RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

PROPOSAL DOCUMENTS
CONTRACT AND CONTRACT BOND
SUPPLEMENTAL SPECIFICATIONS
SPECIAL PROVISIONS
REPAIR PLANS
RECORD PLANS

HNTB Corporation

February 2018

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

TABLE OF CONTENTS

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

INSTRUCTIONS TO BIDDERS

1. FORM OF BID: Submit bid, on forms furnished by the Authority, without alterations in the form. When completing bid, please notice the unit (Lump Sum, Each, Square Foot, etc…) of the individual line item and enter unit and total bid item prices accordingly.

   If applicable, Contractor shall replace any original bid tab sheets with replacement bid tab sheets issued through an Addendum.

   a. Required Forms: The following list of required forms to be included in bid is provided for Contractors reference only:
      i. Bid (see below)
      ii. Non-Collusion Affidavit
      iii. Statement of Contracts Underway
      iv. Joint Venture Statement (if applicable)
      v. Bidder or Subcontractor Shotcrete Experience
      vi. Bidder or Subcontractor Steel Repairs Experience
      vii. Bid Bond
      viii. Receipt of Addenda (if applicable)
      ix. Railroad Agreement (Schedule I)

2. SUBMISSION OF BID: Make sure the Authority receives bid prior to time and date listed on the Invitation to Bid. Bidder is responsible for delivery of the bid at or before the time set for opening. Bids received after the time set will be rejected.

If mailing, please write "Attention: RMTA MR – 2018 Contract Bid Opening" on outside of envelope or on mailing label.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

INVITATION TO BID

The Richmond Metropolitan Transportation Authority (RMTA), 901 East Byrd Street, Suite 1120, Richmond, Virginia 23219 until 10:00 a.m. local time, will receive sealed Proposals for the above project **Tuesday, March 20, 2018** at which time and place the bids will be publicly opened and read.

The work under this contract shall be completed no later than March 31, 2019 with the exception of:

- Shotcrete repairs shall be completed no later than November 22, 2018.
- Deck Sealing shall be completed no later than October 25, 2018.

The principal items of work and approximate quantities are as follows:

Item:	Quantity:	Unit:
Repair Asphalt Concrete Pavement Cracks	20,000	L.F
Patching Type B	50	S.Y.
Trim Existing Vegetation	32,000	S.F.
Shotcrete Type A, (Standard)	455	S.F.
Shotcrete Type A, (Elevated)	75	S.F.
Shotcrete Type A, (Over Water)	176	S.F.
Boulevard Bridge Batten Plates and Bolt Replacement	30	EA
Boulevard Bridge Member PP L40, West Truss Gusset Plate Section Loss Retrofit (Unit 11)	1	L.S
Boulevard Bridge Lacing Bar and Bolt Replacement (Multiple Locations)	310	EA
Bridge 5, Pier 5 Web & Bottom Flange Section Loss Retrofit	1	L.S.
On Ramp Rehabilitation	1	L.S
Bridge 8, SB Armor Joint Repair	1	L.S.
Concrete Surface Coating	149,000	S.F
Guardrail GR-2	8,000	L.F

A **mandatory** pre-bid meeting will be held at 901 East Byrd Street, Suite 1120, Richmond, Virginia 23219 at 10:00 a.m. local time, on **Tuesday, February 27, 2018**. A mandatory site visit shall immediately follow the office portion of the pre-bid meeting. Only contractors and qualified subcontractors, who meet the requirements to propose, as stated below, should attend the pre-bid meeting.

Bids for this Contract must be submitted on complete bidding forms bound in the Contract Documents. The successful bidder will be notified in writing.

To submit Proposals for this Contract, contractors or qualified subcontractors shall, on Tuesday, February 27, 2018 at 10:00 a.m. local time, meet the following requirements:

- Be prequalified by the Virginia Department of Transportation for bidding on State projects. The Authority reserves the right to request additional experience information for any bidder that has not been assigned the "**Major Structures**" and/or "**Bridge Repair**" work classes by VDOT or for contractors that have a prequalification level of Conditional, Currently Inactive or Probationary.
- Have prior experience in the jacking and blocking of beams and structural steel repairs. Contractor shall be able to provide written documentation demonstrating the successful completion of at least three bridge superstructure repair projects where one or more steel beams were jacked off the bearing and a portion of the steel beam was replaced with new steel by welding.
- Have prior experience in the repair of bridge substructures using Shotcrete and be able to provide written documentation demonstrating the successful placement of at least three bridge substructure repair projects where the cumulative shotcrete square footage applied was a minimum of 10,000 s.f.

Note that a bidder must have prior experience and be able to provide written documentation in a minimum of one of the three work experience categories as noted above. A bidder cannot have subcontractors be the documented experience in all categories.

Complete Contract documents will be available on Tuesday, February 13, 2018 after 1:00 p.m. (local time) from www.rmtaonline.org or may be purchased for $70.00 per set from the Richmond Metropolitan Transportation Authority at 901 East Byrd Street, Suite 1120, Richmond, Virginia 23219. The documents may also be examined by any party, without purchase, at the Authority's office during normal business hours after such date. Specifications (Virginia Department of Transportation 2016 Road and Bridge Specifications) and (2011 Virginia Work Area Protection Manual, 2015 latest revision) which form an integral part of this Contract, are available from the Virginia Department of Transportation website free of charge.

Unsubmitted Contract documents need not be returned and no refunds will be made for any documents.

Each Bidder submitting a Proposal must also complete a statement bound with the Proposal forms, in which each Bidder shall give full information relating to the status of their contracts presently underway.

Each Proposal must be accompanied by a Proposal Guarantee consisting of either a certified check in the amount of at least five (5) percent of the Total Bid Price, made payable to the Richmond Metropolitan Transportation Authority, or a Proposal Bond (on the form provided) in the amount of five (5) percent of the same Total Bid Price.

The Authority strongly encourages the submission of bids by contractors whose principal businesses are located in the Richmond Metropolitan Area and further strongly encourage such contractors to utilize the services of local subcontractors and vendors.

The Authority strongly encourages minority owned and women owned businesses to submit proposals for this contract.

The Authority reserves the right to reject any and all Proposals submitted, and to waive informalities in bidding, as it may deem in its best interests.

Project related inquiries must be submitted in writing to Mr. Mark Grossenbacher, P.E. at HNTB Corporation at mgrossenbacher@hntb.com or Ms. Theresa Simmons, P.E., RMTA Director of Operations at Theresa.Simmons@rmtaonline.org. The deadline to submit inquiries and questions is Tuesday, March 13, 2018 at 1 P.M. local time.

RICHMOND METROPOLITAN TRANSPORTATIONAUTHORITY
Joi Taylor, CEO
Richmond, Virginia

(Note: Bidders shall not remove this Bidding form from attached documents.)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR – 2018

MISCELLANEOUS REPAIRS

****

BID FOR GENERAL CONSTRUCTION CONTRACT

To the Richmond Metropolitan Transportation Authority
901 East Byrd Street, Suite 1120
Richmond, Virginia 23219

Gentlemen:

I/we, the undersigned, declare: that no other person, firm or corporation is interested in this Bid; that I/we have carefully examined the Plans, Standard Specifications, Supplemental Specifications, and all other documents pertaining to this Contract which form a part of this Bid as if set forth at length herein; that I/we understand that the quantities of items shown herein below are approximate only; that I/we have examined the location of the proposed work; that I/we agree to bind myself/ourselves, upon award to me/us by the Richmond Metropolitan Transportation Authority under this Bid, to enter into and execute a Contract, with necessary surety bond, for the project named above; that I/we agree to start work not later than the date stated in the written Notice to Proceed (Sec. 105.01 of the Specifications), to furnish all necessary materials, provide all necessary labor, equipment, tools and plant, pay for all required insurance, bonds, permits, fees and service, and do all required work in strict compliance with the terms of all documents comprising said Contract, and to fully complete the entire project by December 31, 2017 and that I/we agree to accept as full compensation for the satisfactory prosecution of this project the following named unit and lump sum prices for the various scheduled items of work.

RMTA
MR-2018 Bid Tab

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
1	MOBILIZATION	LS	1			513
2	TRUCK MOUNTED ATTENUATOR	HR	1,250			512
3	PORTABLE CHANGEABLE MESSAGE SIGN	HR	100			512
4	ELECTRONIC ARROW	HR	1,500			512
5	FLAGGER SERVICE	HR	160			512
6	GROUP 2 CHANNELIZING DEVICE	DAY	4,270			512
7	FENCE (FE-CL)	LF	700			ATTD/SP-D
8	FENCE (FE-CL FABRIC ONLY)	LF	700			ATTD/SP-D
9	ASPHALT CONCRETE PATCH	IN * SY	100			ATTD/SP-G
10	REPAIR ASPHALT CONCRETE PAVEMENT CRACKS	LF	20,000			ATTD/SP-T
11	STANDARD 6" CURB CG-2	LF	160			ATTD/SP-M
12	STANDARD 4" CURB CG-3	LF	25			ATTD/SP-M
13	PATCHING TYPE A	SY	20			412
14	PATCHING TYPE B	SY	50			412
15	PATCHING HYDRAULIC CEMENT CONCRETE PAVEMENT	SY	75			ATTD/SP-E
16	HYDRAULIC CEMENT CONCRETE SIDEWALK (4 inch)	SY	153			ATTD/SP-J
17	TRIM EXISTING VEGETATION	SF	32,000			ATTD/SP-C
18	SHOTCRETE, TYPE A (STANDARD)	SF	455			ATTD/SP-F
19	SHOTCRETE, TYPE A (ELEVATED)	SF	75			ATTD/SP-F
20	SHOTCRETE, TYPE A (OVER WATER)	SF	176			ATTD/SP-F
21	JOINT SEALANT REPAIR	IN*LF	30			427
22	BOULEVARD BRIDGE MEMBER LOWER STRUT WEST TRUSS SECTION LOSS RETROFIT (UNIT 11)	LS	1			ATTD/SP-I

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
23	BOULEVARD BRIDGE FABRICATE BATTEN PLATES	LS	1			ATTD/SP-I
24	REPLACEMENT (MULTIPLE LOCATIONS)	EA	30			ATTD/SP-I
25	BOULEVARD BRIDGE MEMBER PP L40, WEST TRUSS GUSSET PLATE SECTION LOSS RETROFIT (UNIT 11)	LS	1			ATTD/SP-I
26	BOULEVARD BRIDGE FABRICATE LACING BARS AND BOLTS	LS	1			ATTD/SP-I
27	BOULEVARD BRIDGE LACING BAR AND BOLT REPLACEMENT (MULTIPLE LOCATIONS)	EA	310			ATTD/SP-I
28	BOULEVARD BRIDGE RIVET REPLACEMENT WITH BOLTS (MULTIPLE UNDEFINED LOCATIONS)	EA	50			ATTD/SP-I
29	BRIDGE 5, PIER 5 WEB & BOTTOM FLANGE SECTION LOSS RETROFIT	LS	1			ATTD/SP-I
30	BRIDGE 9N DAMAGED STIFFENERS RETROFIT	LS	1			ATTD/SP-I
31	BRIDGE 10S EAST ABUTMENT, TIGHTEN NUTS AT ANCHOR BOLTS	LS	1			ATTD/SP-I
32	BRIDGE 17 NORTH ABUTMENT SLIDING PLATE JOINT REPAIR	LS	1			ATTD/SP-I
33	BRIDGES 65, 66 & 68 BOLT ACCESS DOOR HINGES AND REPLACE DOOR GASKETS	LS	1			ATTD/SP-I
34	BRIDGE 67, PP L6 SECTION LOSS RETROFIT	LS	1			ATTD/SP-I
35	RETROFIT SEISMIC CABLES - PER CABLE	EA	40			ATTD/SP-I
36	ARMOR JOINT REPAIR B8 SB	LS	1			ATTD/SP-I
37	ON RAMP REHABILITATION	LS	1			ATTD/SP-N
38	MAINLINE APPROACH SLAB REHABILITATION	LS	1			ATTD/SP-W
39	BRIDGE DECK SEALING	SY	8,189			ATTD/SP-O
40	REPAIR EXISTING DROP INLET OR MANHOLE TOP	EA	2			ATTD/SP-P
41	CONCRETE SURFACE COATING	SF	149,000			ATTD/SP-S
42	CONCRETE BARRIER DELINEATORS	EA	100			ATTD/SP-R
43	ACQUISITION AND DELIVERY OF TRAILOR	LS	1			ATTD/SP-V

(_____) (INSERT BIDDER FIRM NAME HERE)

ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	UNIT PRICE	AMOUNT	2016 SPECIFICATION
44	ACQUISITION AND DELIVERY OF BUCKET TRUCK	LS	1			ATTD/SP-V
45	DE-ICING CHEMICAL	GAL	4,400			ATTD/SP-U
46	CRUSHER RUN AGGREGATE NO. 21A OR 21B	TON	58			ATTD/SP-K
47	COARSE AGGREGATE NO.57	TON	100			ATTD/SP-K
48	AGGREGATE MATERIAL NO.1	TON	50			ATTD/SP-K
49	RIPRAP CLASS I	TON	1,500			ATTD/SP-K
50	CLEAN MANHOLE	EA	1			ATTD/SP-H
51	GUARDRAIL GR-2	LF	8,000			505
52	GUARDRAIL TERMINAL	EA	8			505
53	GUARDRAIL OFFSET BLOCK	EA	1,200			505
54	FIXED OBJECT ATTACH. GR-FOA-2 TY. I	EA	2			505
55	RAILROAD COORDINATION	LS	1			ATTD/SS-107.9
				Total		

(SIGN HERE) _____ (INSERT HERE) _____

Signature of Owner, Partner, or Corporate Officer:	**Title:**

The quantities shown in the above schedule of items are considered to be approximate only and are given as the basis for comparison of bids. The Authority may increase or decrease the amount of any item or portion of the work as may be deemed necessary or expedient. The Authority reserves the right to delete, in whole or in part, without prejudice prior to the award of the Contract, any items listed in the Bid. It is understood that payment for unit price items will be made for the actual quantities of such work satisfactorily completed, rather than the estimated quantities given hereinabove, An increase or decrease in the quantity for any unit price item will not be regarded as sufficient ground for an increase or decrease in the unit price, nor in the time allowed for the completion of the work, except as provided for in the Specifications.

The cost of any work performed, materials furnished, services provided or expenses incurred, whether or not specifically delineated in the Contract document but which are incidental to the scope, intent and completion of this Contract, have been included in the price bid for the various items scheduled hereinabove.

Accompanying this Bid is a Bid Guarantee (Sec. 102.07 of the Specifications) consisting of either a certified check in the amount of at least (5) percent of the Total Bid Price for this Contract or a Bid Bond (Elsewhere herein) in the amount of (5) percent of the same Total Bid Price. It is hereby understood and agreed that said check or bond is to be forfeited as liquidated damages in the event that, on the basis of this Bid, the Authority should award this Contract to me/us and that I/we should fail to execute and deliver said Contract and the prescribed Contract Bond, together with the required progress schedule, proof of proper insurance coverage and other necessary documents, all within the prescribed time (Sec. 103.07 of the Specifications); otherwise, said check or bond is to be returned to the undersigned.

Business Name of Bidder _____

Type of Organization Individual ☐
Partnership ☐
Corporation ☐

Virginia Contractor Registration No. _____

Address of Bidder: _____

_____

Signature of Owner, Partner or Corp. Officer: _____

Title: _____

Date: _____

Witness or Attest _____ (Affix Corporate Seal Here)

NOTE: ONLY A PREQUALIFIED BIDDER MAY USE THIS BIDDING FORM. BIDDING FORMS ARE NOT TRANSFERABLE.

RICHMOND EXPRESSWAY SYSTEM

Scale: 0 1000 2000 3000ft.

48 - Bridge Number
RMTA Facilities Shown in Red

RMTA
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND

JOSEPH BRYAN PARK
Toll Booths
BRYAN PARK INTERCHANGE
LABURNUM AVE.
NORTH AVE.
WESTWOOD AVE.
BROOKLAND PARK BLVD.
OVERBROOK RD.
CHAMBERLAYNE AVE.
BROOK RD.
MEADOW
MECHANICSVILLE
UNIVERSITY OF RICHMOND
THREE CHOPT RD.
LIBBIE AVE.
MONUMENT AVE.
PATTERSON AVE.
GROVE AVE.
CARY STREET ROAD
COMMONWEALTH AVE.
MALVERN AVE.
HAMILTON ST.
KENT RD.
THOMPSON ST.
BROAD ST.
Visitor Information Center
The Diamond
Science Museum Of Virginia
HERMITAGE RD.
RICHMOND PETERSBURG TURNPIKE
VIRGINIA UNION UNIVERSITY
HUGUENOT BRIDGE
HUGUENOT ROAD
RIVERSIDE DR.
Williams Island
DOVER RD.
I-195
Virginia Museum Of Fine Arts
NAMOZINE ST.
SHEPPARD ST.
BOULEVARD
ROBINSON AVE.
Downtown Expressway Extension
GROVE AVE
FLOYD AVE
MAIN ST
CARY ST
PARKWOOD AVE.
MONUMENT AVE
PARK AVE
BROAD ST.
LOMBARDY ST.
CLAY ST
MARSHALL ST
LEIGH ST.
SEABOARD COAST LINE
ELWOOD RD
IDLEWOOD AVE.
MAPLEWOOD AVE.
CITY STADIUM
PORTLAND PL.
BOULEVARD INTERCHANGE
Section Two Connection To I-195
Toll Booths
STADIUM INTERCHANGE
GRANT RD.
DOUGLASDALE RD.
WILLIAM BYRD PARK
Water Works
Swan Lake
R.F.&P.R.R.
Connection to Downtown Expressway
Section Three
MAYMONT PARK
Toll Plaza
MEADOW ST.
ALLEN AVE.
LAKEVIEW AVE.
BRAYLAND AVE.
IDLEWOOD AVE.
RANDOLPH ST.
HARRISON ST.
CHERRY ST.
LAUREL ST.
BELVIDERE
Downtown Expressway State Rte. 195
Toll Plaza
Monroe Park
The Mosque
FRANKLIN ST
Public Library
ADAMS ST
COLISEUM
Chamber of Commerce
MAIN ST.
CANAL ST.
CARY ST
State Penitentiary
City Hall
Med. Col. Of Va. (VCU)
STATE CAPITOL
Shockoe Slip Historic District
Toll Booths
MAIN ST. STATION
DOWNTOWN I-95 INTERCHANGE
JAMES RIVER BRIDGE
MANCHESTER BRIDGE
MAYOS BRIDGE
ROBERT E. LEE BRIDGE
CSX RAILWAY
NORFOLK SOUTHERN
(SOUTHERN RAILWAY)
RIVER
Section One
WILLOW OAKS COUNTRY CLUB
POWHITE BRIDGE OVER THE JAMES RIVER
FOREST HILL AVE.
Toll Booths
FOREST HILL AVE. INTERCHANGE
Powhite Parkway State Rte 76
Toll Plaza (SB)
Toll Plaza (NB)
PARKWAY
(SOUTHERN RAILWAY)
Powhite Parkway Extension (VDOT Toll Road)
CHIPPENHAM PARKWAY INTERCHANGE
CHIPPENHAM
BLILELY RD.
JAHNKE RD.
SEABOARD COAST LINE
CSX RAILWAY
WESTOVER HILLS BLVD
BOULEVARD BRIDGE 7500# Limit
Section Four Downtown Expressway
COLORADO AVE.
MT. CALVARY CEMETERY
RIVERVIEW CEMETERY
HOLLYWOOD CEMETERY
FOREST HILL PARK
SEMMES AVE.
HULL ST.
COMMERCE RD.
MAURY ST.
Toll Booths
FAIRFIELD AVE.
MOSBY ST.
17th ST.
18th ST.
NINE MILE RD.
CARRINGTON ST.
25TH ST.
MARSHALL ST.
BROAD ST.
CLAY ST.
Chimborazo Park
SOUTHERN RAILWAY

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR – 2018

MISCELLANEOUS REPAIRS

****

NON-COLLUSION AFFIDAVIT

STATE OF _____)
_____) ss.
COUNTY OF _____)

I, _____, of the City of _____, County of _____ and State of _____, being of full age and duly sworn according to law on my oath depose and say:

That I am _____(Title) of _____, the Bidder making the Bid submitted to the Richmond Metropolitan Transportation Authority, on the _____ day of _____, 20___, for Contract No. MR -2018 in connection with the Richmond Expressway System; that I executed the said Bid with full authority to do so;

The said Bidder has not, directly or indirectly, entered into any combination or arrangement with any person, firm or corporation or entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free, competitive bidding or which would increase the cost of construction or maintenance in connection with the said Contract; that no person or selling agency has been employed or retained to solicit or secure the said Contract upon an agreement or understanding for a commission, percentage, brokerage or contingent fee, except bona fide full-time employees;

And that said Bidder is or has been a member of the following highway contractors' association during the preceding twelve months:

Name of Association	Location of Principal Office
_____	_____
_____	_____
_____	_____

I further warrant that all statements contained in said Bid and in this Affidavit are true and correct and made with full knowledge that the said Authority relies upon the truth of the statements contained in said Bid and in this Affidavit in awarding the said Contract.

Sworn to and subscribed
before me this_____
day of _____,
20___.

By:_____(L.S.)
Person Signing Bid

Print Name:_____

_____
Notary Public

My commission expires:

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

STATEMENT OF CONTRACTS UNDERWAY

The following is a tabulation of all contracts in which I/we am/are engaged as of the date given below, whether as a prime contractor or as a subcontractor. This tabulation includes not only contracts which are under construction, but also those awarded to me/us but not begun, and those on which I/we am/are the lowest bidder awaiting formal award.

Contract Designation	City and State	Owner	Estimated Value of Work Remaining to be Completed	Estimated Completion Date

Total: $_____

NOTE: Contracts in which the remaining work in each amounts to less than $25,000 may be combined into one entry under the fourth column and designated as "Miscellaneous" in the first column.

If more space is needed, attach additional sheet(s).

The undersigned guarantees the accuracy and completeness of all the information given above.

Business Name of Bidder: _____

Address of Bidder: _____

_____

Signature of Owner,
Partner or Corp. Officer: _____

Title: _____

Date: _____

Witness or Attest:

_____

(Affix Corporate Seal Here)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

JOINT VENTURE STATEMENT

STATE OF _____)
_____) ss.
COUNTY OF _____)

We, the undersigned, being duly sworn according to law, upon our respective oaths depose and say that:

1. The following named contractors have entered into a Joint Venture for the purpose of carrying out all the provisions of Contract No. MR-2017 for the above project:

(a)_____ ☐ An Individual ☐ A Partnership ☐ A Corporation

(b)_____ ☐ An Individual ☐ A Partnership ☐ A Corporation

(c)_____ ☐ An Individual ☐ A Partnership ☐ A Corporation

2. The contractors, under whose names we have affixed our respective signatures, have duly authorized and empowered us to execute this Joint Venture Statement in the name of and on behalf of such contractors for the purpose herein above stated.

3. Under the provisions of such Joint Venture, the assets of each of the contractors named in Paragraph 1 hereof, and in case any contractor so named above is a partnership, the assets of the individual members of such partnership, will be available for the performance of such Joint Venture and liable therefore and for all obligations incurred in connection therewith.

4. The assets and liabilities of the named contractors for whom we respectively execute this Joint Venture Statement are set forth in the statements given to the Virginia Department of Transportation in our prequalification questionnaire(s).

5. This Joint Venture Statement is executed so that the named contractors, as one organization, may, under such Joint Venture, bid upon said Contract, and be awarded the Contract if they should become the successful bidder therefore. Any bid, bond and agreement relating to said Contract shall be executed by any of the undersigned, and when so executed shall bind this Joint Venture and each and every contractor named herein, severally and jointly. Simultaneously with the execution of the Contract, the contractors entering into this Joint Venture shall designate and appoint a Project Supervisor to act as their true and lawful agent with full power and authority to do and perform any and all acts or things necessary to carry out the work set forth in said Contract.

