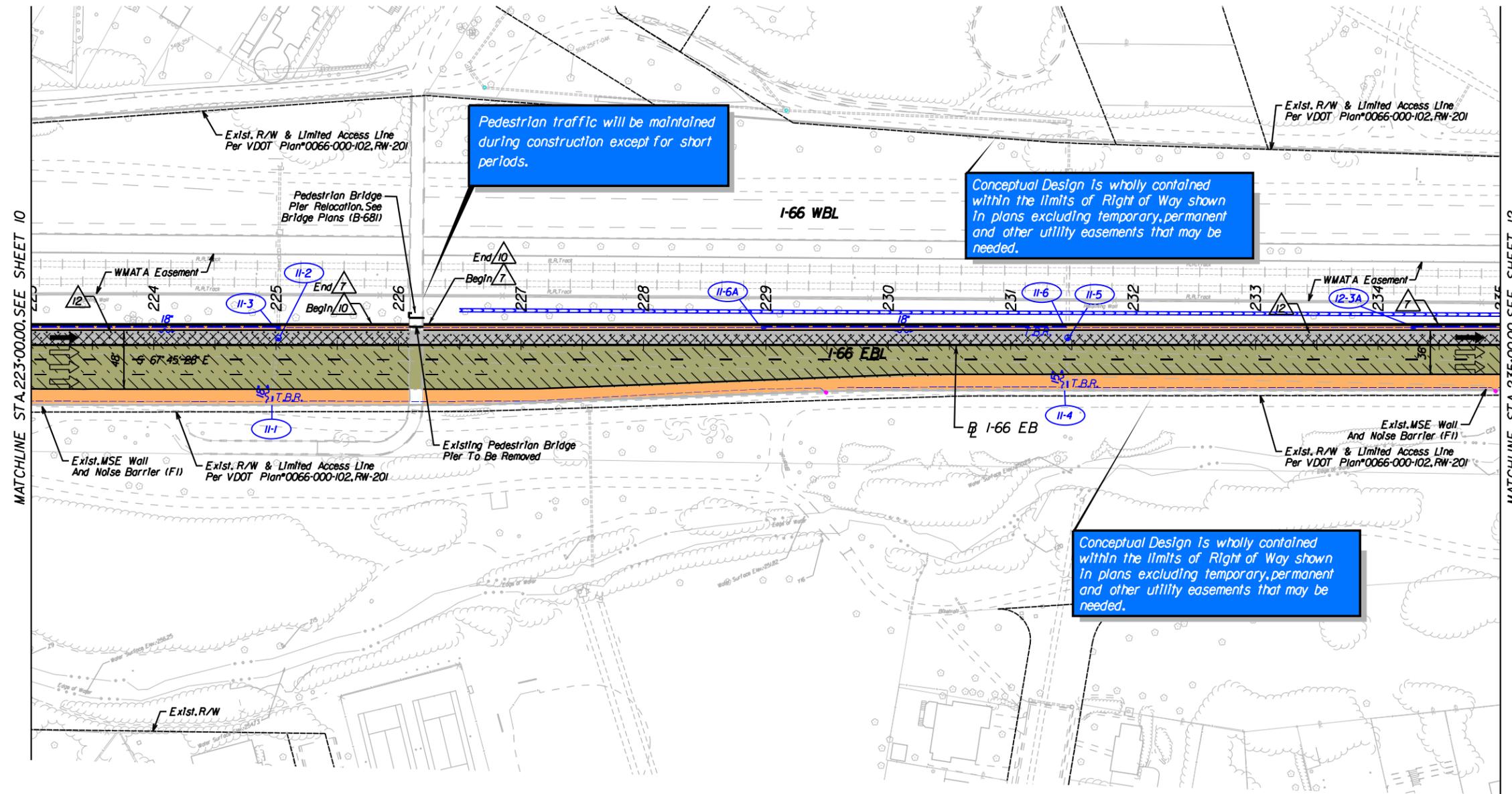
VIRGINIA DEPARTMENT OF TRANSPORTATION

**I-66 EASTBOUND WIDENING
INSIDE THE BELTWAY**

SHEET NO.
10

PAGE NO.
Vol II-16

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trail	5.00%



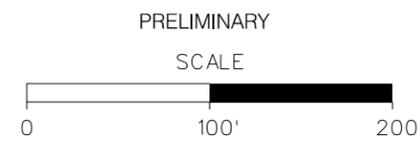
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification

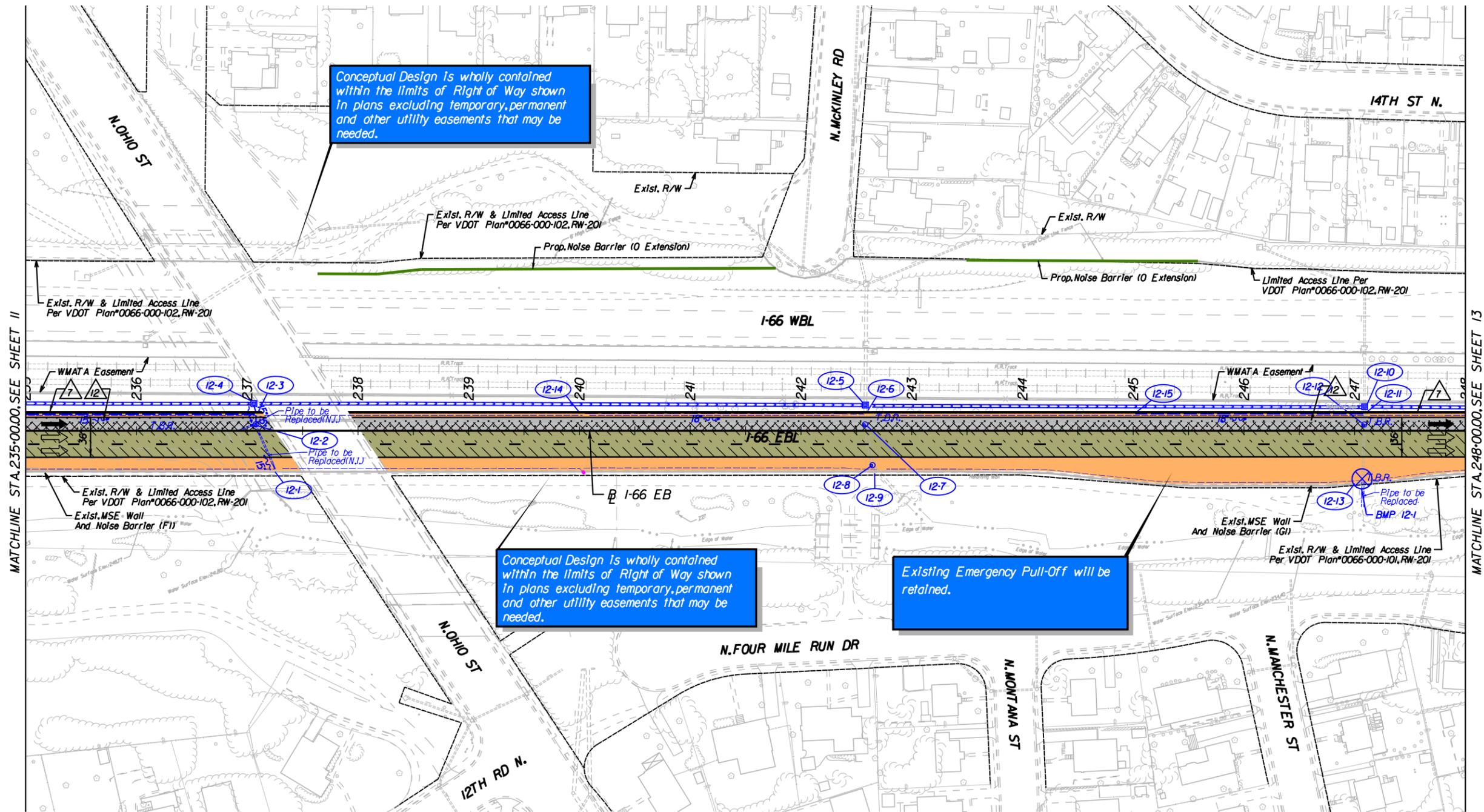
C - - - Denotes Construction Limits In Cuts
F - - - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dot-dashed lines denote Permanent Utility Easements.

- S'rd.MB-7F Req'd.
- S'rd.BPPS Req'd.
- Remove Ex.Conc.Barrier

CONCEPTUAL PLANS



Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 2	8.00%
Ramp 3	3.50%
W & O.D.	4.00%
Curtis Trail	5.00%



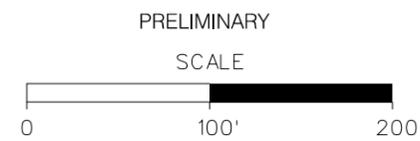
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification
- EC-2 Lined Ditch
- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills
- S1'd. MB-7F Req'd.
- Remove Ex. Conc. Barrier

Denotes Construction Limits In Cuts
 Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

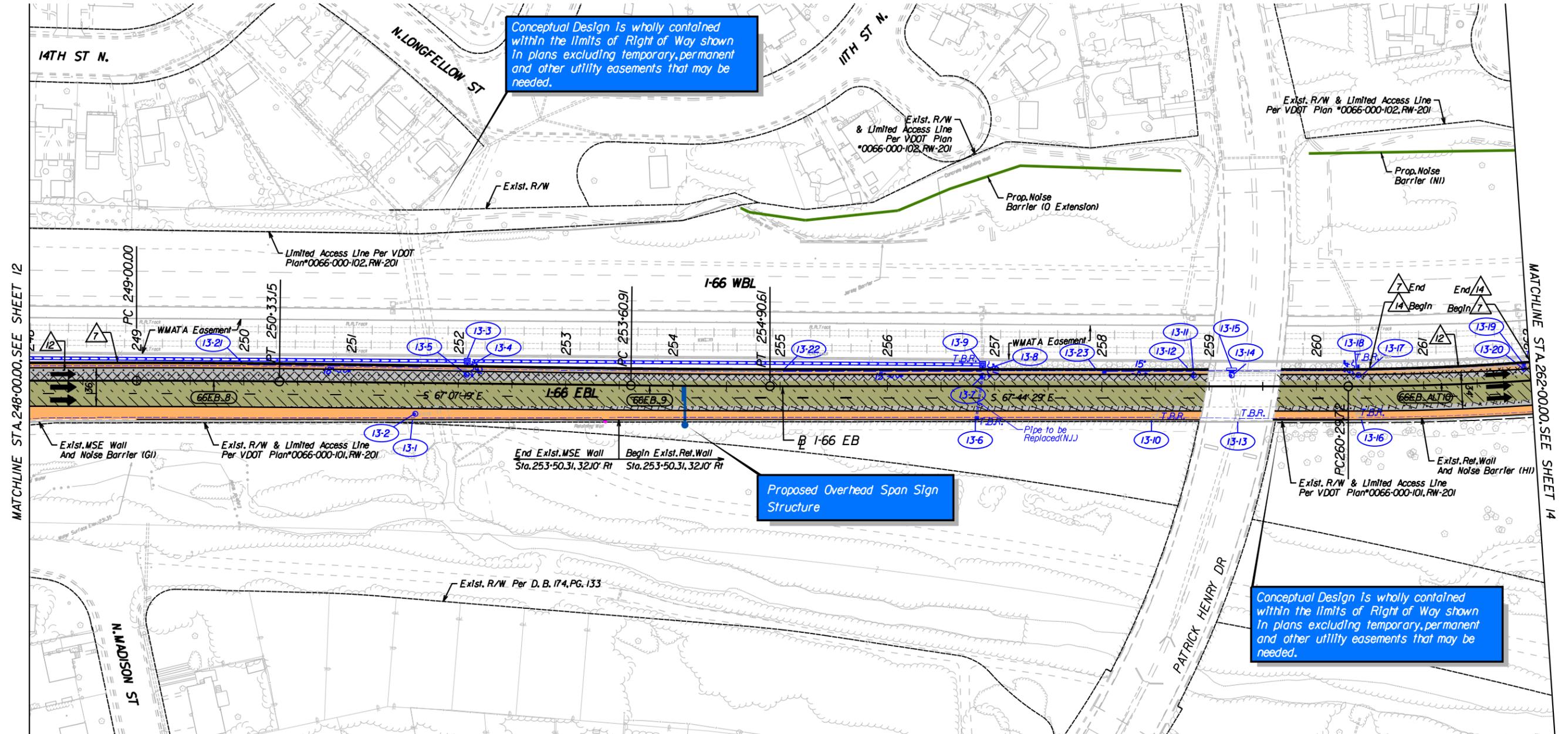
- Manufactured Filtering Structure
- S1'd. MB-7F Req'd.
- Remove Ex. Conc. Barrier

CONCEPTUAL PLANS



Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 2	8.00%
Ramp 3	3.50%
Ramp W & O.D.	4.00%
Curtis Trail	5.00%

Curve 66EB_8 PI • 249+66.58 DELTA • 0° 38' 08.69" (RT) D • 0' 28' 39" T • 66.58' L • 133.15' R • 12,000.00' PC • 249+00.00 PT • 250+33.15 V • 60 MPH e • N.C.	Curve 66EB_9 PI • 254+25.76 DELTA • 0° 37' 09.41" (LT) D • 0' 28' 39" T • 64.85' L • 129.70' R • 12,000.00' PC • 253+60.91 PT • 254+90.61 V • 60 MPH e • N.C.	Curve 66EBALT10 PI • 266+19.31 DELTA • 2° 59' 43.37" (LT) D • 2' 09' 14" T • 589.60' L • 1160.43' R • 2,660.00' PC • 260+29.72 PT • 271+90.15 V • 60 MPH e • 4.0%
--	--	--



Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Proposed Overhead Span Sign Structure

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

LEGEND

	Denotes Demolition of Pavement
	Denotes Full Depth Pavement
	Denotes Full Depth Shoulder Pavement
	Denotes Mill and Overlay
	Denotes Prop. Bridge Limits
	Denotes Proposed Noise Barrier
	Denotes Proposed Temporary Easements
	Denotes Proposed Permanent Easements
	Denotes Proposed Right of Way
	Denotes Existing Right of Way
	Denotes Limits of Disturbance
	Property Owner Identification
	Denotes Construction Limits In Cuts
	Denotes Construction Limits In Fills
	S'rd. MB-7F Req'd.
	Remove Ex. Conc. Barrier
	S'rd. MB-12C Req'd.

Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dot-dashed lines denote Permanent Utility Easements.

CONCEPTUAL PLANS

PRELIMINARY

SCALE

DESIGN BUILDER

WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY

JMT VOLKERT

STATE PROJECT

0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION

**I-66 EASTBOUND WIDENING
INSIDE THE BELTWAY**

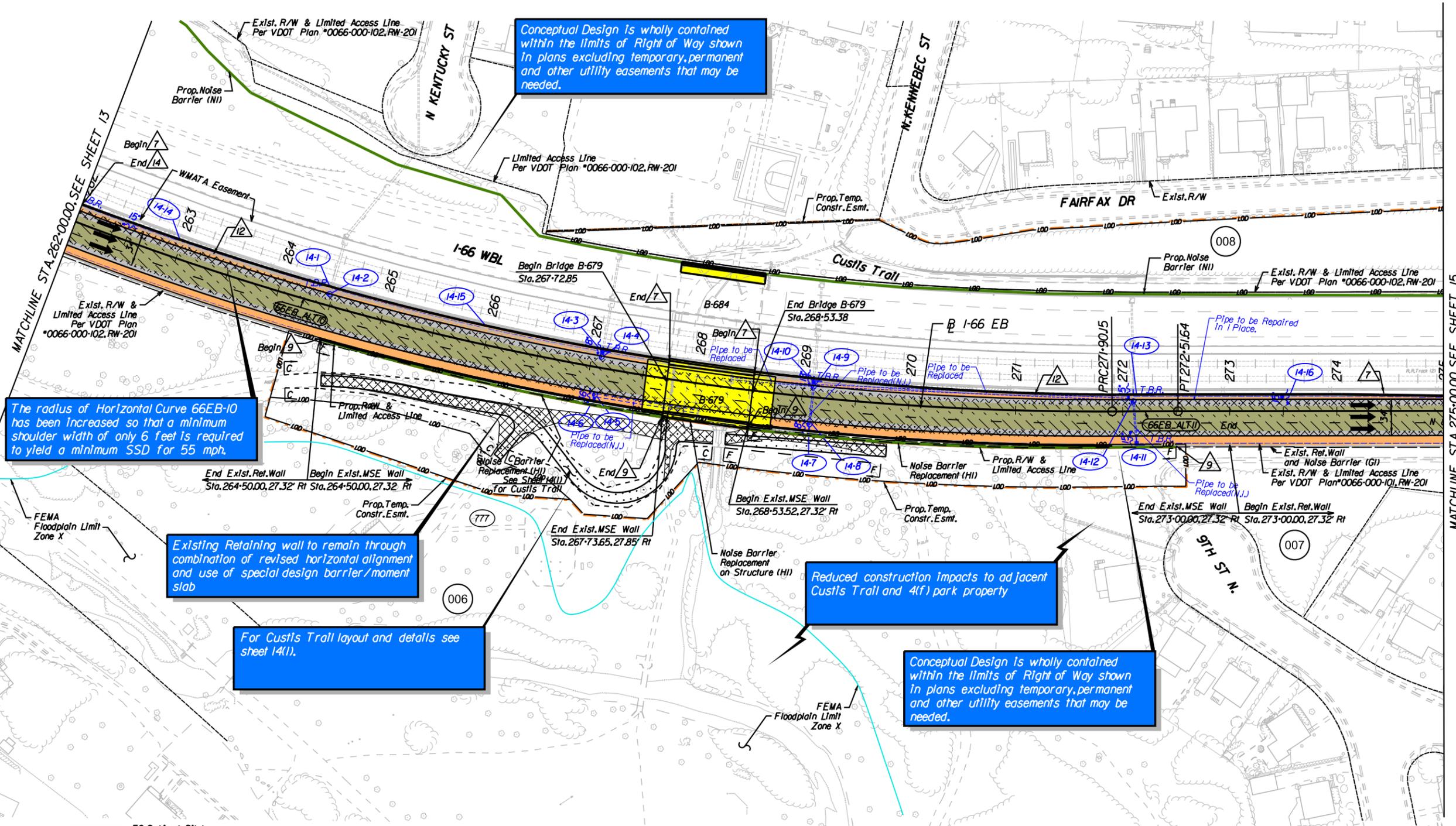
SHEET NO.
13

PAGE NO.
Vol II-19

Curve (66EB_ALTIO)
 PI • 266+19.31
 DELTA • 24° 59' 43.37" (LT)
 D • 2' 09" 14"
 T • 589.60'
 L • 1160.43'
 R • 2,660.00'
 PC • 260+29.72
 PRC • 271+90.15
 V • 60 MPH
 e • 4.0%

Curve (66EB_ALTII)
 PI • 272+20.90
 DELTA • 0° 14' 05.64" (RT)
 D • 0' 22" 55"
 T • 30.75'
 L • 61.50'
 R • 15,000.00'
 PRC • 271+90.15
 PT • 272+51.64
 V • 60 MPH
 e • 2.0%

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trall	5.00%



Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

The radius of Horizontal Curve 66EB-10 has been increased so that a minimum shoulder width of only 6 feet is required to yield a minimum SSD for 55 mph.

Existing Retaining wall to remain through combination of revised horizontal alignment and use of special design barrier/moment slab

For Curtis Trall layout and details see sheet 14(1).

Reduced construction impacts to adjacent Curtis Trall and 4(f) park property

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

LEGEND

	Denotes Demolition of Pavement		Denotes Proposed Noise Barrier
	Denotes Full Depth Pavement		Denotes Proposed Temporary Easements
	Denotes Full Depth Shoulder Pavement		Denotes Proposed Permanent Easements
	Denotes Mill and Overlay		Denotes Proposed Right of Way
	Denotes Prop. Bridge Limits		Denotes Existing Right of Way
			Denotes Limits of Disturbance
			Property Owner Identification

C - Denotes Construction Limits In Cuts
F - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

- S'd.MB-7F Req'd.
- Special Design Barrier/Moment Slab
- Remove Ex.Conc.Barrier
- S'd.MB-12C Req'd.

- 006** COUNTY BOARD OF ARLINGTON
DB0000 PG0000
1,030,194 SQ.FT
Tax# 13007001
- 007** ARLINGTON COUNTY BOARD
DB2144 PG1761
45,302 SQ.FT
Tax# 13007037
- 008** ARLINGTON COUNTY BOARD
Unknown
- 077** Unknown
- 078** Unknown

CONCEPTUAL PLANS

PRELIMINARY

SCALE

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Conceptual Design reduces the amount of construction easements and lowers 4(f) Impacts to Bon Air Park. Area of reduction denoted by shaded area.

Pedestrian and bicycle traffic on the Custis Trail will be detoured as needed in order to maintain continuous safe access during construction.