6. We bind the contractors for whom we respectively execute this Joint Venture Statement in firm agreement with the Richmond Metropolitan Transportation Authority that each of the representations herein set forth is true.

Subscribed and sworn to before me, (a)_____
this _____day of Name of Contractor

_____, 20___.

_____

By_____(L.S.)
Notary Public Print Name:

My commission expires_____ Title:

_____

Va. Contractor Reg. No. _____

****

****

Subscribed and sworn to before me,
this _____day of

_____, 20___.

_____
Notary Public

My commission expires_____

(b)_____
Name of Contractor

By_____(L.S.)
Print Name:

Title: _____

Va. Contractor Reg. No. _____

****

Subscribed and sworn to before me,
this _____day of

_____, 20___.

_____
Notary Public

My commission expires_____

(c)_____
Name of Contractor

By_____(L.S.)
Print Name:

Title: _____

Va. Contractor Reg. No. _____

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR - 2018

MISCELLANEOUS REPAIRS

****

SHOTCRETE EXPERIENCE – BIDDER/SUBCONTRACTOR

In addition to the bidding requirements stated elsewhere in these documents, prospective bidders or their subcontractor must have successfully completed at least three bridge substructure repair projects where the cumulative shotcrete square footage applied is a minimum of 10,000 s.f. This form is provided to bidders for them to demonstrate that experience, and must be completed and submitted by all bidders, bound in this proposal. Note that a bidder must be experienced, and complete the experience forms, in either shotcrete repairs, steel repairs, or epoxy injection of cracks in submerged concrete piers, or all forms. A bidder cannot have a subcontractor be the documented experience in all categories.

If the bidder is not anticipating self-performing the scope of work associated with the experience type listed herein, please list the name of the qualified subcontractor below:

Subcontractor (If applicable) _____
Company Name

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 1

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 2

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 3

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

BRIDGE SUBSTRUCTURE SHOTCRETE REPAIR PROJECT NO. 4

Job Location(s)/Description(s): _____

Total Shotcrete Placement Square Footage: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR - 2018

MISCELLANEOUS REPAIRS

****

STEEL SUPERSTRUCTURE REPAIR EXPERIENCE - BIDDER/SUBCONTRACTOR

In addition to the bidding requirements stated elsewhere in these documents, prospective bidders or their subcontractor must have successfully completed at least three bridge superstructure repair projects where one or more steel beams were jacked off the bearing and a portion of the steel beam was replaced with new steel by welding. This form is provided to bidders for them to demonstrate that experience, and must be completed and submitted by all bidders, bound in this proposal. Note that a bidder must be experienced, and complete the experience forms, in either shotcrete repairs, steel repairs, or epoxy injection of cracks in submerged concrete piers, or all forms. A bidder cannot have a subcontractor be the documented experience in all categories.

If the bidder is not anticipating self-performing the scope of work associated with the experience type listed herein, please list the name of the qualified subcontractor below:

Subcontractor (If applicable) _____
Company Name

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 1

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 2

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 3

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

STEEL SUPERSTRUCTURE REPAIR PROJECT NO. 4

Job Location(s)/Description(s): _____

No. of Steel Beams Jacked and Repaired: _____

Owner/Contact Information: _____

Owner/Contact Phone Number: _____

Approximate Date(s) of Project: _____

****

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that_____ _____, as Principal/Contractor, and _____, as Surety, legally authorized to do business in the Commonwealth of Virginia, are held and firmly bounded unto the Richmond Metropolitan Transportation Authority, as Authority, in the amount of FIVE (5) PERCENT OF THE DOLLAR VALUE OF THE TOTAL AMOUNT WRITTEN IN THE BID, on which the Contract is awarded lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally and firmly by these presents:

WHEREAS, the Contractor is herewith submitting its Bid for Contract No. MR-2018 entitled Miscellaneous Repairs, in connection with the Richmond Expressway System; and

NOW, THEREFORE, the condition of this obligation is such, that if the Contractor shall be awarded the Contract upon said Bid and shall, within fifteen (15) calendar days after the date of written notice of such award, enter into and deliver a Contract and the prescribed Contract Bond for the faithful performance of the Contract, together with the required proof of proper insurance coverage and other necessary documents, then this obligation shall be null and void; otherwise, to remain in full force and effect, and the Contractor and Surety will pay unto the Authority the difference in money between the amount of the Total Amount written in the Bid of said Contractor and the amount for which the Authority may legally contract with another party to perform the said work, if the latter amount be in excess of the former; but in no event shall the Surety's liability exceed the penal sum hereof.

SIGNED AND SEALED this _____day of _____. 20____.

PRINCIPAL/CONTRACTOR

_____

Business Name

_____

Address

Witness or Attest:

_____

_____ By:_____(L.S.)

Title:

(Affix Corporate Seal Here)

SURETY:

_____

Business Name

_____

Address

Witness or Attest:

_____

_____ By:_____(L.S.)

Title:

(Attach evidence of Power of Attorney)

(Affix Corporate Seal Here)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

CONTRACT AGREEMENT

THIS AGREEMENT, made this _____ day of _____, 20 ____, between the Richmond Metropolitan Transportation Authority, 901 East Byrd Street, Suite 1120, Richmond, Virginia, 23219, hereinafter called the Authority and _____, or his, its or their successors, executors, administrators and assigns, hereinafter called the Contractor.

WITNESSETH, that the Contractor agrees with the Authority for the consideration herein mentioned, and at his, its or their own proper cost and expense, to do all the work and furnish all the materials, equipment, teams and labor necessary to prosecute and complete and to extinguish all liens therefore, Contract No. MR - 2018, entitled Miscellaneous Repairs, in the manner and to the full extent as set forth in the Special Provisions, Plans, Supplemental Specifications, 2016 Road and Bridge Specifications of the Virginia Department of Transportation, Bid (for the basis of award stated herein below) and other documents related to said Contract which are on file at the office of the Richmond Metropolitan Transportation Authority and which are hereby adopted and made part of this Agreement as completely as if incorporated herein, and to the satisfaction of the Richmond Metropolitan Transportation Authority or its duly authorized representative who shall have at all times full opportunity to inspect the materials to be furnished and the work to be done under this Agreement. In the event of a conflict among the Contract Documents, the Contract Documents shall control one over another in the following descending order of precedence: Special Provisions, Plans, Supplemental Specifications, 2016 Road and Bridge Specifications of the Virginia Department of Transportation, Bid and other documents related to said Contract.

This Contract is awarded on the basis of the Total Bid Price (based on Bid quantities)

of_____dollars

and _____Cents ($_____).

In consideration of the foregoing premise, the Authority agrees to pay the Contractor for all items of work performed and materials furnished at the unit and lump sum prices bid therefore in the Bid submitted for this Contract, subject to any percentage reductions in the total Contract amount that may be named in the Bid corresponding to the basis of award stated in the above paragraph, and subject to the conditions set forth in the Specifications.

The Contractor agrees as follows:

Indemnification: The Contractor shall indemnify and hold harmless Richmond Metropolitan Transportation Authority, and all officers, directors and employees of the named entity, (individually and collectively), from any and all liability, loss, damage, expense, cause of action, suits, claims or judgments arising from injury to person or property resulting from activity arising out of this contract; and shall, at its own cost and expense, defend any and all suits which may be brought against such parties, either alone or in conjunction with others upon any such liability or claim or claims and shall satisfy, pay and discharge any and all judgments and fines that may be recovered against such parties in any such action or actions, provided, such indemnity shall not extend to the negligence of such parties and, provided, further, that such parties shall give the Richmond Metropolitan Transportation Authority written notice of any such claim or demand.

Cancellation of Contract: The Authority reserves the right to cancel and terminate any resulting contract, in part or in whole, without penalty, upon 60 days written notice. Any contract cancellation notice shall not relieve the contractor of the obligation to deliver and/or complete all work tasks in progress prior to the effective date of cancellation.

Term of Contract: Sealed proposals for the above project are due Tuesday March 27, 2018, at 10:00 a.m. at which time and place the bids will be publicly opened and read. The work under this contract shall be completed no later than March 31, 2019, with the exceptions of:

- All Shotcrete repairs that shall be completed no later than November 22, 2018
- Concrete Bridge Deck Sealant shall be completed no later than October 25, 2018.

Scope of Work: A complete list of all bid items and estimated quantities is included beginning on sheet P-2 in BID FOR GENERAL CONSTRUCTION CONTRACT.

Anti-Discrimination: By submitting their (bids/proposals), (bidders/offerors) certify to the Commonwealth that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Contracting Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and §2.2-4311 of the *Virginia Public Procurement Act.* If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis of race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (*Code of Virginia, §* 2.2-4343.1 E).

During the performance of this Contract, the Contractor agrees as follows:

a. I/WE will not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin, except where religion, sex or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor.

b. I/WE agree to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

c. I/WE in any solicitations or advertising for employees placed by or on behalf of itself, will state that it is an equal opportunity employer.

d. Notices and advertisements and solicitations placed in accordance with federal law, rule or regulation, shall be deemed sufficient for the purposes of meeting the requirements of this section.

e. The Contractor does not, and shall not during the performance of the contract for goods and services in the Commonwealth, knowingly employ an unauthorized alien as defined in the Federal Immigration Reform and Control Act of 1986.

To the extent that the Contractor enters into any subcontract or purchase order over Ten Thousand Dollars ($10,000.00), the provisions of (a), (b) (c) (d) and (e) above shall be binding on each subcontractor or vendor.

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement the day and year written above.

RICHMOND METROPOLITAN
TRANSPORTATION AUTHORITY

By:_____
Joi Taylor, CEO

Sworn to and Subscribed
before me this_____
day of _____, 20 _____.

(Authority's Seal)

_____
Notary Public
.My commission expires:
_____

CONTRACTOR:

_____
Business Name

_____
Address

_____

by:_____(L.S.)
Title

(Affix Corporate Seal Here)

Sworn to and subscribed
before me this _____

day of_____,20_____.

_____
Notary Public

My commission expires: _____

EVIDENCE OF CORPORATE AUTHORITY

I, _____, hereby certify that I am Secretary of _____, a Corporation existing under the laws of the State of _____, and that the following resolution was adopted at a meeting of the Board of Directors of the said Corporation duly called and held on the _____day of _____, 20____, and that the same remains in full force and effect:

(Here insert resolution)

IN WITNESS WHEREOF, I have hereto appended my signature and the seal of the said Corporation on this the _____day of _____, 20_____.

_____
Secretary

SEAL

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

CONTRACT BOND

KNOW ALL MEN BY THESE PRESENTS, that_____ _____, as Principal/Contractor, and _____, as Surety, legally authorized to do business in the Commonwealth of Virginia, are held and firmly bounded unto the Richmond Metropolitan Transportation Authority (Authority), in the amount of _____Dollars and _____Cents ($_____), lawful money of the United States of America, for the payment of which, well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally and firmly by these presents:

WHEREAS, the Contractor has entered into a Contract with the Authority for the faithful prosecution and completion of a project designated as Contract No. MR-2018, entitled Miscellaneous Repairs, in connection with the Richmond Expressway System; and

WHEREAS, it was one of the conditions of the Contract award by the Authority pursuant to which said Contract was entered into, that these presents shall be executed;

NOW, THEREFORE, the condition of this obligation is such, that if the Contractor shall faithfully prosecute and complete the entire work prescribed for this project in full compliance with the terms and conditions of said Contract, including the Plans, Standard Specifications, Supplemental Specifications, Bid and all other documents pertaining to this Contract, and such alterations as may be made in said Plans and Specifications as therein provided for, shall indemnify and save harmless the Authority against or from all costs, expenses; damages injury or loss to which the Authority may be subjected by reason of any wrongdoing, misconduct, want of care or skill, negligence or default, including patent infringement, on the part of the Contractor, his agents or employees, in the execution or performance of said Contract, including errors in drawings furnished by the Contractor, and shall promptly pay all just claims for damages, for injury to property, and for labor, materials, equipment rentals, services and other charges incurred by the

Contractor in or about the work contracted for, and extinguish all liens therefore, then this obligation shall be null and void; otherwise, to remain in full force and effect.

SIGNED AND SEALED THIS _____day of _____, 20____.

PRINCIPAL/CONTRACTOR:

_____

Business Name

_____

Address

Witness or Attest:

_____

By:_____(L.S.)

Title:

(Affix Corporate Seal Here)

SURETY:

_____

Business Name

_____

Address

_____

Witness or Attest:

_____

By:_____(L.S.)

Title:

(Attach evidence of Power of Attorney)

Countersigned by
Resident Virginia Agent:

_____

(Affix Corporate Seal Here)

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

FINAL RELEASE OF LIABILITY

I/We, _____, hereby certify that all bills, charges and salaries for labor, services, materials and rental of equipment, arising out of the prosecution of the work under Contract/Project No. MR-2018 have been paid, or satisfactory arrangements for payment have been made. I/We further certify that all other just demands and liens relating to this project have been fully satisfied or provided for. I/We hereby release the Richmond Metropolitan Transportation Authority, its Engineers and representatives from all claims demands and liability of whatsoever nature arising from anything done or furnished under this contract except to the extent only as to the following matters for which unresolved claims have been submitted by the Contractor in accordance with Section 105.19 of the Supplemental Specifications of the Contract:

SIGNED AND SEALED THIS _____ day of _____, 20____.

_____
Business Name

_____
Address

_____

By: _____(L.S.)

Title: _____

(Affix Corporate Seal Here)

STATE OF VIRGINIA AT LARGE: }
}
CITY/COUNTY OF } to-wit:

The foregoing instrument was acknowledged before me this _____day of _____, 20 , by _____, _____of

_____[name] _____[title]

_____,

_____[business name]

a _____corporation/partnership, on behalf of said corporation/partnership,

_____[state]

_____
Notary Public

My Commission expires:_____.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

SWaM Participation

The Authority strongly encourages the submission of bids by qualified contractors whose principal businesses are located in the Richmond Metropolitan Area and further encourage such contractors to utilize the services of local subcontractors and vendors.

In addition the Authority strongly encourages the submission of bids by qualified contractors certified as Small, Women, and Minority Owned (SWaM) businesses and/or Disadvantaged Business Enterprises (DBE).

Furthermore, the Authority encourages the use of certified Small, Women, and Minority Owned (SWaM) businesses and Disadvantaged Business Enterprises (DBE) as subcontractors or vendors to the fullest extent reasonably possible.

Certification:

The Virginia Department of Small Business and Supplier Diversity is responsible for the certification of eligible small, women, and minority-owned businesses to participate in the SWaM Procurement Initiative. They also certify Disadvantaged Business Enterprises (DBEs) for participation under the Virginia Unified Certification Program (as part of the federal DBE Program). Service Disabled Veterans are also able to obtain SWaM certification upon receipt of their certification by the Department of Veterans Services and by meeting the eligibility requirements of the SWaM Program.
https://www.sbsd.virginia.gov/directory/

SWaM Category Type:
(As certified by the Virginia Department of Small Business and Supplier Diversity)

Minority Owned (M)
Small Business (S)
Women Owned (W)
Minority Owned with Small Business Certification (MS)
Women Owned with Small Business Certification (WS)

Other SWaM, DBE, WBE and MBE Programs:

Any contractors, subcontractors or vendors whose principal businesses are located outside the Commonwealth of Virginia must submit information on any business that is qualified as a Small, Women-Owned, Minority Owned and/or Disadvantaged Business Enterprises (DBE) by their home state or any federal program .

SwaM Summary:

As a part of the project closeout process and a prerequisite to final payment, the prime contractor shall submit fully executed pages DBE-3 and DBE-4, along with any additional sheets as needed, to document the actual amounts paid to each SWaM and/or DBE businesses that provided service or products during this execution of the contract.

****

Firm Name: _____

Firm Address: _____

Owner/Contact Name: _____

Owner/Contact Phone Number: _____

SWaM Category Type: _____ SWaM Certification Number: _____

Amount Paid: $ _____

****

Firm Name: _____

Firm Address: _____

Owner/Contact Name: _____

Owner/Contact Phone Number: _____

SWaM Category Type: _____ SWaM Certification Number: _____

Amount Paid: $ _____

****

Firm Name: _____

Firm Address: _____

Owner/Contact Name: _____

Owner/Contact Phone Number: _____

SWaM Category Type: _____ SWaM Certification Number: _____

Amount Paid: $ _____

Contractor shall attach additional sheets if needed.

SIGNED AND SEALED THIS _____ day of _____, 20____.

_____
Business Name

_____
Address

_____

By: _____(L.S.)

Title: _____

STATE OF VIRGINIA AT LARGE: }
}
CITY/COUNTY OF } to-wit:

The foregoing instrument was acknowledged before me this _____day of _____, 20 , by _____, _____of
_____[name]_____[title]

_____,
_____[business name]

a _____ corporation/partnership, on behalf of said Corporation/partnership,
_____[state]

_____
Notary Public

My Commission expires:_____.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

_____

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018

MISCELLANEOUS REPAIRS

****

RECEIPT OF ADDENDA

I/We hereby acknowledge receipt of the following addenda and have made the necessary revisions to the Contractor's Proposal, plans, and specifications, etc., and agree that these addenda are included in the Contractor's Proposal.

Addenda #	Signature	Date
1.		
2.		
3.		
4.		
5.		
6.		

I understand that failure to confirm receipt of addenda may cause the bid to be irregular.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY
SUPPLEMENTAL SPECIFICATIONS

To

VIRGINIA DEPARTMENT OF TRANSPORTATION
2016 ROAD AND BRIDGE SPECIFICATIONS

FOR
RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018
MISCELLANEOUS REPAIRS

INDEX

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

****

SUPPLEMENTAL SPECIFICATIONS

PREFACE:

The 2016 Road and Bridge Specifications of the Virginia Department of Transportation, available from the Virginia Department of Transportation, as amended and augmented by the Supplemental Specifications following, shall govern the construction of this Project and the performance of the Contract. These specifications are hereby made a part of the Contract as fully and with the same effect as if set forth at length herein.

Attention is directed to the fact that any other documents printed by the Virginia Department of Transportation modifying or supplementing said 2016 Road and Bridge Specifications, such as Standard Supplemental Specifications, Special Provisions (by the Department), Notice to Bidders, etc., do not form a part of this Contract nor govern its performance, unless specifically so stated in the Supplemental Specifications herein contained. The 2016 edition of the VDOT "Road and Bridge Standards", revised September 2017 are hereby made a part of this contract. The Virginia Erosion and Sediment Control Handbook, Third Edition 1992 Standards and Specifications are hereby made a part of this Contract.

References to “Proposal” have been changed to “Bid” in the Authority’s documents for this contract, including many standard VDOT terms such as “Examination of Site of Work and Bid [Proposal]”. This shall be accounted for when working contract documents prepared by the Authority with those standards prepared by VDOT.

References made to specific section numbers in these Supplemental Specifications, or in any of the various documents which constitute the complete Contract Documents, shall, unless otherwise denoted, be construed as referenced to the corresponding section of the 2016 Road and Bridge Specifications issued by the Virginia Department of Transportation.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

SUPPLEMENTAL SPECIFICATIONS

TO

VIRGINIA DEPARTMENT OF TRANSPORTATION
2016 ROAD AND BRIDGE SPECIFICATIONS

The following provisions represent modifications to the corresponding sections of the Virginia Department of Transportation Specifications, described above, and relate exclusively to the Richmond Metropolitan Transportation Authority Contracts. In case of conflicting requirements between the Virginia Department of Transportation Specifications and these Supplemental Specifications, the Supplemental Specifications shall govern. Any applicable provision in the Virginia Department of Transportation Specifications not amended by and not in conflict with any Supplemental Specifications or Special Provisions shall be in full effect.

All modifications contained herein are additions to the provisions of the designated sections of the Virginia Department of Transportation Specifications unless the text specifically identifies a requirement to be an amendment to, deletion of or substitution for a provision in the Virginia Department of Transportation Specifications.

SECTION 101 - DEFINITION OF ABBREVIATIONS, ACRONYMS AND TERMS

101.02 Terms

The following new definitions are added to this section:

ADDENDUM - - A written, fax or e-mail revision or addition to any of the Contract Documents, transmitted in advance of the opening of Bids to all parties who have been recorded by the Authority as having secured full sets of Contract Documents directly from the Authority or their designee.

AUTHORITY - - The Richmond Metropolitan Transportation Authority, a political subdivision and public body corporate and politic of the Commonwealth of Virginia, organized and existing under Virginia Code §§ 33.2-2900 et seq. The Authority's principal office is presently located at 901 East Byrd Street, Suite 1120, Richmond, Virginia, 23219.

AFFILIATE - - Any business entity which is closely associated to another business entity so that one has the power to control the other either directly or indirectly; or, where one business entity systematically shares resources, officers and/or other management with another business entity to the extent that a business relationship legally exists or is publicly perceived to exist; or, when a third party has the power to control both; or, where one business entity has been so closely allied with another through an established course of dealings, including but not limited to the lending of financial wherewithal or engaging in joint ventures, so as to cause a public perception that the two firms are one entity.

AVERAGE ANTICIPATED OPERATING SPEED - - The posted speed of the work zone plus 5 miles per hour as defined in Appendix A of the Virginia Work Area Protection Manual.

MOT - - Maintenance of Traffic

BID BOND - - One of the two permissible means of security offered as the Bid Guaranty, in the form of a surety bond executed by the Bidder and the Contractor's Surety, guaranteeing that if the Authority should award the Contract to the Contractor, the Bidder will execute and deliver the Contract Agreement and Contract Bond, together with other required documents, all within the prescribed time.

STANDARD DRAWINGS - - Whenever the Plans and/or Specifications refer to "Standards" or "Standard Drawings" such reference shall be construed to mean the set of drawings issued by the Location and Design Division, Virginia Department of Transportation, 2016, and entitled "Road and Bridge Standards", Volumes I and II. Only those standards or standard drawings specifically referred to by number on the Plans or in the various Contract Documents are applicable to work on this Contract.

FULL COMPLETION OF ALL WORK (OR TO FULLY COMPLETE ALL WORK) - - The completion of all work specified under this Contract as evidenced by the formal acceptance thereof by the Authority.

WORK AREA PROTECTION MANUAL - - The 2011 Virginia Work Area Protection Manual including Revision 1 (4/2015), and all subsequent revisions.

Whenever in the various Contract Documents the term, "Commission" or "State" appears it shall be replaced by the term, "Richmond Metropolitan Transportation Authority." Similarly, the term, "Commissioner" shall be replaced by the term, "CEO of the Richmond Metropolitan Transportation Authority," and the term, "Deputy Commissioner" replaced by the term, "Director of Operations of the Richmond Metropolitan Transportation Authority."

Whenever in the Virginia Department of Transportation Specifications and Standard Drawings the term, "Department" or "Virginia Department of Transportation" appears, it shall be replaced by the term, "Richmond Metropolitan Transportation Authority, (Authority)" except in references to said Virginia Department of Transportation as being the author of certain Specifications and Standard Drawings, and in reference to said Department as the agency prequalifying prospective Bidders.

Whenever in the Virginia Department of Transportation Specifications and Standard Drawings the term, "District Engineer" appears, it shall be replaced by the term, "Engineer."

The definitions for the following terms as they appear in this section are deleted and the following definitions substituted therefore:

CONTRACT TIME - - Each calendar date indicated in the Specifications or Special Provisions as the time allowed for the completion of any designated portion or for all of the work under the Contract, including any extensions thereto that may subsequently be authorized.

ENGINEER - - The authorized representative(s) of the firm of the General Consultant, HNTB Corporation, who have been duly appointed by the Authority to prepare Plans and Specifications for the Contract and to monitor the construction work performed in connection therewith.

The headquarters office of HNTB Corporation for this project is located at 2900 S. Quincy St, Suite 600, Arlington, Virginia 22206, telephone (703) 824-5100.

SPECIFICATIONS (SPEC) - - The general term comprising all the directions, provisions and requirements contained in the Virginia Department of Transportation, 2016 Road and Bridge Specifications, the Authority's Supplemental Specifications and Special Provisions, and in any Addenda and Change Orders or Supplemental Agreements that may be issued, all of which are necessary for the proper performance of the Contract.

SECTION 102 - BIDDING REQUIREMENTS AND CONDITIONS

102.01 Prequalification of Bidders

This Section is amended to add the following:

Only contractors who have been prequalified by the Virginia Department of Transportation for bidding on State projects will be permitted to submit Bids for Contracts for Construction of this Project. The foregoing notwithstanding, the Authority reserves the right to reject the bid of any bidder because of reason of unsatisfactory performance or progress on other or prior Authority contracts, as determined by the Authority in its sole discretion.

Contractor shall also see Prequalification requirements in the "Invitation to Bid" (`Sheet IB-II of the Contract Documents). If a Subcontractor is listed in one of the experience forms, that Subcontractor or a different Subcontractor which meets the experience requirements must complete at least 90% of the work in that category.

In order to bid on this project, prospective Bidders must meet the Prequalification requirements at the time specified in the "Invitation to Bid". The Authority cannot be held liable in the event a party is unable to submit a valid bid due to a delay in the prequalification procedure. Securing prequalification and the timing thereof, shall at all times be the sole responsibility of the Contractor.

If a group of contractors should desire to submit a single bid for a contract or group of contracts, acting under the terms of a joint venture, each such contractor must be prequalified in the proper classification of work and must be registered with the Virginia Department of Transportation. The sum of the maximum pre-qualified classification capacity of the contractors comprising the joint venture must be greater than the estimated dollar value of the contract or group of contracts comprising the bid.

102.02 Content of Proposal

This section is amended as follows:

The following documents are bound with and are also a part of the Bid Form:

Bid
Non-Collusion Affidavit
Statement of Contracts Underway
Joint Venture Statement
Bid Bond
Receipt of Addenda (if applicable)

102.04 Examination of Site of Work and Proposal

The Section is amended to add the following:

In addition to the mandatory site visit, the Bidders are allowed to visit the Project site to form their own conclusions regarding access requirements, effort required to perform the tasks and other information needed to prepare their bid. Prior to visiting the site, a Bidder shall notify the Authority and Glen Parker at 804-938-3963 to coordinate the time and date of the Bidder's visit.

Any Addenda that may be issued will be posted on the RMTA website. http://www.rmaonline.org/ All bidders are required to download any and all addenda from the website. The Authority shall not be responsible for individually delivering addenda to all proposers.

102.05 Preparation of Bid

Sub-Section (a) is amended to add the following:

No electronic bids shall be accepted. All bids shall be submitted on forms furnished by the Authority.

As part of the execution of the Bid, each Bidder shall execute the Statement of Contracts Underway, and the Non-Collusion Affidavit and, in the case of Joint Venture Bidders, the Joint Venture Statement.

The Statement of Contracts Underway shall list the stipulated status information of all other work in which the Bidder is presently engaged, whether as a prime contractor or a subcontractor. Such listings shall include not only contracts which are under construction, but also those awarded to the Contractor but not begun and those on which the contractor is the lowest bidder awaiting formal award. In the case of Joint Venture Bidders, each party involved shall complete, execute and submit a separate Statement of Contracts Underway, as well as the Bidder's portion of the Joint Venture Statement. Additional Statements of Contracts Underway forms are available at the office of the General Manager of the Authority.

The Non-Collusion Affidavit must be executed by the person signing the Bid. In the case of Joint Venture Bidders, only the person signing the Bid on behalf of the Contractors involved need execute the Non-Collusion Affidavit.

The Richmond Metropolitan Transportation Authority may elect to receive bids on more than one construction contract on the same date. When this event occurs, the Authority will award the various contracts after all of the bids for the various contracts are received and analyzed.

Sub-Section (f) is amended as follows:

In the event of a joint venture of a group of Contractors submitting a single Bid, the Bid shall be signed by an individual owner, partner or officer of any one of the Contractors bound in the joint venture, and the official business address of the joint venture shall be given. In addition, a Joint Venture Statement must be executed by all Contractors involved.

102.06 Irregular Bids

This section is amended as follows:

The following section is deleted:
Section (m)

The following is added:

(p). If the bidder fails to submit the executed Statement of Contracts Underway; in the case of Joint Venture Bidders, failure to submit an executed Statement of Contracts Underway for each Contractor in the joint venture and the Joint Venture Statement.

(q). If the signed bid form is received from a party who was not represented, and recorded by the Authority as attending both the mandatory pre-bid meeting and site visit.

(r). If the bidder is not pre-qualified by the Virginia Department of Transportation at the time of the mandatory pre-bid meeting.

(s). If the bidder fails to attach proof of their SSPC QP-1 and QP-2 certification. The certification and resume of a Contractor employed Certified Industrial Hygienist (CIH) may be attached in lieu of the QP-2 certification.

(t). If the bidder fails to properly acknowledge receipt of addenda/addendum in the Receipt of Addenda form.

(u). Alterations to the Bid Tab

102.07 Proposal Guaranty (Bid Bond)

Add the following:

If a certified check is submitted as the Bid Guaranty, the check is to be made payable to the Richmond Metropolitan Transportation Authority, and the project name and Contract number shall also appear on the face of the check, as well as the business name of the bidder.

A bid bond will be accepted only if executed on a form which contains the exact wording as the Bid Bond included in these contract documents form. Any bid accompanied by a bond having wording which differs in any respect from the Bid Bond form may be rejected.

102.09 Submission of Bid

This section of the Specifications is completely replaced by the following:

Bids will be accepted at the Authority's office at 901 East Byrd Street, Suite 1120, Richmond, Virginia until scheduled bid opening time and shall be submitted in a sealed envelope. Bids shall be filed prior to the time specified in the Invitation to Bid. Bids received after that time will be returned to the bidder unopened. The bid date may be deferred by the Authority, in which case the bidders will be notified.

102.12 Public Opening of Bids

This section of the Specifications is completely replaced by the following:

Bids will be opened and read publicly at the time and place specified in the Invitation to Bid. Interested parties are invited to be present.

SECTION 103 - AWARD AND EXECUTION OF CONTRACTS

103.01 Consideration of Bids

Add the following:

In reviewing bids received, the Authority will give full consideration to a Bidder's capacity for undertaking and handling the work included in the bid. The difference in amounts between the maximum capacity stated in the prequalification certification for this classification of work, and the total estimated value of work remaining to be completed by the Bidder's organization as given in the Bidder's Statement of Contract Underway, shall constitute the Bidder's net capacity for handling additional work. Such net capacity will be considered by the Authority in determining the successful Bidders for Contracts on this Project.

103.02 Award of Contract

This section of the Specifications is completely replaced by the following:

The Authority will award a contract within sixty (60) calendar days of the bid opening for said Contract. If a Contract is not awarded within this time period, the Bidder shall have the right to withdraw the Bidder's Bid for the Contract without penalty or prejudice, unless the award date is extended by mutual consent.

The Authority agrees that Award of Contract, if made, will be determined without discrimination on the ground of race, creed, color, sex or national origin.

Basis for Contract Award: The Contract, if awarded, will be awarded to the lowest responsive and responsible bidder, if any, provided the bid is reasonable and it is in the best interest of the Authority to accept it and subject to the Authority's right to reject any and all bids and to waive informality in the bids and in the bidding. Determination of the lowest responsive bidder, if any, will be based on the Total Bid Amount entered on the Bid Tab Form including any properly submitted bid modifications taken in sequence as the Authority in its discretion chooses to Award. **Where the sum of the values entered in the multiple parts do not agree with the Total Bid Amount, the Total Bid Amount entered on the Bid Tab Form, including** any **properly submitted bid modifications, shall take precedence.**

In the event that the Total Bid Amount from the lowest responsible bidder exceeds available funds, the Authority may negotiate the Total Bid Amount with the apparent low bidder to obtain a contract price within available funds, pursuant to §2.2-4318 of the Code of Virginia, as amended, and Section 12(c) herein.

Informalities: The Authority reserves the right to waive any informality in the bids when such waiver is in the interest of the Authority.

Negotiation with Lowest Responsible Bidder: If award of a contract to the lowest responsive and responsible bidder is precluded because of limitations on available funds, under the provisions of §2.2-4318 of the Code of Virginia (the Public Procurement Act), the Authority reserves the right to negotiate the Total Bid Amount with the lowest responsive, responsible bidder to obtain a contract price within the available funds. This may involve changes in either the features or scope of the work included in the Contract Documents. Such negotiations with the apparent low bidder may include reducing the quantity, quality, unit prices, or other cost saving mechanisms involving items in the Total Bid Amount. The Authority shall notify the lowest responsive and responsible bidder that such a situation exists and the Authority and bidder shall then conduct their negotiations in person, by mail, by telephone or by any means they find convenient. If an acceptable contract can be negotiated, the changes to the Invitation to Bid documents agreed upon in the negotiations shall be summarized in a "Post Bid Modification" and included in the contract. If an acceptable contract cannot be negotiated, the Authority reserves the right to terminate negotiations and begin negotiations with the second lowest responsive and responsible bidder or terminate negotiations with all bidders and reject all bids.

Notice of Award: The Notice of Award, the Notice of Intent to Award, or the Notice of Decision to Award will be posted at the Authority's Construction Engineering Inspection Office.

103.06 Contract Documents

Subsection (d) of this section of the Specifications is amended to include:

- All insurance certificates as required in Sec. 103.06 (d), as prescribed in Sec. 107 and as may be required in other sections.

Subsection (e) of this subsection of the Specifications is amended to include the following:

The Contractor shall submit a progress schedule using the Critical Path Method (CPM) format. As a minimum, the schedule shall include:

- The duration of activities.
- The interrelationship of critical activities.
- Maintenance of traffic changes.
- Any temporary work necessary to complete project.
- An easily distinguishable critical path.
- Final completion by the date specified.

SECTION 104 - SCOPE OF WORK

104.02 Changes in Quantities or Alterations in the Work

Subsection (b) of this section of the Specifications is amended to include:

1. Major Items: There are no major items under this contract.

2. Minor Items: All items under this Contract are considered minor items. No adjustment of contract unit prices will be made for overruns or underruns of the original contract quantities, regardless of the extent of such overruns or underruns.

SECTION 105 - CONTROL OF WORK

105.01 Notice to Proceed

Add the following:

Notice to Proceed will be issued within seven (7) calendar days after the execution of the Contract by the Authority.

Contractor shall submit CPM schedule as detailed in Section 103.06 within fourteen (14) days of issuance of Notice to Proceed by the Authority.

105.06 Subcontracting

Add the following:

Except as noted below, the consent to sublet any part of the work, or obtain supplies, shall not be construed to be an approval of the said subcontract, supply contract or any of its terms, but shall operate only as an approval of the making of a subcontract or supply contract between the Contractor and Subcontractor or Supplier. The Subcontractor agrees, as a condition of entering into a subcontract on the project, that the Contractor shall make no claim whatsoever against the Authority, the Engineer, or any of their officers, servants, agents or employees for any work performed or thing done by reason of said subcontract, or for any other cause whatsoever that may arise by reason of the relationship created between the Contractor and Subcontractor unless the proposed Subcontractor furnishes a statement to the effect that said Subcontractor is acquainted with all provisions of the Contract and agrees thereto.

In the case of extra work to be performed on a force-account basis, if any portion of such work is proposed to be sublet on the basis of negotiated unit and/or lump-sum prices instead of on a force-account basis, then such negotiated unit and/or lump-sum prices shall first meet with the approval of the Engineer before consent will be given to sublet the work.

Sublet work shall not begin until approval thereof has been secured from the Engineer. It is understood, however, that any consent by the Engineer for the subletting of any of the work under the Contract in no way relieves the Contractor from the Contractor's full obligations under the Contract. The Contractor shall be responsible for all acts of omissions of any Subcontractor or Supplier.

105.13 State Force Construction Surveying

This Section is deleted in its entirety. All construction surveying shall be the responsibility of the Contractor.

105.15 Removing and Disposing of Structures and Obstructions

This section is amended as follows:

All materials removed by the Contractor as specified therein, shall become the property of the Contractor, except as may be otherwise specifically required, and shall be legally disposed of by the Contractor off of RMTA property.

105.19 Submission and Disposition of Claims

This section of the Specifications is completely replaced by the following:

(a) Alleged Damages and Exceptions. Early or prior knowledge by the Authority of an existing or impending claim for damages might alter the plans, scheduling and other actions of the Authority or result in mitigation or elimination of the effect of the act objected to by the Contractor. Therefore, a written statement describing (1) the act of omission or commission by the Authority or its agents that allegedly caused or will likely cause damage to the Contractor and (2) the nature of the claimed damage must be submitted to the Engineer at the time of occurrence or beginning of the work upon which the claim and subsequent action is based. If such damage is reasonable likely to result from the Contractor's acting upon an order emanating from the Engineer, the Contractor shall take written exception, delivered to the Authority, to such order immediately. Submission of such written statement or exception, as specified, shall be mandatory. Failure to submit such written statement or exception shall be a conclusive waiver of such damages or exception by the Contractor. Mere oral notice or statement will not be sufficient, nor will notice or statement after the event.

(b) Additional Compensation. At the time of occurrence or prior to beginning the work the Contractor shall furnish the Engineer, in writing, an itemized list of materials, equipment, and labor for which additional compensation will be claimed. The contractor shall afford the Engineer every facility for keeping an actual cost record of the work. The Contractor and the Engineer shall compare records and bring them into agreement at the end of each day. Failure on the part of the Contractor to afford the Engineer proper facilities for keeping a record of actual costs will constitute a conclusive waiver of a claim for such extra compensation except to the extent that it is substantiated by the Authority's records. The filing of such notice by the Contractor and the keeping of cost records by the Engineer shall in no way establish the validity of a claim. Failure to submit such written itemized list shall be a conclusive waiver of such claim for additional compensation. Mere oral notice or statement will not be sufficient, nor will notice or statement after the fact.

(c) Verification. If the Contractor's claim contains data furnished by the Contractor that cannot be verified by the Authority's records, the data shall be subject to complete audit by the Authority or its authorized representative if they are to be used as a basis for claim settlement.

(d) Claims Procedure. Upon completion of the Contract, the Contractor may, within 60 calendar days from expiration of the period for review of the Final Estimate by the Contractor as provided in Section 109.10, submit to the Authority a written claim (original plus three legible copies) for such amount as the Contractor deems it is entitled to under the said contract setting forth the facts upon which said claim is based and including all pertinent data and correspondence which may substantiate the claim, provided that written notice of intention to file such claim shall have been given to the Authority at the time of occurrence or beginning of the work upon which claim and subsequent action is based. Failure of the Contractor to furnish any of the items required by Section 109.10 as prerequisite to the issuance of final payment shall not extend the time

period in which the Contractor may submit a claim under this or any other section of the Contract. If the claim is not disposed of by agreement, then within 90 calendar days from receipt of said claim, the Authority will make an investigation and notify the Contractor by registered or certified mail, return receipt requested, of its decision; however, the Authority and Contractor may, by mutual agreement, extend such 90 calendar day period for another 30 calendar days. The decision of the CEO of the Authority shall be final, and failure of the Contractor to comply with the provisions of this section shall constitute a conclusive waiver of any such claim hereunder.

SECTION 106 - CONTROL OF MATERIAL

106.01 Source of Supply and Quality Requirements

This section is amended to add the following:

The Contractor shall not use in preparation of the bid nor on construction of this project any supplier or material person, hereinafter referred to simply as supplier, debarred by the Virginia Department of Transportation as of the date of advertisement.

It shall be the responsibility of the Bidder to determine from the Department's listings which suppliers are debarred as of the date of advertisement of this project. Such listings will be posted in the office of the Contract Engineer, 1401 E. Broad Street, Richmond, Virginia and in each District Office.

The Engineer will not approve for use any material furnished by a supplier debarred by the Department.

If subsequent to award of this contract, a previously debarred supplier is reinstated to eligibility, the Engineer may approve the use of that supplier on this project when requested by the Contractor and after consideration of all relevant factors.

106.02 Material Delivery

This section is amended as follows:

Contractor's invoices for materials delivered to the site shall show actual prices for such materials.

106.04 Disposal Areas.

The entire third paragraph under section (a) of the Specification is deleted.

SECTION 107 – LEGAL RESPONSIBILITIES

107.12 Responsibility for Damage Claims

Delete the first line of paragraph (a) and substitute:

"The Contractor shall indemnify and save harmless the Authority, the Engineer and its…"

Add the following statement to the end of paragraph (b):

". . . the contract provided, however, that the Authority and, where applicable, the Engineer are intended beneficiaries of this Contract and shall have standing to enforce the provisions of this Contract including the right to indemnification and the right to ascertain claims for damages.

Add the following after the last paragraph of this section:

In connection with the indemnification assumed by the Contractor by virtue of this section, but without limitation or release of the Contractor's responsibility for such indemnification or any other liability hereunder, the Contractor shall provide the following types and minimum amounts of insurance coverage for this project:

(a) Contractor's Comprehensive General Bodily Injury and Property Damage Liability Insurance, including Contractor's Protective Liability Insurance and Contractual Liability Insurance:

(1) One (1) person in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(2) Two (2) or more persons in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(3) Property Damage in any one (1) occurrence, amount One Million Dollars ($1,000,000), with aggregate property damage policy limit of One Million Dollars ($1,000,000).

The portion of the policy dealing with property damage liability shall contain a provision of endorsement providing insurance protection against property damage,

including loss of use, caused by explosion and/or collapse, and against damage to existing underground and overhead pipes, cables, ducts and other such facilities, whether or not such facilities appear on available plans and whether or not accurately located on such plans.

The Contractual Liability Insurance policy shall contain an endorsement attesting to the Contractor's responsibilities for indemnification set forth in this section. Insurance certificates shall specifically indicate the inclusion of such an endorsement with particular reference to the Contract number and to "Compliance with Sec. 107.13 of the Specifications."

(b) Comprehensive Automobile and Truck Liability Insurance including coverage for Contractor's automotive equipment (and including non-owned and hired vehicles):

(1) One (1) person in any (1) occurrence, amount One Million Dollars ($1,000,000).

(2) Two (2) or more persons in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(3) Property damage in any one (1) occurrence, amount One Million Dollars ($1,000,000).

(c) Workmen's Compensation Insurance - Statutory. Employer's Liability Insurance in the amount of Five-Hundred Thousand Dollars ($500,000).

If any part of the work is sublet, similar insurance shall be obtained by or on behalf of the Subcontractor to cover the Subcontractor’s operation.

The insurance specified shall be with an insurance company acceptable to the parties hereto and licensed to do business in the State of Virginia. All insurance must be obtained before any work is commenced and kept in effect until its completion.

In compliance with Sec. 103.06, satisfactory evidence, in triplicate, of all required insurance coverage, including special endorsements, shall be forwarded to the Authority for approval within fourteen (14) Calendar Days after the date of written notice of Award of Contract. All insurance coverage must be approved by the Authority before the Contract will be executed by the Authority.

The Authority's approval of insurance furnished by the Contractor, or its failure to disapprove such insurance shall not relieve the Contractor of full responsibility for liability, damages and accidents as set forth elsewhere herein.

All policies required above shall include an endorsement requiring thirty (30) calendar days prior written notice to the Authority before any change or cancellation is made effective.

All policies required shall be maintained until completion and acceptance of all work under this Contract.

No separate payment will be made for the cost of the insurance herein specified but the Contractor shall include the cost of such insurance in the prices bid for the various items scheduled in the Bid.

107.19 Railway - Highway Provisions

This section is amended as follows:

CSX Transportation

When performing work on, over or adjacent to CSX Transportation (CSXT) right-of-way or operations, the Contractor must abide by the current CSXT Special Provisions, CSXT Construction Submission Criteria, Construction Requirements, and Insurance Requirements.

All construction related correspondence and submittals will be directed to HNTB, acting as Engineer on behalf of the Richmond Metropolitan Transportation Authority. The Authority and the Engineer will have the sole responsibility and authority for submitting the Contractor's construction submissions and coordinating all reviews with CSX Transportation.
The Contractor shall submit complete Construction Submission packages for all areas that may require a construction agreement within 15 calendar days of Notice to Proceed. The Authority shall have up to 7 calendar days to review all submittals. The Contractor shall address any comments and submit revised Construction Submission packages for all areas that may require a construction agreement within 30 calendar days of Notice to Proceed.

If any submissions are returned not approved by CSX Transportation, the Contractor shall have 7 calendar days after receipt of comments to address any comments and submit revised Construction Submission package(s).

Failure of the Contractor to meet the time schedules listed above in Section 107.19 shall be considered a Failure to Complete on Time subject to the Liquidated Damages as described in

Section 108.06. All construction related correspondence shall be considered "submitted" on the date that it is received by the Authority.

Contractor shall coordinate all work activities in the areas described below with the Richmond Metropolitan Transportation Authority or its authorized representative.

Bridge:	Location	Repairs:	Railroad Owner:
67	Pier 1	Shotcrete	CSX Corp.
8N	Piers 14, 15	Shotcrete	CSX Corp.
9N	East Abutment	Steel Repair	CSX Corp.
13	Piers 2, 3	Concrete Coating	CSX Corp.

Contractor hereby agrees to fully execute Schedule I – Contractor's Acceptance and to abide by and perform all applicable terms of the Construction Agreement between CSXT and the Richmond Metropolitan Transportation Authority, including, but not limited to Exhibits C and F to the Agreement, and Sections 3, 9 and 11 of the Agreement. A copy of this agreement, construction requirements and submission criteria are included in the contract documents.

The cost for flagger or watchperson services near CSXT tracks for work performed under this MR – 2018 Contract will be paid by the Richmond Metropolitan Transportation Authority.

Norfolk Southern Corporation

When performing work on, over or adjacent to Norfolk Southern Corporation. (NS Corp.) right-of-way or operations, the Contractor must abide by the current NS Corp. Special Provisions, Construction Submission Criteria, Construction Requirements, and Insurance Requirements.

All construction related correspondence and submittals will be directed to NS Corp. with a copy to HNTB acting as Engineer on behalf of the Richmond Metropolitan Transportation Authority. The Contractor will have the sole responsibility and authority for submitting and coordinating all reviews with NS Corp.

The Contractor shall submit complete Construction Submission packages for all areas that may require a construction agreement within 15 calendar days of Notice to Proceed.
The Contractor shall address any comments and submit revised Construction Submission packages for all areas that may require a construction agreement within 30 calendar days of Notice to Proceed.

If any submissions are returned not approved by NS Corp. the Contractor shall have 7 calendar days after receipt of comments to address any comments and submit revised Construction Submission package(s).

Failure of the Contractor to meet the time schedules listed above in Section 107.19 shall be considered a Failure to Complete on Time subject to the Liquidated Damages as described in Section 108.06. All construction related correspondence shall be considered "submitted" on the date that it is sent to NS Corp.

Contractor shall coordinate all work activities in the areas described below with the Richmond Metropolitan Transportation Authority or its authorized representative.

The cost right of entry permits, and for flagger or watchperson services near NS Corp. tracks for work performed under this Miscellaneous Repairs – 2018 Contract will be paid by the Contractor.

SECTION 108 - PROSECUTION AND PROGRESS OF WORK

108.04 Determination and Extension of Completion Date

In the second paragraph of this section, substitute the number "75" for the number "60" wherever it appears.

108.06 Failure to Complete on Time

Sub-section (B) is completely replaced by the following:

CONTRACTOR WAIVES ANY DEFENSE AS TO THE VALIDITY OF ANY LIQUIDATED DAMAGES STATED IN THIS CONTRACT ON THE GROUNDS THAT SUCH LIQUIDATED DAMAGES ARE VOID AS PENALTIES OR ARE NOT REASONABLY RELATED TO ACTUAL DAMAGES.

SECTION 109 - MEASUREMENT AND PAYMENT

109.06 Common Carrier Rates.

This Section of the Specifications is deleted in its entirety.

109.08 Partial Payments

This section is completely replaced by the following:

Partial payments will be made once each month covering work performed and materials complete-in-place in accordance with the contract and for materials delivered in accordance with Sec. 109.09 on and between the 5th day of a month and the 4th day of the succeeding month as the work progresses. Partial payments will be made on the value of work performed based on approximate estimates prepared by the Engineer, provided, however, that no estimate shall be certified or payment made where the net amount receivable by the Contractor is less than Five-hundred Dollars ($500.00). The value of work done on items measured on a unit basis will be determined on a pro rata basis. If the Engineer determines that the Contractor has been overpaid, all further partial payments may be credited against such overpayment.