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Curve (C1)	Curve (C2)	Curve (C3)
PI • 10-88.40 DELTA • 24° 20' 07.67" (RT) D • 13' 58' 28" T • 88.40' L • 174.14' R • 410.00' PC • 10-00.00 PT • 11-74.14	PI • 12-94.77 DELTA • 41° 22' 08.66" (RT) D • 95' 29' 35" T • 22.65' L • 43.32' R • 60.00' PC • 12-72.11 PT • 13-15.44	PI • 14-86.93 DELTA • 134° 47' 43.9" (LT) D • 114' 35' 30" T • 120.0' L • 117.63' R • 50.00' PC • 13-66.82 PT • 14-84.45

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 2	8.00%
Ramp 3	3.50%
W & O.D.	4.00%
Custis Trail	5.00%

LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification
- Denotes Construction Limits in Cuts
- Denotes Construction Limits in Fills
- Denotes Temporary Easements
- Denotes Permanent Easements
- Denotes Permanent Utility Easements

Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

--- LOD --- Denotes Limits of Disturbance
 (123) Property Owner Identification
 1 POT Trail Sta. 14-99.29
 POT Trail Connection Sta. 20-00.00
 2 POT Trail Sta. 15-48.11
 POT I-66 EB Sta. 267-84.78

- (006) COUNTY BOARD OF ARLINGTON
DB0000 PG0000
1,030,194 SQ.FT
Tax# 13007001
- (007) ARLINGTON COUNTY BOARD
DB2144 PG1761
45,302 SQ.FT
Tax# 13007037
- (008) ARLINGTON COUNTY BOARD
Unknown
- (777)
- (778)

REFERENCES (PROFILES)	
Profile Trail	14B

CONCEPTUAL PLANS

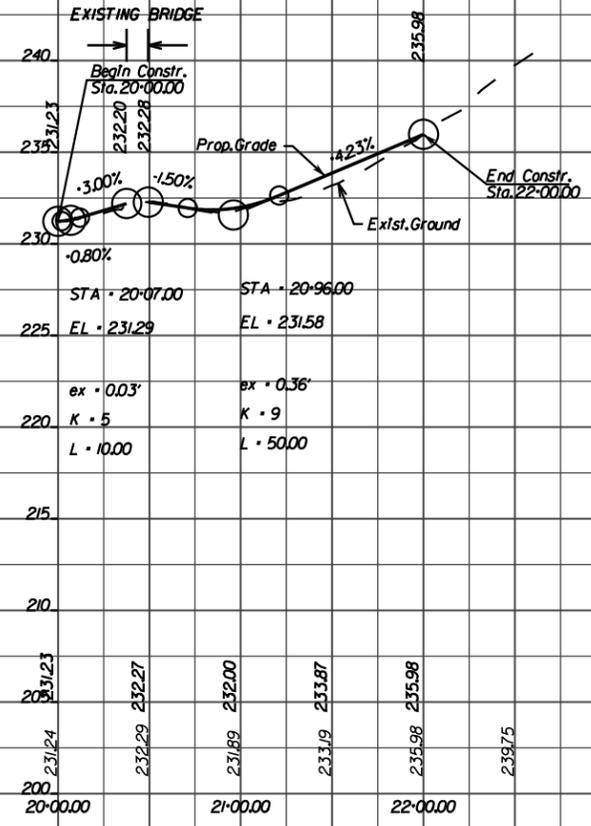
PRELIMINARY

SCALE

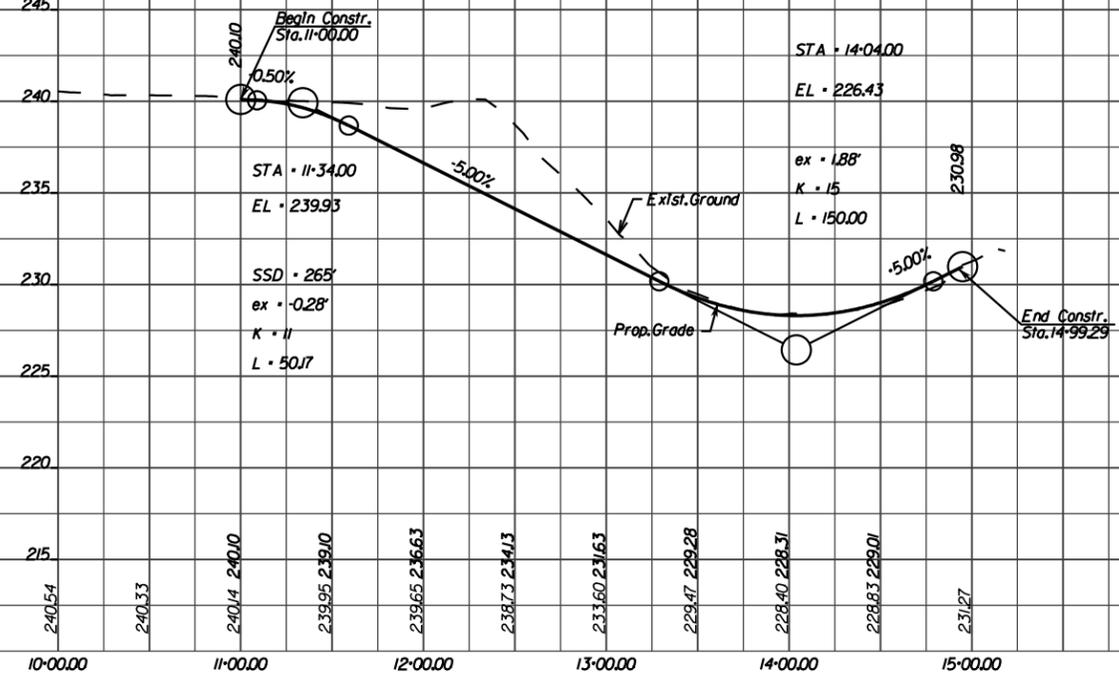
CONCEPTUAL PLANS

PRELIMINARY

Custis Trail Profile



Custis Trail Profile



\$DCNLEV \$LEVO06 \$REF006

DESIGN BUILDER



DESIGNED BY



VIRGINIA DEPARTMENT OF TRANSPORTATION

STATE PROJECT
0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

1-66 EASTBOUND WIDENING
INSIDE THE BELTWAY

SHEET NO.
14B

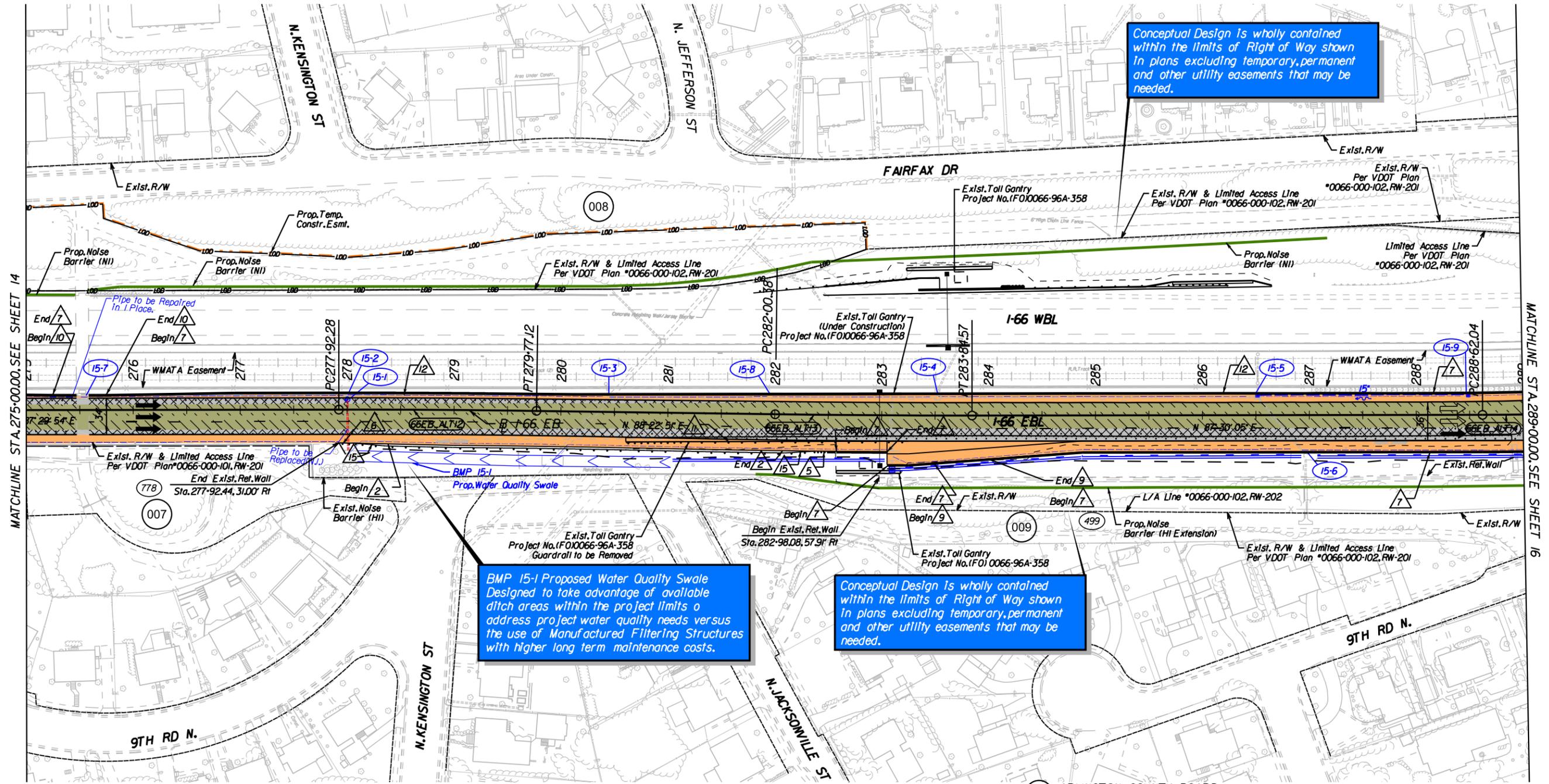
PAGE NO.
Vol II-22

Curve (66EB_ALT12)
 PI • 278-84.70
 DELTA • 0° 52' 57.05" (RT)
 D • 0' 28' 39"
 T • 92.42'
 L • 184.83'
 R • 12,000.00'
 PC • 277-92.28
 PT • 279-77.12
 V • 60 MPH
 e • N.C.

Curve (66EB_ALT13)
 PI • 282-92.48
 DELTA • 0° 52' 45.98" (LT)
 D • 0' 28' 39"
 T • 92.10'
 L • 184.19'
 R • 12,000.00'
 PC • 282-00.38
 PT • 283-84.57
 V • 60 MPH
 e • N.C.

Curve (66EB_ALT14)
 PI • 295-67.55
 DELTA • 33° 24' 27.72" (LT)
 D • 2' 26' 13"
 T • 705.51'
 L • 1,370.81'
 R • 2,351.00'
 PC • 288-62.04
 PT • 302-32.85
 V • 60 MPH
 e • 4.0%

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trail	5.00%



Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

BMP 15-1 Proposed Water Quality Swale Designed to take advantage of available ditch areas within the project limits to address project water quality needs versus the use of Manufactured Filtering Structures with higher long term maintenance costs.

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification
- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills
- S'd.GR-MGS1 Req'd.
- S'd.GR-FOA-2 (TY.II) Req'd.
- S'd.GR-FOA-2 (TY.III) Req'd.
- S'd.MB-7F Req'd.
- Retaining Wall
- S'd.BPPS Req'd.
- Remove Ex.Guardrail
- Remove Ex.Conc.Barrrier
- S'd.GR-MGS4 Req'd.

Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

- 007 ARLINGTON COUNTY BOARD
DB2144 PG761
45,302 SQ.FT
Tax* 13007037
- 008 ARLINGTON COUNTY BOARD
Unknown
- 009 ARLINGTON COUNTY BOARD
DB2144 PG761
21,344 SQ.FT
Tax* 13006068
- 499

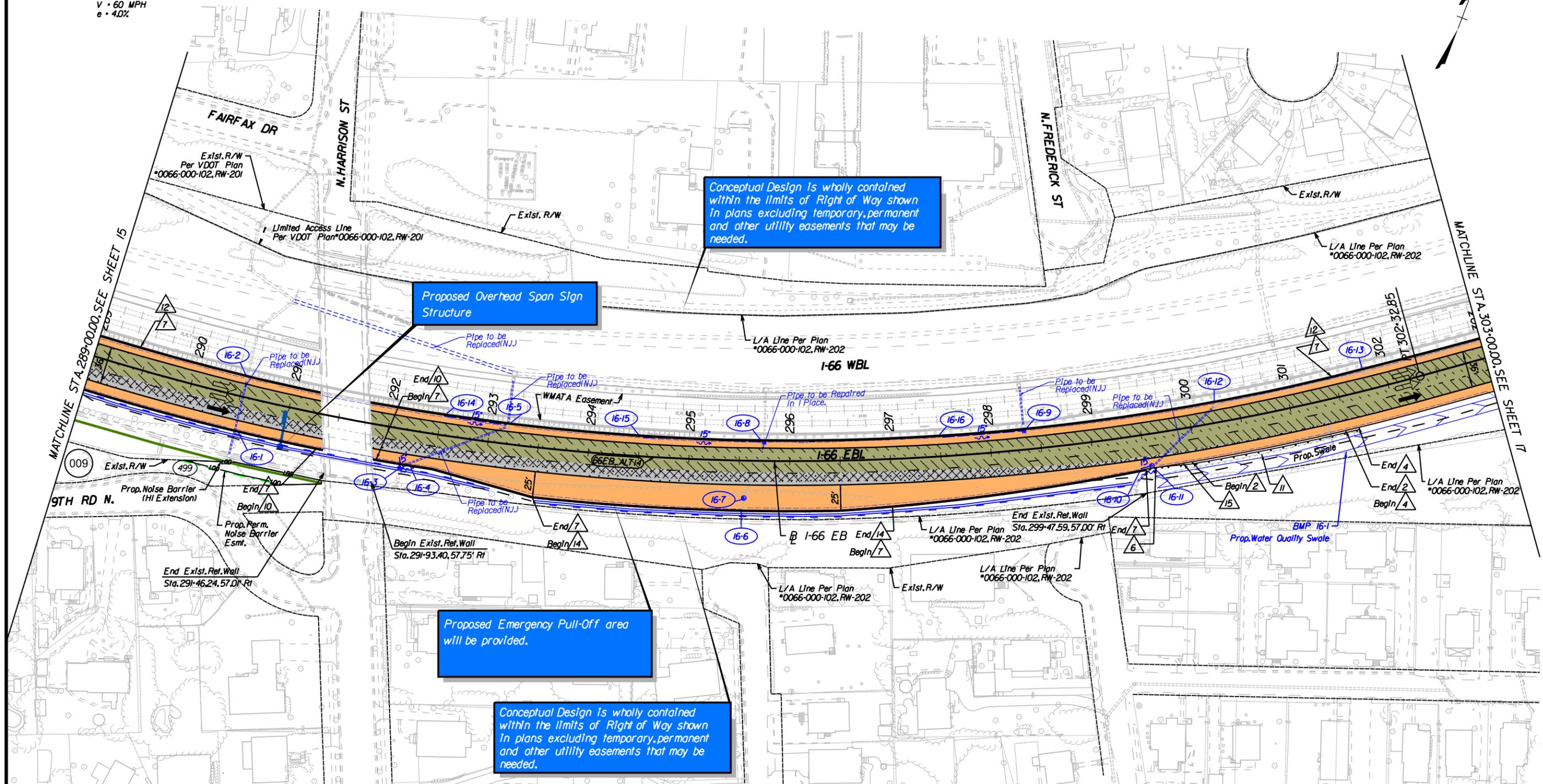
CONCEPTUAL PLANS

PRELIMINARY

SCALE

Curve 66EB-ALT14
 PI = 295+67.55
 DELTA = 33° 24' 27.72" (LT)
 D = 2' 26" 13"
 T = 705.51'
 L = 1,370.81'
 R = 2,351.00'
 PC = 288+62.04
 PT = 302+32.85
 V = 60 MPH
 e = 4.0%

Construction Baseline	Maximum Grade
I-66 EB	4.90%
Ramp 1	8.00%
Ramp 2	3.50%
Ramp 3	4.00%
W & O.D.	4.00%
Curtis Trail	5.00%



Conceptual Design Is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Proposed Overhead Span Sign Structure

Proposed Emergency Pull-Off area will be provided.

Conceptual Design Is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

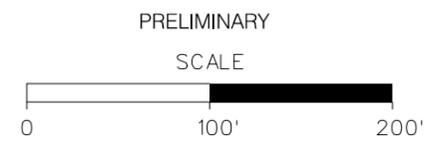
LEGEND

- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification
- Denotes Construction Limits In Cuts
- Denotes Construction Limits In Fills
- EC-2 Lined Ditch

- S'd.GR-MGS1 Req'd.
 - S'd.GR-MGS3 Req'd.
 - S'd.GR-FOA-2 (TY.III) Req'd.
 - S'd.MB-7F Req'd.
 - S'd.BPPS-TL5 Req'd.
 - Remove Ex.Guardrail
 - Remove Ex.Conc.Barrier
 - S'd.MB-I2C Req'd.
 - S'd.GR-MGS4 Req'd.
- Note: Figures in parenthesis and dot-dot-dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot-dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot-dashed lines denote Permanent Utility Easements.

009 ARLINGTON COUNTY BOARD
 DB2144 PG1761
 21,344 SQ.FT
 Tax# 13006068

CONCEPTUAL PLANS



DESIGN BUILDER
WAGMAN
 General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT
VOLKERT

STATE PROJECT
 0066-96A-417, P101, R201, C501
 B675, B677, B678, B679, B680, B681,
 B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
**I-66 EASTBOUND WIDENING
 INSIDE THE BELTWAY**

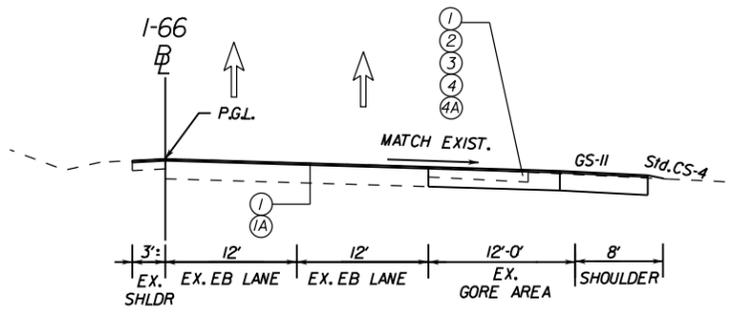
SHEET NO.
16
 PAGE NO.
Vol II-24

I-66 EDA (OPTION 1)

TYPICAL SECTIONS

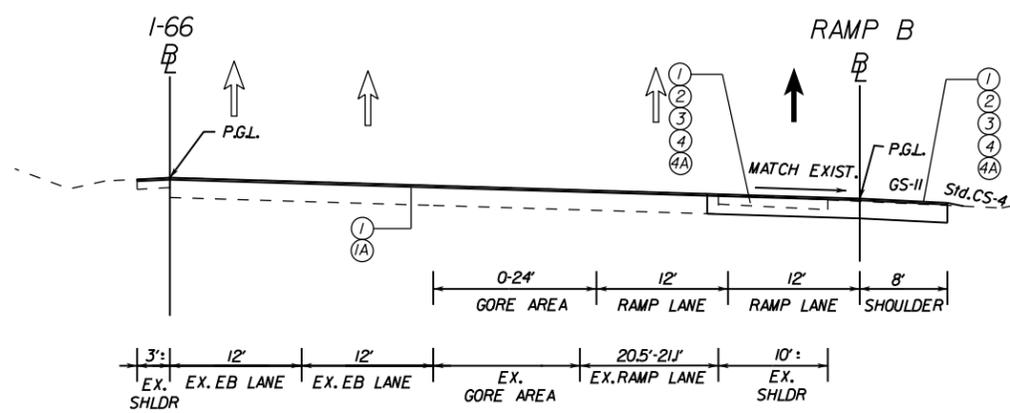
Pavement Legend

- ① 2" Asphalt Concrete, Type SM-12.5E @ 237 Lbs/Sq.Yd.
- ①A Mill Existing Pavement 2" Depth
- ② 2" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 240 Lbs/Sq.Yd.
- ③ 6" Asphalt Concrete, Type BM-25.0A
- ④ 6" Aggregate Base Material, Type I, No. 21A, Pugmill Mixed with 4% by Weight Hydraulic Cement
- ④A 6" Cement Stabilized Subgrade with 12% Hydraulic Cement



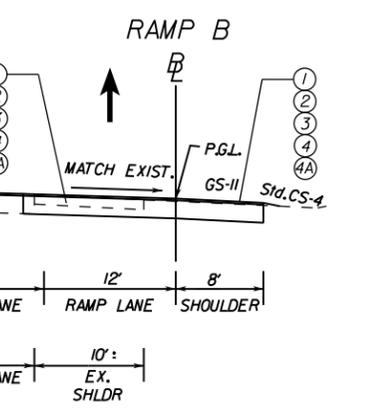
I-66 EB WIDENING
STA. 746+50 TO STA. 748+50

PROP. FULL DEPTH PAVEMENT WIDENING SEE PLANS FOR LOCATIONS & LIMITS



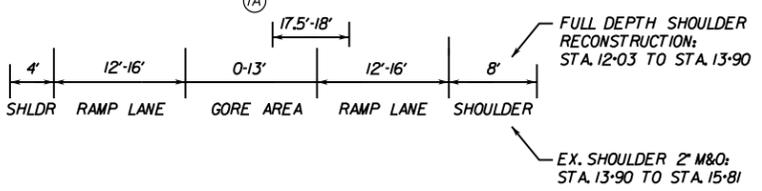
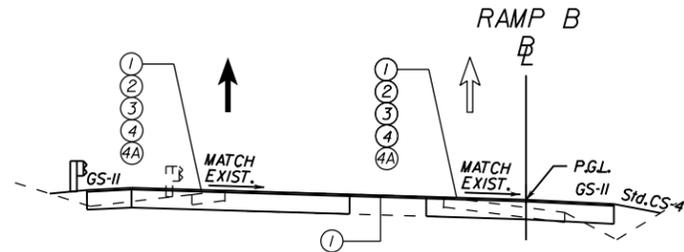
I-66 EB WIDENING
STA. 744+71 TO STA. 746+50

PROP. FULL DEPTH PAVEMENT WIDENING SEE PLANS FOR LOCATIONS & LIMITS



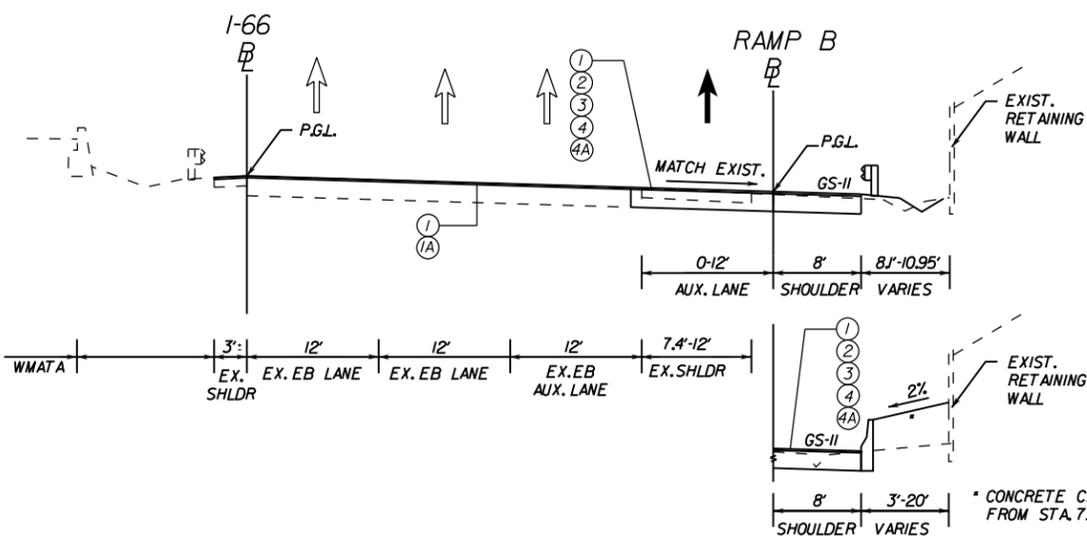
RAMP B
STA. 10+15 TO STA. 12+03

PROP. FULL DEPTH PAVEMENT WIDENING SEE PLANS FOR LOCATIONS & LIMITS



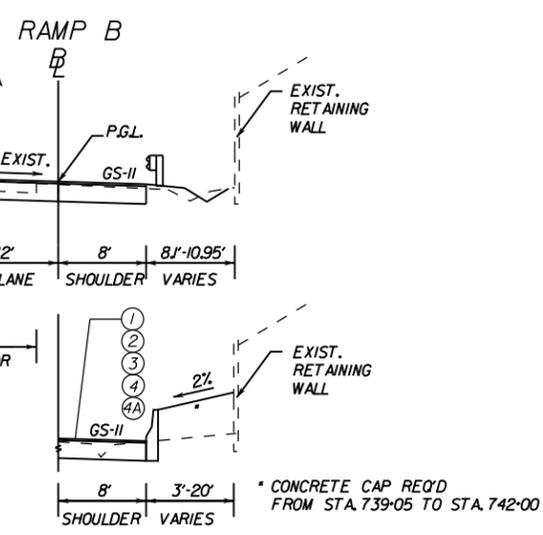
RAMP B
STA. 12+03 TO STA. 15+81

PROP. FULL DEPTH PAVEMENT WIDENING SEE PLANS FOR LOCATIONS & LIMITS



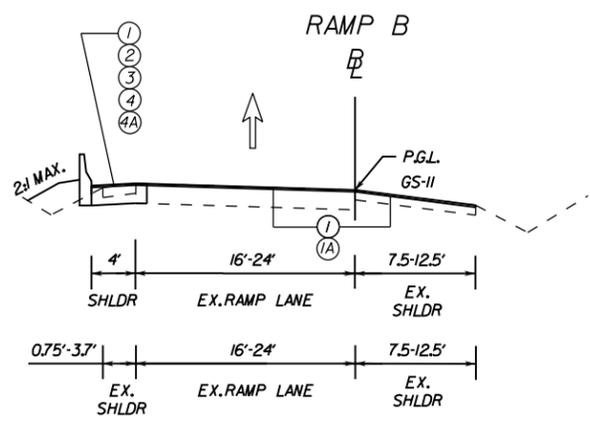
I-66 EB WIDENING
STA. 737+67 TO STA. 744+71

PROP. FULL DEPTH PAVEMENT WIDENING SEE PLANS FOR LOCATIONS & LIMITS



RAMP B
STA. 6+10 TO STA. 10+15

PROP. FULL DEPTH PAVEMENT WIDENING SEE PLANS FOR LOCATIONS & LIMITS



RAMP B
STA. 15+81 TO STA. 18+50

PROP. FULL DEPTH PAVEMENT WIDENING SEE PLANS FOR LOCATIONS & LIMITS

CONCEPTUAL PLANS

PRELIMINARY

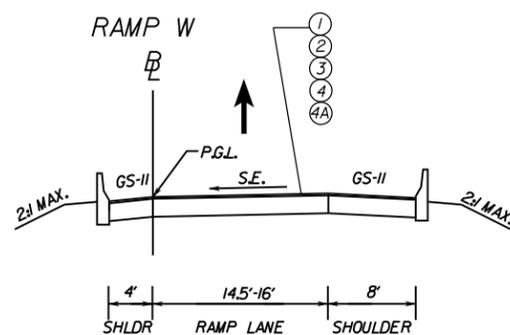
NOT TO SCALE

I-66 EDA (OPTION 1)

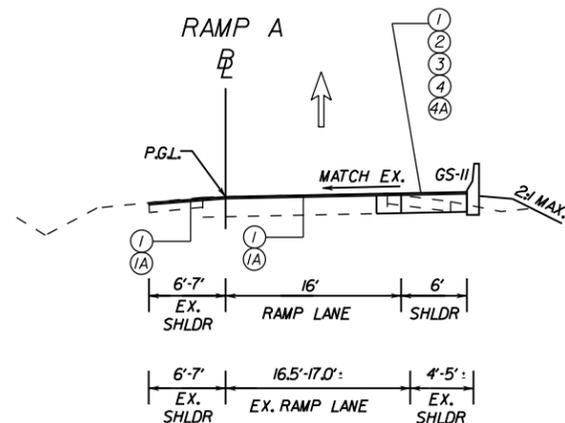
TYPICAL SECTIONS

Pavement Legend

- ① 2" Asphalt Concrete, Type SM-12.5E @ 237 Lbs/Sq.Yd.
- ①A Mill Existing Pavement 2" Depth
- ② 2" Asphalt Concrete Intermediate Course, Type IM-19.0A @ 240 Lbs/Sq.Yd.
- ③ 6" Asphalt Concrete, Type BM-25.0A
- ④ 6" Aggregate Base Material, Type I, No. 21A, Pugmill Mixed with 4% by Weight Hydraulic Cement
- ④A 6" Cement Stabilized Subgrade with 12% Hydraulic Cement

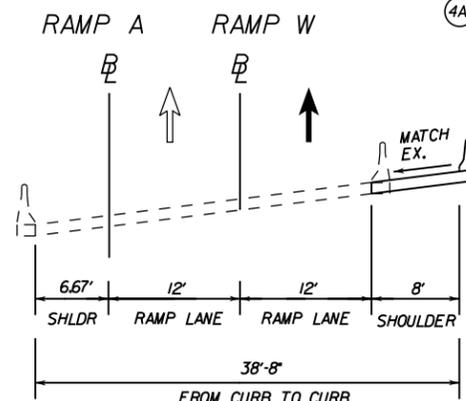


RAMP W
STA. 52+49 TO STA. 54+88



RAMP A
STA. 23+00 TO STA. 24+95

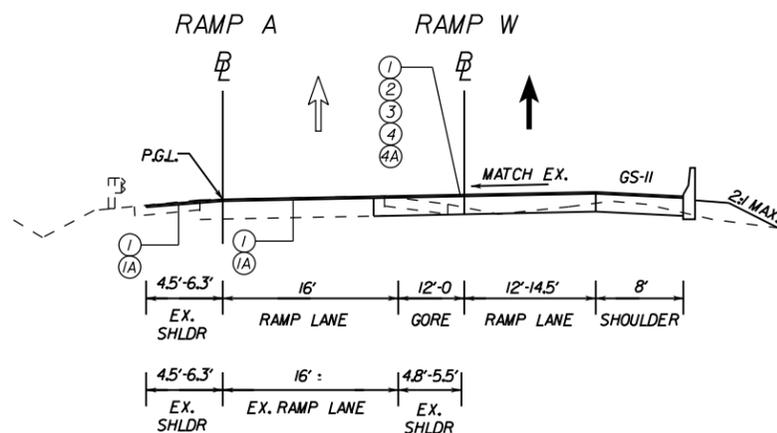
PROP. FULL DEPTH PAVEMENT WIDENING
SEE PLANS FOR LOCATIONS & LIMITS



RAMP A
STA. 26+75 TO STA. 28+55

RAMP W
STA. 56+77.50 TO STA. 58+54.30

6.67' EX. SHLDR, 18' EX. RAMP LANE, 6' EX. SHLDR
30'-8" FROM CURB TO CURB

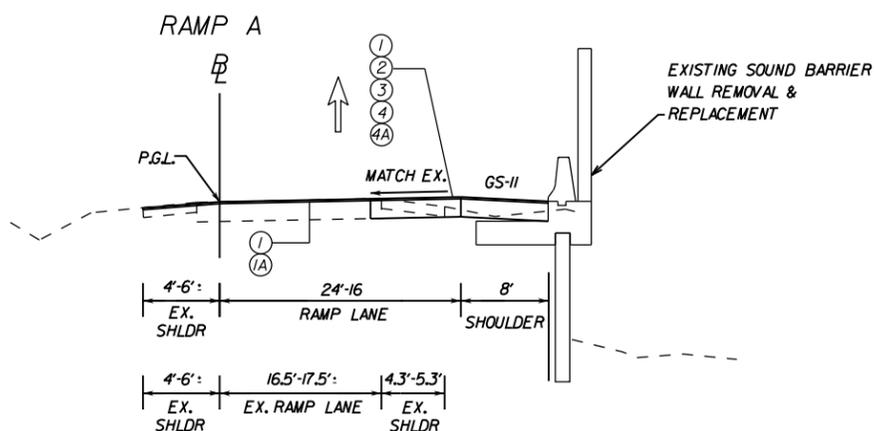


RAMP A
STA. 24+95 TO STA. 26+75

PROP. FULL DEPTH PAVEMENT WIDENING
SEE PLANS FOR LOCATIONS & LIMITS

RAMP W
STA. 54+88 TO STA. 56+77.50

PROP. FULL DEPTH PAVEMENT WIDENING
SEE PLANS FOR LOCATIONS & LIMITS



RAMP A
STA. 28+55 TO STA. 30+78

PROP. FULL DEPTH PAVEMENT WIDENING
SEE PLANS FOR LOCATIONS & LIMITS

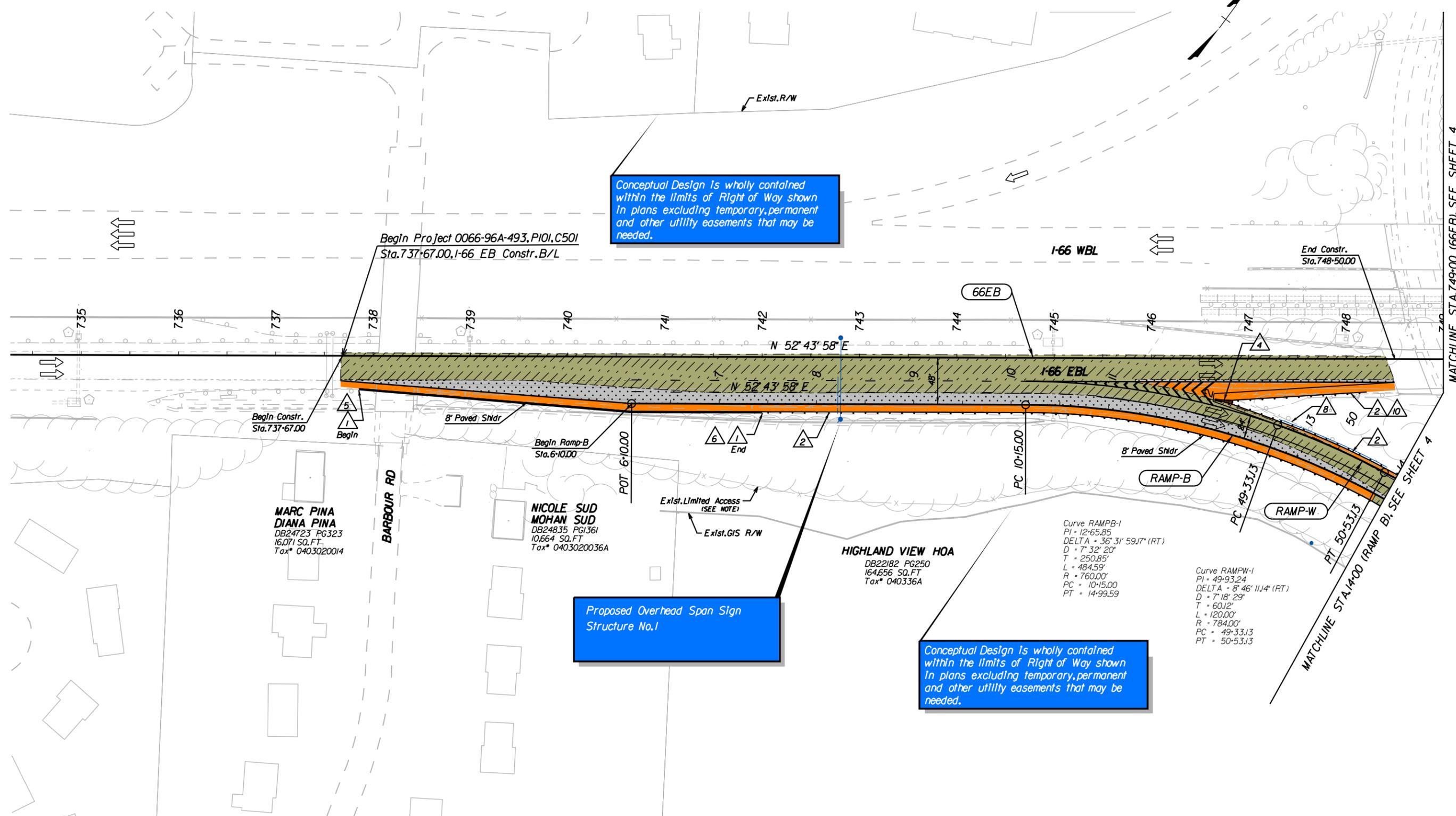
TYPE & LOCATION OF RETAINING WALL TO BE DETERMINED
DURING FINAL DESIGN PHASE.

CONCEPTUAL PLANS

PRELIMINARY

NOT TO SCALE

I-66 EDA (OPTION 1)



Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

Proposed Overhead Span Sign Structure No.1

Conceptual Design is wholly contained within the limits of Right of Way shown in plans excluding temporary, permanent and other utility easements that may be needed.

LEGEND

- EC-2 Lined Ditch
- Denotes Proposed Noise Barrier
- Denotes Proposed Temporary Easements
- Denotes Proposed Permanent Easements
- Denotes Proposed Right of Way
- Denotes Existing Right of Way
- Denotes Limits of Disturbance
- Property Owner Identification
- Denotes Demolition of Pavement
- Denotes Full Depth Pavement
- Denotes Full Depth Shoulder Pavement
- Denotes Mill and Overlay
- Denotes Prop. Bridge Limits

C - - - Denotes Construction Limits In Cuts
F - - - Denotes Construction Limits In Fills
 Note: Figures in parenthesis and dot - dot - dashed lines denote Temporary Easements.
 Note: Figures in brackets and dot - dashed lines denote Permanent Easements.
 Note: Figures in double brackets and dot - dashed lines denote Permanent Utility Easements.

- S'd.MB-7F Req'd.
- S'd.GR-MGS1 Req'd.
- S'd.Impact Attenuator TL-2 Req'd
- S'd.Impact Attenuator TL-3 Req'd
- S'd.GR-FOA-2 (TY.I) Req'd.
- S'd.GR-FOA-2 (TY.II) Req'd.
- Prop.Noise Wall
- Remove Ex.Guardrail
- S'd.GR-MGS3 Req'd.
- S'd.GR-MGS4 Req'd.

Construction Baseline	Maximum Grade
I-66 EB	2.90%
Ramp A	4.60%
Ramp B	3.60%
Ramp W	3.60%

CONCEPTUAL PLANS

PRELIMINARY

SCALE

MATCHLINE STA. 749+00 (66EB), SEE SHEET 4

MATCHLINE STA. 14+00 (RAMP B), SEE SHEET 4

DESIGN BUILDER

WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY

JMT VOLKERT

STATE PROJECT

0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION

**I-66 EAST BOUND WIDENING
INSIDE THE BELTWAY**

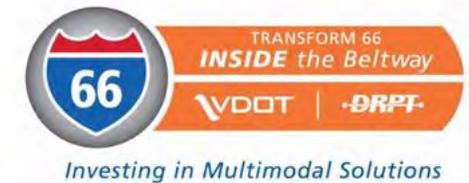
SHEET NO.
3

PAGE NO.
Vol II-28

Section 4.3.1

Conceptual Roadway Plans

I-66 EDA

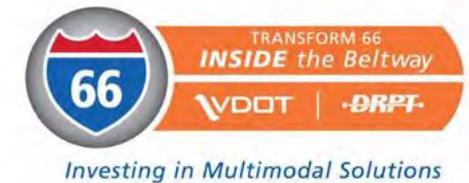


Volume II Conceptual Plans
September 2017



Section 4.3.2

Conceptual Structural Plans



Volume II Conceptual Plans
September 2017



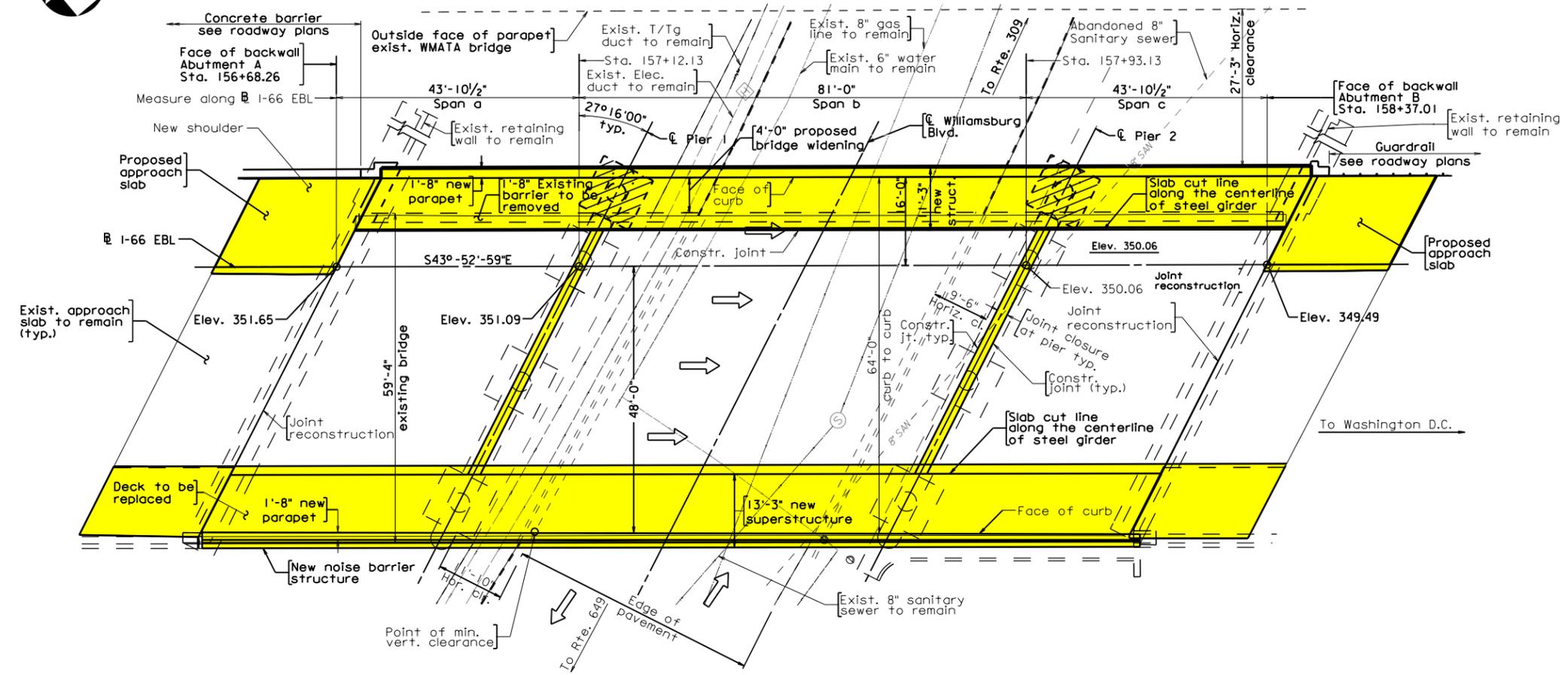


DESIGN EXCEPTION(S):
None

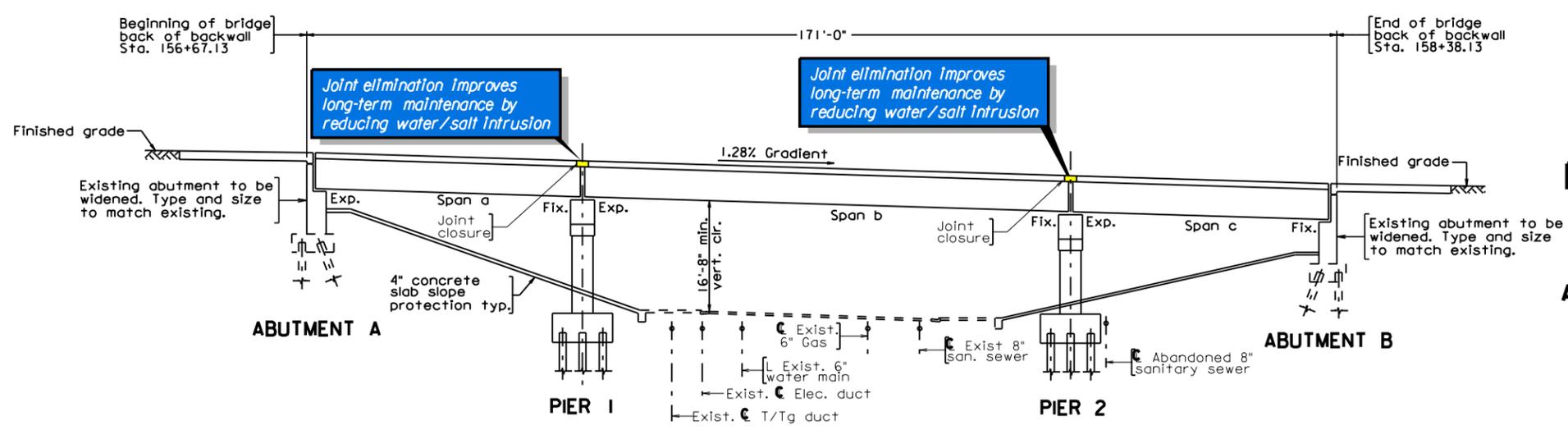
GENERAL NOTES:
For general notes, see sheet S-2.

All new deep foundations will be drilled to minimize noise, vibrations and work zone footprint.

LEGEND:
[Yellow box] Proposed work
[Yellow box with diagonal lines] Proposed foundation



PLAN



SECTION ALONG CONSTRUCTION JOINT
Stations are shown along I-66 EBL



COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED BRIDGE WIDENING ON
I-66 EBL OVER WILLIAMSBURG BLVD.
ARLINGTON CO. 0.10 MI. EAST OF FAIRFAX CO. LINE
PROJECT 0066-96A-417, B675
188-09D

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT. VOLKERT

STATE PROJECT
0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-66 INSIDE THE BELTWAY
EASTBOUND WIDENING

SHEET NO.
S-1
PAGE NO.
Vol II-30

\$REF006

\$CD015

GENERAL NOTES:

Width: 64'-0" Face to face of curbs. Includes widening of 8'-0" on left side of traffic.
Span layout: 43'-10 1/2" - 81'-0" - 43'-10 1/2" simple plate girder spans.
Capacity: HS20-44 Loading and modified military loading, HL-93 Loading for widening.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014 and VDOT Modifications.
Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.

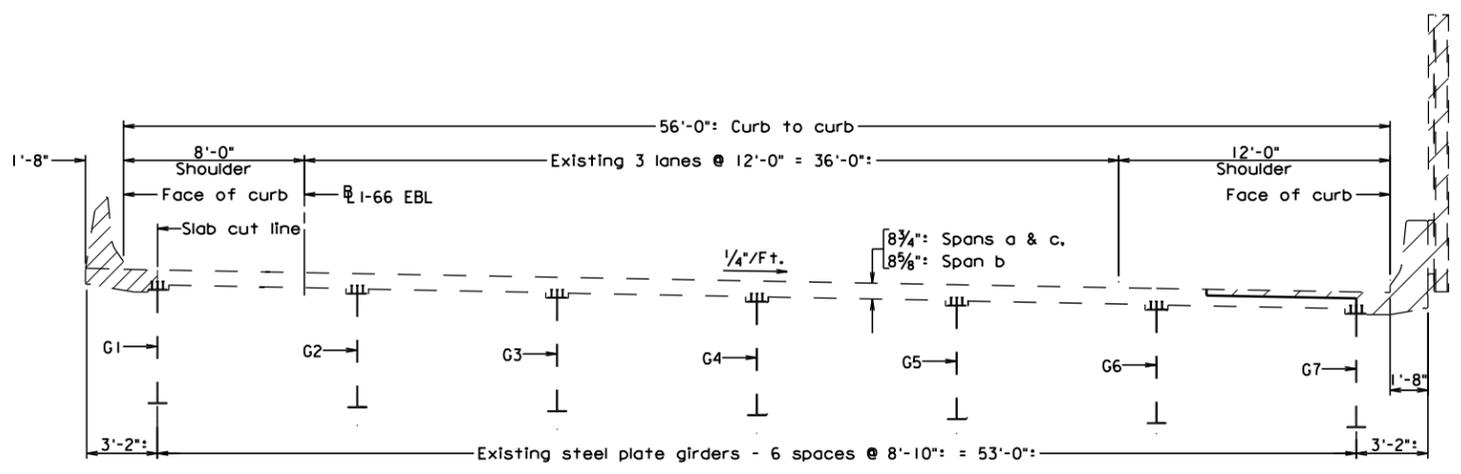
Bridge No. of existing bridge is 2069 Plan No. is 188-09.
The existing structure is designated a Type B structure in accordance with Sec. 411. Only existing soundwall contains lead.
All structural steel within the widened portion of structure, except in bearings and sole plates, shall be ASTM A709, Grade 50. Structural Steel in bearing and sole plates shall be ASTM A709 Grade 36.
Joint closure at piers shall be full joint closure. Joint closure concrete shall be LMC-VE concrete for Latex-Modified Concrete Early Strength Overlays.

Structural steel for new beams shall be brown 595-30277 and shall match the color of existing plate girders.
If crane or other equipment is to be used within the WMATA Zone of Influence (ZOI), impact analysis shall be performed by the contractor to verify there is no impact on existing WMATA structure.

This plan set is prepared based on the information shown on the as-built plans of existing bridge. All dimensions affected by the geometrics and/or location of existing structure shall be checked in field by the contractor before commencement of construction work. Any +/- marks shown with dimensions and stations does not indicate any degree of precision. These +/- marks indicate existing dimensions and stations that may vary and do require field verification by the contractor.