The Engineer will review the partial payment estimate with the Contractor's representative prior to each partial payment.

From the total of the amounts so determined will be deducted an amount equivalent to five (5) percent of the whole, which will be retained by the Authority until completion of the entire Contract in an acceptable manner and the balance, less all previous payments, shall be certified for payment.

Total Contract value shall be considered to mean the original amount of the Contract, except when the Contract is increased or decreased by a supplemental agreement in which case the adjusted total shall be used.

The Authority reserves the right to withhold the payment of any partial or final estimate voucher or any sum or sums thereof from such vouchers in the event of the failure of the Contractor to promptly make payment to all persons supplying equipment, tools or materials, or for any labor used by the Contractor in the prosecution of the work provided for in the Contract, and for any other cause as determined by the Authority in its sole discretion, including overpayment on previous partial payments.

109.10 Final Payment

This section of the Specifications is completely replaced by the following:

After final inspection and final acceptance of the project has been made by the Engineer, as provided in Sec. 108.09, the Engineer will prepare the final estimate of item quantities and amounts for the completed work. The Contractor will be afforded a period of fifteen (15) calendar days from the date of the final estimate to review the final estimate at the Authority's office.

As a prerequisite to the issuance of final payment, the Contractor will be required to furnish the following items to the Engineer:

(a) An executed SWaM Participation form (on the Authority's standard form) attesting to actual amounts fully paid to each Small, Women, and Minority Owned (SWaM) businesses and/or Disadvantaged Business Enterprises (DBE).

(b) An executed Final Release of Liability (on the Authority's standard form) attesting to the fact that all bills, charges and salaries for labor, services, materials and rental of equipment, arising out of the prosecution of work under this Contract have been fully paid or arrangements satisfactory to the Engineer therefore have been made and all other just demands and liens relating to this project fully satisfied or arrangements to the Engineer therefore have been made, and releasing the Authority and their representatives from all claims, demands and liability of whatsoever nature from anything done or furnished under this Contract, except to the extent only as to such matters for which unresolved claims have been submitted by the Contractor in accordance with Section 105.19 hereof;

(c) Sworn statements of any property owners or other parties who may have had any claims against the Contractor or liens against the project, evidencing that all their claims and liens are fully satisfied or provided for and the Contractor and Authority are released there from;

(d) Any other documents, invoices, releases or objects which the Engineer may request in finalizing the Contract.

After the above items have been forwarded to the Engineer, and the final estimate and certificate for final payment sent to the Authority with the Engineer's recommendation for acceptance, the Contractor will be paid the total Contract amount less the amounts of all previous partial payments and less any imposed liquidated damages. This net amount will be subject to any increase or decrease resulting from corrections to any errors in previous partial payments that may be detected at this time and to deductions for unacceptable work not corrected by the Contractor as required hereunder.

This final payment will become due and payable to the Contractor within ninety (90) calendar days after the date when all the above listed documents and tracings have been received by the Engineer and acknowledged in writing by the Contractor. The Contractor will be entitled to interest on the final payment amount at the rate of four (4) percent per annum for the length of time beyond said 90 calendar days period that the final payment should remain unpaid.

SECTION 411—PROTECTIVE COATING OF METAL IN STRUCTURES

411.01 Description

This section is amended to include the following:

Regulatory Agencies

The Contractor shall perform all work in accordance with accepted construction standards and in compliance with Steel Structures Painting Council (SSPC), Occupational Safety and Health Act (OSHA), United States Coast Guard (USCG), United States Environmental Protection Agency (EPA), Virginia Air Pollution Control Board (VAPCB), Virginia Department of Environmental Quality (VDEQ) and other regulatory agencies' rules, regulations, standards and guidelines currently in effect.

Superintendent

The Contractor shall furnish a competent superintendent who is thoroughly familiar with the above regulations, the specified requirements and the methods needed for proper performance of the work. The superintendent's experience record shall be submitted to the Authority for review and approval. The superintendent shall plan, direct, coordinate, and supervise all of the work.

Quality Control

The Contractor shall be responsible for quality control on this project. The Contractor's site supervisor shall be equipped with thermometers, relative humidity gauges, wet and dry film thickness gauges and shall monitor all of the cleaning and painting operations. The Engineer will monitor work daily.

Classification

All surfaces shall be classified as Type B, unless otherwise noted.

Schedule

Contractor shall coordinate Coatings work schedules and Maintenance of Traffic patterns with adjacent contractors on site for other Authority contracts.

411.02 Materials

This section is amended to include the following:

Soluble Salt Remover: If chloride level is found to be above the threshold level (as described in Section 411.04), the contractor shall add a commercial soluble salt remover to the Method 7 preparation (pressure wash) as described in Section 411.04. In the first 50 sq ft, the

contractor shall test the worst deteriorated areas to determine the required rate of application, nozzle pressure, nozzle distance from surface, and dilution ration of mixture to achieve the desired level of cleanliness. Testing shall be the CHLOR*TEST method.

The Soluble Salt Remover shall be CHLOR*RID or Engineer approved equal. CHLOR*RID is manufactured by CHLOR RID International, Inc. of Chandler, AZ, PH: 800-422-3217. The material shall meet or exceed the following specifications:

- Material shall contain zero VOC's.
- Material shall have a minimum shelf life of 24 months.
- Material shall be suitable for hand washing spot areas and for application by pressure washer at any pressure.
- Material shall be biodegradable.

The Soluble Salt Remover shall be used in accordance with all manufacturer's recommendations, specifications and directions.

411.04 General Surface Preparation and Application Standards

This section is amended to include the following:

All wash water shall be filtered with a 40 or finer mesh material to catch particles of paint and debris.

The Engineer or Engineer's representative will test the existing coatings for chloride contamination by the CHLOR*TEST (chloride test kit) method. Testing shall be completed at a minimum of one location per pier and one location per span. The maximum allowable level of chloride contamination shall be 5 micrograms/cm2. When the chloride test results indicate a chloride level of 5 micrograms/cm2 or greater, a soluble salt remover shall be added to the wash water as specified in Section 411.02. CHLOR*TEST results will be made available to the contractor.

If the Engineer allows the Contractor to complete the CHLOR*TEST, the Engineer shall approve and document each test.

If the contractor prefers to forego Engineer's testing of contaminated areas, Contractor shall have the option to include CHLOR*RID in all Method 7 wash water.

Cleaned steel surfaces shall be tested for soluble salt levels after all preparation and cleaning methods are completed but prior to the start of any coating activities. The maximum

level of soluble salt shall be 5 micrograms/cm2. If test results show a higher level of soluble salt, Contractor shall re-wash surface with CHLOR*RID until soluble salt contamination level is less than 5 micrograms/cm2.

See Special Provisions for further details on structures and surfaces to be coated.

411.04(B) General Surface Preparation and Application Standards – Physical Application

This section is amended to include the following:

All coating color formula, except for Bridges 61 and 62 shall be RMTA Green, which is Federal Standard I.D. #595-24227, or as otherwise directed by the Engineer. Contractor shall submit a color sample for review and approval by the Engineer.

All abrasive blast cleaned surfaces shall receive the following three-coat zinc, epoxy and urethane system or engineer approved equal:

- AMERCOAT 68HS – Zinc Rich Epoxy Primer 2-5 mils D.F.T.
- AMERCOAT 399 – Fast Dry, High Solids Epoxy 4-8 mils D.F.T.
- AMERCOAT 450H – Gloss Acrylic Aliphatic Polyurethane 2-3 D.F.T.

All high-pressure water cleaned and power tool cleaned surfaces shall receive the following three coat sealer, epoxy and urethane system or engineer approved equal:

- AMERLOCK Sealer Primer 1-2 mils D.F.T.
- AMERCOAT 399 Epoxy 4-8 mils D.F.T.
- AMERCOAT 450H Acrylic Aliphatic Polyurethane 2-3 mils D.F.T.

411.11 Measurement and Payment

This section is amended to include the following:

Measurement and payment for "Zone Coating", "Environmental Protection" and "Disposal of Material" shall be paid per individual structure on a lump sum basis per activity and per structure location. Surface preparation effort shall be included in the lump sum price bid for Zone Coating. Structure surfaces to be coated shall be as defined in the Special Provisions.

SECTION 512 - MAINTAINING TRAFFIC

512.01 Description

The following is added to this section:

The Contractor shall schedule the Contractor's operations in a manner as to not adversely affect traffic conditions. At all locations, the Contractor shall schedule the Contractor's operations in such a manner that all available traffic lanes are open to traffic on Commonwealth of Virginia holidays, the day preceding holidays and the day after holidays. If a holiday falls on a Saturday, Monday shall be considered the preceding day. If a holiday falls on a Sunday, Monday shall be considered the day after. Ramp traffic (unless otherwise noted) shall be maintained at all times.

The Engineer reserves the right to require the Contractor to provide a proposed maintenance of traffic plan for all lane closures 7 calendar days prior to closure. The Engineer shall coordinate the maintenance of traffic plan with the RMTA and provide any changes and additions required prior to the lane closure. In the event that a detour route is detailed in the contract drawings, the Contractor shall be required to provide a traffic plan for installing and removing the proposed detour route.

The Contractor shall not utilize shoulders, median or similar areas for storage of equipment or material including vehicles used by Contractor's personnel to access the site. Any stored equipment shall be placed behind guardrail or concrete barriers.

The Contractor shall provide continuous monitoring of traffic control devices as part of the effort required to maintain them. Additionally, the Contractor shall possess a minimum of one spare operable electronic arrow on site only when directed by the Engineer.

When night work is in progress, the Contractor shall provide sufficient lighting of the work site(s) to enable the satisfactory completion of the work. Lighting shall be arranged so as not to interfere with or impede traffic approaching the worksite(s). Payment for lighting of the work site shall be covered in other pay items and will not be measured for payment.

512.03 Procedures

Add the following:

See Maintenance of Traffic Special Provision for specific bridge and lane closure restrictions, assessment of damages due to MOT violations and certified personnel requirements.

All maintenance of traffic operations shall be conducted in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), the Virginia Work Area Protection Manual, and subject to the approval of the Engineer, VDOT, City of Richmond, and the RMTA. The Contractor's signing and MOT shall consider the efforts of adjacent contractors, motorists and pedestrian traffic.

The Contractor shall submit a plan sequenced with a plan of operations, for maintenance of traffic and detours to the Engineer for review and approval prior to commencement of work in a specific area. The plan shall be in accordance with the Virginia Work Area Protection Manual and the MUTCD. Plan shall be submitted at least 7 days prior to proposed work start date. If and when the Engineer provides sequence of construction plans and estimated quantities for maintenance of traffic items, the plans and items are for estimating purposes only.

512.04 Measurement and Payment

This section is replaced with the following:

Any maintenance of traffic required for coating locations paid under the "Miscellaneous Coating" bid item or for Various Bridges shall be paid for under the following items:

Flagger Service will be measured in hours as authorized or approved by the Engineer except when used for the Contractor's convenience, such as for ingress and egress for moving construction equipment or materials. In such cases, payment will not be made for flagger service. Flagger service will be paid for at the contract unit price per hour. This price shall include paddles, safety equipment, and portable traffic control signals.

Electronic Arrows will be measured in hours of actual use as required by the Engineer. Electronic arrows will be paid for at the contract unit price per hour. This price shall include arrow panels, fuel, maintenance, and a truck or trailer having flashing amber warning lights. The RMTA reserves the right to substitute their Electronic Arrow in lieu of Contractor's at the RMTA's direction. RMTA Electronic Arrow shall be operated by RMTA staff only. Contractor shall not submit or be paid for Electronic Arrow hourly pay units for when the RMTA's Electronic Arrow is in service.

Group 2 Channelizing Devices, as required by the Engineer, will be measured in days and will be paid for at the contract unit price per day. This price shall include maintaining devices, removing devices when no longer required, and signs. When Group 2 channelizing devices are moved to a new location or are removed and re-installed at the same location, they will be measured for separate payment. However, when the Group 2 channelizing devices are moved

from one lane to another by simply moving the devices across the lane edge line without removal from the roadway, no additional payment will be made.

Truck-Mounted Attenuator (TMA) will be measured in hours of actual use and will be paid for at the contract unit price per hour. This price shall include the truck-mounted attenuator; support vehicle; lights; electronic arrows if allowed but not required; and maintenance. When electronic arrows are used at the option of the Contractor in lieu of the rotating or high-intensity amber strobe light, the cost of the electronic arrow shall be included in the price bid for truck-mounted attenuators. When electronic arrows are required and not only allowed on the truck-mounted attenuator support vehicles, they will be paid for separately. The RMTA reserves the right to substitute their TMA in lieu of contractor's TMA at the RMTA's direction. RMTA TMA shall be operated by RMTA staff only. Contractor shall not submit or be paid for TMA hourly pay units for when the RMTA's TMA is in service.

Payment will be made under:

Pay Item	Pay Unit
Flagger Service	Hour
Electronic Arrow	Hour
Group 2 Channelizing Device	Day
Truck-Mounted Attenuator	Hour

The RMTA reserves the right to substitute their Portable Changeable Message Sign (PCMS) in lieu of contractor's PCMS at the RMTA's direction. Contractor shall not submit or be paid for PCMS hourly pay units for when the RMTA's PCMS is in service. When Contractor's PCMS is used, PCMS will be measured and paid for in hours of use.

SECTION 514 - FIELD OFFICE

This section of the Specifications is completely replaced by the following:

A field office is not required for this project.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

SPECIAL PROVISIONS

To

VIRGINIA DEPARTMENT OF TRANSPORTATION

2016 ROAD AND BRIDGE SPECIFICATIONS

FOR

RICHMOND EXPRESSWAY SYSTEM

CONTRACT NO. MR-2018
MISCELLANEOUS REPAIRS

CONTENTS

CONTENTS

SPECIAL PROVISION
TOLL COLLECTION PASS CARDS

DESCRIPTION

This provision details the disbursement and return of Toll Collection Pass Cards (Cards).

PROCEDURES

The Contractor shall provide the Engineer and the RMTA with a written request for Cards within 7 calendar days prior to work start. The written request shall contain, but not be limited to, the number of Cards requested, names and addresses of the individuals to whom the Cards shall be assigned, a brief but thorough explanation why each individual requires a Card, and the anticipated time frame for each individual to require the Card.

The Engineer shall review the Request for Cards within 7 calendar days of receipt of Request. The RMTA, via the Engineer, may provide between zero and the total number of Cards requested.

Cards cannot be used in the Open Road Tolling (ORT), or "Express", lanes located on northbound and southbound Powhite Parkway and on the westbound Downtown Expressway (DTE). At these Toll Plazas, Contractors' vehicles must go through a "Full Service" lane to use Toll Pass Cards.

In the event that the Contractor is required to use the ORT lanes to perform Maintenance of Traffic operations, and with the approval of the Engineer, arrangements be made to permit designated vehicles to use the ORT lanes with compensation. Other than said designated vehicles, additional Contractor's vehicles using the ORT lanes will not be compensated and are required to purchase an E-ZPass Transponder.

Prior to the distribution of a Card, the individual designated to receive a Card shall be required to provide a picture ID (driver's license preferred) of him- or herself, their home phone number, the name of their employer, their employer's address, and their employer's phone number. In addition, each person receiving a Card is required to sign a statement of fact that the Card shall be used only for and during the execution of RMTA contract obligations. Misuse of any Card by an individual shall result in the immediate revocation of Card privileges. Engineer shall notify individual's company and the Contractor of the assumed Card misuse. The Contractor is responsible for returning the misused Card to the Engineer within 48 hours of notification.

In addition, all Cards issued in accordance to this contract shall be returned to the Engineer within 48 hours after completion of work. Failure to return all Cards may result in delays in processing of the final payment.

SPECIAL PROVISION
MAINTENANCE OF TRAFFIC

MAINTENANCE OF TRAFFIC

All maintenance of traffic operations shall be conducted in accordance with the most current versions of the Manual on Uniform Traffic Control Devices (MUTCD), the Virginia Work Area Protection Manual (WAPM), and subject to the approval of the Engineer, VDOT, City of Richmond, and the RMTA. The Contractor shall prepare and submit a Maintenance of Traffic (MOT) Plan for review and approval by the Engineer for each phase of construction. The Contractor's signing and MOT plan shall consider the efforts of adjacent contractors, motorists and pedestrian traffic.

The Contractor shall provide the Engineer no less than 7 calendar days notice before closing any lane, ramp or bridge. A minimum of 10 calendar days notice is required if the request is to close Boulevard Bridge. A minimum of 14 calendar days notice is required if the request is to close any lane that would impact or extend onto a VDOT/City of Richmond roadway. Approval to close any ramp or bridge is subject to review and consideration of event traffic in the vicinity.

No work or installation of any MOT devices may commence unless the work can be completed and the area reopened to traffic within the allowable lane closure hours, AND the Contractor has a contingency plan approved by the Engineer. No less than (7) calendar days prior to beginning the work, the Contractor shall submit a contingency plan to the Engineer for approval. This plan shall detail temporary protective measures to allow for restoration of the road for use when the Contractor is unable to complete a repair due to unusual circumstances beyond his control. Temporary protective measures shall only be used in emergency situations and are not allowed to remain in place for an extended period of time without authorization by the Engineer.

The Contractor shall be aware that no traffic control devices (such as Group II channeling devices, cones, Arrow Boards, etc.), with the exception of advance warning signs, shall be placed on any median, roadway or shoulder prior to the time shown. Advance warning signs may be placed not more than thirty (30) minutes prior to the begin time in this special provision. All traffic control devices including advance warning signs and detours shall be removed, the roadway free of debris, and the lane open to traffic by the end time in this special provision.

The Contractor shall be aware that failure to comply with the times set forth in this special provision could result in liquidated damages.

Prior to setting any lane or shoulder closures, the Contractor shall meet with the Engineer to review MOT for each of the lane closures the Contractor intends to perform. The Contractor shall prepare a sketch identifying the signs to be used and their respective locations. Sketches shall be prepared in accordance with the current version of the WAPM. The Contractor shall coordinate these meetings with the Engineer, so that the RMTA has no less than (7) days after

the meeting ends, to advise the motoring public of upcoming traffic restrictions. Maintenance and installation of all lane closures shall be the sole responsibility of the Contractor.

DOWNTOWN EXPRESSWAY (DTE) & BELTLINE EXPWY. CONNECTOR TO DTE

Eastbound DTE/Northbound Connector: The road is to be clear by 6:00 a.m.
Westbound DTE/Southbound Connector: The road is to be clear by 3:00 p.m.

TIMES OF ALLOWABLE SINGLE LANE CLOSURES:

(1) E.B. DTE / N.B. Connector:

A. Weekdays – 10:00 a.m. to 6:00 a.m.
B. eekends – 10:00 a.m. Friday – 6:00 a.m. Monday

(2) W.B. DTE / S.B. Connector:

A. Weekdays – 6:00 a.m. to 3:00 p.m. & 7:00 p.m. to 6:00 a.m.
B. eekends – 7:00 p.m. Friday – 3:00 p.m. Monday

TIMES OF ALLOWABLE MULTIPLE LANE CLOSURES: Multiple lane closures which restrict open lanes to (1) one in a single direction.

(1) E.B. DTE / N.B. Connector:

A. Weekdays – 7:00 p.m. to 6:00 a.m.
B. eekends – RMTA shall decide allowable times based on individual weekend request by Contractor

(2) W.B. DTE / S.B. Connector:

A. Weekdays – 9:00 p.m. to 6:00 a.m.
B. Weekends – RMTA shall decide allowable times based on individual weekend request by Contractor

NUMBER OF LANES CLOSED (ANY DIRECTION)

- All roadways must have a minimum of (1) one lane open at all times. If a full roadway closure is required, the Contractor, the Authority and the Engineer shall schedule a mutually agreeable time. The length of the full closure shall be minimized by the Contractor.

- Where three (3) or more roadway lanes exist, the number of lanes which the Contractor may close is at the Engineer's discretion, based on the geometry of the area where lane/shoulder closures are desired.

DTE TOLL PLAZA (GATED LANES) AND EXPRESS LANES (ORT ZONE) RESTRICTIONS

NUMBER OF LANES CLOSED W.B DTE TOLL PLAZA (GATED LANES)

- No more than one lane closure will be permitted at any time for the cash lanes 43-46.
- One (l) Full Service lane must remain open at all times.
- No Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.
- Lane 45 (Secure Booth) may not be closed from 11:00 p.m. to 7:00 a.m. any day

NUMBER OF LANES CLOSED E.B DTE TOLL PLAZA (GATED LANES)

- There shall be at least three toll lanes open in a single direction at all times.
- One (l) Full Service lane must remain open at all times.
- No Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.
- Lane 55 (Secure Booth) may not be closed from 11:00 p.m. to 7:00 a.m. any day

NUMBER OF LANES CLOSED W.B DTE EXPRESS (ORT) LANES

- No more than two lane closures will be permitted at any time for the WB express lanes 47- 49.
- No Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.

DOWNTOWN EXPRESSWAY (DTE) RAMP CONNECTIONS TO/FROM I-95

Lane closures on Bridges 63 and 66 shall only be permitted at nights between 9 P.M. and 6 A.M. and on weekends between 9 P.M. Friday and 6 A.M. Monday. Closures of Ramp Bridges 64, 65, 67 and 68 shall only be permitted at nights between 10 P.M. and 5 A.M weekdays, and on weekends between 5 A.M. Saturday and 5 A.M. Monday.

There shall be no total closures of the either the eastbound Downtown Expressway (DTE) or westbound DTE permitted; One lane shall be maintained on Bridge 63 and Bridge 66 at all times. In addition, Contractor shall maintain at least one ramp entering and at least one ramp exiting the city at all times; Bridge 64 shall not be permitted to be closed while Bridge 65 is closed and Bridge 67 shall not be permitted to be closed while Bridge 68 is closed.

All lane closures must be coordinated with VDOT, RMTA and the Engineer for final approval of dates and times. Contractor shall notify VDOT Smart Traffic Center at 804-796-4520 to advice of the lane closure status of these bridges

POWHITE PARKWAY

Northbound/Eastbound: The road is to be clear by 6:00 am.
Southbound/Westbound: The road is to be clear by 3:00 pm.

TIMES OF ALLOWABLE SINGLE LANE CLOSURES:

(1) Northbound/Eastbound:

A. Weekdays – 10:00 a.m. to 5:00 a.m.
B. eekends – 10:00 a.m. Friday – 5:00 a.m. Monday

(2) Southbound/Westbound:

A. Weekdays – 6:00 a.m. to 3:00 p.m. & 7:00 p.m. to 6:00 a.m.
B. eekends – 7:00 p.m. Friday – 3:00 p.m. Monday

TIMES OF ALLOWABLE MULTIPLE LANE CLOSURES: Lane closures which restrict open lanes to (1) one in a single direction.

(1) Northbound/Eastbound:

A. Weekdays – 9:00 p.m. to 5:00 a.m.
B. eekends – RMTA shall decide allowable times based on individual weekend request by Contractor

(2) Southbound/Westbound:

A. Weekdays – 9:00 p.m. to 6:00 a.m.
B. eekends – RMTA shall decide allowable times based on individual weekend request by Contractor

LANE RESTRICTIONS (ANY DIRECTION)

- All roadways must have a minimum of (1) one lane open at all times.
- Where three (3) or more roadway lanes exist, the number of lanes which the Contractor may close is at the Engineer's discretion, based on the geometry of the area where lane/shoulder closures are desired.

<u>POWHITE PARKWAY TOLL PLAZA (GATED LANES) AND EXPRESS LANES (ORT ZONE) RESTRICTIONS</u>

NUMBER OF LANES CLOSED POWHITE N.B. AND S.B. TOLL PLAZAS (GATED LANES)

- There shall be at least three toll lanes open in a single direction at all times.
- One (l) Full Service lane must remain open at all times.
- No NB Toll Lane shall be closed from 5:00 a.m. to 10:00 a.m.
- No SB Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.
- Lane 3 and Lane 12 (Secure Booths) may not be closed between 11:00 p.m. to 7:00 a.m. any day

NUMBER OF LANES CLOSED POWHITE EXPRESS (ORT) LANES

- No more than two lane closures will be permitted at any time for the NB express lanes 90- 92.
- No more than two lane closures will be permitted at any time for the SB express lanes 93- 95.
- No NB ORT Toll Lane shall be closed from 5:00 a.m. to 10:00 a.m.
- No SB ORT Toll Lane shall be closed from 3:00 p.m. to 7:00 p.m.

EXIT AND ENTRANCE RAMP TOLL PLAZAS

TIMES AND NUMBERS OF TOLL LANE CLOSURES (ANY DIRECTION)

No toll lane closures shall be permitted during peak hours each weekday. Peak hours are 6:00 a.m. to 10:00 a.m. for EB or NB ramps and 3:00 p.m. to 7:00 p.m. for WB or SB ramps.

- The number of lanes which the Contractor may close is at the Engineer's discretion, based on the geometry of the area where lane/shoulder closures are desired.
- The Authority and the Engineer shall schedule a mutually agreeable time.
- The length of the full closure shall be minimized by the Contractor.

The Contractor shall provide the Engineer no less than 7 calendar days notice before closing any given toll lane or any exit or entrance ramp. Pick up operation shall commence no later than 30 minutes prior to closing period(s) referenced above.

The Contractor shall provide written notice to the Engineer a minimum of 7 calendar days notice before any lane or ramp closures. The RMTA and the Engineer reserve the right to restrict dates and times of proposed lane or ramp closures. Contractor shall not be permitted to close any ramps or lanes during events in Downtown Richmond or the vicinity when high traffic volumes are expected to enter or exit Downtown.

All lane closures must be coordinated with VDOT, RMTA, City of Richmond (if applicable) and the Engineer for final approval of dates and times. It will be the Engineer's sole responsibility to notify VDOT Traffic Operations Center (Smart Traffic) at 804-796-4520 to advise of the lane closure status of these bridges. The Contractor shall communicate any changes in these times/dates immediately with the Engineer.

POINT OF CONTACT

The Contractor must have a point of contact or construction foreman responsible for the entire project on site at all times. This person will coordinate all work and shall be in close contact with

the onsite inspections and shall clearly communicate any changes to the work plan, if they occur. In the event that this individual changes from the previous day, the Contractor shall contact the Engineer and confirm this change, prior to starting any work. The Contractor will be required to have a point of contact on duty at all times, regardless of extended shifts or type(s) of work being performed

BOULEVARD BRIDGE

Boulevard Bridge is a two-lane bridge carrying traffic in two opposing directions. Traffic in both directions must be maintained at all times. Typically, only single lane closures are permitted at any time. A full bridge closure may be permitted under rare circumstances with the approval of the Engineer and the Authority. The Contractor shall submit plans no less than 10 calendar days notice prior for approval. Consideration to traffic volumes and event traffic in the vicinity will be given.

Lane closures shall not be permitted Monday – Friday between the hours of 6:30 am to 9:30 am and 3:00 pm to 7:00 pm, or as directed by the Engineer.

Traffic control shall utilize flaggers and be in accordance with MUTCD and the Virginia Work Area Protection Manual standards. Truck mounted attenuators are prohibited on Boulevard Bridge.

LANE CLOSURE AND MOT VIOLATIONS

The RMTA reserves the right to charge liquidated damages for the Contractor's failure to remove a lane or ramp closure by the prescribed time each day. The liquidated damages shall be established as One Thousand Dollars ($1,000) per each fifteen (15) minutes, or a portion of 15 minutes, per lane or ramp, for any closure beyond the limits established above. Assessment of liquidated damages will stop when all maintenance of traffic devices have been removed from the roadway and lanes or ramps have been safely reopened to the approval of the Engineer. Any liquidated damages assessed in this Special Provision will be in addition to those listed in Section 108 of the Specifications.

Active work shall be pursued by the Contractor within one (1) hour from the time a lane or ramp closure is placed. The RMTA reserves the right to charge liquidated damages, as stated above, after one (1) hour of non-active work from the time the lane or ramp closure placement is completed. If active work has not started within two (2) hours from the time that the lane closure placement is completed, the Engineer shall require the lane closure to be immediately removed. Assessment of liquidated damages will end when lanes or ramps have been safely reopened to the approval of the Engineer or active work is pursued. Active work will be on-site activity as determined by the Engineer and the RMTA.

In addition, active work must be on-going at all times while a closure is in place. If active work is stopped for one (1) hour while a closure is in place or a closure is not removed within one (1) hour of the completion of active work, the Authority reserves the right to charge liquidated damages as stated above. The Contractor shall be aware that he will be required to perform active work while the deck is curing and shall have a minimum of two vehicles in the lane closure with high-intensity rotating, oscillating, or strobe lights flashing at all times.

STAGING AREA / CONSTRUCTION ENTRANCE

The Contractor shall be aware of the close proximity of live traffic to the work zone. Extra care shall be taken when slow moving vehicles are entering live traffic. Contractor must demonstrate how vehicles can enter and exit the work zone safely and minimize impacts to general public in his MOT plan. Contractor may consider the use of a shadow vehicle for equipment entering live traffic at slow speeds

CERTIFICATION OF PERSONNEL

FHWA regulations provided in 23 CFR Subpart J state "States shall require that personnel involved in the development, design, implementation, operation, inspection, and enforcement of work zone related transportation management and traffic control be trained, appropriate to the job decisions each individual is required to make." In accordance with the FHWA regulation and VDOT regulations, the Contractors foreman, or employee who is directly responsible for placing maintenance of traffic devices, shall be properly trained. The minimum training required for this Contract is the "Basic Work Zone Traffic Control Training" course. This is a one-day course designed by VDOT. For more information on the course, see the following: http://www.vdot.virginia.gov/business/trafficeng-WZS.asp

A trained employee must be on-site prior to setting up traffic control devices or a stop work order may be issued. In addition, a trained employee must be on-site at all times when any work inside a work zone requiring traffic control is on-going. A trained employee must be on-site at all times during the removal of traffic control devices. This employee will coordinate with the "Point of Contact" at all times. If the inspector or engineer observes the Contractor without a trained employee on-site during the setting up, maintenance or removal of the work zone traffic control, the RMTA reserves the right to charge liquidated damages at the rate of One Thousand Dollars ($1,000) per day.

RESTRICTED TIME OF WORK AREAS

Portions of the Downtown Expressway, Beltline Expressway Connectors, and the Powhite Parkway are adjacent to residential areas. These areas are identified as, but not limited to, the neighborhoods near the intersection of Powhite Parkway and Forest Hill Avenue and neighborhoods between the Downtown Expressway Beltline Connector and Park Drive/Blanton Avenue on the north end of the project.

Work in these areas after 11:00 PM shall be restricted. Activities permitted after this time shall include saw-cutting, placement of concrete, and asphalt paving. Any activities that produce unacceptable decibel levels, as determined by the Engineer and the RMTA, shall not be permitted. Typical activities not permitted after 11:00 PM include, but are not limited to, jack hammering or roto-hammering.

PROTECTION OF PROPERTY

The Contractor shall provide for the Engineer's review the method intended to protect the motoring public, from any activity which poses a potential threat to another's property or person (i.e. cars, motorcycles, pedestrians, businesses, etc.).

TRAFFIC ON MILLED SURFACES

At the Contractor's discretion he will be allowed to have traffic drive on a milled surface for no more than 48 hours after the milling operation is complete. If the Contractor chooses this method and there are elevation differences, he will be required to install temporary pavement wedges per VDOT Road and Bridge Standard 305.01, ACOT -1. This detail is provided below for the Contractor's reference. The Contractor shall also have proper drainage measures in-place prior to forecasted inclement weather. Drainage measures shall be submitted to the Engineer for approval prior to installation. Contractor shall be responsible for installation and maintenance of the pavement wedges and drainage measures to the approval of the Engineer. The Contractor shall not be allowed to remove any lane closure until all required pavement wedges and drainage measures are installed

HOLIDAYS AND SPECIAL EVENTS

The project will be officially shut down for the following holidays during the periods noted:

- Memorial Day: 5/25/18 (Friday) – 5:00 A.M. through
  5/29/18 (Tuesday) – 10:00 A.M.
- Independence Day: 7/3/18 (Tuesday) – 5:00 A.M. through
  7/5/18 (Thursday) – 10:00 A.M.
- Labor Day: 8/31/18 (Friday) - 5:00 A.M. through
  9/4/18 (Tuesday) - 10:00 A.M.
- Thanksgiving: 11/21/18 (Wednesday) – 5:00 A.M. through
  11/26/18 (Monday) – 10:00 A.M.
- Christmas: 12/24/18 (Monday) – 5:00 A.M. through
  12/26/18 (Wednesday) – 10:00 A.M.
- New Year's Day: 12/28/18 (Friday) – 5:00 A.M. through
  1/1/19 (Tuesday) – 10:00 A.M.

The Authority will not allow any lane closures during special events. The Engineer reserves the right to limit/cancel/modify the lane closure times and/or work that may be performed to accommodate the following special events. The Contractor should be aware of typical increased weekend traffic during these events.

- Any NASCAR Race in Richmond (Typically 2 per year, in April and September)
- Ukrop's Monument Ave. 10K Race (Typically the second weekend in April)
- Dominion River Rock (Weekend in middle of May)
- Slide the City (Typically a Saturday in June)
- Jazz Festival at Maymont Park (Typically a weekend in August).
- Richmond Folk Festival (Weekend in the Middle of October)
- Richmond Marathon (Weekend in the Middle of November)

The Contractor shall prepare and submit a Schedule of Work Activities and Maintenance of Traffic (MOT) Plan for review and approval by the Engineer a minimum of 14 calendar days in advance of any special event.

No allowance shall be made for these periods in determining the contract end date.

MEASUREMENT AND PAYMENT

Standard Maintenance of Traffic pay items will be measured and paid as per VDOT 2016 Road and Bridge Specifications Section 512.04.

SPECIAL PROVISION
TRIM EXISTING VEGETATION

DESCRIPTION AND LOCATION

This work includes the cutting back of vegetation at specific locations adjacent to the roadway that include, but are not limited to, signs, guardrails, bridges, abutments, junction boxes, electrical services and access paths. This work is to include pruning existing branches, and clearing of vegetation as close to the ground as possible to allow access to structures. It is not anticipated that herbicide spraying will be required for this item.

LOCATIONS

Boulevard
B5
B6
B13
B36 (both abutments)
B46 (Southwest corner)
B55 North Abutment
B56
B60
B62
B66

PROCEDURES

All work shall be in accordance with Section 601 and this Special Provision.

Contractor shall cut back or remove vegetation in areas where vegetation is encroaching structures or obstructing access to structures. Cut back shall be considered as a 10' clearance of foliage from structure as measured in all directions from the structure. For roadways, Contractor shall cut back vegetation where it is encroaching over the existing guardrails. Cut back shall provide a 4' clearance from the foliage to the guardrail or barrier face.

Branches of trees that overhang the roadway or reduce sight distance and that are less than 20 feet above the elevation of the finished grade shall be trimmed, as directed by the engineer, using approved tree surgery practices in accordance with the VDOT requirements of Section 601.03(b).

All trimmings, dead wood, windfalls, stumps, and rubbish in the trimming areas shall be removed as directed by the Engineer and legally disposed of by the Contractor off site. Contractor will not be permitted under any circumstance to burn debris on RMTA property.

MEASUREMENT AND PAYMENT

Trim Existing Vegetation will be measured in square feet of surface area and will be paid for at the contract unit price per square foot. This price shall include all labor, equipment, materials, incidentals and proper disposal of material off-site for vegetation removal throughout the RMTA Expressway System.

PAY ITEM	PAY UNIT
Trim Existing Vegetation	Square Foot

SPECIAL PROVISION
RIGHT-OF-WAY FENCE

DESCRIPTION

This work shall consist of furnishing, removing, replacing and installing sections of right-of-way fence. Locations will be determined by the Engineer.

MATERIALS

ITEM	VDOT STANDARD	VDOT SECTION
Right-of-way fence	FE-CL	507
Right-of-way fence (fabric only)	FE-CL	507

MEASUREMENT AND PAYMENT

Right-of-way fence will be measured and paid for in accordance with the **Fence (FE-CL)** item as described in VDOT Section 507.

The Pay Item **Fence (FE-CL Fabric Only)** will be measured in linear feet of installed fence fabric, complete in place, along the top of the fence and will be paid for at the contract unit price per linear foot of fence fabric.

Pay Item	Pay Unit
Fence (FE-CL)	Linear Foot
Fence (FE-CL Fabric Only)	Linear Foot

SPECIAL PROVISION
HYDRAULIC CEMENT CONCRETE REPAIR

DESCRIPTION

This work shall consist of constructing reinforced, non-reinforced, or continuously reinforced hydraulic cement concrete pavement and approach slabs composed of hydraulic cement concrete, with or without reinforcement as specified, on a prepared subgrade or base course in accordance with these specifications and within the specified tolerances for the lines, grades, thicknesses, and cross sections shown on the plans or as established by the Engineer. These repairs shall be in accordance with VDOT Spec. 316 Hydraulic Cement Concrete Pavement unless otherwise noted herein.

MATERIALS

Patching repairs will be made using a rapid-cure cement-based patching product, matching the requirements of VDOT Class A4 concrete, modified as necessary to achieve a compressive strength of at least 3,000 psi in a maximum of 8 hours. The product recommended for concrete pavement repairs is Heartland High Performance Volumetric Concrete. Substitute products may be used as approved by the Engineer. All products used must be listed on the most current VDOT Approved Products List. Contractor shall submit proposed product data sheet to Engineer for approval prior to use.

PROCEDURES

It is the Contractor's responsibility to dispose of the displaced concrete off site according to all applicable federal, state, and local laws.

The Contractor may not utilize the grassy areas adjacent to the Expressway System for construction purposes. If the use of these areas becomes absolutely necessary, the Contractor is to request, in writing, permission to conduct operations in said areas and also accept responsibility for any damage to said areas. Repair to any damaged areas will be prescribed solely by the Engineer.

At locations where bridge deck expansion joint sealant is being repaired or replaced, Contractor shall sound bridge deck two feet from each side of the joint opening. All delaminated concrete shall be removed to a minimum depth of at least ½" or as directed by the Engineer. At locations where joint sealant will be attached to repair product, Contractor shall certify that joint sealant primer will fully bond to concrete repair product. If any joint sealant does not bond to areas where concrete was repaired, as determined by the Engineer, Contractor shall fully remove

sealant and concrete repair product and replace same with comparable product at Contractor's expense and without extension of contract time.

Vehicular traffic will not be permitted on repaired areas until patching compound has attained a compressive strength of 3,000 pounds per square inch.

LOCATION

Work locations shall be as determined by the Engineer.

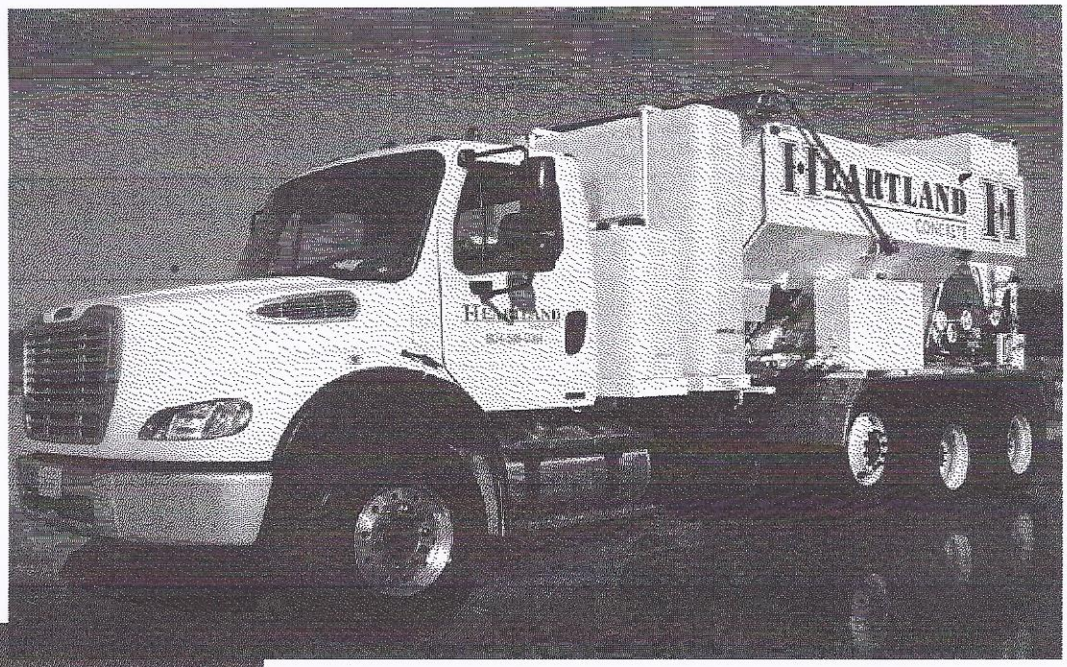
MEASUREMENT AND PAYMENT

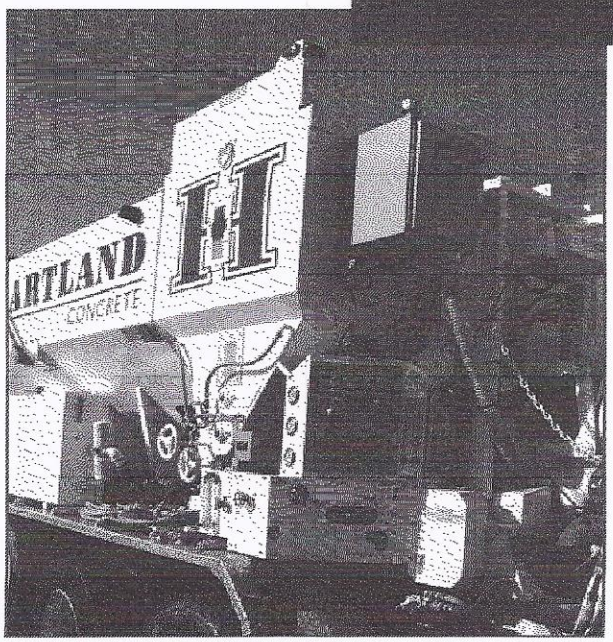
Hydraulic cement concrete pavement will be measured in square yards of concrete pavement and will be paid for at the contract unit price per square yard. This price shall include furnishing and placing materials, including dowels, reinforcement, and joint material, provided that for any pavement found deficient in average thickness, as described in VTM-26, by more than 0.20 inch but not more than 1.00 inch only the reduced price stated herein will be paid. The width of measurement will be the width of the pavement shown on the typical cross section of the plans, additional widening where called for, or as otherwise directed in writing by the Engineer. The length will be measured horizontally along the centerline of each roadway or ramp. Concrete removal and surface preparation shall be incidental to all repair items.

Pay Item	Pay Unit
Hydraulic cement concrete	Square yard

Heartland High Performance Volumetric Concrete

The Heartland High Performance Volumetric Concrete Solution is designed for the ultimate in construction quality, efficiency, flexibility and ease of operation. Heartland High Performance Concrete is friendly to the environment by eliminating waste, mixing the exact amount required for the project at the time it is needed. Heartland High Performance Volumetric Certified operators have ultimate control of the mix design on your project site, allowing us to provide the freshest, highest quality concrete, slurry, flowable fill, grout and shotcrete available for your project.





- Eliminate concrete waste
- Cost effective on–site concrete production
- Minimize crew production costs
- Control delivery schedule
- On–Demand production
- Eliminate "Hot" Loads
- Instantaneous mix design changes
- Integrate Rapid Return to Service Solutions
- Exceeds industry standards
- Independent certified testing

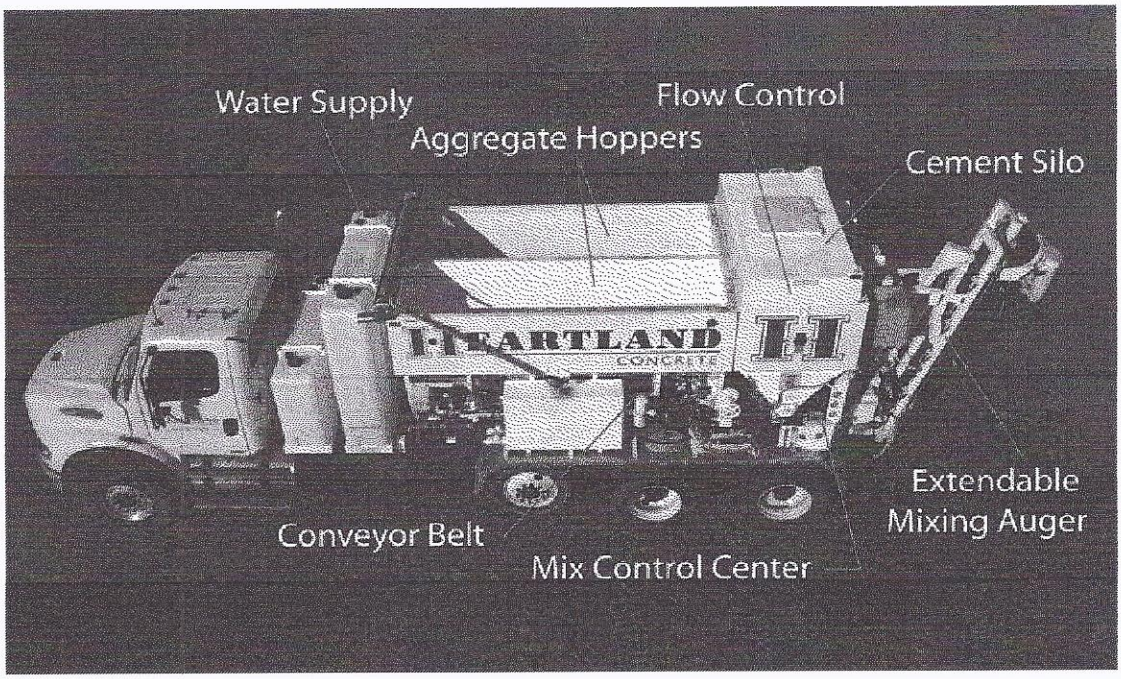
HEARTLAND
CONCRETE

23220 Airpark Drive, Petersburg, VA 23803
Office. 804.518.0361 Fax. 804.518.0363
www.heartlandconcrete.us

Why High Performance Volumetric?

The Heartland High Performance Volumetric Concrete system, provides many unique advantages to projects, owners, contractors and engineers.

First off, the mix design is calculated for a specific strength or certain desirable finishes. The mix is proportioned using known volumes of the component materials in the mix design. All of the ingredients are stored in separate compartments on the unit, as opposed to the traditional method of mixing sand, stone, water and cement at a central batch plant. Other admixtures can be added to produce a specified concrete mix design, on a continuous or intermittent basis, on site where the mix is to be poured.



Once the Heartland High Performance Volumetric Mixer arrives at the project, the ingredients are conveyed into the mixing auger which will continuously meter and combine the correct proportions using a volumetrically calibrated state of the art computer control system. This method of mixing the materials needed on site allows for a much easier clean up and wash out as the only component that needs to be cleaned is the mixing auger. Heartland High Performance Volumetric Mixers eliminate waste by allowing us to provide the exact amount of concrete the customer needs–nothing more. All mix designs can be made from the same High Performance Volumetric Mixer , on-the-fly, as desired saving you time and money.