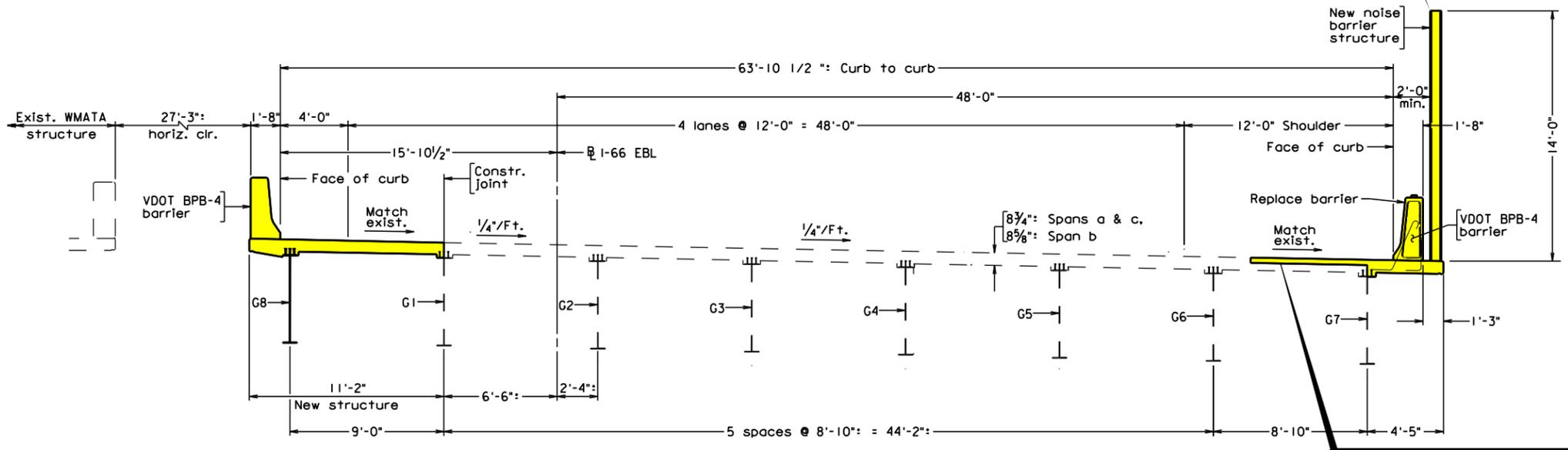
Existing slab slope protection shall be extended to accommodate the widening.

After completion of concrete substructure surface repair, all existing substructure (Abutments, Wingwalls, Piers) shall be waterproofed. Abutments backwalls and top of abutments seats and pier caps shall receive a coat of epoxy Type EP-S. All other areas on substructure shall receive a coat of waterproofing coating Tex. Cote 300.



**EXISTING TRANSVERSE SECTION
B675**

New noise barrier will be mounted outside of TL-5 traffic barrier per VDOT standards to improve safety



**FINAL TRANSVERSE SECTION
B675**

Hydro demolition and deep overlay to allow for the installation of the additional top reinforcing steel required for the parapet and noise barrier. This method eliminates the need for full depth removal and associated deck forms and reduces material costs, duration, vibration and construction noise.

LEGEND:
Existing structure removal
Proposed work

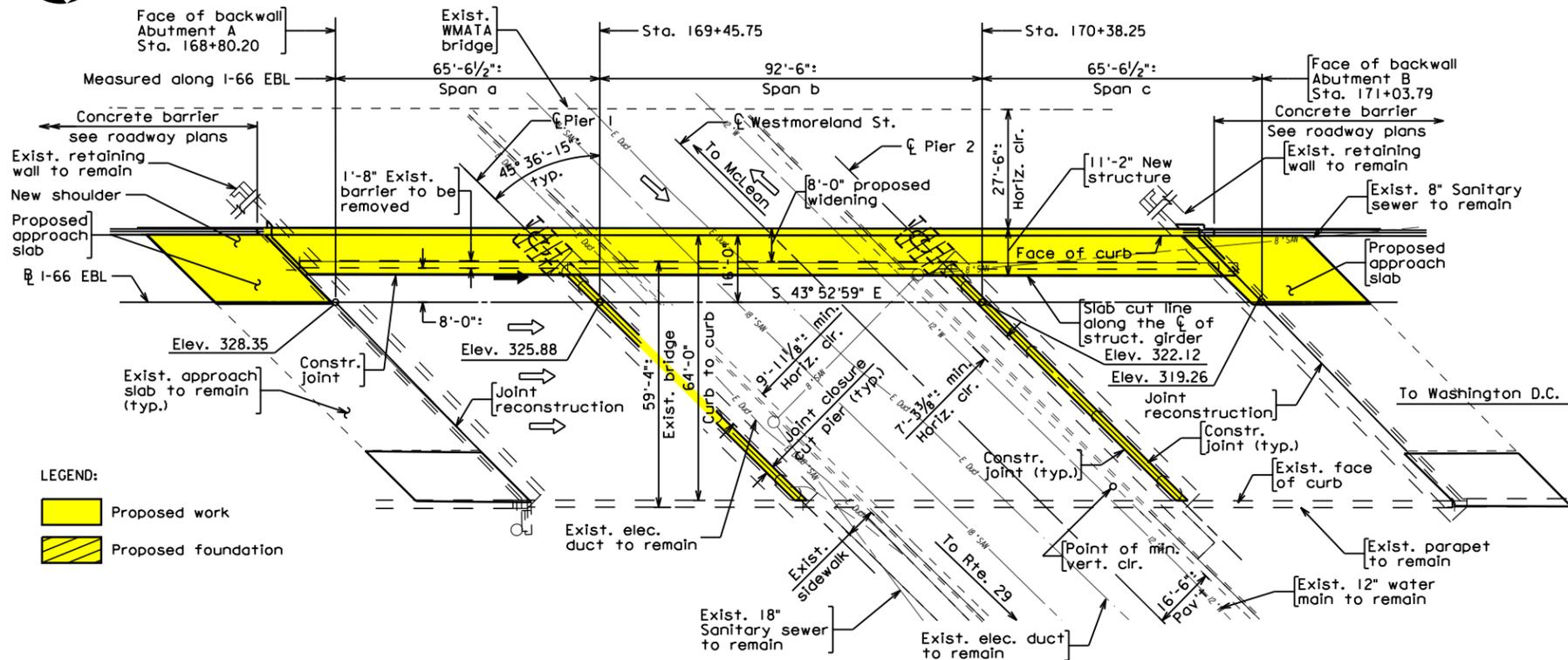
**PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE**

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

#REF006

#C015



DESIGN EXCEPTION(S):

None

GENERAL NOTES:

Width: 64'-0" face to face of cubs. Includes widening of 8'-0" on left side of traffic.

Span layout: 65'-6 1/2" - 92'-6" - 65'-6 1/2" simple steel plate girder spans.

Capacity: HS20-44 Loading and modified military loading
HL-93 Loading for widening.

Specifications:

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

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

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.

Bridge No. of existing bridge is 2067 Plan No. is 188-11.

All structural steel within the widened portion of structure, except in bearings and sole plates, shall be ASTM A709, Grade 50. Structural Steel in bearing and sole plates shall be ASTM A709 Grade 36.

Joint closure at piers shall be full joint closure. Joint closure concrete shall be LMC-VE concrete for Latex-Modified Concrete Early Strength Overlays.

Structural steel for new beams shall be Brown 595-30277 and shall match the color of existing plate girders.

If crane or other equipment is to be used within the WMATA Zone of Influence (ZOI), impact analysis shall be performed by the contractor to verify there is no impact on existing WMATA structure.

Existing slab slope protection shall be extended to accommodate widening.

After completion of concrete substructure surface repair, all existing substructure (Abutments, Wingwalls, Piers) shall be waterproofed. Abutments backwalls and top of abutments seats and pier caps shall receive a coat of epoxy Type EP-S. All other areas on substructure shall receive a coat of waterproofing coating Tex. Cote 300.

All new deep foundations will be drilled to minimize noise, vibrations and work zone footprint.



**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION**

**PROPOSED BRIDGE WIDENING ON
I-66 EBL OVER WESTMORELAND ST.
ARLINGTON CO. 0.080 MI. RTE. 694
PROJECT 0066-96A-417, B677
188-11E**

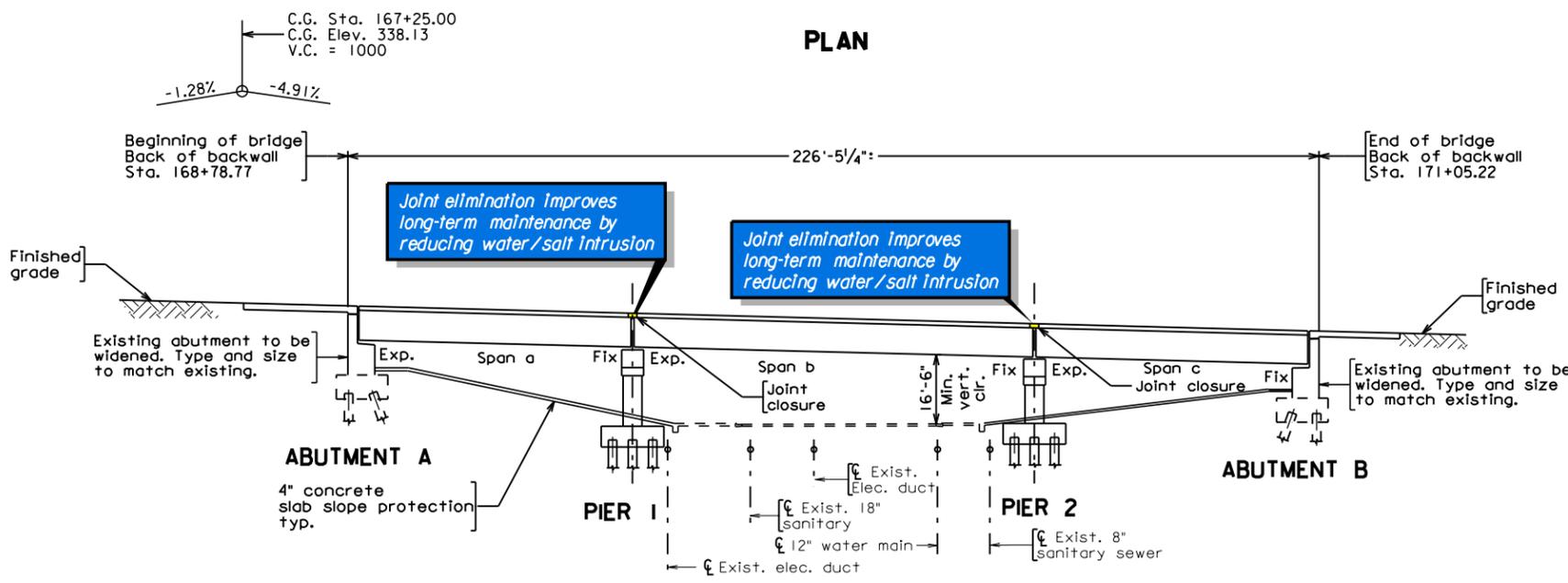
**PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE**

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

SECTION ALONG CONSTRUCTION JOINT

Stations are shown along I-66 EBL



Joint elimination Improves long-term maintenance by reducing water/salt intrusion

Joint elimination Improves long-term maintenance by reducing water/salt intrusion

REF006

SD015

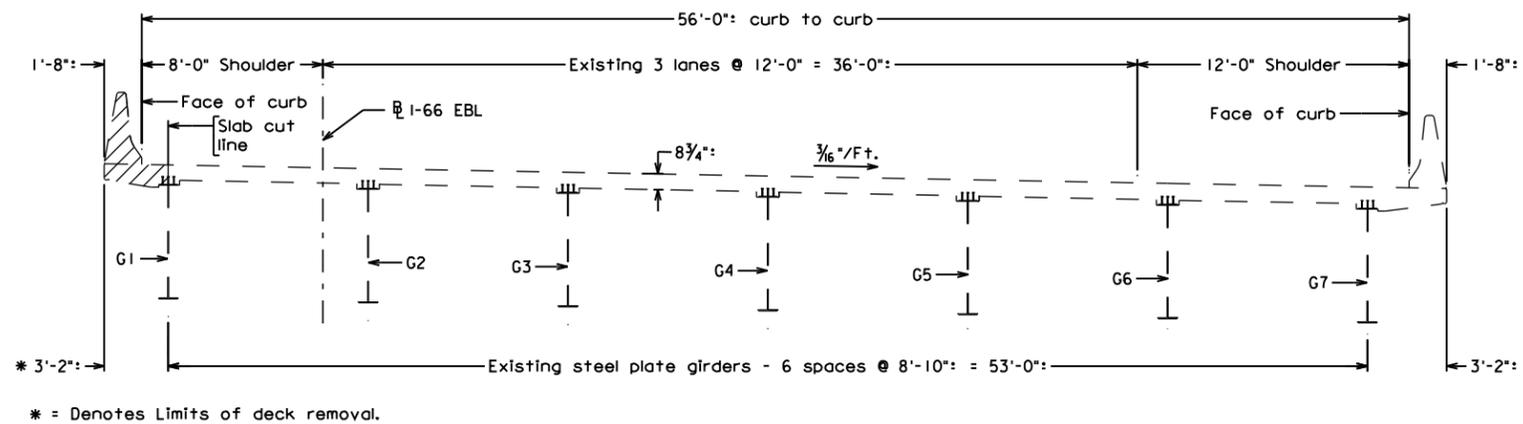
DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT. VOLKERT

STATE PROJECT
0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
**I-66 INSIDE THE BELTWAY
EASTBOUND WIDENING**

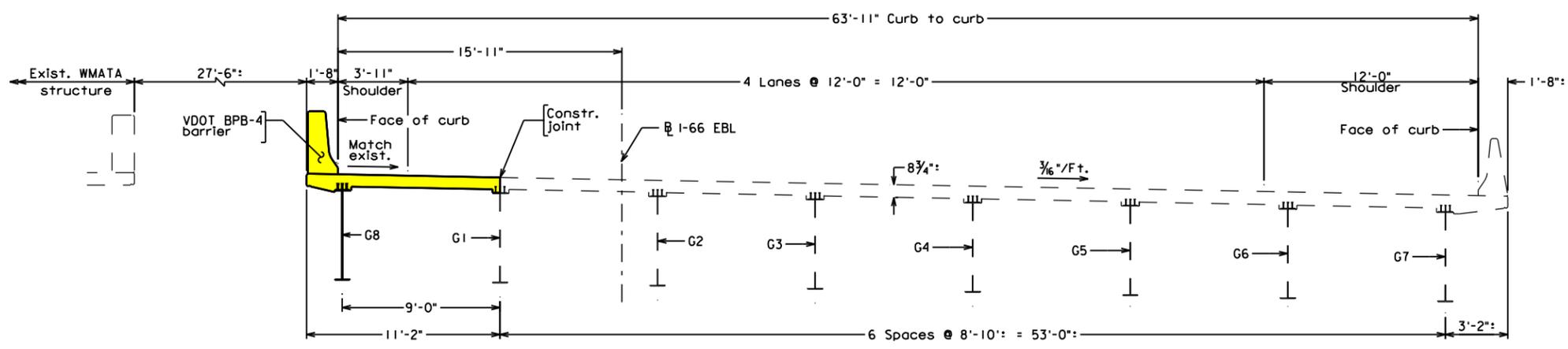
SHEET NO.
S-3
PAGE NO.
Vol II-32



* = Denotes Limits of deck removal.

**EXISTING TRANSVERSE SECTION
B677**

LEGEND:
 Existing structure removal
 Proposed work



**FINAL TRANSVERSE SECTION
B677**

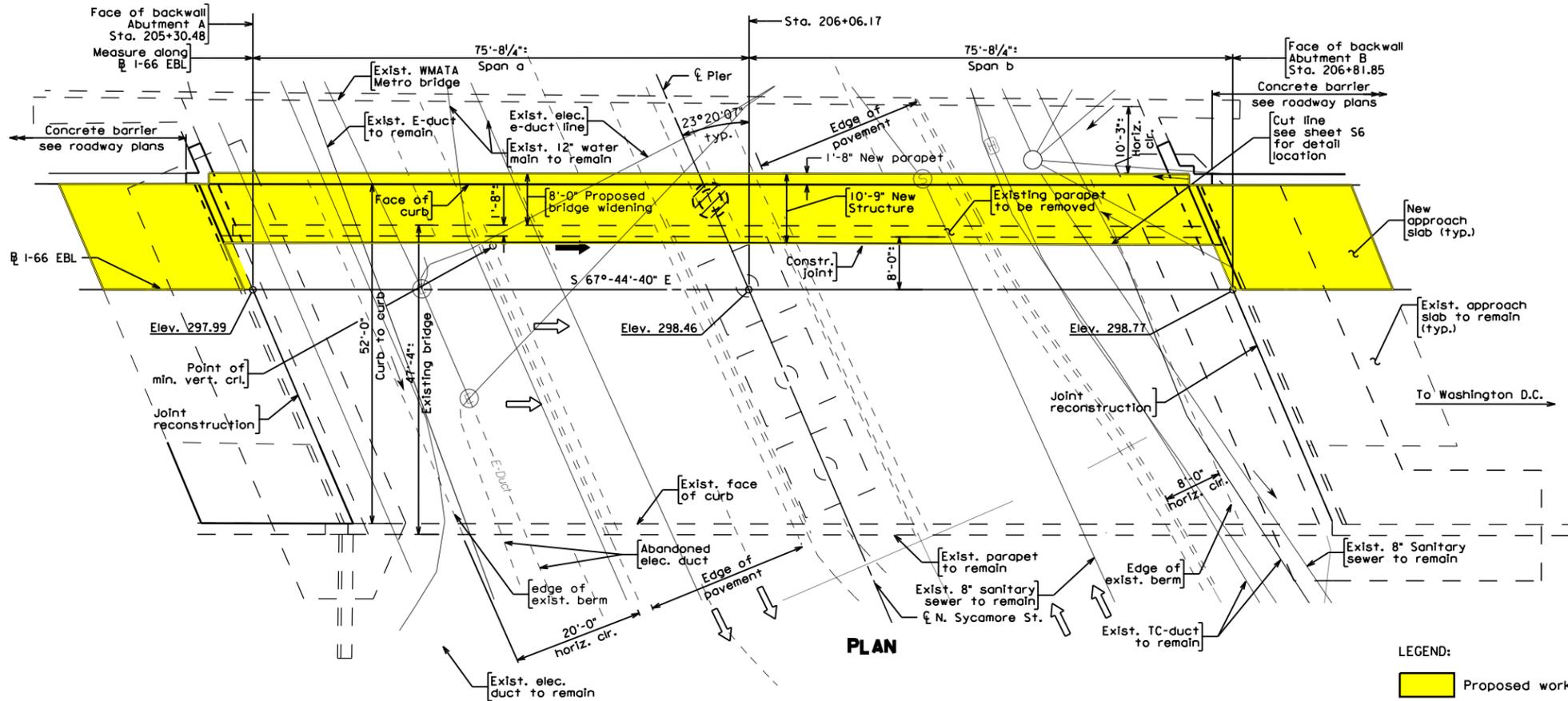
PRELIMINARY PLANS
 THESE PLANS NOT TO BE USED
 FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
 NOT TO SCALE

\$REF006

\$C015



DESIGN EXCEPTION(S):

None

GENERAL NOTES:

Width: 52'-0" min. face-to-face of curbs, includes widening of 8'-0" min. on left side of traffic.
 Span layout: 75'-8 1/4" - 75'-8 1/4" continuous multi-cell concrete box girder spans.
 Capacity: HS20-44 Loading and modified military loading. HL-93 loading for widening.

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
 Design Widening: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014 and VDOT Modifications.
 Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.

Bridge No. of existing bridge is 2073 Plan No. is 213-07.

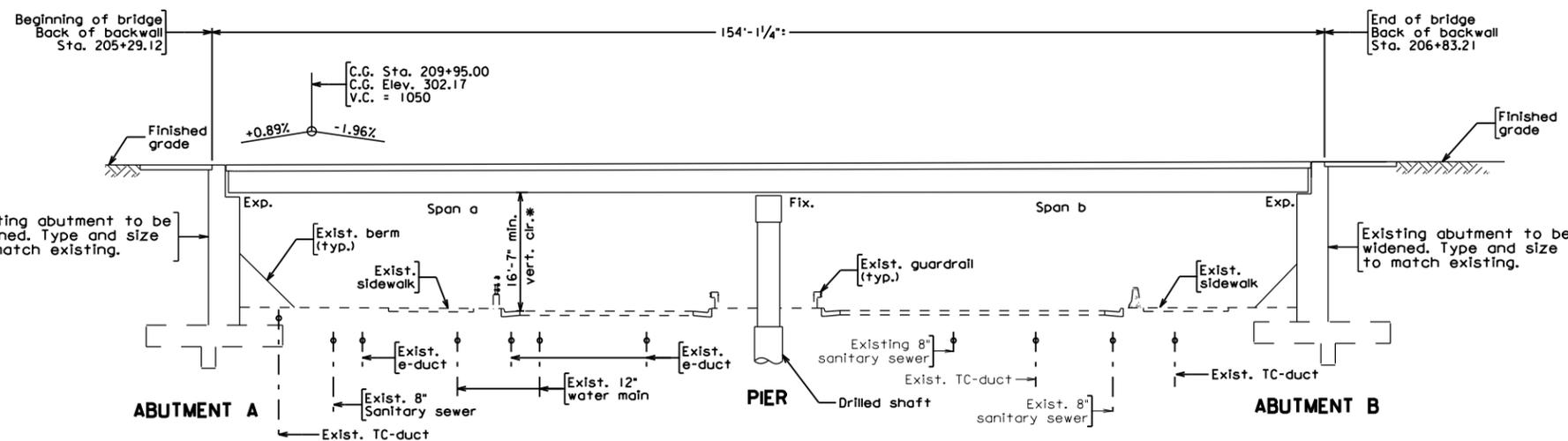
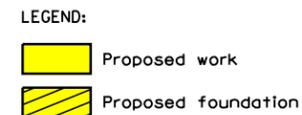
If crane or other equipment is to be used within the WMATA Zone of Influence (ZOI), impact analysis shall be performed by the contractor to verify there is no impact on existing WMATA structure.

This plan set is prepared based on the information shown on the as-built plans of existing bridge. All dimensions affected by the geometrics and/or location of existing structure shall be checked in field by the contractor before commencement of construction work. Any +/- marks shown with dimensions and stations does not indicate any degree of precision. These +/- marks indicate existing dimensions and stations that may vary and do require field verification by the contractor.

Drilled shaft shall be used as foundation support of Pier widening.

After completion of concrete substructure surface repair, all existing abutments and wingwalls shall be waterproofed. Abutments backwalls and top of abutments seats shall receive a coat of epoxy Type EP-S. All other areas on abutments shall receive a coat of waterproofing coating Tex. Cote 300.

All new deep foundations will be drilled to minimize noise, vibrations and work zone footprint.