- Long Distance and Remote Deliveries
- High Security Facilities
- Critical Production and Manufacturing Facilities
- Meet Around the Clock Demand
- No strength loss because of in truck hydration
- Low slump mixes are easily produced
- Meet Requirements of Virtually Any Mix Design
- Adjustable Discharge Rates

HEARTLAND CONCRETE
23220 Airpark Drive, Petersburg, VA 23803
Office. 804.518.0361 Fax. 804.518.0363
www.heartlandconcrete.us

Form TL-27MC (Revised 12/07)

VIRGINIA DEPARTMENT OF TRANSPORTATION
MATERIALS DIVISION

STATEMENT OF HYDRAULIC CEMENT CONCRETE MIX DESIGN

Submit one copy to the District Administrator, Virginia Department of Transportation. Approval must be received by the contractor from the Materials Division before work is begun. This mix design is approved for all projects of the Department for the class of concrete shown: Calendar Year 2011 Mix Design No. 4-5206-11

Producer *Heartland Concrete* Plant Location Petersburg Phone (804) 518-0361

Type of Mix: Volumetric X Job Mix _____ Date 7/6/2011

Mix Design - One Cubic Yard (Meter) Based on SSD Condition

Class of Concrete Rapid 658 (E) Slump/ 4 - 8 In. _____ mm Air Content 4 - 8 %

_____ (M) Flow

Material	Quantities				Code	Source Name	Plant/Quarry Location
Cement Type Rapid	658	lbs.		kg.	CTS	CTS	Logansport, In
Min.Admix.) FlyAsh	0	lbs.		kg.			
Min.Admix.2		lbs.		kg.			
Sand (1)	1235	lbs.		kg.	6014	Luck	Carolina Quarry
No. 57 Stone (1)	1774	lbs.		kg.	7007	Luck	Fairfax Quarry
Gr./No. ____ Aggr. (1)		lbs.		kg.			
Water (2) 275 lbs.	33.0	gal.		L.		City	Arlington, VA
Admixture (AE) (3)	Dosage varies	oz.		ml.	66	Sika	Lyndhurst, NJ
Admixture (Retarder) (3)		oz.		ml.			
Admixture (Other) (3)	26.3	oz.		ml.	191	Sika	Lyndhurst, NJ

NOTES: Mix based on CTS Rapid Set manufactures recommendations

(1) The quantities of fine and coarse aggregates necessary to conform to specifications in regard to consistency and workability shall be determined by the method described in "Recommended Practice for Selecting Proportions for Normal Weight Concrete" (ACI-211.1) and the actual quantities used shall not deviate more than plus or minus 5 percent from such quantities.

(2) To provide minimum slump permissible in Table II-17 while satisfying placement and finishing requirements. A separate design shall be submitted for each slump desired.

(3) The quantity of admixture will not be approved or disapproved since it varies considerably and must be initially established by trial and error by the producer or contractor with subsequent adjustment during batching to maintain the desired results within the range specified

Mineral Admixture #1 - sp.gr.	2.09
Mineral Admixture # 2 - sp.gr.	
Sand - Abs.	0.38
Sand - F.M.	2.80
Sand - sp.gr.	2.64
C.A. #1 - Abs.	0.75
C.A. #1 - sp.gr.	2.86
C.A. #1 Unit mass 104 (Lbs/C.F.) / _____ (kg/C.M.)	
Aggr. #2 - Abs.	
Aggr. #2 - sp.gr.	
2nd F.A./C.A.-F.M./u.wt. _____ (E) / _____ (M)	
Design W/C Ratio	0.42

Contractor _____ (Name of Company) By Mitch Upton (Certified Technician Preparing Form)

Producer Technician's Expiration Date 12/31/2012 (Do Not Use Social Security Number)

FOR DEPARTMENT USE ONLY

Remarks: _____

Copies: District Materials Engineer
Project Inspector
Plant Inspector
Sub- Contractor and / or R.M. Producer

Checked by Trey Simpson

Approved by Harold Dyson PE (District Materials Engineer) 7/14/11

Approved tentatively subject to the production of material meeting the requirements of the Specifications and Special Provisions.

SPECIAL PROVISION
SHOTCRETE

DESCRIPTION

This work shall consist of detecting delaminated sections of concrete substructure members, removing delaminating concrete, preparing surfaces in concrete spalls, preparing exposed rebar within spalls and repairing surfaces with pneumatically applied concrete.

MATERIALS

VDOT Specification Section 412 shall apply. Contractor shall provide shotcrete mix design and performance data at least 7 calendar days prior to scheduled work start date to Engineer for approval. Shotcrete shall be Class A with silica fume. Shotcrete mixtures submitted for approval by the Engineer shall be on the VDOT Approved Products List.

PROCEDURE

Contractor shall visually inspect exposed concrete substructure surfaces for suspected delamination. Contractor shall sound out with a hammer or similar implement all surfaces where delamination is suspected. Delaminated sections shall be removed as directed by the Engineer.

Contractor shall notify the Engineer a minimum of 24 hours prior to the removal of any concrete to allow a proper inspection. Concrete removal shall not commence without an inspection and approval by the Engineer. The Contractor shall provide access to the Engineer to inspect work areas. The Authority reserves the right to restrict payment on any areas where the Engineer removed concrete prior to an inspection and approval. If the Engineer does not complete an inspection within 24 hours of notice by the Contractor, the Contractor is permitted to proceed with concrete removal without penalty.

The surface of all Shotcrete repairs shall receive "neat lines", acceptability subject to approval of the Engineer. All Shotcrete repairs shall be completed no later than November 22, 2018.

LOCATIONS

A table of currently identified spalls, areas of delamination and cracks on a particular element of the referenced structure is presented below. This table is provided for informational purposes only. The estimated quantities below are provided for planning purposes only and are in no way a guarantee of actual quantities. The RMTA reserves the right to delete or add structures and repair locations to the scope of work. The Contractor is responsible to inspect the structure locations prior to bidding. No adjustments shall be made in unit price due to deletion of structure locations from the scope of work.

Shotcrete work locations are broken down into three categories:

1. "Standard" - Locations on land less than 30 feet above grade.
2. "Elevated" - Locations on land greater than 30 feet above grade.
3. "Above Water" - Locations above the James River or Kanawha Canal.

Shotcrete (Class A) Standard - Possible Locations		
RMTA Bridge #	Element	Estimated Shotcrete Qty. (S.F.)
BB	South Abutment Breast wall	25
	North Abutment Breast wall	19
6	West Abutment	12
	East Abutment	56
11	Bearing Seat at Pier 1 G6	10
	South Abutment	14
12	South Abutment Backwall	15
17	Pier 1 (North Face)	20
	Pier 3	10
	North Abutment Backwall	16
B36	Pier 1 (North Face)	12
B56	South Abutment	15
	Pier 1 Between G2 and G3 Looking South	14
	North Abutment Breast Wall	16
B57	North Abutment Breast Wall	20
	South Abutment	12
B58	Pier 1 Bearing Seat @ Beam 4	5
	South Abutment	15
B60	South Abutment Beam 3 Bearing Seat	10
B61	West Abutment	15
B62	West Abutment	25
8N	Pier 14 (Cap and G6 Bearing Seat)	22
	Pier 15 (Cap and G6 Bearing Seat)	39
	Pier 16	8
	Pier 17(Cap and G3 Bearing Seat)	30

Shotcrete (Class A) Elevated - Possible Locations		
RMTA Bridge #	Element	Estimated Shotcrete Qty. (S.F.)
65	Pier 14	15
B67	Pier 1	50
	Pier 5	10

Shotcrete (Class A) Over Water - Possible Locations		
RMTA Bridge #	Element	Estimated Shotcrete Qty. (S.F.)
BB	Pier 18 North Face	15
	Pier 22 East Face	11
8N	Pier 1	7
	Pier 2	8
	Pier 3	6
	Pier 4	12
	Pier 5	6
	Pier 6	20
	Pier 7	6
	Pier 8	6
	Pier 10	10
	Pier 11	12
	Pier 12	7
	Pier 13	20
65	Pier 11	30

COORDINATION AND SCHEDULING

Contractor shall coordinate and schedule all Shotcrete Repair activities with the Engineer. RMTA structures to be repaired may require access from property owned or managed by others (e.g. VDOT or City of Richmond). Contractor shall coordinate and schedule with appropriate owner, party or agency work activities on non-RMTA property. In addition, Contractor shall secure all necessary permits required for site access to perform work. Contractor shall abide by all permits regulations and guidelines issued by the governing agency. Contractor shall provide name and phone number of contact person at each governing agency where a RMTA structure scheduled to be repaired is located (excluding RMTA property) at least five days prior to scheduled work start to the Engineer.

MEASUREMENT AND PAYMENT

Potential Shotcrete work locations are hereby delineated by means of access. Access to "Elevated" shotcrete work locations may require the use of a manlift or significant staging. Access to "Standard" shotcrete work locations may require incidental staging. Access to "Above Water" shotcrete work locations may require a float, staging built up from the River and attached to the bridge, or the use of an under bridge access platform truck. Shotcrete Unit Costs shall be measured and paid for according to the defined Pay Items below:

The Pay Item **Shotcrete, Type A (Standard)** will be measured in square feet of surface to which it is applied and will be paid for at the contract unit price per square foot. This Unit Price shall include all cutting, drilling, hammering, and all other work involved in the complete removal and disposal of concrete and other materials necessary to provide for joining new and old portions of the structure according to this Special Provision or as directed by the Engineer. This Unit Cost shall include all access requirements to perform Shotcrete repairs at grade and up to 30' above grade. The Contract Unit Price shall also include dowels or other approved anchor devices, disposing of surplus material, cleaning and repairing reinforcing steel, welded wire fabric and steel and synthetic fibers.

The Pay Item **Shotcrete, Type A (Elevated)** will be measured in square feet of surface to which it is applied and will be paid for at the contract unit price per square foot where the work location is equal to or greater than 30' above grade. This Unit Price shall include all cutting, drilling, hammering, and all other work involved in the complete removal and disposal of concrete and other materials necessary to provide for joining new and old portions of the structure according to this Special Provision or as directed by the Engineer. This Unit Cost shall include all access requirements to perform Shotcrete repairs where the work is at elevations of 30' or more above grade. The Contract Unit Price shall also include dowels or other approved anchor devices, disposing of surplus material, cleaning and repairing reinforcing steel, welded wire fabric and steel and synthetic fibers.

The Pay Item **Shotcrete, Type A (Over Water)** will be measured in square feet of surface to which it is applied and will be paid for at the contract unit price per square foot. This Unit Price shall include all cutting, drilling, hammering, and all other work involved in the complete removal and disposal of concrete and other materials necessary to provide for joining new and old portions of the structure according to this Special Provision or as directed by the Engineer. This Unit Cost shall include all access requirements to perform Shotcrete repairs above the James River or Kanawha Canal. The Contract Unit Price shall also include dowels or other approved anchor devices, disposing of surplus material, cleaning and repairing reinforcing steel, welded wire fabric and steel and synthetic fibers.

Pay Item	Pay Unit
Shotcrete, Type A (Standard)	Square foot
Shotcrete, Type A (Elevated)	Square foot
Shotcrete, Type A (Over Water)	Square foot

SPECIAL PROVISION
PATCHING ASPHALT PAVEMENT

DESCRIPTION

This work shall consist of repairing sections of cracked and deteriorated SMA or SM asphalt concrete pavement on the RMTA system.

LOCATIONS

Asphalt pavement patch locations shall be determined by the Engineer. Asphalt pavement on the entire RMTA system is subject to asphalt patching.

MATERIALS

Patching material shall be **SuperPave Mix SM 9.5E** with performance grade binder (PG 64E-22) subject to Engineer's approval. The mix design shall be submitted to the Engineer for approval at least 7 calendar days prior to starting work.

PROCEDURES

Patching consists of saw cutting an area designated by the Engineer, then removing the contents inside the area with pneumatic hammers. Once the contents have been removed, the hole is to be compacted and blown out with compressed air. Then the entire surface area, including sides, shall be covered with a tack coat. Surface course asphalt concrete is then to be placed in the hole and then rolled. All holes are to be a minimum 2" deep unless otherwise directed by the Engineer. The asphalt will be placed, in 2" lifts, with each 2" lift being tamped by gasoline-powered, piston-driven hand tamper with a compacting area of not less than 1 square foot. After the final or only lift of asphalt has been placed, the asphalt is to be rolled with a steel-drum, vibratory roller that has been approved by the Engineer.

MEASUREMENT AND PAYMENT

Asphalt Concrete Patch shall be measured in square yards per inch of depth and will be paid for at the contract unit price per square yard per inch. This price shall include all equipment, labor, material, removal and disposal of materials, and incidentals required to complete the work.

Pay Item	Pay Unit
Asphalt Concrete Patch	Inch x Square Yard

SPECIAL PROVISION
CLEANING DRAINAGE MANHOLE

DESCRIPTION

This work shall consist of cleaning out built up trash and debris from the interior of a drainage manhole. Work shall be performed by manual labor, the use of a vacuum truck or any other method chosen by the Contractor and approved by the Engineer.

The manhole is approximately 50' west of the centerline of Portland Place, approximately 900' south of its intersection with Queen Charlotte Road. Approximate Google Maps coordinates are 37.548545, -77.491843. In 2008, the RMTA installed a steel trash separator device inside the manhole. The device is bolted to the sides and bottom of the manhole. The bottom of the device is approximately 23' below the top of manhole. The base of the manhole is a 4' x 4' square and the circular riser is 48" diameter. Steps are attached to the side of the manhole spaced approximately 16" on center.

There is a stone access road to the manhole from Portland Place Road.

Work shall be performed in accordance with all OSHA confined space and other applicable regulations pertaining to this type.

The Contractor shall clean the manhole twice during this Contract. The first shall be within one month after the Notice To Proceed is issued. The second shall be within one month of the contract completion date. The RMTA reserves the right to delete one of the cleaning occurrences. If only one cleaning is chosen, the cleaning date shall be as agreed upon by the Engineer and the Contractor.

MEASUREMENT AND PAYMENT

Clean Manhole will be measured in units of each occurrence of cleaning the manhole, and will be paid for at the contract price per each. This price shall include all equipment, labor, incidentals and the proper disposal of trash and debris offsite per each cleaning.

Pay Item	Pay Unit
Clean Manhole	Each

SPECIAL PROVISION
BRIDGE REPAIRS

DESCRIPTION

This work shall consist of repairing specific steel surfaces of bridge structural steel members and bridge deck joint repairs. Repair plans for specific bridge rehabilitation details are provided in the Appendix.

All repairs shall be completed in accordance with the plan sheets, the requirements herein, and the 2016 VDOT Road and Bridge Specifications. All welding and testing shall be in accordance with AASHTO/AWS D1.5 Specifications. For each welder, welding operator, or tacker, the Contractor shall submit a copy of the certificate of qualification to the Engineer. The qualification certification shall state the name of the welder, operator, or tacker; name and title of the person who conducted the examination; type of specimens; position of welds; results of tests; and date of the examination. The qualification certification shall be made by an approved agency. Testing shall be in accordance with AASHTO/AWS D1.5 Specifications with a Flaw Severity Class A.

For the Contractor's reference, sheets from the as-built plans for Boulevard Bridge, as well as Bridges 5, 8S, 9N, 10S, 17, 65, 66, 67, 68 are included in the Appendix.

All new structural steel plate(s) and lacing bars shall be shop primed. Subsequent coatings shall be field applied following plate installation. In addition to the repair plate(s), steel surfaces within one foot of repaired area and any other steel surface where the coating system was damaged during these repairs shall be cleaned and coated under this contract. All prime and paint coat application costs shall be the responsibility of the Contractor and shall be incidental to the bridge repair item.

All structural steel shall first be solvent cleaned as per SSPC SP-1 specification to remove contamination. Then the Contractor shall use hand tools to clean surfaces removing loose rust, soot, or other remaining contamination using specification SSPC-2. Lastly, the Contractor shall apply a primer and intermediate coat of Carboline Carbomastic 15 Surface Tolerant Aluminum Mastic Epoxy and a finish Coat of Carboline Carbothane 133 LH as per the recommendation of the manufacturer. Specifications for SSPC-1, SSPC-2, Carbomastic 15, and Carbothane 133 LH are attached to this Special Provision.

The Contractor shall perform 100% ultrasonic testing for the entire length of the full penetration welds used for repairs at the locations noted on the plans. All testing costs shall be the responsibility of the Contractor and shall be incidental to the bridge repair item.

Prior to any steel fabrication, the Contractor shall field verify all dimensions and assess the working conditions to determine any constructability issues. Should the Contractor have any issues or questions, they shall be submitted to the Engineer prior to steel fabrication and start of work.

The Kanawha Canal discharges into the James River which is in the Chesapeake Bay Watershed and all work may be subject to the provisions in the Chesapeake Bay Preservation Act; therefore, no debris or wastewater of any type shall be discharged into the canal or river. Furthermore, the Contractor shall be responsible for compliance with all environmental laws and regulations regarding this type of work. All environmental permits as well as submittals, if required, shall be incidental to this work.

The Contractor is advised that the area under the Boulevard Bridge and Bridge 67 is not owned by RMTA and may require work permits from the City of Richmond.

For lane closures on and underneath these bridges and associated measurement and payment items, the Contractor shall refer to the special provisions for Maintenance of Traffic.

BRIDGE DESCRIPTIONS

Boulevard Bridge

The Boulevard Bridge is a two-lane bridge that carries State Route 161 (Westover Hills Boulevard) over the James River as well as Norfolk Southern and CSX Railroads. The superstructure consists of 13 spans of a semi-continuous steel girder floor beam system and 11 spans of a semi-continuous steel deck truss. The bridge is a weight limited structure; the maximum weight of a vehicle is 7,500 pounds. The repairs on Boulevard bridge includes;

The fabrication of three different types of lacing bars (15 each of Type A, Type B and Type C) and procuring a total of 140 bolts/nuts/washers.

The removal of damaged lacing bars and rivets and replacement with a new lacing bar and bolts at various locations.

The removal of damaged or missing rivets and replacement with new bolts at various locations.

The fabrication of 30 batten plates and rivets.

The removal of the damaged batten plates and missing rivets and replacement with a new batten plates and bolts at various location.

The removal of 3’ end of the flat bracing plate and installing proposed replacement plate length between the angles bolting through existing holes.

The removal of existing gusset plate at Unit 11 West Truss and installing proposed plate.

Lacing bars and other repair locations are difficult to access and include mid-span lower chord and truss member connections.

All steel repairs require that traffic be removed from the lane over the repair area. In addition, if these repairs impact the operation of the railroad, the Contractor must receive construction approval from the appropriate railroad and schedule a railroad flagger before beginning work. The Contractor shall utilize roadway flaggers to control traffic when one lane of the bridge is closed in accordance with the Special Provision for Maintenance of Traffic. See the repair plans for more information.

Bridge 5

This bridge carries a single lane Norfolk Southern railroad track. The bridge has two abutments and five piers. Bridge is a multi-girder structure with seven simple spans. The repair is to remove the area of section loss and install proposed filler plates, angles and patch plates.

Bridge 8S

The southbound structure of the dual bridges carries five lanes of State Route 76 (Powhite Parkway) over the James River, Kanawha Canal, and CSX Railroad. The superstructure is composed of 18 simple spans of multiple steel girders. B8 SB at the south abutment repair is to remove damaged armor joint and spalled concrete. The RMTA will supply 20 LF of armor joint. Contractor must supply additional armor joint to complete the repair. Place HES concrete and install Wabo Evazoate joint sealer.

Bridge 9N

This bridge carries a single CSX Railroad track over the northbound lanes of Powhite Parkway (Rte. 76). There is one span of a through steel girder and floorbeam system. This bridge has an adjacent parallel structure to the south (Parallel bridge is VDOT #1861). The parallel structures share both abutments. Due to the skew of the abutments, there are three bearings at each abutment; two abutment bearings and one end bearing. There are two pin connections; at the south through girder bearing at the west abutment and at the north through girder bearing at the east abutment. The repair is to cut and remove identified sections of existing plates, straighten the existing knee brace plate by mechanical means and weld proposed repair plates to existing knee brace plate.

Bridge 10S

This bridge carries a single CSX Railroad track over the westbound lanes of the Downtown Expressway Connector (Rte. 146). There is one span of a through steel girder and floorbeam system. This bridge has an adjacent parallel structure to the south (Parallel bridge is VDOT #1864). The parallel structures share both abutments. Due to the skew of the abutments, there are three bearings at each abutment; two abutments

bearings and one end bearing. There are two pin connections; at the south through girder bearing at the west abutment and at the north through girder bearing at the east abutment. The pin connection is between the through girder and a single rolled beam. Steel "U" shaped deck pans which are attached to both through girders and the floorbeams run the full length of the bridge. The repair is to remove bolts and replace with new bolts one at a time.

Bridge 17

This bridge carries traffic from the NB I-195 Connector (Route 76) to Cary Street over NB I-195, as it turns from a west-east roadway to a north-south roadway, and a single lane ramp to Floyd Avenue. The bridge is located approximately 1 mile north of the Powhite Parkway bridge over the James River. The bridge has two abutments and three piers and is a multi-girder structure with four simple spans. The repair is to remove the existing area of joint called out in the plans and install and weld patch plates.

Bridge 65

This bridge is a one lane ramp which carries NB I-95 over both the CSX and NS Railroad to WB Downtown Expressway (VA 195). The bridge ends with the connection with Bridge 63, has no abutments and 20 piers and is a multi-girder structure with 20 simple spans. In addition, Bridge 65, Spans 10 and 11 crosses over the Kanawha Canal. Seismic retrofit repair consists of identifying cables that may be restricting joint movement and loosening cables to provide 1-2" sag.

Bridge 66

The bridge carries eastbound Route 195, which is the RMTA's Downtown Expressway, to the ramp connections to northbound and southbound I-95. There is one abutment at the west end of the bridge. The bridge is a multi-girder structure consisting of 22 simple spans. The total length is 1,680 feet. A portion of the bridge is the top structure of a double-decker bridge with the bridge below carrying SR-195 (DTE) in the westbound direction. Seismic retrofit repair consists of identifying cables that may be restricting joint movement and loosening cables to provide 1-2" sag.

Bridge 67

The ramp bridge carries eastbound Route-195, which is the RMTA's Downtown Expressway, to northbound I-95. In addition, widening of SB I-95 which was done in conjunction with the original construction of this bridge is also included as part of this structure. The main portion of the bridge (ramp from EB 195 to NB I-95) is a multi-girder structure consisting of 12 simple and 3 continuous spans for a total length of 1,783 feet. The repair is to drill 1" diameter holes in existing gusset plate for patch plate and install proposed patch plate on top of existing gusset and fasten together with 1" diameter bolts using the existing bolt holes locations and new drilled holes.

Bridge 68
Ramp from WB Route195 (Downtown Expressway) to SB I-95. Bridge transitions from a clear roadway to a widened portion of SB I-95. Bridge is multi-girder structure with 17 simple spans. Seismic retrofit repair consists of identifying cables that may be restricting joint movement and loosening cables to provide 1-2" sag.

Measurement and Payment

The Pay Items for Bridge Repairs will be paid for at the contract lump sum bid price at each location of bridge steel repairs. This price shall include all materials, labor, tools, equipment, and incidentals necessary to complete the repairs including access to the site, jacking and shoring procedures, removal of existing steel, steel fabrication, cutting, grinding, steel installation, welding, labor, shop and field cleaning, priming and painting, ultrasonic testing (where noted on plans), and shop coating of steel plates.

This price shall also include review fees; submittals; and preparation of all plans, drawings, schedules, and narratives necessary for describing the Contractor's means and methods required to perform the work. This price shall include any requirements to remain in compliance with all environmental laws and regulations for work near or in the James River and Kanawha Canal. Legal offsite disposal of all waste materials shall be incidental to this item.

Any repairs which may require coordination with railroads shall be performed in accordance with the Supplemental Specifications, Section 107.19 Railway-Highway Provisions.