SECTION ALONG CONSTRUCTION JOINT

Stations are shown along EBL

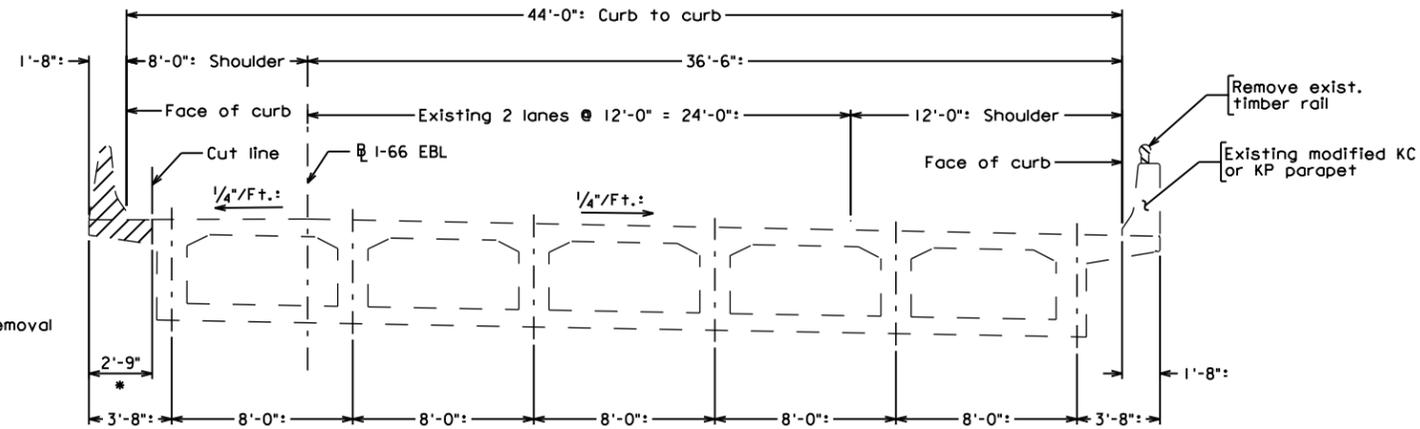
* Per 2016 Inspection report

VDOT
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED BRIDGE WIDENING ON
I-66 EBL OVER N: SYCAMORE ST.
ARLINGTON COUNTY, 0.48 MI. W OF GLEBE RD.
PROJECT 0066-096-417, B678
213-07B

PRELIMINARY PLANS
 THESE PLANS NOT TO BE USED
 FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
 NOT TO SCALE

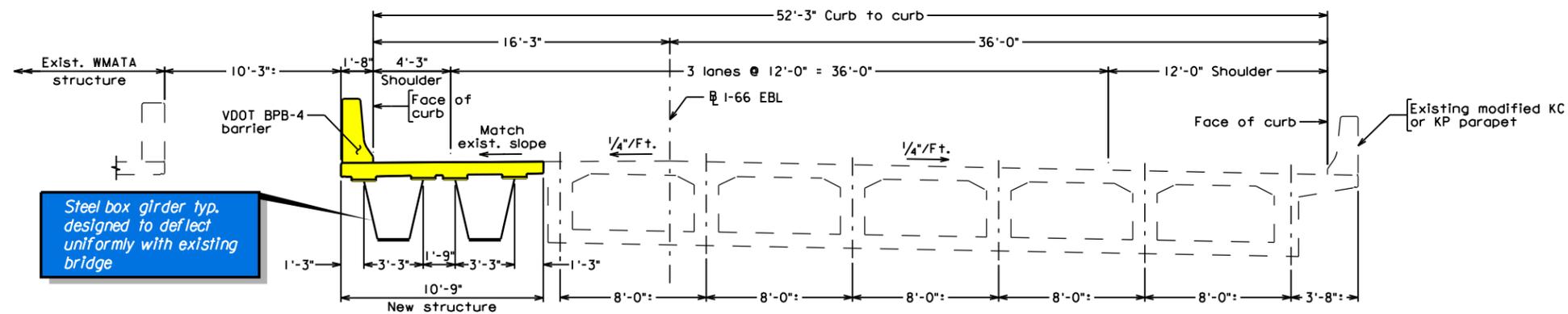


* = Denotes Limits of deck removal

**EXISTING BRIDGE TRANSVERSE SECTION
B678**

LEGEND:

-  Existing structure removal
-  Proposed work



**FINAL TRANSVERSE SECTION
B678**

Note:

New and existing superstructure elements, in addition to deck, shall be transversely connected at the location of existing intermediate diagrams with new diaphragms.

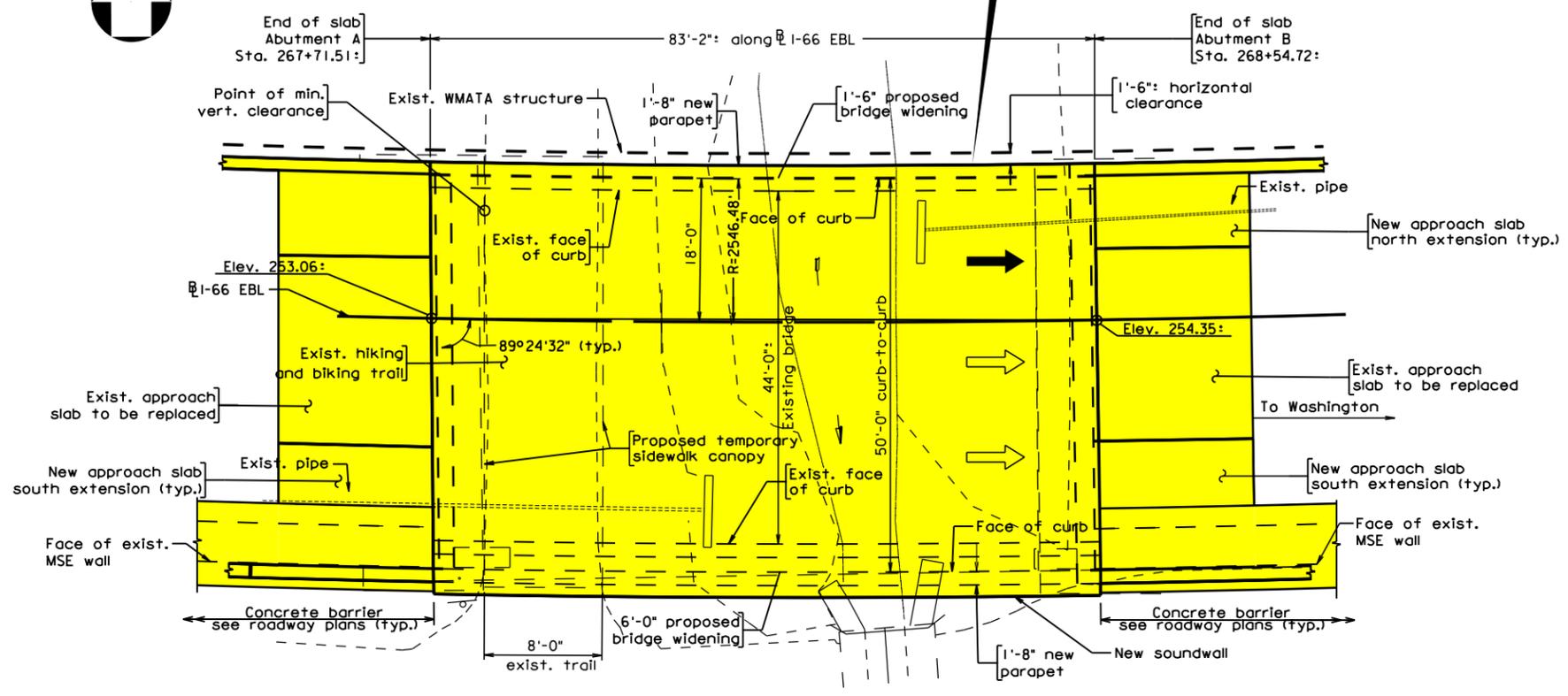
**PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE**

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

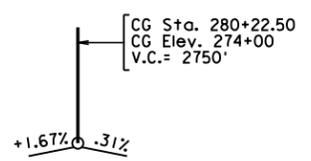


Proposed I-beam to be stabilized during construction by diaphragms to the existing steel box girder

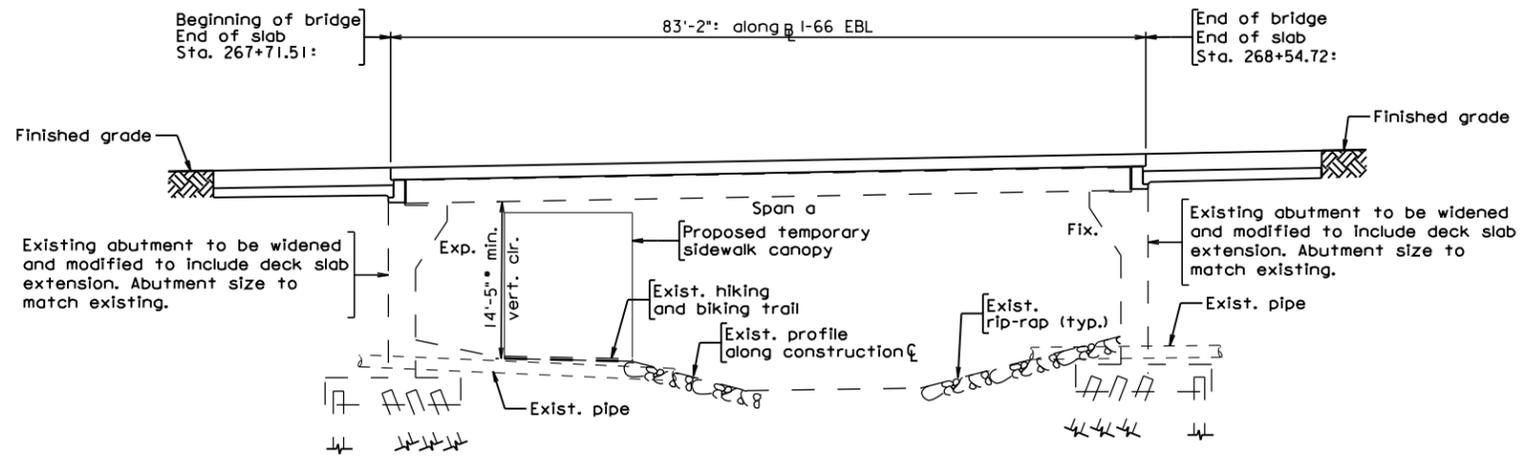


LEGEND: Proposed work

PLAN



All new deep foundations will be drilled to minimize noise, vibrations and work zone footprint.



DEVELOPED SECTION ALONG I-66 EBL

- DESIGN EXCEPTION(S):**
- Lane width reduction
 - Shoulder width reduction
 - Stopping sight distance
 - 8ft shoulder width reduction

GENERAL NOTES:

Width: 50'-0" face-to-face of curb. Includes widening of 1'-6" on left side of traffic and 6'-0" on right side of traffic.

Span layout: 80', steel box girders (existing) and 80' steel rolled beams.

Capacity: HL-93 Loading.

Drainage area: XXX sq. mi.

Specifications:

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

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

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.

Bridge No. of existing bridge is 2076. Plan No. is 255-20 and 255-20A.

The existing structure is designated a Type B structure in accordance with Sec. 411. Only existing soundwall contains lead.

This plan set is prepared based on the information shown as the as-built plans of existing bridge. All dimension affected by the geometrics and/or location of existing structure shall be checked in field by the contractor before commencement of construction work. Any : marks shown with dimensions and stations does not indicate any degree of precision. These : marks indicate existing dimensions and stations that may vary and do require field verification by the contractor.

Deck slab extension shall be used at abutments.

See sheet S-8 for discussion of shoulder widths.



COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED BRIDGE WIDENING ON
I-66 EBL OVER BON AIR PARK
ARLINGTON CO. 0.17 MI. E OF PATRICK HENRY DRIVE
PROJECT 0066-096A-417, B679
255-20B

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT. VOLKERT

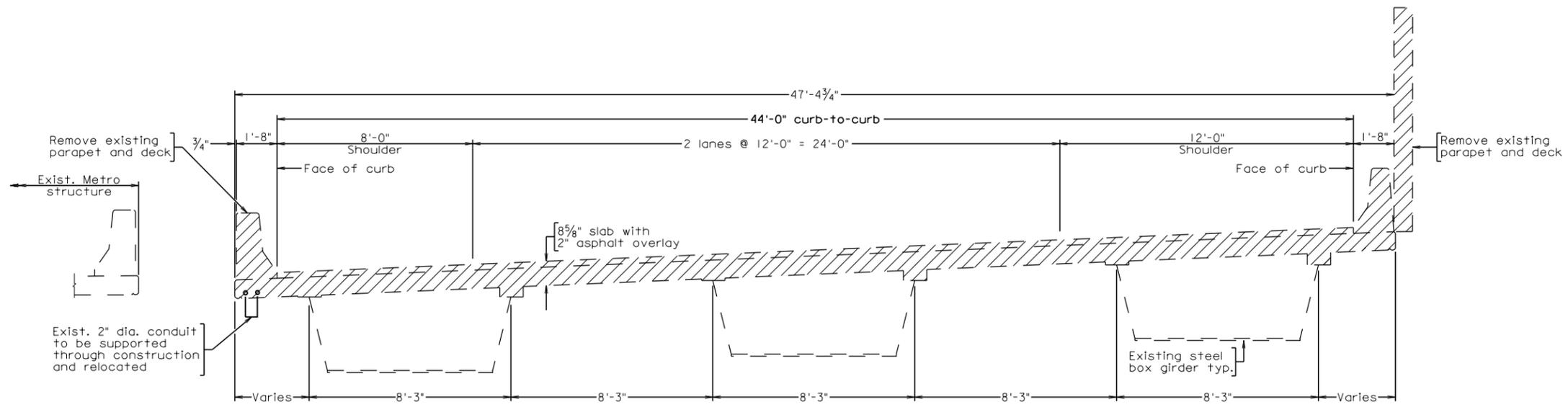
STATE PROJECT
0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-66 INSIDE THE BELTWAY
EASTBOUND WIDENING

SHEET NO.
S-7
PAGE NO.
Vol II-36

#REF006

#C015

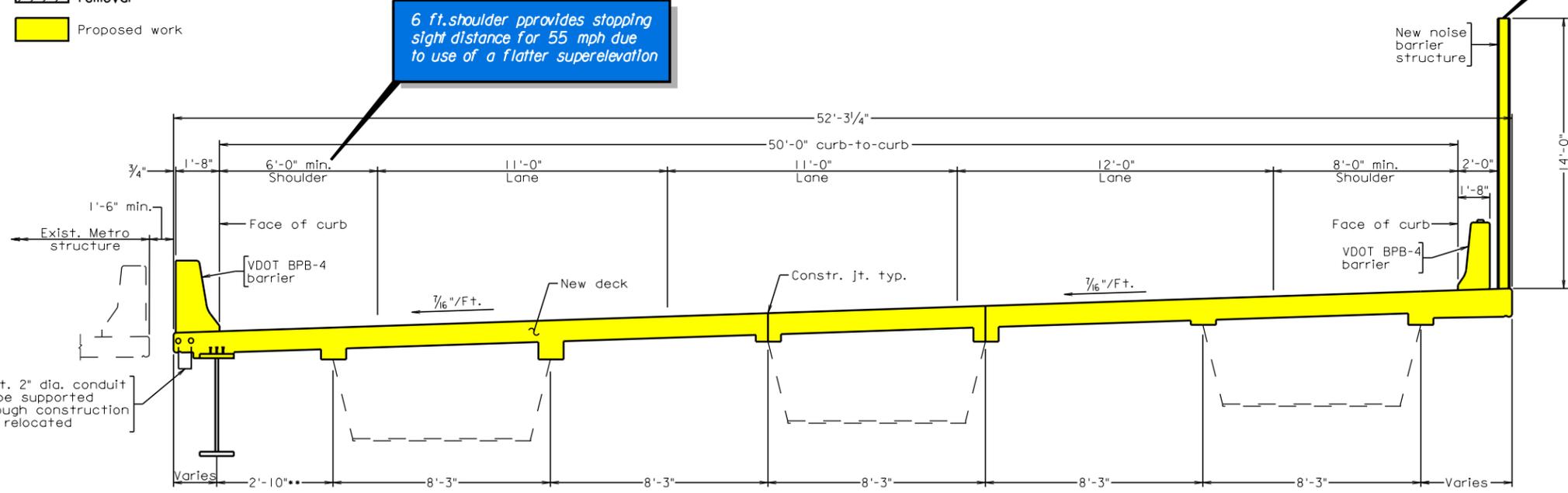


EXISTING TRANSVERSE SECTION
 B679

LEGEND:
 Existing structure removal
 Proposed work

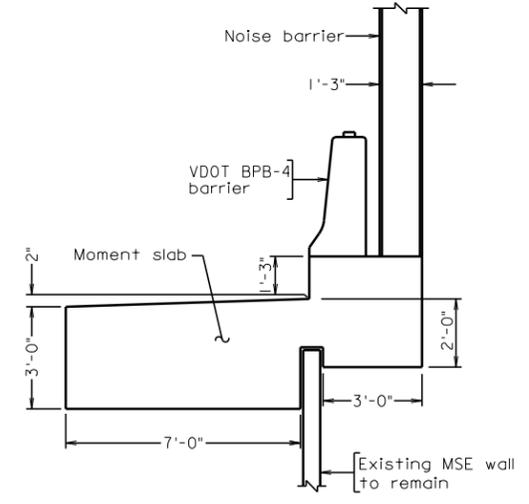
6 ft. shoulder provides stopping sight distance for 55 mph due to use of a flatter superelevation

New noise barrier will be mounted outside of TL-5 traffic barrier per VDOT standards to improve safety



FINAL TRANSVERSE SECTION
 B679

•• Dimensions per contractor's design



MOMENT SLAB DETAIL

PRELIMINARY PLANS
 THESE PLANS NOT TO BE USED
 FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

* New diaphragms are required and shall be concentric with the existing diaphragms in the adjacent bay unless not feasible.

PRELIMINARY
 NOT TO SCALE

\$REF006

\$C015

DESIGN EXCEPTION(S):

None

GENERAL NOTES:

Width: 10'-0" Face to face curbs.

Span layout: 49'-0" - 69'-0" - 63'-3/2" - 74'-8/2" - 46'-0" - 49'-0" continuous wide flange and plate.

Capacity: Live load of 60 lbs./sq. ft. and 5 ton maintenance vehicle.

Specifications:

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

Design Substructure: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014 and VDOT modifications.

Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.

Bridge No. of existing bridge is 5049 Plan No. is 255-56.

Existing structural steel including beams/plate girders, diaphragms and diaphragm connections, stiffeners, and bearing assemblies are A588 and are unpainted.

All structural steel for strengthening, except in bearings and sole plates shall be ASTM A709 Grade 50W and shall be unpainted except as required by section 407 of Specifications. Structural steel in bearing and sole plates shall be ASTM 709 Grade 36, shall be painted brown and shall match existing color.

If crane or other equipment is to be used within the WMATA Zone of Influence (ZOI), impact analysis shall be performed by the contractor to verify there is no impact on existing WMATA structure.

Existing superstructure shall be evaluated in its entirety and may have to be strengthened due to the removal/replacement of existing Pier 3.

This plan set is prepared based on the information shown on the as-built plans of existing bridge. All dimensions affected by the geometrics and/or location of existing structure shall be checked in field by the contractor before commencement of construction work. Any +/- marks shown with dimensions and stations does not indicate any degree of precision. These +/- marks indicate existing dimensions and stations that may vary and do require field verification by the contractor.

All new deep foundations will be drilled to minimize noise, vibrations and work zone footprint.



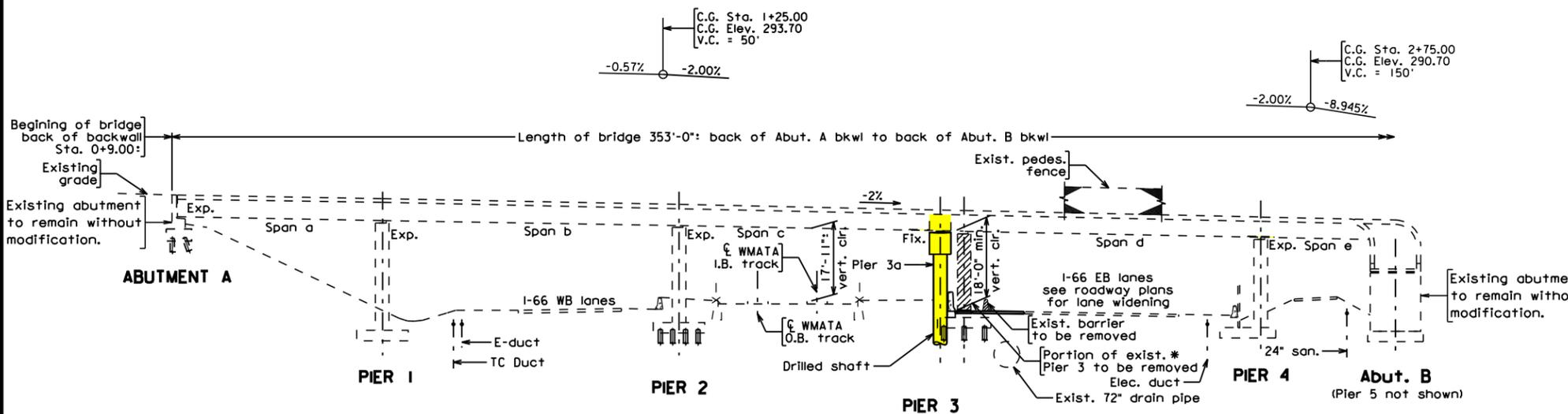
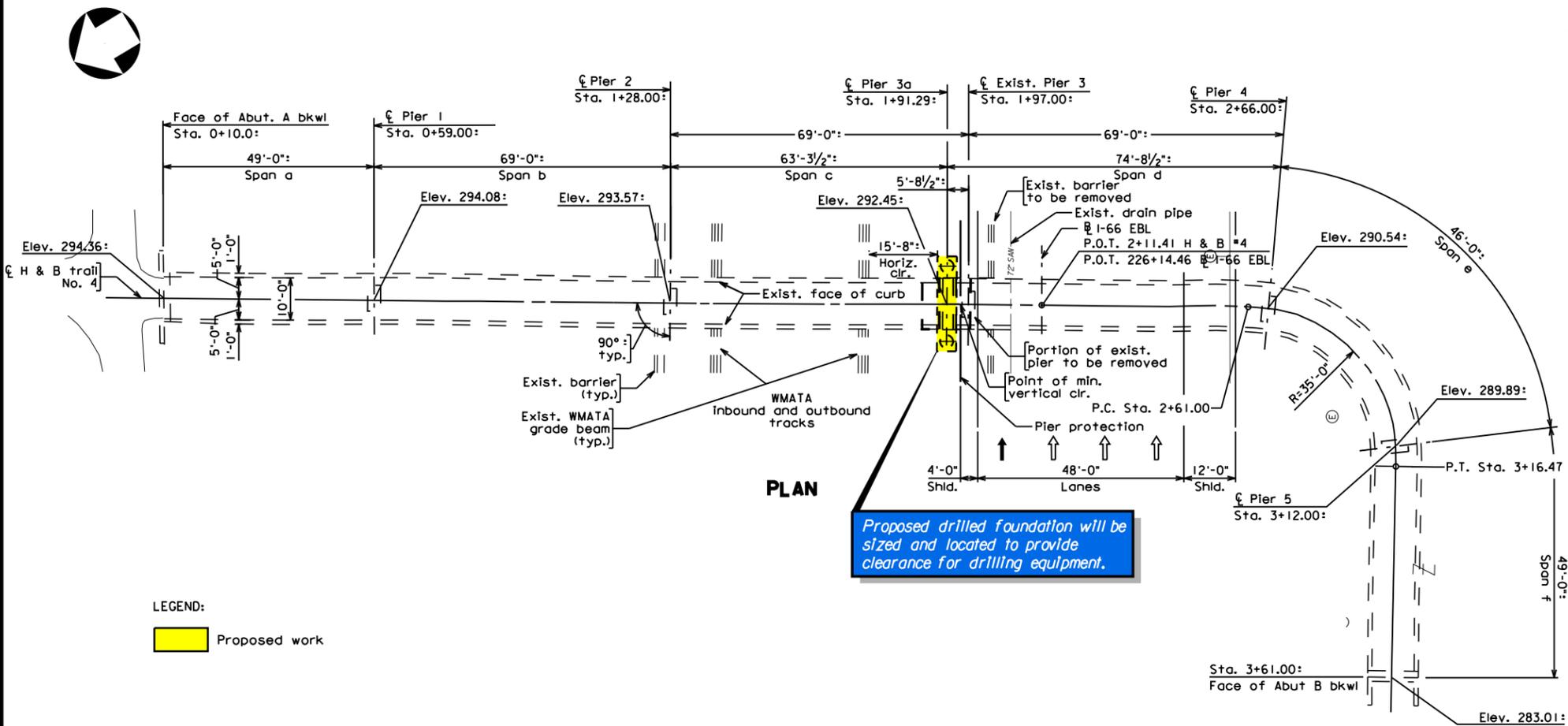
**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION**