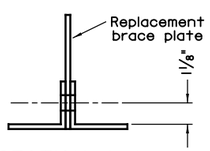
Payment will be made under:

Designation	Description and Location	Pay Unit
Boulevard Bridge	Lacing Bar Fabrication and Bolts	Lump Sum
Boulevard Bridge	Lacing Bar and Bolt Replacement, Multiple Undefined Locations	Each
Boulevard Bridge	Rivet Replacement Multiple Undefined Locations	Each
Boulevard Bridge	Member Lower Strut West Truss Section Loss Retrofit (unit 11)	LS
Boulevard Bridge	Batten Plates Fabrication	LS
Boulevard Bridge	Batten Plates and Bolt Replacement Multiple Undefined Locations	EA
Boulevard Bridge	Member PP L40, West Truss Gusset Plate Section Loss Retrofit (Unit 11)	LS
Bridge 5	Pier 5 Web and Bottom Flange Section Loss Retrofit	LS
Bridge 8S	Deck Joint and Concrete Repairs	LS
Bridge 9N	Damaged Stiffeners Retrofit	LS
Bridge 10S	East Abutment, Tighten nuts At Anchor Bolts	LS
Bridge 17	North Abutment Sliding Plate Joint Repair	LS

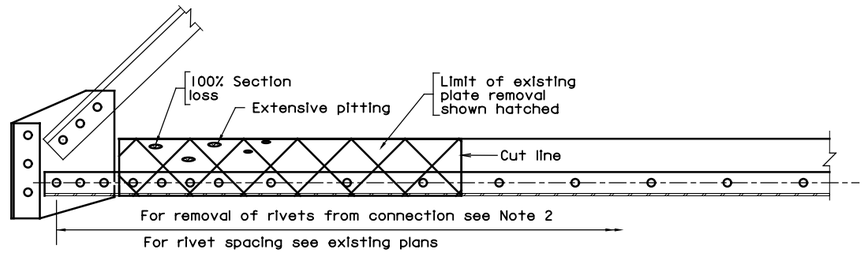
Bridges 65, 66 & 68	Bolt Access Door Hinges And Replace Door Gaskets	LS
Bridge 67	PP L6 Section Loss Retrofit	LS
Multiple Locations	Retrofit Seismic Cables- B66 as Identified By Engineer In The Field	EA

UNIT 11
LATERAL BRACING ANGLE IN WEST TRUSS

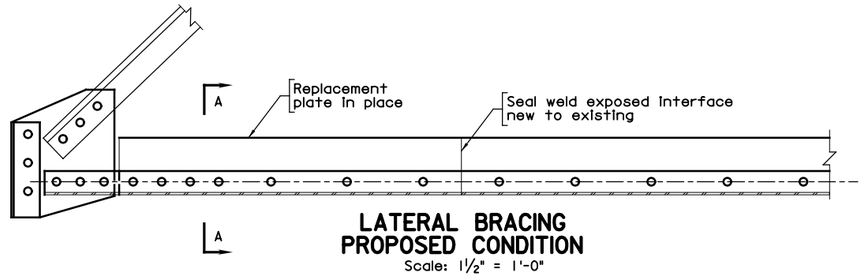
UNIT 11
LATERAL BRACING ANGLE IN WEST TRUSS



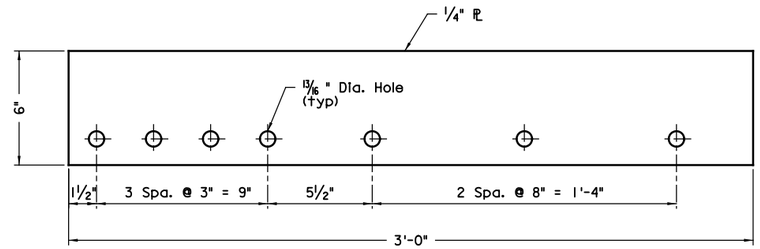
SECTION A-A
Scale: 3" = 1'-0"



LATERAL BRACING
EXISTING CONDITION
Scale: 1½" = 1'-0"



LATERAL BRACING
PROPOSED CONDITION
Scale: 1½" = 1'-0"



UNIT 11, PROPOSED
REPLACEMENT PLATE DETAIL
Scale: 3" = 1'-0"

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
4. All bolts used in repairs shall be A325 bolts with a ¾" diameter.
5. Bolts as noted may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30 mph.
6. All proposed structural steel shall be shop primed.
7. Reference: Boulevard Bridge As-Built Plans

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

New Plate

1. Temporarily support/tie-off the horizontal bracing member.
2. Remove a sufficient number of rivets (Max. 16) from along the length of the horizontal brace plate to facilitate cutting the existing plate at the cutline shown without causing damage to the bracing angles.
3. Remove the 3' end of the flat bracing plate using the air carbon process.
4. Install proposed replacement plate length between the angles bolting through existing holes.
5. Seal weld exposed interface new to existing plate.
6. Remove temporary support/tie-off.
7. Clean repair area.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

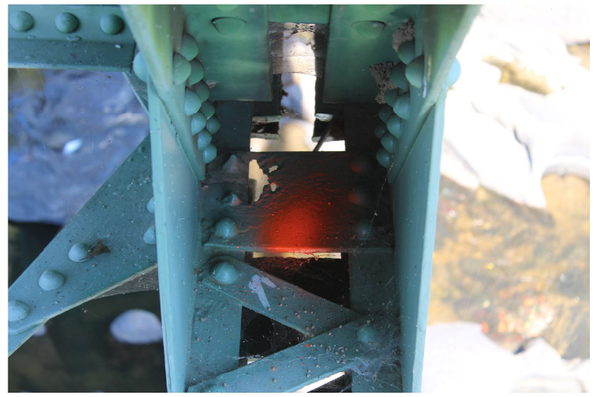
BOULEVARD BRIDGE
LOWER CHORD
LATERAL BRACING REPAIRS

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

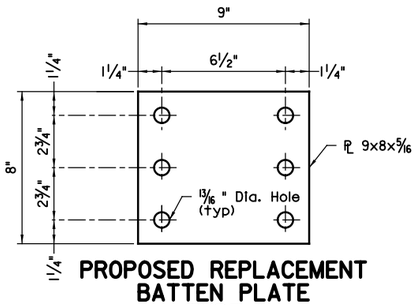
SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	1	13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-1

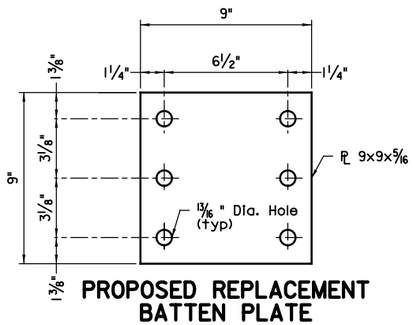
MEMBER L24, PIER 15
BATTEN PLATE IN WEST TRUSS
(TYPICAL PHOTO)



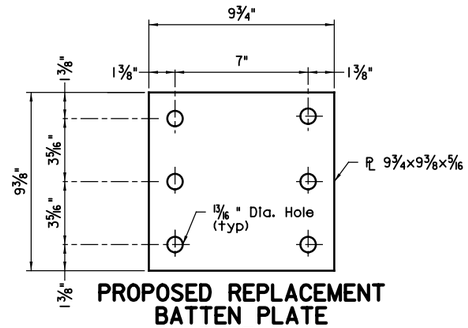
MEMBER L44, SPAN 12
BATTEN PLATE IN EAST TRUSS
(TYPICAL PHOTO)



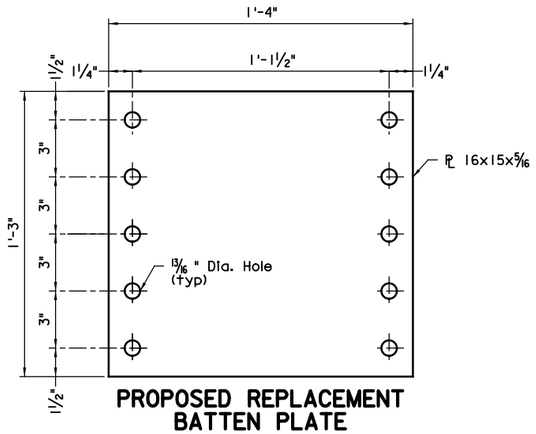
PROPOSED REPLACEMENT
BATTEN PLATE
TYPE I



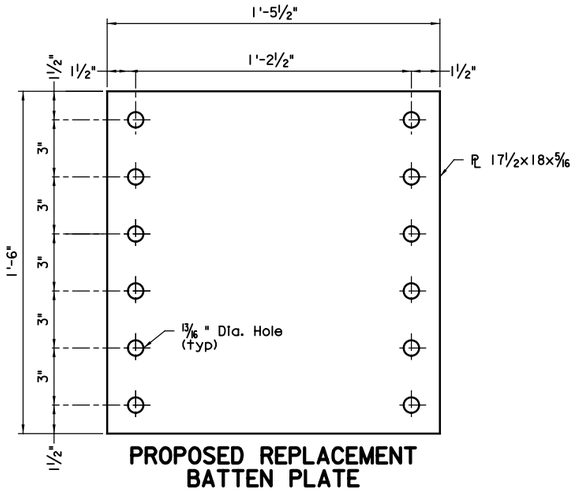
PROPOSED REPLACEMENT
BATTEN PLATE
TYPE II



PROPOSED REPLACEMENT
BATTEN PLATE
TYPE III



PROPOSED REPLACEMENT
BATTEN PLATE
TYPE IV



PROPOSED REPLACEMENT
BATTEN PLATE
TYPE V

Scale: 3" = 1'-0"

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
4. All bolts used in repairs shall be A325 bolts with a ¾" diameter.
5. Rivets as noted may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30 mph.
6. All structural steel shall be shop primed.
7. Reference: Boulevard Bridge As-Built Plans

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

Batten Plate

1. Remove rivets and existing plate.
2. Clean and prime repair area.
3. Install proposed replacement plate and bolt in place.
4. Clean repair area.

TRUSS	LOCATION	PLATE TYPE	QUANTITY	# OF BOLTS
EAST	L7	2	2	12
EAST	L10	1	1	6
EAST	L14	2	1	6
EAST	L37	2	1	6
EAST	L44	1	1	6
EAST	L46	2	1	6
EAST	L49	2	1	6
EAST	L50	2	1	6
WEST	L1	5	1	12
WEST	L11	3	1	6
WEST	L13	2	2	12
WEST	L16	2	2	12
WEST	L17	2	1	6
WEST	L18	2	1	6
WEST	L25	2	2	12
WEST	L26	4	1	10
WEST	L35	2	2	12
WEST	L36	2	2	12
WEST	L37	2	2	12
WEST	L40	2	2	12
WEST	L42	2	1	6
WEST	L48	2	1	6
WEST	L50	2	1	6

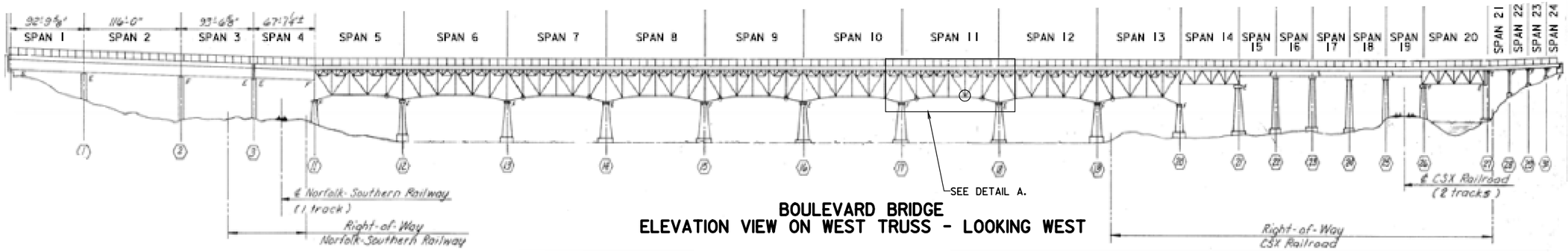
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
TRUSS
BATTEN PLATE REPAIRS

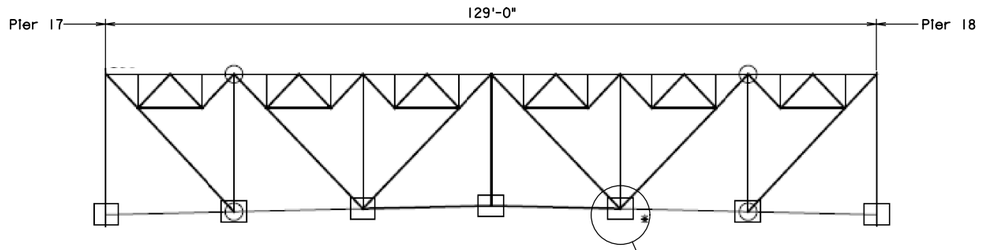
HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	2	13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-2



BOULEVARD BRIDGE
ELEVATION VIEW ON WEST TRUSS - LOOKING WEST



DETAIL A
WEST TRUSS UNIT 11
(LOOKING WEST)

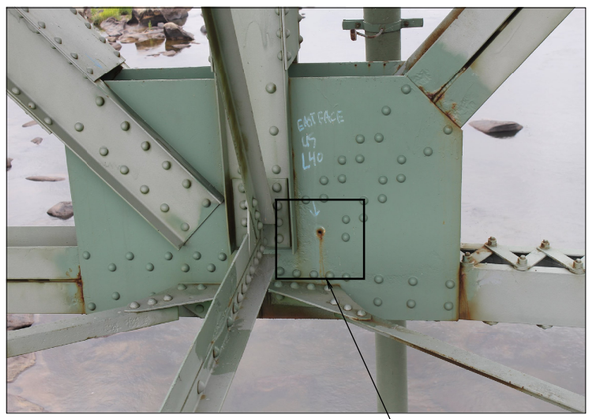


PHOTO 1 - LOOKING WEST

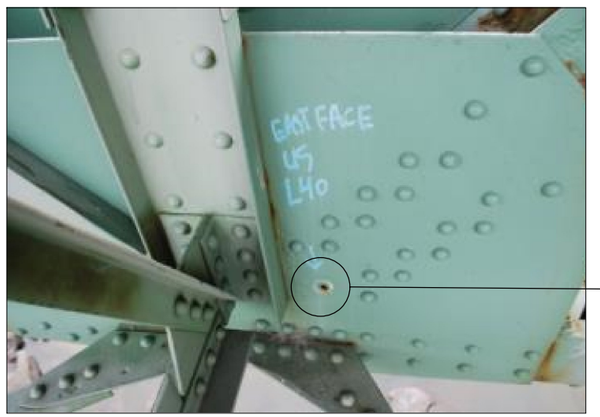


PHOTO 2 - CLOSE-UP OF PHOTO 1

WEST TRUSS UNIT 11 INTERIOR GUSSET PLATE (LOOKING WEST)
EXISTING CONDITION

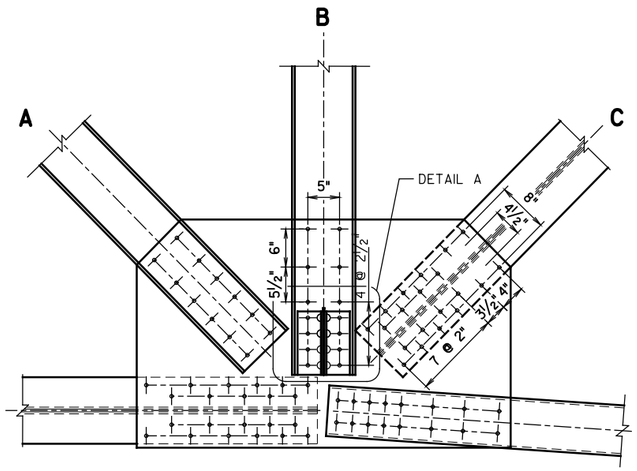
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
UNIT 11 WEST TRUSS
GUSSET PLATE REPLACEMENT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	3	13

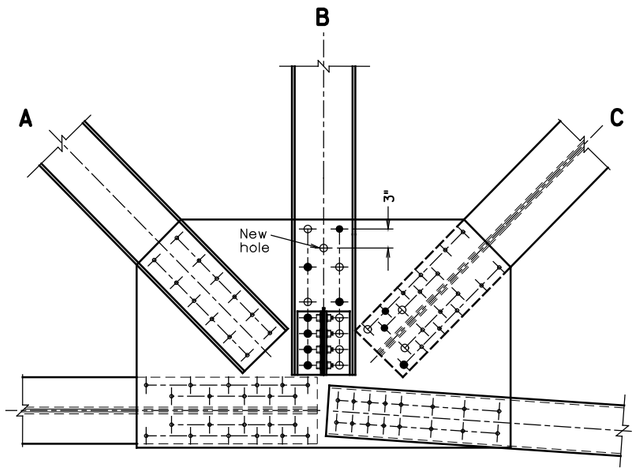
PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-3



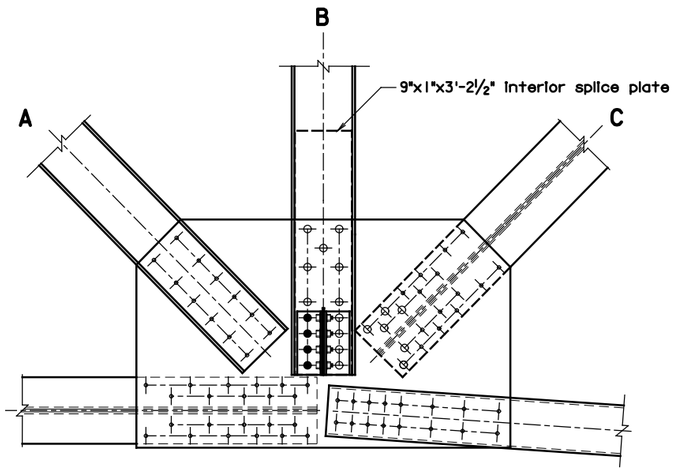
UNIT 11 WEST TRUSS
EAST SIDE GUSSET PLATE (LOOKING WEST)

Elevation view of existing gusset plate showing primary truss member connections

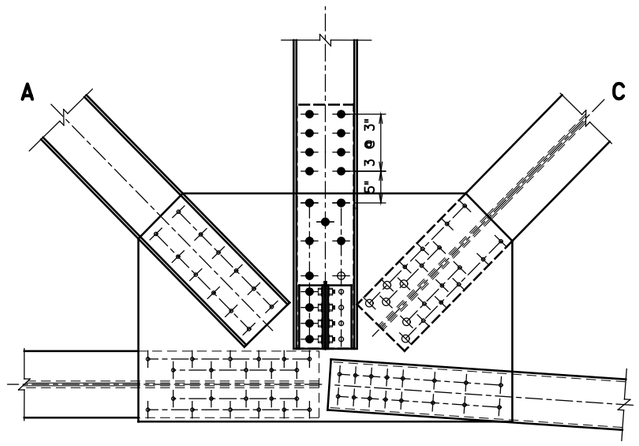
Note: Transverse diaphragms, including diagonals and bottom chord lateral bracings that frame into gusset plate connections are not shown for clarity.



1. Member B and C - Remove rivets, one at a time to produce a uniform pin/bolt pattern as shown. Ream holes to $^{15}/_{16}$" dia., fill with drift pins and snug tight ⅞" dia. H.S. bolts. No more than one connector may be absent from any member at any one time. Include removal and replacement of rivets connecting back to back angles with snug tight bolts installed with nuts located defect side as shown. For left side angle insert the four bolts that connect with gusset and channel section with bolt heads on near side and far side nuts hand tightened.
2. Add one new hole to member B pattern per detail.

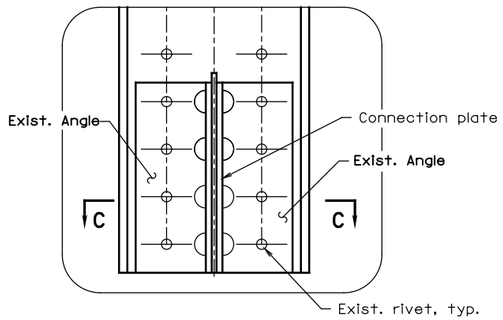


3. Continue to remove and replace rivets per Stage 1 to achieve the connector pattern shown above.
4. Member B - Measure connector pattern for use in fabrication of 1" interior splice plate and proposed exterior ⅜" gusset plate. Holes in the splice plates can be drilled to 1" dia. for ⅞" dia. bolts.

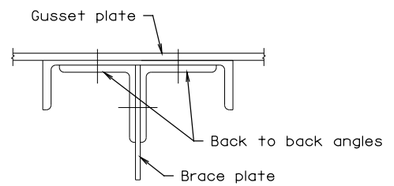


5. Member B - Drill $^{15}/_{16}$" dia. holes (8No.)
6. Remove nuts from the four bolts connecting left side angle. Bolt/shafts shall be left in place.
7. Immediately install the interior splice plate, carefully guiding the plate over protruding bolt shafts. Immediately replace four nuts to re-establish angle connection and hand tighten. Torque ⅞" dia. bolts (14No.) in the top end of splice plate.
8. Remove four drift pins in right side angle as shown.

Sequence continues on Sheet S-1-4



DETAIL A
Scale: NTS



SECTION C-C
Scale: NTS

Legend:

- ¾" $^{6}/_{64}$ Rivets
- ⅞" $^{6}/_{64}$ Bolts
- Drift pins
- Hole

Scale: 1" = 1'-0" Unless shown otherwise

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
4. All bolts used in repairs shall be ⅞"$^{6}/_{64}$ A325 high strength bolts. Threads are to be excluded from plates.
5. Prepare clean and apply paint primer to all areas of bare steel areas to be covered by retrofit plates and angles. Abrade existng paint coating and clean to achieve a flush surface as possible before fitting new plate.
6. The existing plate to be removed shall be cut by the carbon arc process or other method approved. All rough plate edges and weld metal that will remain shall be ground smooth.
7. Rivets as noted may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30 mph.

Reference: Boulevard Bridge As-built Plans

Suggested Sequence of Construction:
In general, the sequence of construction is as indicated in Steps 1 to 18 on sheets SP-1-3 and SP-1-4. Deviation from the sequence shown is acceptable upon review and approval by the Engineer.

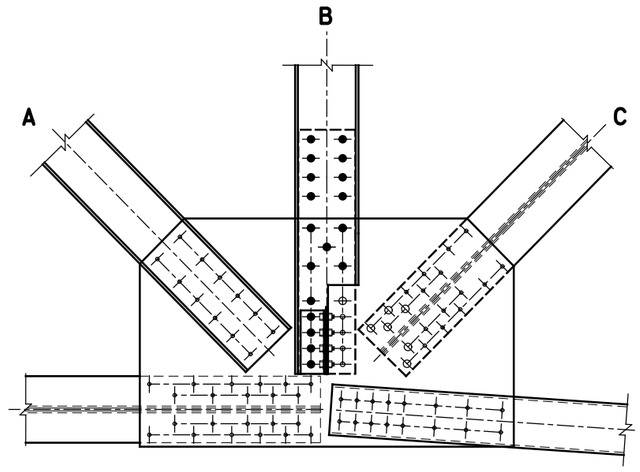
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
UNIT 11 WEST TRUSS
GUSSET PLATE REPLACEMENT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

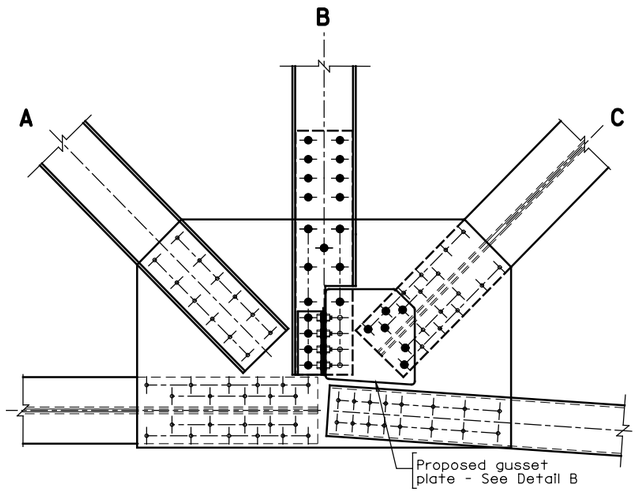
SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	4	13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-4

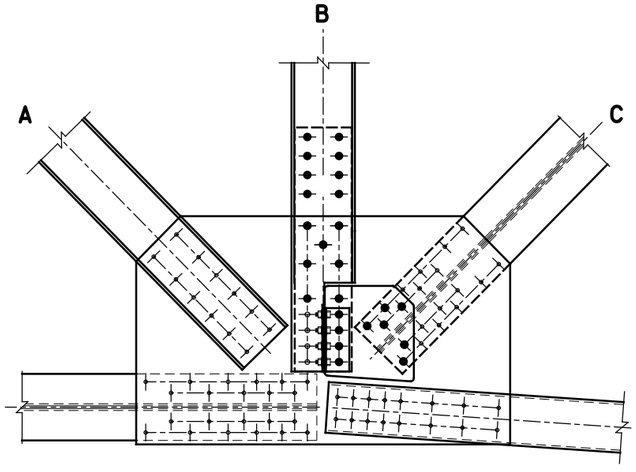


9. Remove existing angle on right side and dispose.

10. Remove portion of member B by the air carbon arc cutting method to the limits shown on Detail C. Excercise extreme care to avoid damaging the existing gusset plate or adjacent steelwork.