**PROPOSED PIER RELOCATION
HIKING & BIKING TRAIL (NO. 4) OVER I-66
0.9 MI. EAST OF PATRICK HENRY DR.
ARLINGTON COUNTY
PROJECT 0066-096-417, B681
255-56A**

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

CONCEPTUAL PLANS

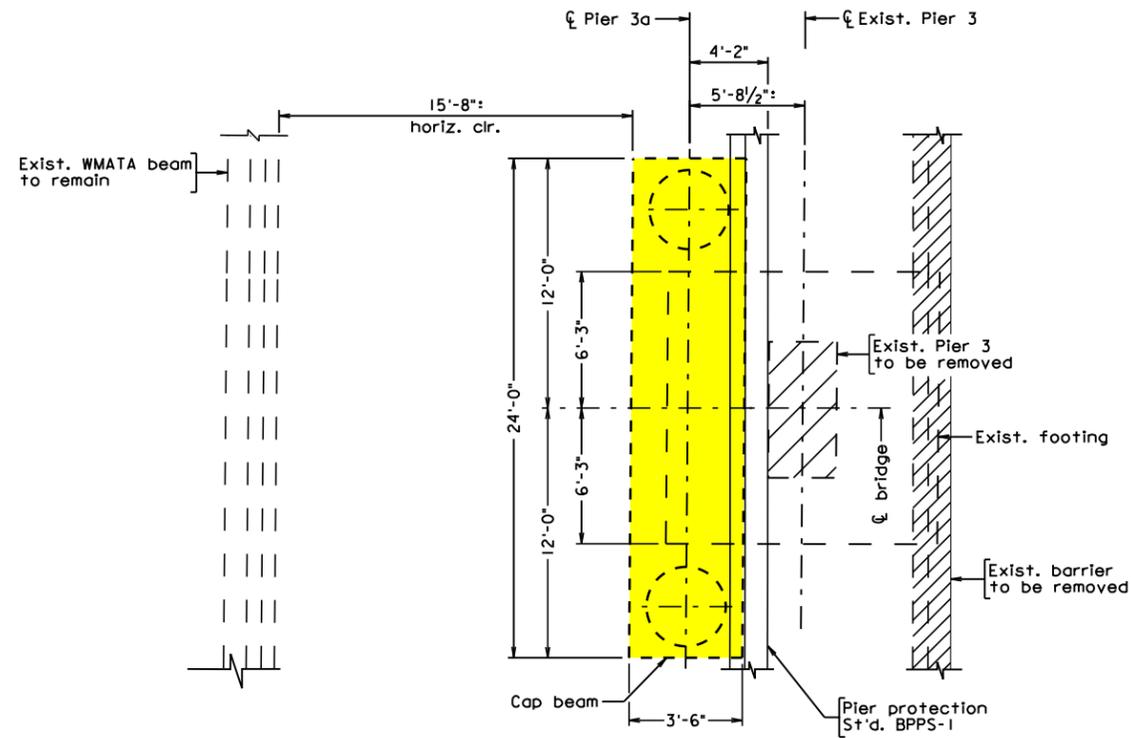
PRELIMINARY
NOT TO SCALE



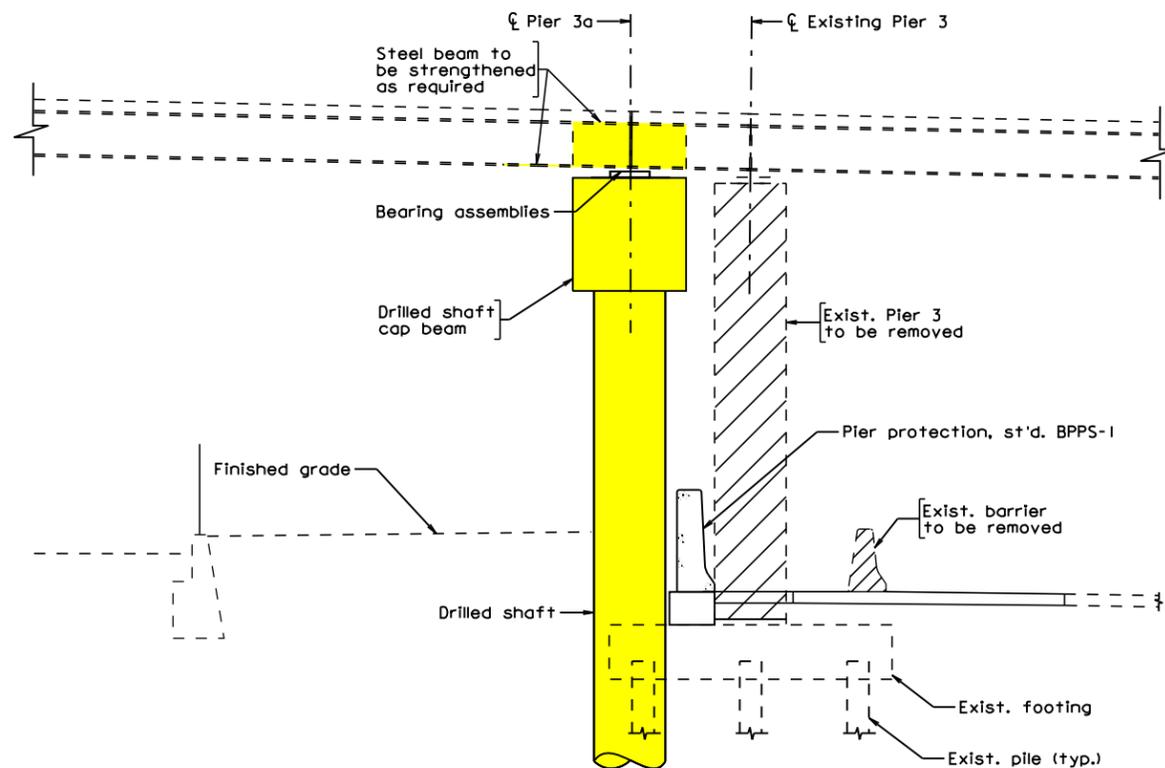
LEGEND:
Proposed work

Proposed drilled foundation will be sized and located to provide clearance for drilling equipment.

* For pier relocation details see sheet 6B



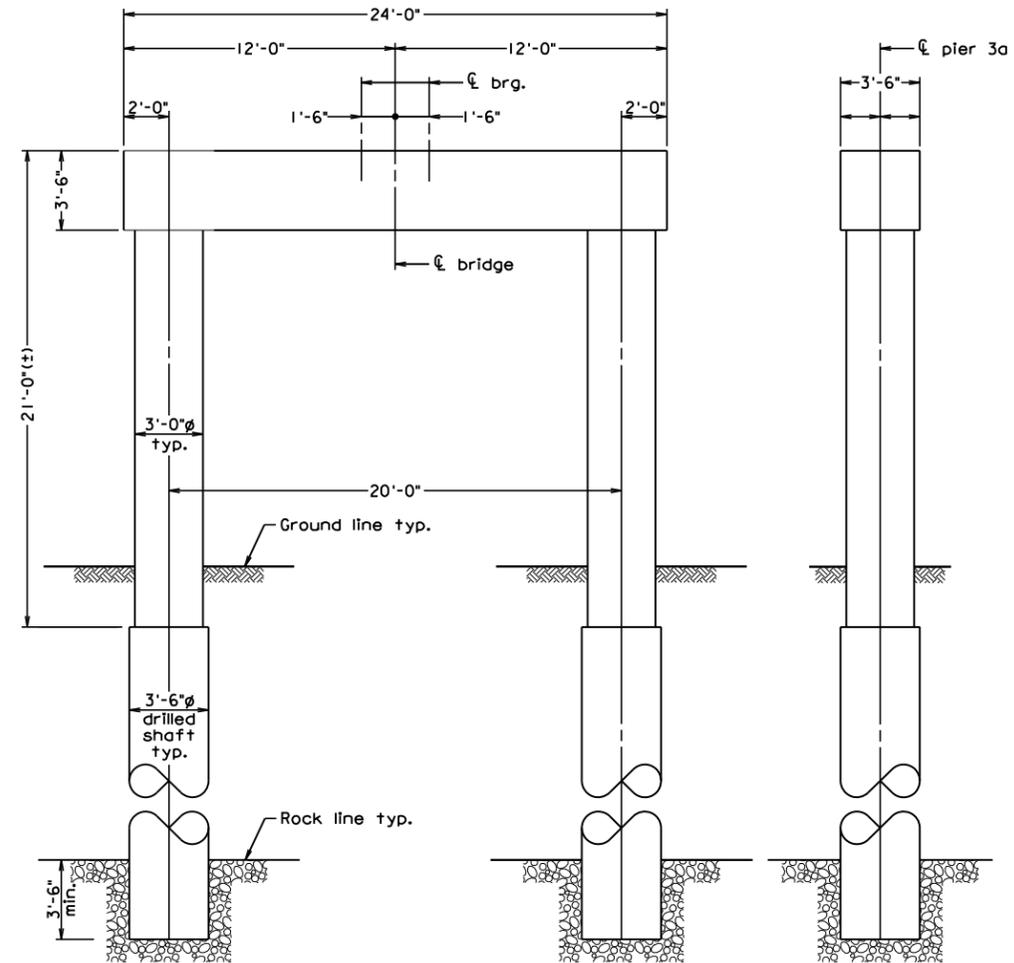
PLAN B681



ELEVATION B681

LEGEND:

- Proposed work
- Existing structure to be removed



ELEVATION PIER 3a

END VIEW

All new deep foundations will be drilled to minimize noise, vibrations and work zone footprint.

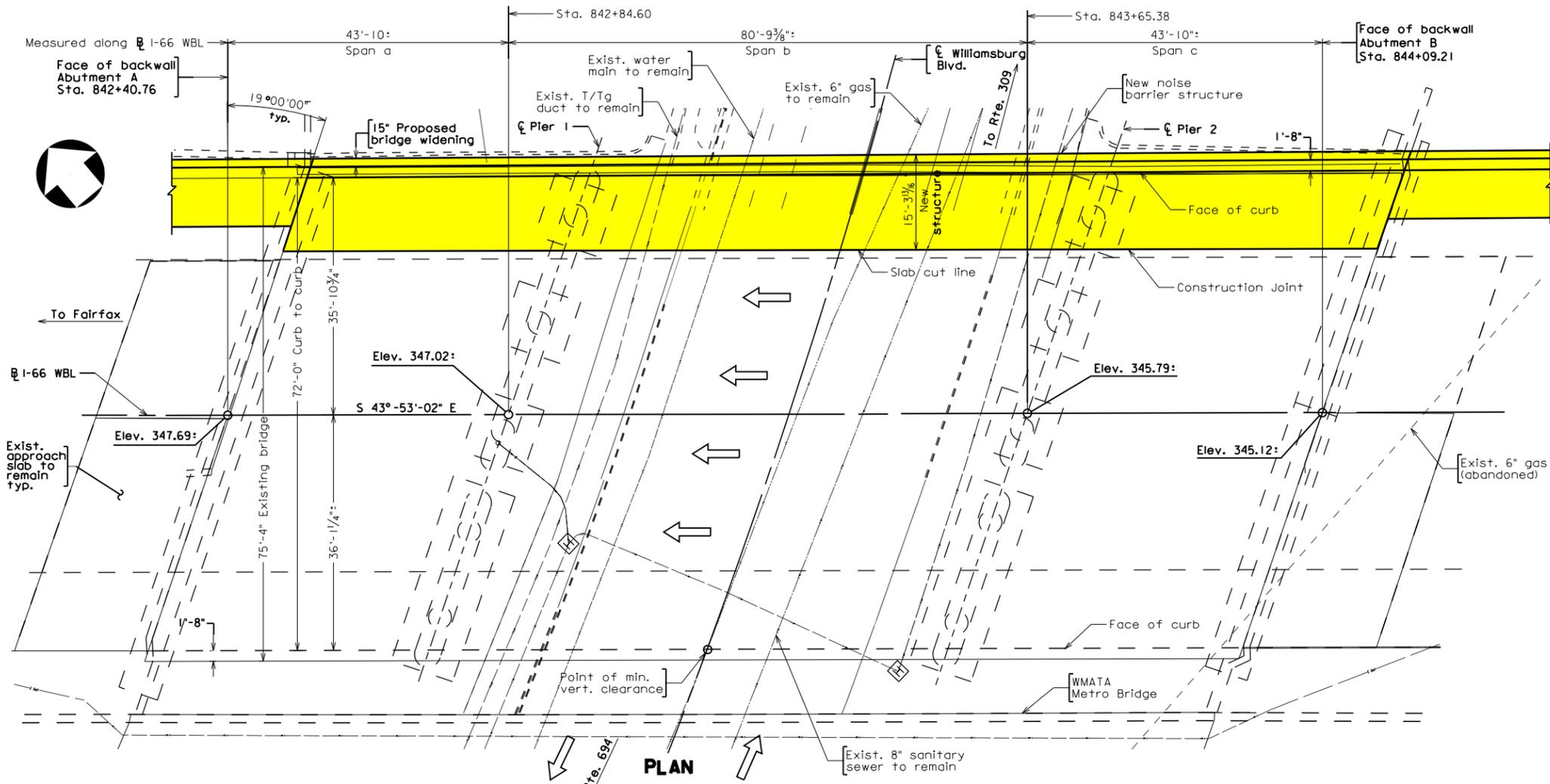
**PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE**

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

#REF006

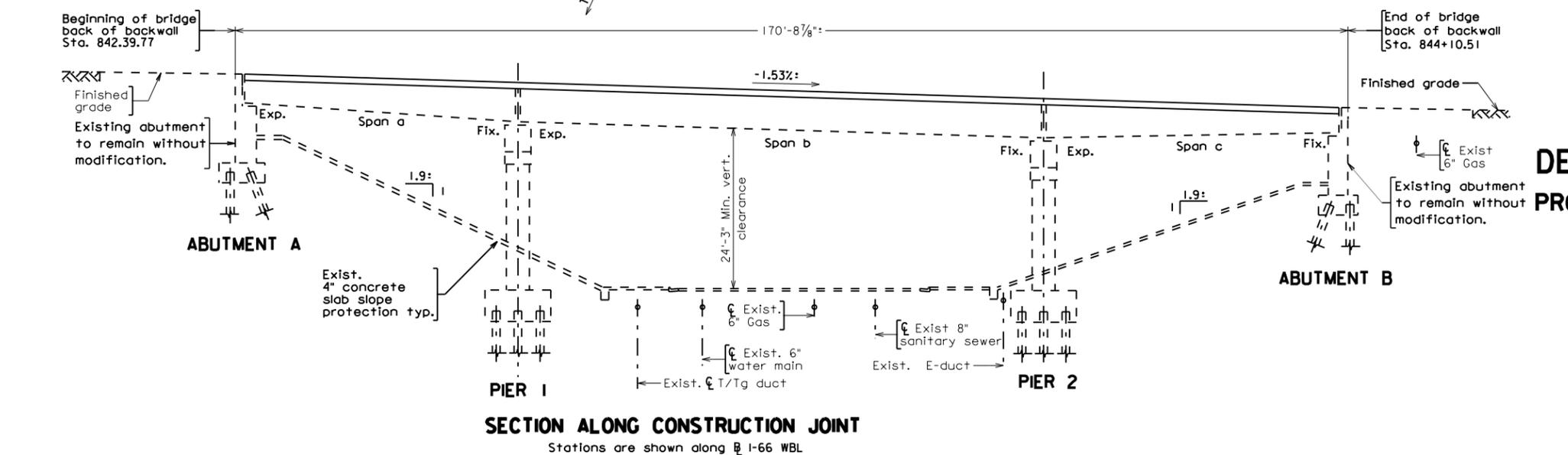
#0015



DESIGN EXCEPTION(S):
None

GENERAL NOTES:
For general notes, see sheet S12.

LEGEND:
 Proposed work



SECTION ALONG CONSTRUCTION JOINT
Stations are shown along I-66 WBL

VDOT

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

PROPOSED SOUND BARRIER REPLACEMENT ON
I-66 WBL OVER WILLIAMSBURG BLVD.
ARLINGTON CO. 0.60 MI. EAST RTE. 694
PROJECT 0066-096A-417, B682
188-09E

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

DESIGN BUILDER
WAGMAN
General Construction | Heavy Civil | Geotechnical

DESIGNED BY
JMT. VOLKERT

STATE PROJECT
0066-96A-417, P101, R201, C501
B675, B677, B678, B679, B680, B681,
B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-66 INSIDE THE BELTWAY
EASTBOUND WIDENING

SHEET NO.
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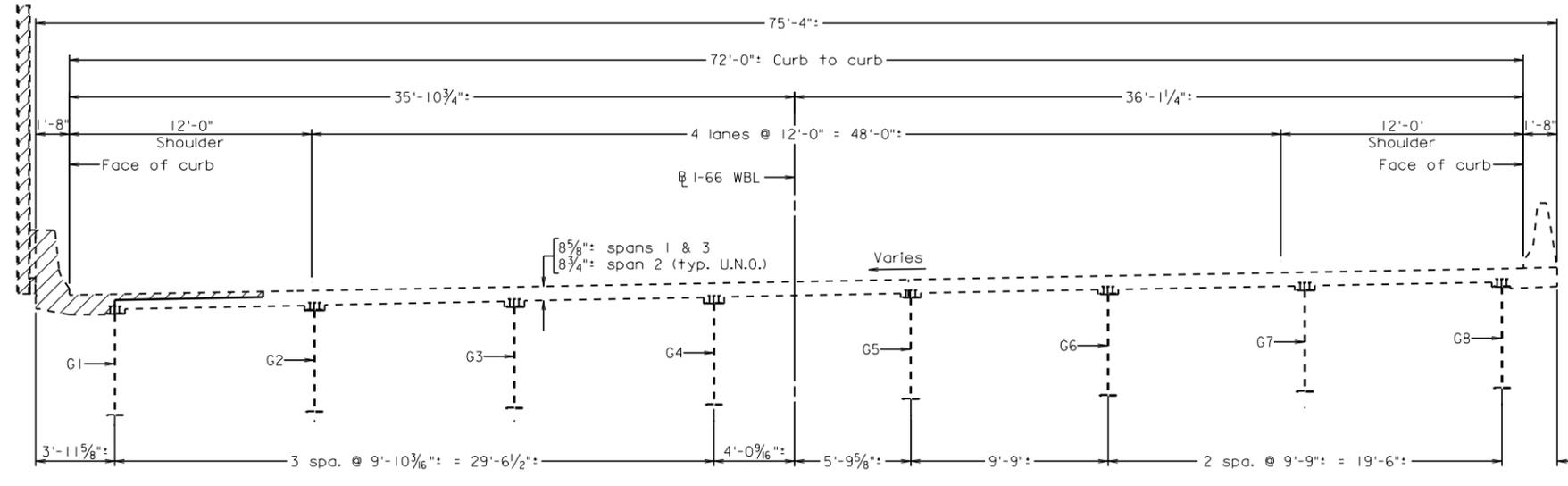
\$REF006

\$C015

GENERAL NOTES:

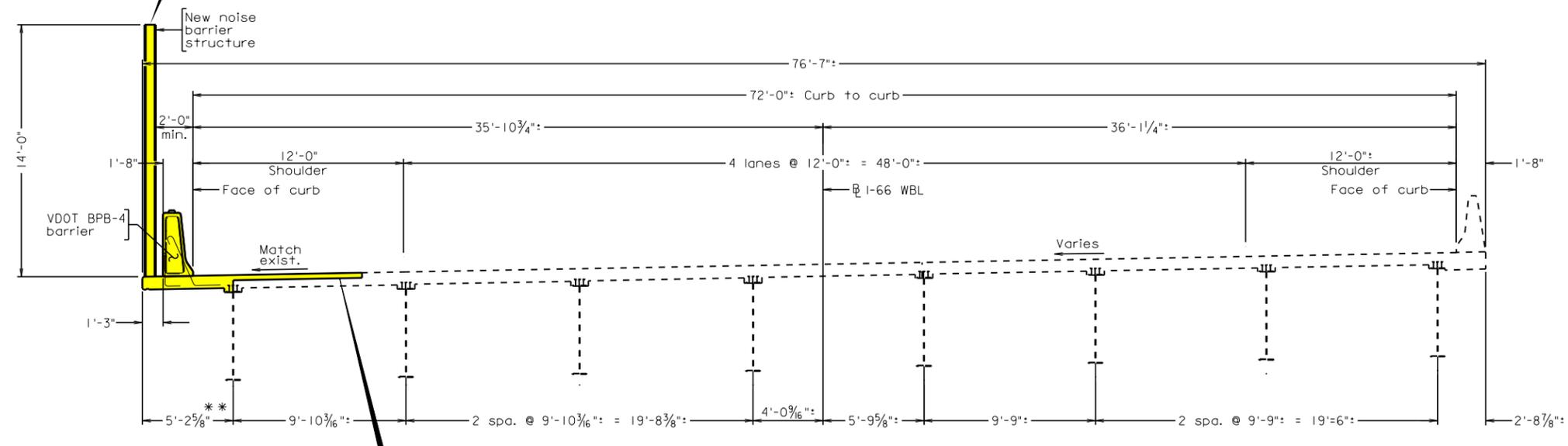
Width: 72'-0" Face to face of curbs, includes 1'-3" widening right side of traffic.
Span layout: 43'-10" - 80'-9³/₈" - 43'-10" simple steel plate girder spans.
Capacity: HL-93 Loading

Specifications:
Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014 and VDOT Modifications.
Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.
Bridge No. of existing bridge is 2070 Plan No. is 188-09B.
The existing structure is designated a Type B structure in accordance with Sec. 411. Only existing soundwall contains lead.
If crane or other equipment is to be used within the WMATA Zone of Influence (ZOI), impact analysis shall be performed by the contractor to verify there is no impact on existing WMATA structure.
This plan set is prepared based on the information shown on the as-built plans of existing bridge. All dimensions affected by the geometrics and/or location of existing structure shall be checked in field by the contractor before commencement of construction work. Any +/- marks shown with dimensions and stations does not indicate any degree of precision. These +/- marks indicate existing dimensions and stations that may vary and do require field verification by the contractor.



EXISTING TRANSVERSE SECTION
B682

New noise barrier will be mounted outside of TL-5 traffic barrier per VDOT standards to improve safety



FINAL TRANSVERSE SECTION
B682

** = Denotes dimension per contractor's design

Hydro demolition and deep overlay to allow for the installation of the additional top reinforcing steel required for the parapet and noise barrier. This method eliminates the need for full depth removal and associated deck forms and reduces material costs, duration, vibration and construction noise.

LEGEND:
Existing structure removal
Proposed work

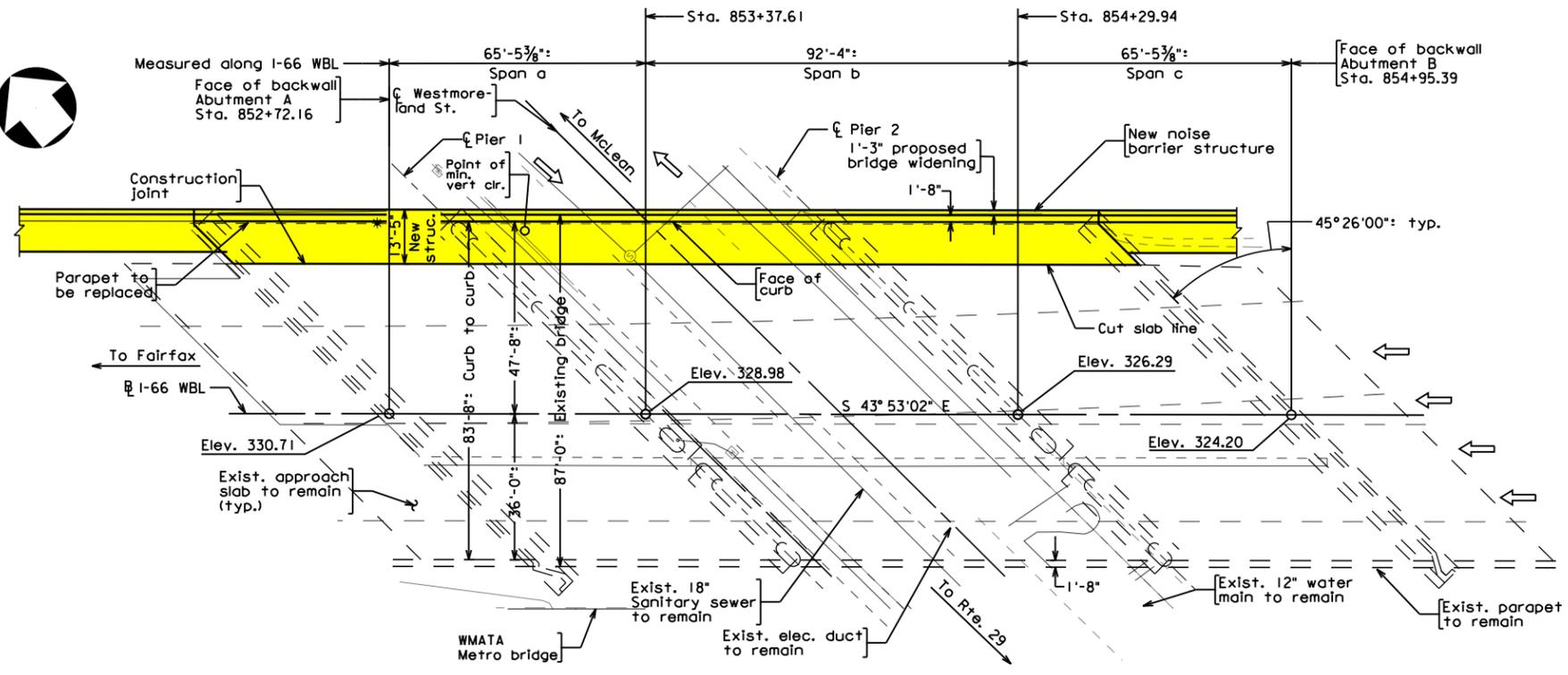
PRELIMINARY PLANS
THESE PLANS NOT TO BE USED FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE

\$REF006

\$C0015



PLAN

DESIGN EXCEPTION(S):

None

GENERAL NOTES:

Width: 83'-8" face to face of curbs. Includes widening of 1'-3" on right side of traffic.
 Span layout: 65'-5 3/8" - 92'-4" - 65'-5 3/8" simple steel plate girder spans.
 Capacity: HL-93 Loading

Specifications:

Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
 Design Widening: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014 and VDOT Modifications.
 Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.

Bridge No. of existing bridge is 2066 Plan No. is 188-11C.

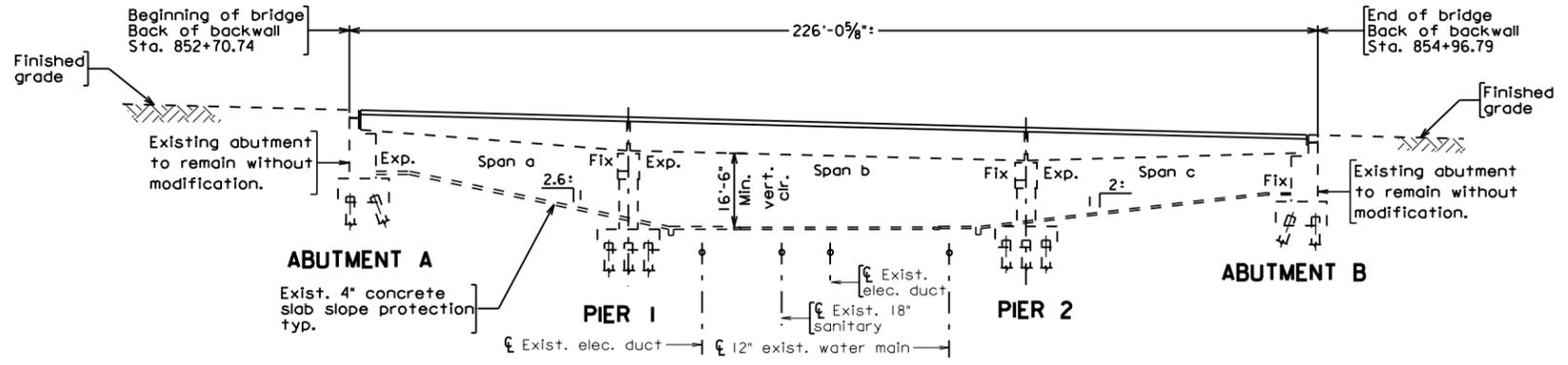
The existing structure is designated a Type B structure in accordance with Sec. 411. Only existing soundwall contains lead.

If crane or other equipment is to be used within the WMATA Zone of Influence (ZOI), impact analysis shall be performed by the contractor to verify there is no impact on existing WMATA structure.

This plan set is prepared based on the information shown on the as-built plans of existing bridge. All dimensions affected by the geometrics and/or location of existing structure shall be checked in field by the contractor before commencement of construction work. Any +/- marks shown with dimensions and stations does not indicate any degree of precision. These +/- marks indicate existing dimensions and stations that may vary and do require field verification by the contractor.

LEGEND:

Proposed work



SECTION ALONG CONSTRUCTION JOINT

Stations are shown along I-66 WBL



COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED SOUND BARRIER REPLACEMENT ON
I-66 WBL OVER WESTMORELAND ST.
ARLINGTON CO. 0.080 MI. RTE. 694
PROJECT 0066-96A-417, B683
188-11F

PRELIMINARY PLANS
 THESE PLANS NOT TO BE USED
 FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
 NOT TO SCALE



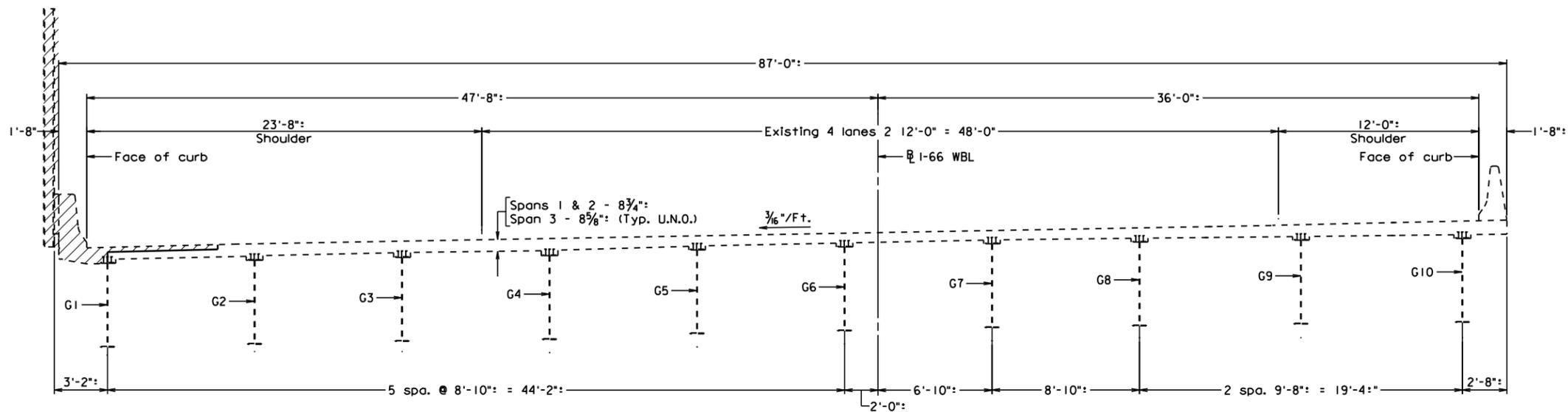
DESIGNED BY
 STATE PROJECT
 0066-96A-417, P101, R201, C501
 B675, B677, B678, B679, B680, B681,
 B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
I-66 INSIDE THE BELTWAY
EASTBOUND WIDENING

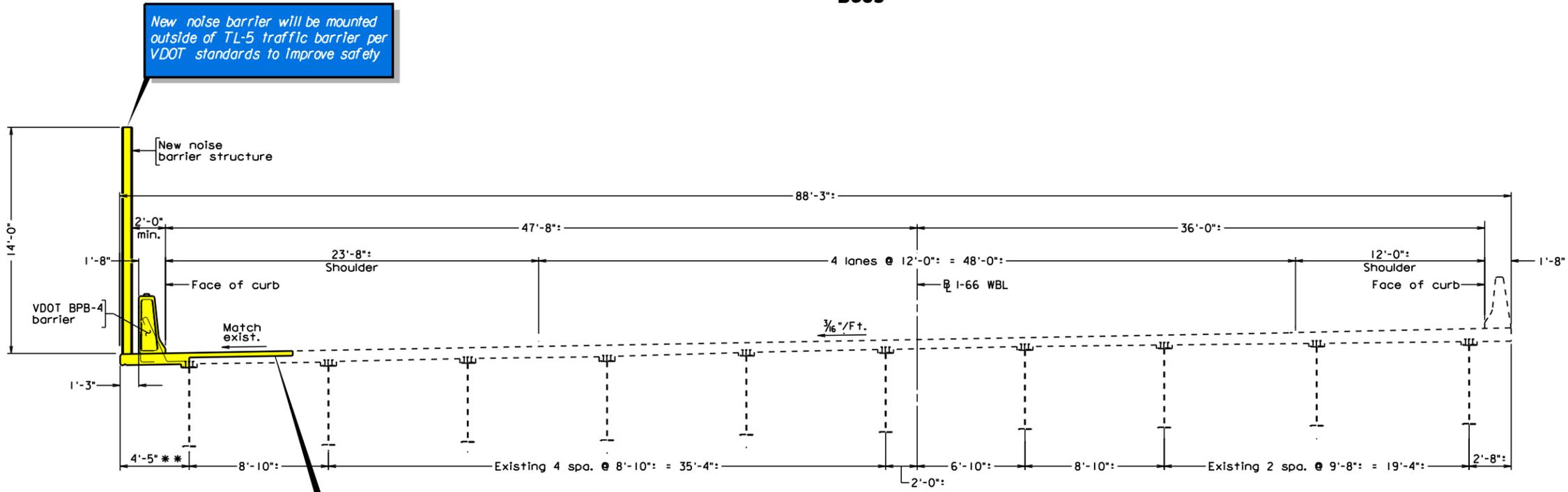
SHEET NO.
S-13
 PAGE NO.
Vol II-42

#REF006

\$DWS



**EXISTING TRANSVERSE SECTION
 B683**



**FINAL TRANSVERSE SECTION
 B683**

New noise barrier will be mounted outside of TL-5 traffic barrier per VDOT standards to improve safety

Hydro demolition and deep overlay to allow for the installation of the additional top reinforcing steel required for the parapet and noise barrier. This method eliminates the need for full depth removal and associated deck forms and reduces material costs, duration, vibration and construction noise.

** = Dimensions per contractor's design

LEGEND:
 Existing structure removal
 Proposed work

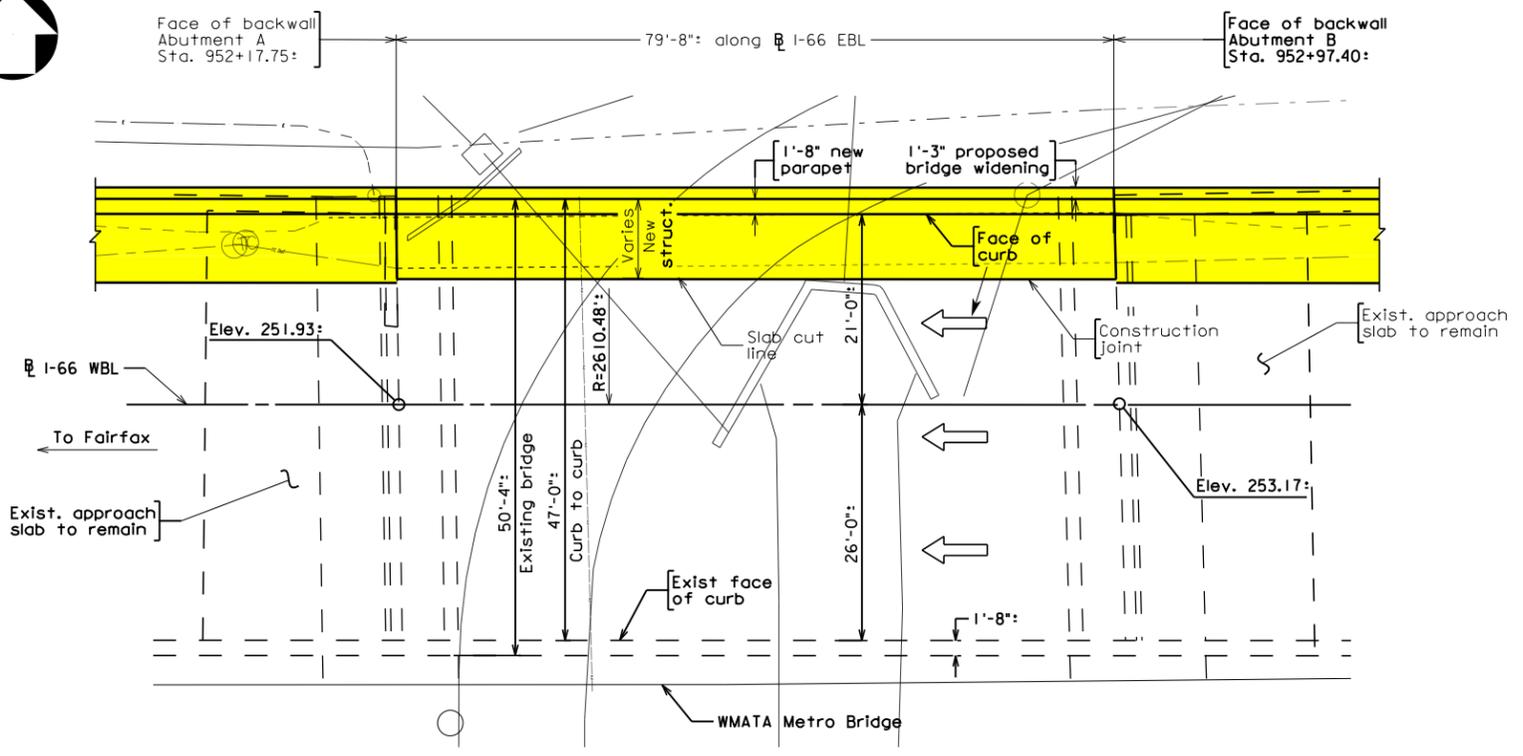
**PRELIMINARY PLANS
 THESE PLANS NOT TO BE USED
 FOR CONSTRUCTION OF BRIDGE**

CONCEPTUAL PLANS

PRELIMINARY
 NOT TO SCALE

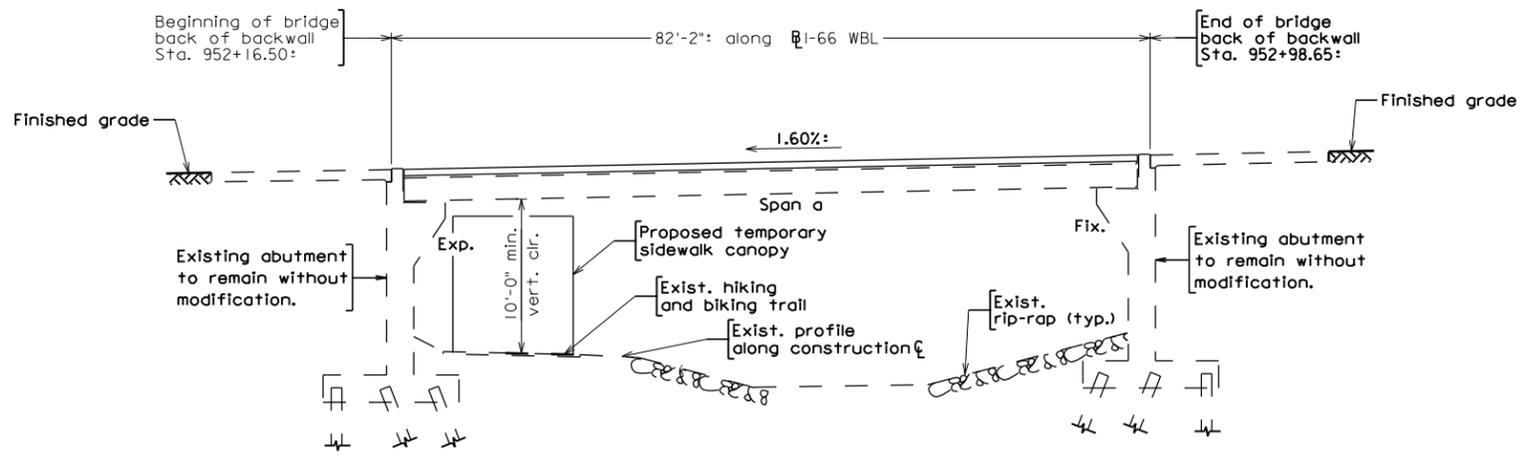
#REF006

#C015



PLAN

LEGEND:
 Proposed work



ABUTMENT A

ABUTMENT B

DEVELOPED SECTION ALONG CONSTRUCTION JOINT

Stations are shown along I-66 WBL

GENERAL NOTES:

Width: 47'-0" face-to-face of curb. Includes widening of 1'-3" on right side of traffic.
 Span layout: 79'-8" steel box girders and 80' steel rolled beam.
 Capacity: HS20-44 loading and Modified Military Loading.

Drainage area: XXX sq. mi.
 Specifications:

- Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
- Design: AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; and VDOT Modifications.
- Standards: Virginia Department of Transportation Road and Bridge Standards, 2016.

Bridge No. of existing bridge is 2075. Plan No. is 255-20A.

This plan set is prepared based on the information shown as the as-built plans of existing bridge. All dimension affected by the geometrics and/or location of existing structure shall be checked in field by the contractor before commencement of construction work. Any : marks shown with dimensions and stations does not indicate any degree of precision. These : marks indicate existing dimensions and stations that may vary and do require field verification by the contractor.



COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSED SOUND BARRIER ON
I-66 WBL OVER BON AIR PARK
ARLINGTON CO. 0.17 MI. E OF PATRICK HENRY DRIVE
PROJECT 0066-096A-417, B684
255-20C

PRELIMINARY PLANS
 THESE PLANS NOT TO BE USED
 FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

PRELIMINARY
 NOT TO SCALE



STATE PROJECT
 0066-96A-417, P101, R201, C501
 B675, B677, B678, B679, B680, B681,
 B682, B683, B684

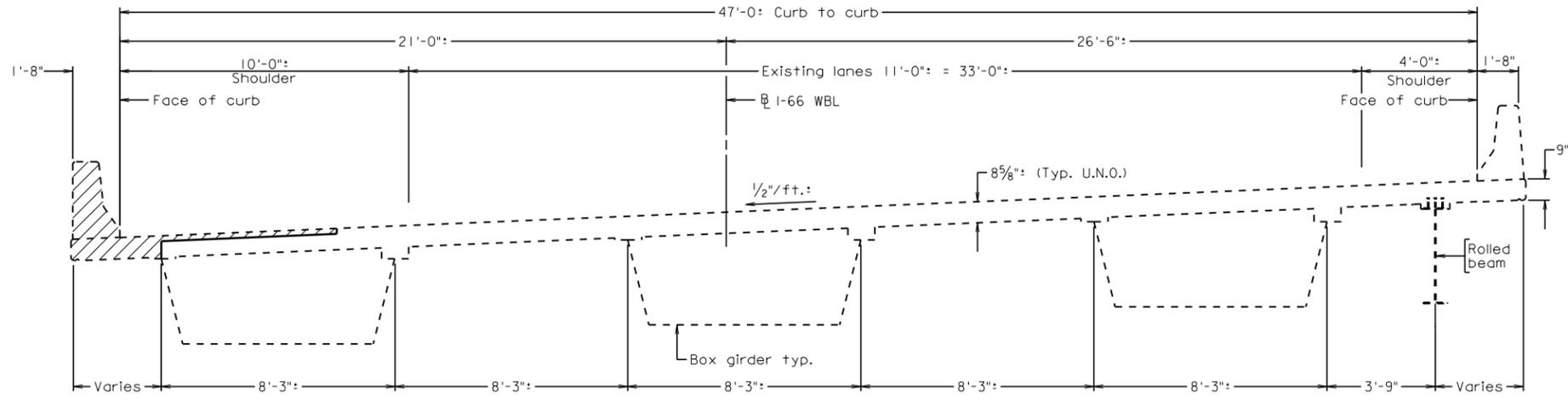
VIRGINIA DEPARTMENT OF TRANSPORTATION
I-66 INSIDE THE BELTWAY
EASTBOUND WIDENING

SHEET NO.
S-15

PAGE NO.
Vol II-44

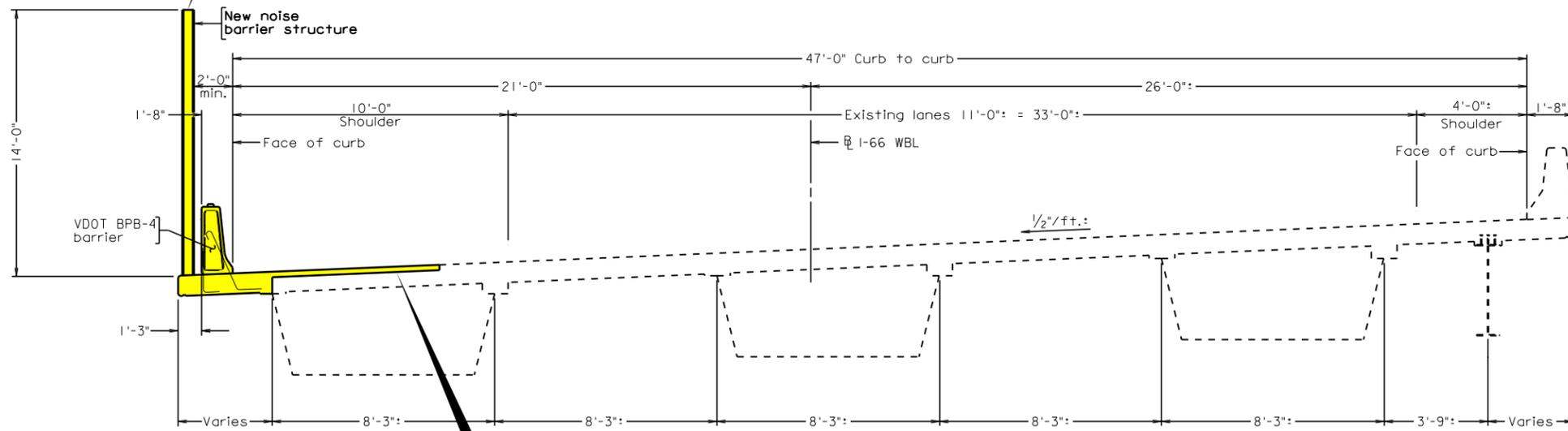
\$REF006

\$C015



EXISTING TRANSVERSE SECTION
B684

New noise barrier will be mounted outside of TL-5 traffic barrier per VDOT standards to improve safety



FINAL TRANSVERSE SECTION
B684

Hydro demolition and deep overlay to allow for the installation of the additional top reinforcing steel required for the parapet and noise barrier. This method eliminates the need for full depth removal and associated deck forms and reduces material costs, duration, vibration and construction noise.

- LEGEND:
- Existing structure removal
 - Proposed work

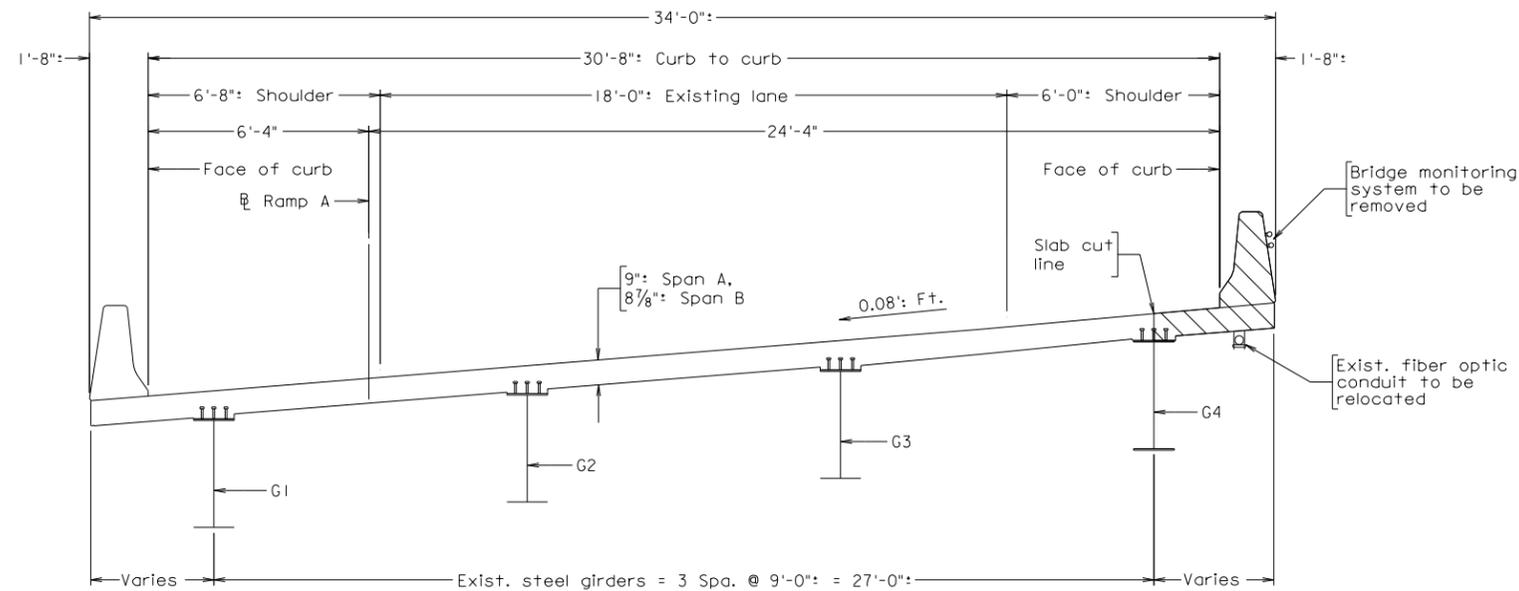
PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE

CONCEPTUAL PLANS

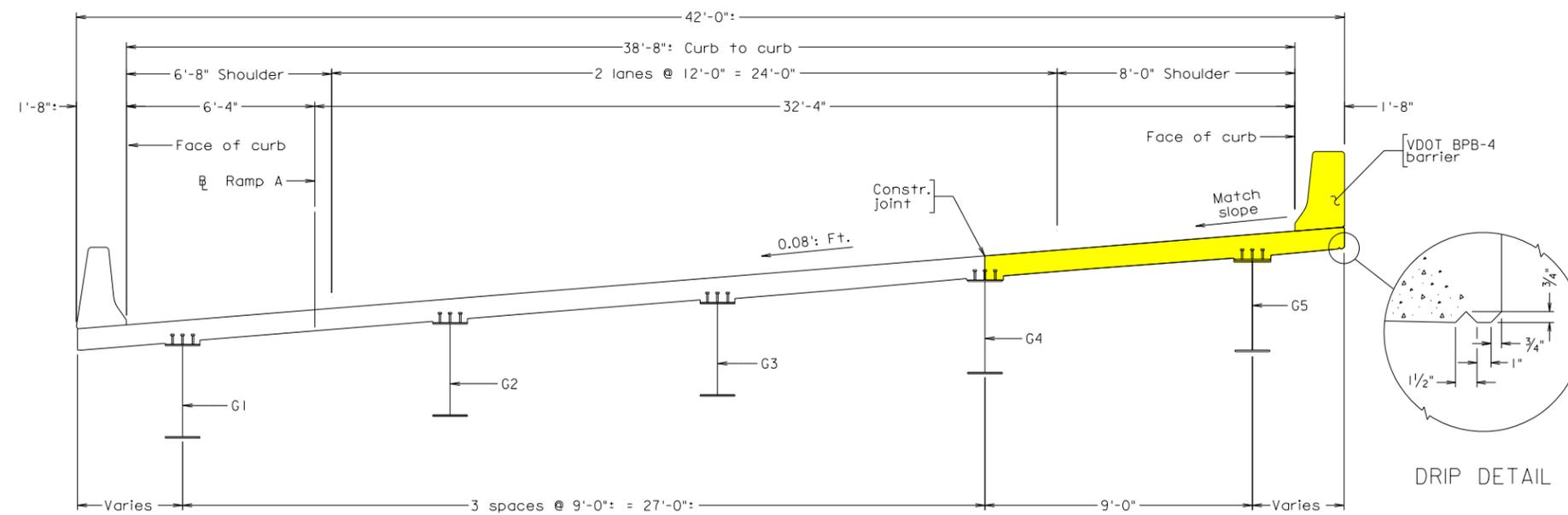
PRELIMINARY
NOT TO SCALE

#REF006

\$C015



EXISTING TRANSVERSE SECTION
B686



FINAL TRANSVERSE SECTION
B686

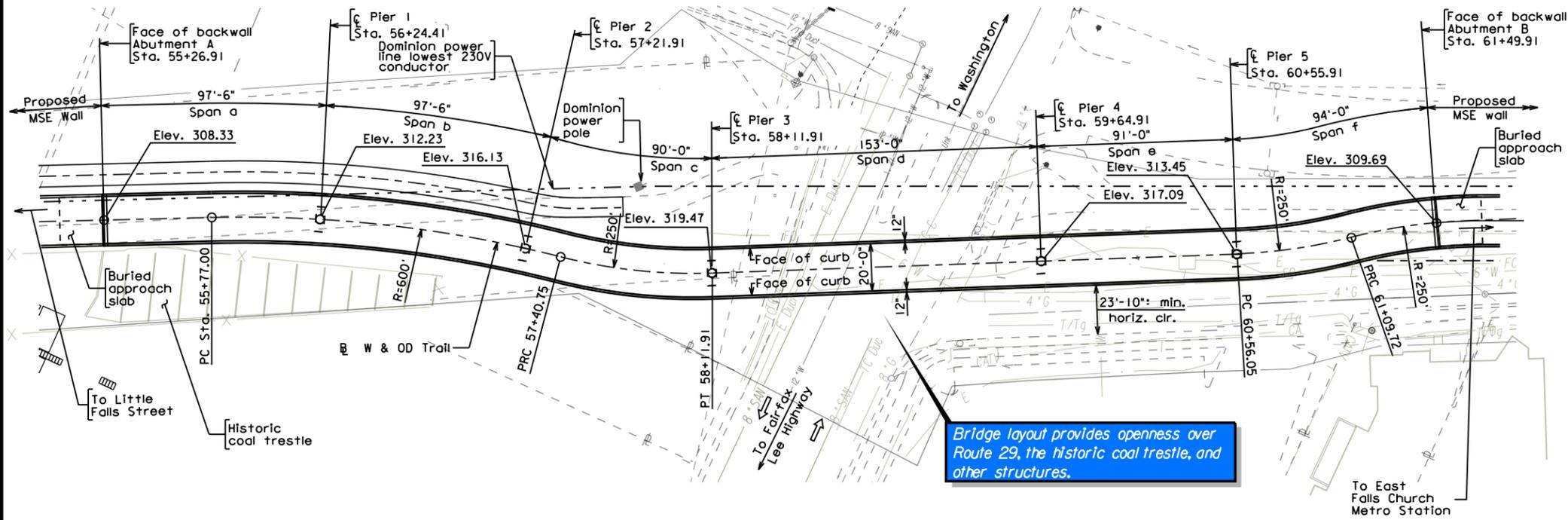
LEGEND:

- Existing structure removal
- Proposed work

PRELIMINARY PLANS
THESE PLANS NOT TO BE USED
FOR CONSTRUCTION OF BRIDGE

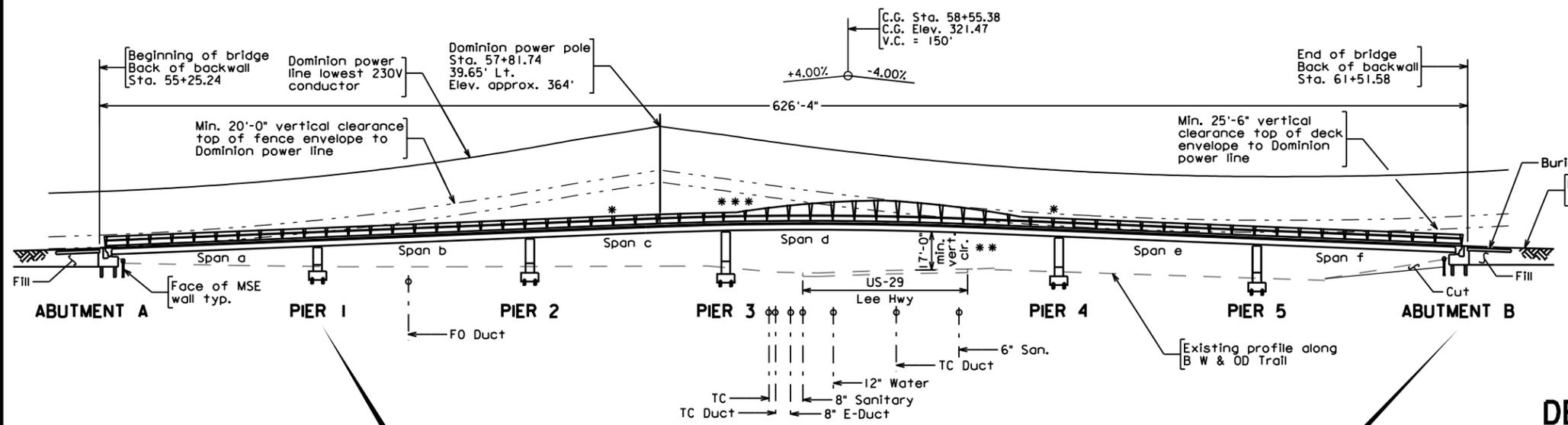
CONCEPTUAL PLANS

PRELIMINARY
NOT TO SCALE



PLAN

Bridge layout provides openness over Route 29, the historic coal trestle, and other structures.



All new deep foundations will be drilled to minimize noise, vibrations, and work zone foot print.

Virginia abutments will be used to meet VDOT jointless bridge criteria.

DEVELOPED SECTION ALONG W & OD TRAIL

DESIGN EXCEPTION(S):

None.

GENERAL NOTES:

- Width: 20'-0" face-to-face of curbs.
- Span layout: 97'-6" - 97'-6" - 90'-0" - 153'-0" - 91'-0" - 94'-0" continuous structural steel plate girder spans.
- Capacity: 90 psf pedestrian loading with no reduction allowed. H10 loading.
- Specifications:
 - Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
 - Design: AASHTO LRFD Guide Specifications for Design of Pedestrian Bridges, 2nd Edition, 2009 including interims through 2015; and VDOT Modifications, AASHTO LRFD Bridge Design Specifications, 7th Edition, 2014; and VDOT Modifications.
 - Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.
- These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.
- All structural steel, except in bearings and sole plates, shall be ASTM A709 Grade 50. Structural steel in bearings and sole plates shall be ASTM A709 Grade 36.
- Finish paint color for structural steel shall be grey. Approval of the color shall be made by the VDOT Project Manager.
- Finish color for concrete shall be grey. Approval of the color shall be made by the VDOT Project Manager.
- Lightweight concrete shall be used for deck and curbs.
- Lighting on the structure shall be provided as per RFP Part 2 technical requirements and special provisions.
- For additional information refer to RFP, public hearing and design charrette documents.
- Type and location of the utilities shall be verified by the design-builder.
- * V-shaped fence and railing posts are required.
- ** Min. vertical clearance of 17'-6" is preferred. A design waiver for 17'-0" min. vertical clearance is available if needed.
- *** Transition of top member of fence from fence posts (span d) to railing posts shall be curved.



COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF TRANSPORTATION
 PROPOSED SHARED USE PATH BRIDGE
 W & OD TRAIL OVER LEE HIGHWAY
 ARLINGTON CO. 0.20 MI. E. OF 25TH ST. N.
 PROJECT 0066-096-417, B680

CONCEPTUAL PLANS

PRELIMINARY
Scale: 1/2" = 1'-0"



DESIGNED BY
 STATE PROJECT
 0066-96A-417, P101, R201, C501
 B675, B677, B678, B679, B680, B681,
 B682, B683, B684

VIRGINIA DEPARTMENT OF TRANSPORTATION
 I-66 EASTBOUND WIDENING
 INSIDE THE BELTWAY

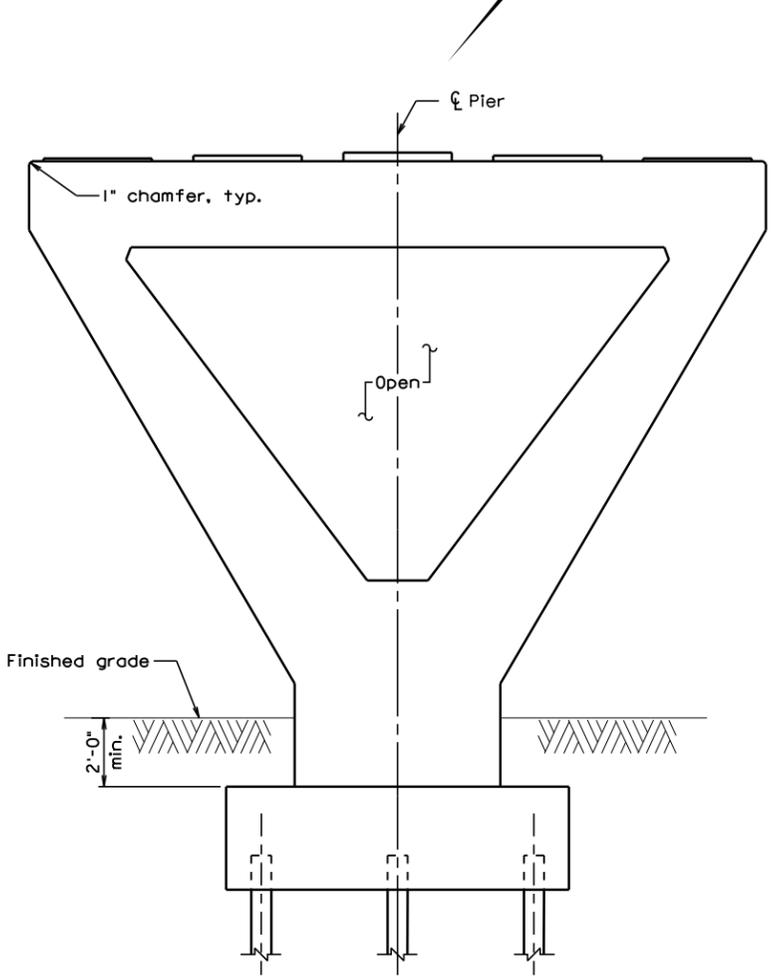
SHEET NO. S-19

PAGE NO. Vol II-48

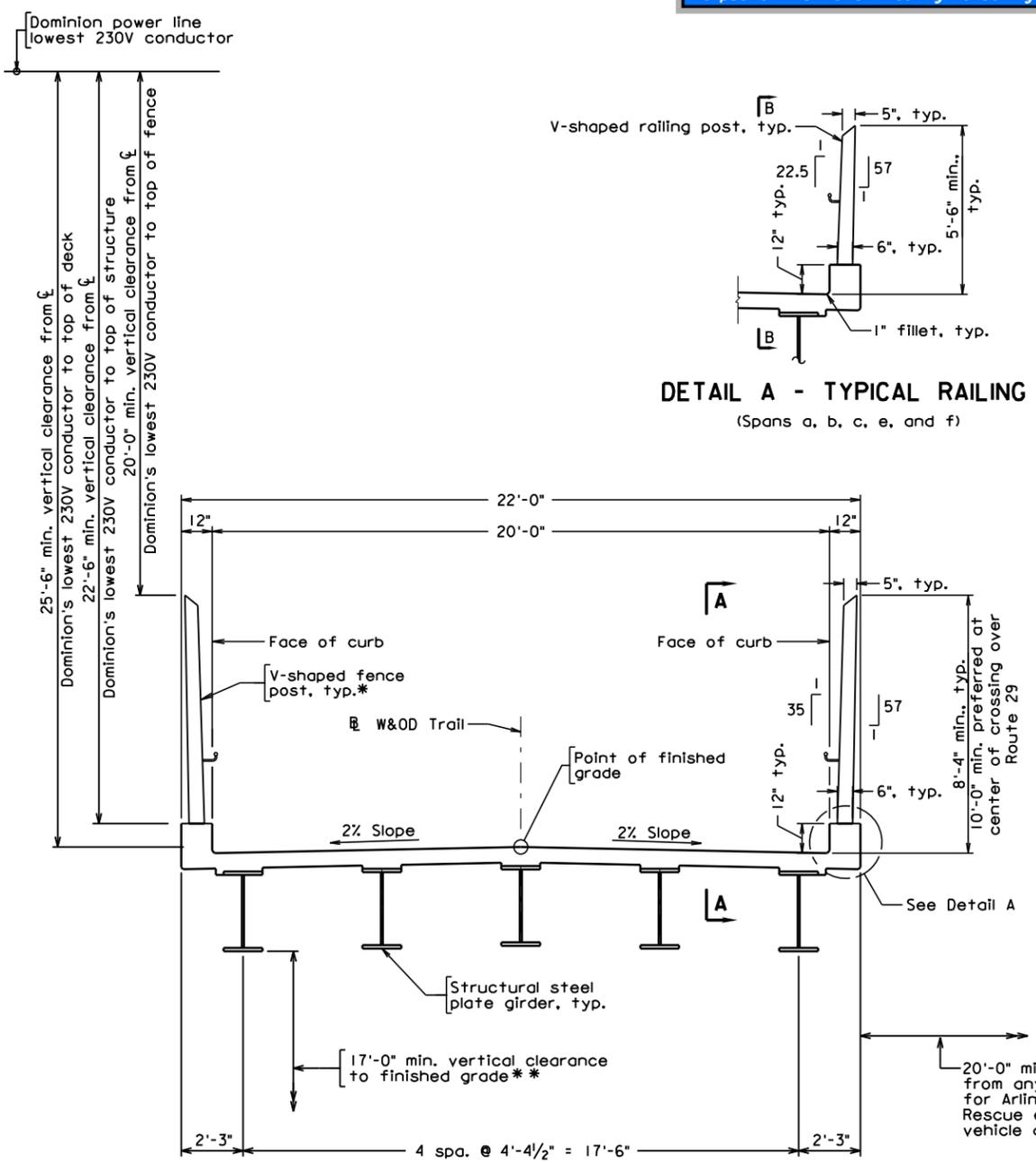
Open V-piers will be used.

Railing and fence will meet RFP Part 2 requirements and will be as shown on the public information meeting renderings.

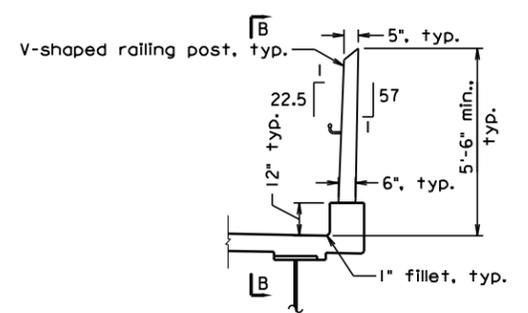
- Notes:
- * Fence with V-shaped fence posts is only required at span d. V-shaped railing post shall be used on all other spans.
 - ** Min. vertical clearance of 17'-6" is preferred. A design waiver for 17'-0" min. vertical clearance is available if needed.
 - *** Fence detail not shown. For additional information refer to the RFP documents.



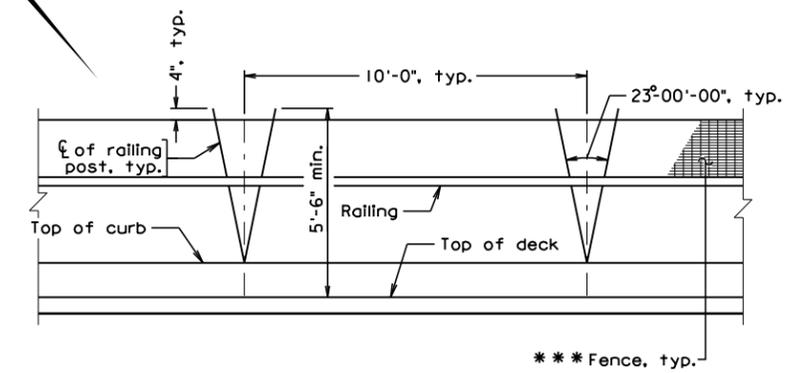
PIER ELEVATION - OPTION A
(Pier is symmetrical about centerline)



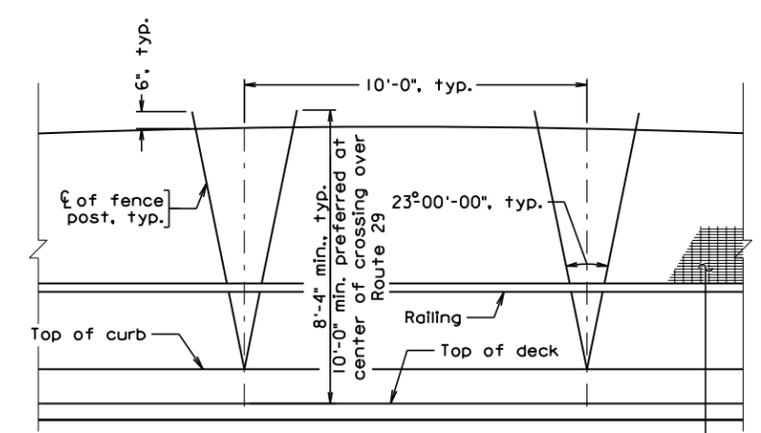
TRANSVERSE SECTION
(Span d)



DETAIL A - TYPICAL RAILING
(Spans a, b, c, e, and f)



SECTION B-B



SECTION A-A

CONCEPTUAL PLANS

PRELIMINARY
Not to scale

\$REF006

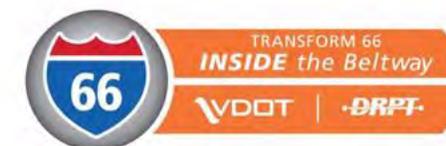
\$DGN\$



General Construction | Heavy Civil | Geotechnical



VOLKERT



Investing in Multimodal Solutions

Volume II Conceptual Plans

September 2017

State Project No. 0066-96A-417, P101, R201, C501 | FHWA Project No. NHPP-066-1(365)

Contract ID No. C00108424DB92