11. Carefully place new gusset plate over drift pins. One at a time, remove drift pins and replace with ⅞" dia. bolts as shown. Torque bolts.

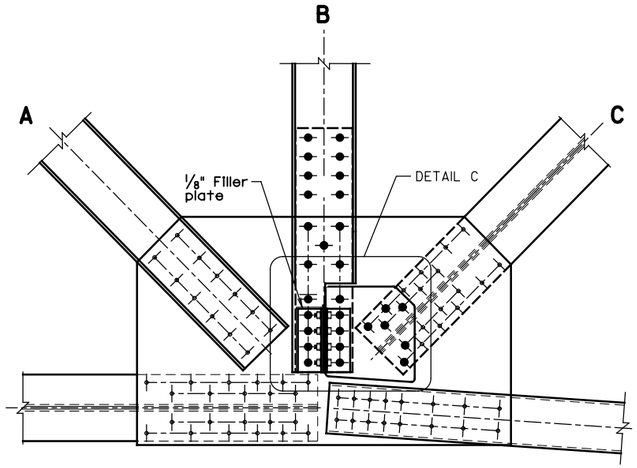


12 Provide a secondary restraint/tie-off between lateral bracing framing into L plate connections and the truss (See Detail D) using ratchet strap or similar approved means.

13. Remove nuts from bolts connecting angles leaving bolts in place. Install angle on right side as shown. Immediately replace nuts hand tight. Torque bolts connecting angle to gusset plate.

14. Remove bolts connecting angles one at a time, turning each and re-inserting so bolt heads are located on oposite side. Hand tighten nuts.

DETAIL D
Temporary restraint/tie off



15. Remove bolts connecting left side angle to gusset. Remove nuts connecting back to back angles then remove existing left hand side angle and dispose.

16. Locate ⅛" filler plate and new angle and bolt in place. Torque all bolts.

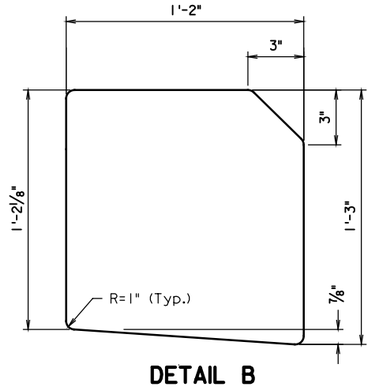
17. Remove secondary restraint,

18. Prepare, paint and caulk repair area.

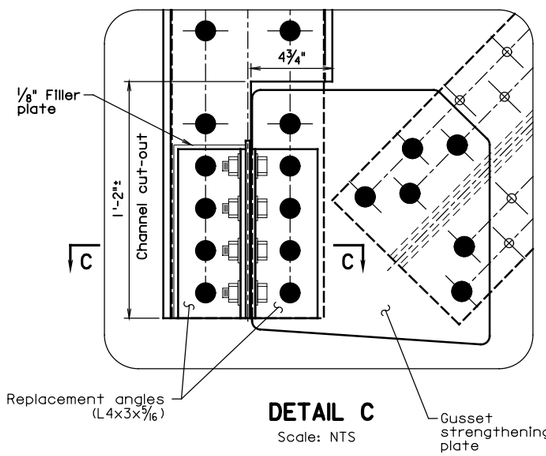
Legend:

- ¾" ⁶⁄₆₄ Rivets
- ⅞" ⁶⁄₆₄ Bolts
- Drift pins
- Hole

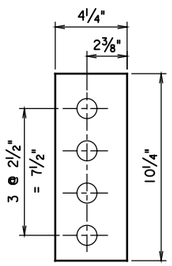
Note: All dimensions to be field verified



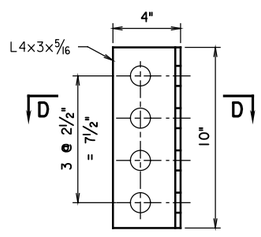
DETAIL B
GUSSET STRENGTHENING PLATE
(Bolt holes not shown for clarity)
Scale: NTS



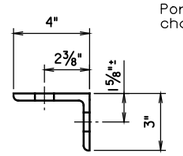
DETAIL C
Scale: NTS



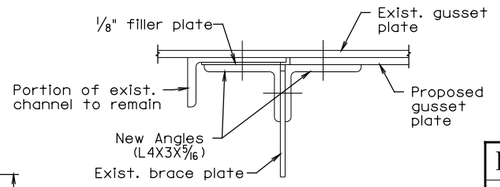
FILLER PLATE DETAIL
1 No. REQUIRED
Scale: NTS



REPLACEMENT ANGLE DETAIL
TWO No. REQUIRED
Scale: NTS



SECTION D-D
Scale: NTS



SECTION C-C
Scale: NTS

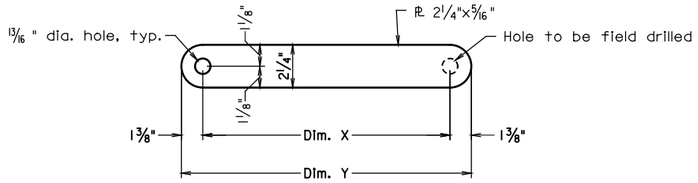
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
UNIT 11 WEST TRUSS
GUSSET PLATE REPLACEMENT

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET
AS NOTED	JANUARY 2018	5 OF 13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-5



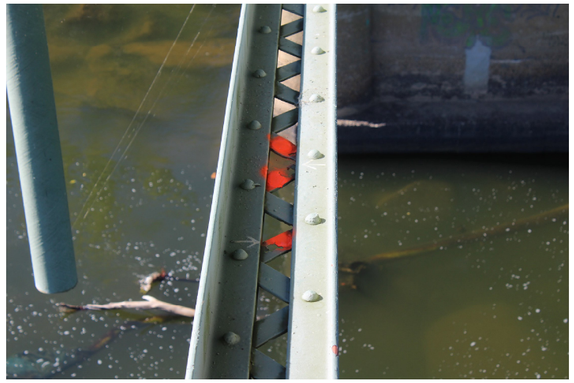
PROPOSED LACING BAR REPLACEMENT

Scale: 3" = 1'-0"

LACING BAR	Dim. X*	Dim. Y*	Fabrication Qty.	Installation Qty.	Bolts Qty. **
Type "A"	10 3/8"	1'-1 1/8"	250	250	500
Type "B"	1'-1 3/16"	1'-3 15/16"	30	30	60
Type "C"	1'-1"	1'-3 3/4"	30	30	60

* **Dimension may vary, field verification required.**

** In addition to lacing bar replacement the Contractor shall supply and install 50 additional bolts, nuts and washers to replace missing rivets.



TYPICAL 100% SECTION LOSS OF LACING BARS

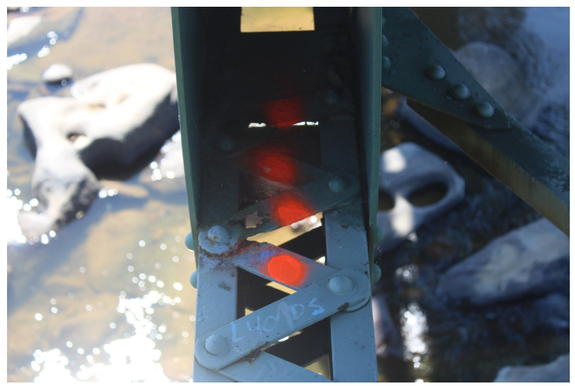
Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall verify all dimensions of the existing lacing bars to be replaced, paying particular attention to the alignment of the member and bolts to be replaced. Field verified dimensions are to be used to determine the final geometry prior to fabrication.
3. All existing structural steel is Fy=30ksi, Fu=60ksi. All new structural steel shall be AASHTO M270, grade 36 and shop primed.
4. 3/4" diameter A325 high strength bolts shall be used in the repairs. Threads are to be excluded from planes.
5. Rivets at location of existing lacing bars to be replaced shall be removed and replaced with new A325 bolts.
6. Contractor shall provide number of bolts shown + 20% spare. (204 bolts)
7. Following completion of installation, all unused lacing bars and bolts shall be transferred to RMTA possession at no additional cost.
8. Reference: Boulevard Bridge Over James River As-built plans.

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

1. Locate and size lacing bars for replacement.
2. Remove corroded lacing bar and clean the truss member behind it. Note any section loss and report findings to Engineer.
3. Install proposed lacing bar replacment. Bolt in place.
4. Locate missing rivets and replace with A325 bolts.
5. Clean repair area.



TYPICAL 100% SECTION LOSS OF LACING BARS

TYPICAL SECTION LOSS OF LACING BARS AND MISSING RIVETS ON TRUSS LOWER CHORD

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BOULEVARD BRIDGE
LACING BAR AND BOLT
REPLACEMENT

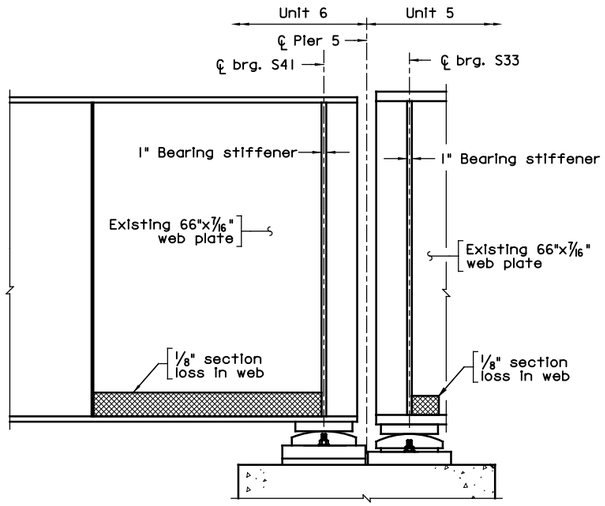
HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	6	13

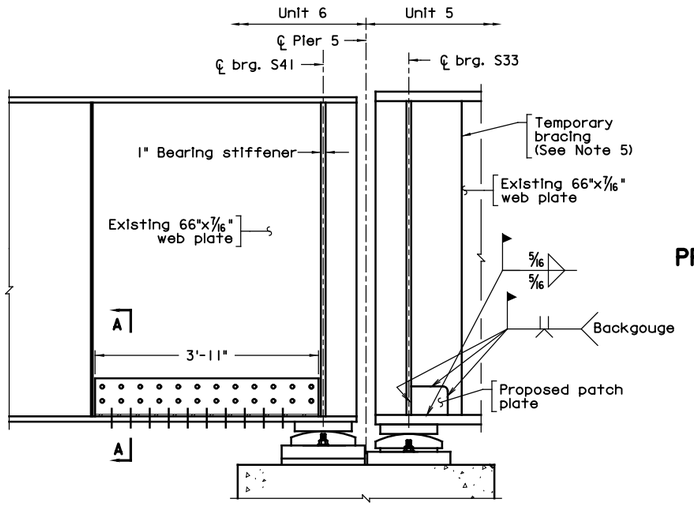
PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-6

BRIDGE 5, PIER 5
STRINGER S33

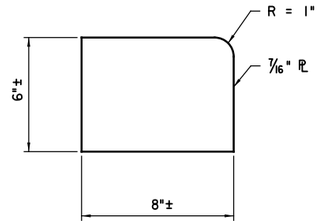
BRIDGE 5, PIER 5
STRINGER S41



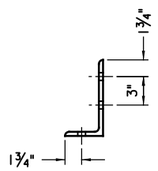
EXISTING PIER 5 ELEVATION
Looking South



PROPOSED PIER 5 ELEVATION
Looking South



PROPOSED WEB PATCH PLATE
Scale: 3" = 1'-0"



SECTION B-B
Scale: 1½" = 1'-0"

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. Contractor shall be required to apply a three coat epoxy-urethane system to all new structural steel and to areas of existing structural steel where existing paint coatings are damaged during repair work. Surface preparation shall meet SSPC-SP1, SP2 and SP3. Type and color of coating shall be approved by the Engineer.
4. All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
5. Contractor shall provide temporary bracing for bottom flange near the proposed repair prior to cutting web.
6. All existing structural steel in the stringer web that is to be removed shall be cut by the air carbon arc process. All weld metal that remains shall be ground flush. Contractor to take special care not to damage the stringer flange.
7. All repair welding shall be performed in accordance with AASHTO/AWS 2010 Bridge Welding Code, 6th Edition. The Contractor is required to perform 100% ultrasonic testing for the length of the full penetration welds in the web patch plates to web and the web patch plates to flange fillet welds. All full penetration welds in web shall be ground smooth.
8. Caulk shall be added around the perimeter of all repairs to ensure no water will infiltrate the area.

Reference: Bridge B-5 As-Built Plans

Legend:

▨ - Section loss

Suggested Sequence of Construction:

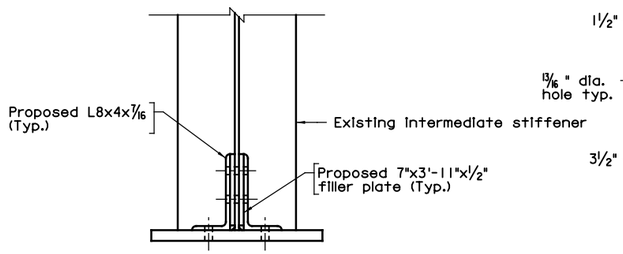
In general, the sequence of construction is as indicated below. Deviations from the sequence of construction shown are acceptable upon review and approval by the Engineer. Live load over the subject stringer shall be removed during repair.

Patch Plate:

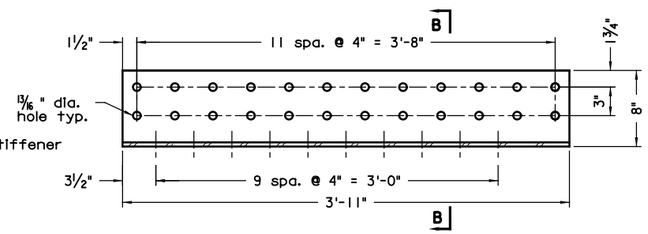
1. Remove live load traffic from bridge.
2. Remove Unit 5 area with section loss by the air carbon arc process.
3. Install and weld patch plate.
4. Clean and paint repair area.

Structural Steel Angles:

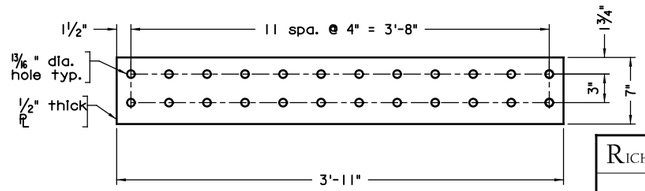
1. Remove live load traffic from bridge.
2. Clean area in unit 6 with section loss.
3. Install proposed filler plates and angles.
4. Clean and paint repair area.



SECTION A-A
Scale: 1½" = 1'-0"



PROPOSED L8x4x7/16
Scale: 1½" = 1'-0"



PROPOSED FILLER PLATE
Scale: 1½" = 1'-0"

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 5
PIER 5 GIRDER WEB &
BOTTOM FLANGE PLATE REPAIRS

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

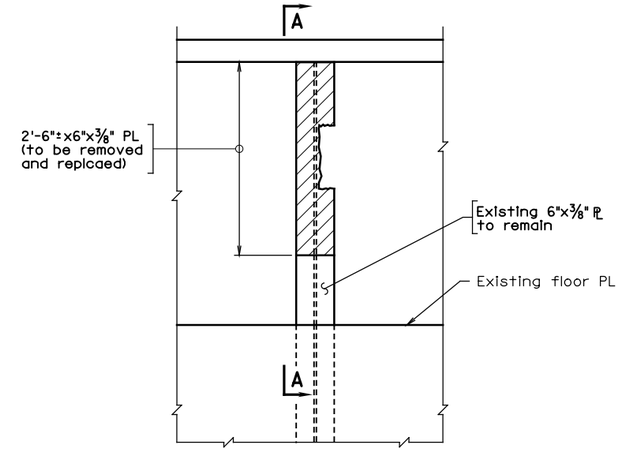
SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	7	13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-7

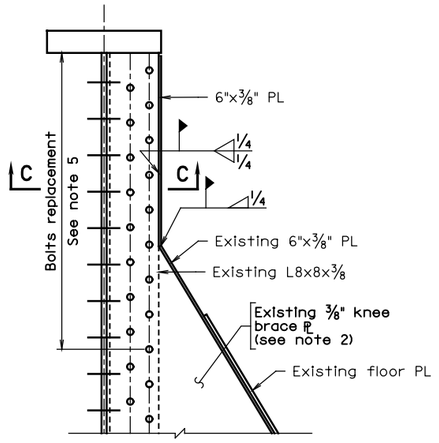
BRIDGE 9N - DAMAGED INTERIOR STIFFENER ON THROUGH GIRDER

BRIDGE 9N DAMAGED BEARING STIFFENER MISSING RIVETS AT NORTHEAST BEARING

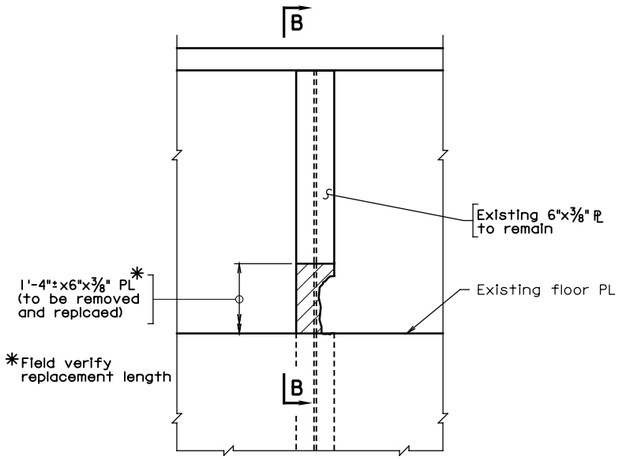
BRIDGE 10S EAST ABUTMENT BEARING ANCHOR BOLTS



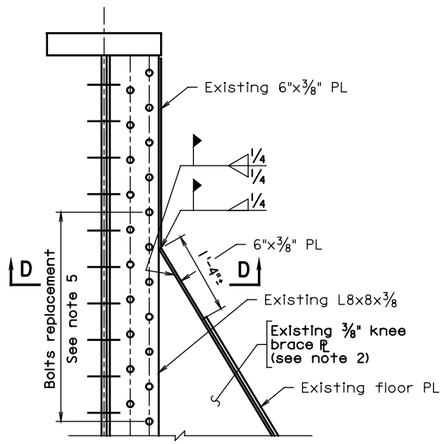
INTERIOR STIFFENER
(Connection angles not shown for clarity)
Scale: 1" = 1'-0"



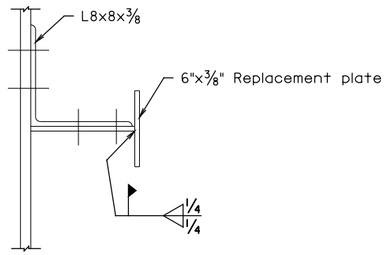
SECTION A-A
Scale: 1" = 1'-0"



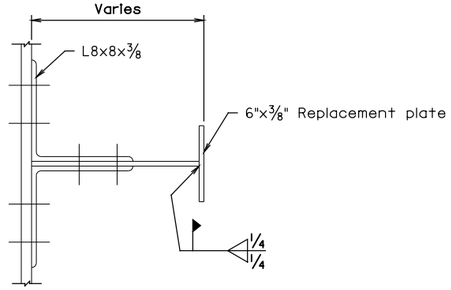
BEARING STIFFENER
(Connection angles not shown for clarity)
Scale: 1" = 1'-0"



SECTION B-B
Scale: 1" = 1'-0"



SECTION C-C
Scale: NTS



SECTION D-D
Scale: NTS

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. Contractor shall be required to apply a three coat epoxy-urethane system to all new structural steel and to areas of existing structural steel where existing paint coatings are damaged during repair work. Surface preparation shall meet SSPC-SP1, SP2 and SP3. Type and color of coating shall be approved by the Engineer.
4. All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
5. All work shall be completed in accordance with the construction agreement between CSX Transportation and the Richmond Metropolitain Transportation Authority. The Contractor shall abide by and perform all work in accordance with Schedule 1.
6. All bolts used in repairs shall be A325 bolts.
7. All repair welding shall be performed in accordance with AASHTO/AWS 2010 BridgeWelding Code, 6th Edition. Only E60 or E70 electrodes shall be used.
8. Bolts as noted may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30 mph.

Reference: Bridge B-9 As-Built Plans

Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviations from the sequence of construction shown are acceptable upon review and approval by the Engineer.

1. Close bridge to rail traffic
2. Cut and remove identified sections of existing plates as shown.
3. Straighten the existing knee brace plate by mechanical means.
4. Weld proposed repair plates to existing knee brace plate.
5. Bolt Replcements:
   - I. Bolts connecting knee brace to stiffener angle
   - II. Bolts connecting stiffener angle to girder

   Remove bolts over height shown and replace with new bolts one at a time. No more that one bolt shall be absent at any time.
6. Clean and paint repair areas including bolts.
7. Re-open bridge to rail traffic

Legend:

- Removal

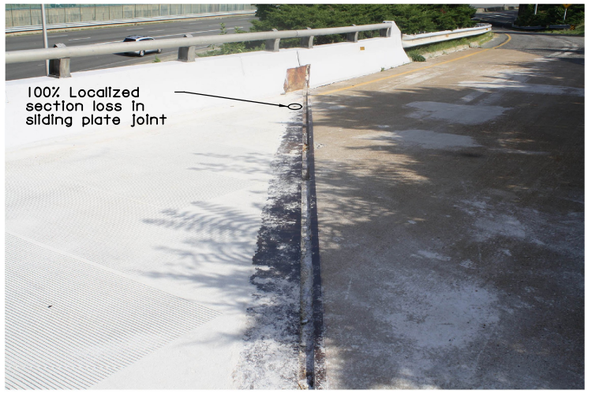
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 9N AND 10S REPAIRS
INTERIOR NORTHEAST STIFFENERS
AND EAST ABUTMENT BEARING REPAIRS

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	8	13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-8



BRIDGE 17, NORTH ABUTMENT
S-FLOYD

BRIDGE 17, NORTH ABUTMENT
S-FLOYD

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
4. All existing structural steel that is to be removed shall be cut by the air carbon arc process. All weld metal that remains shall be ground flush. Contractor to take special care not to damage the steel.
5. All repair welding shall be performed in accordance with AASHTO/AWS 2010 Bridge Welding Code, 6th Edition. All full penetration welds in joint shall be ground smooth.

Reference: Bridge B-17 As-Built Plans

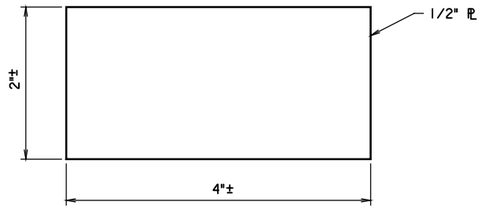
Legend:

- Section loss

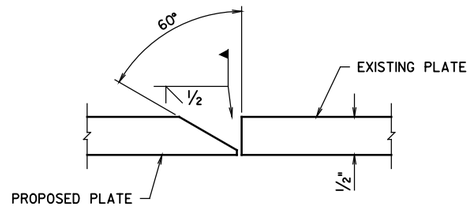
Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviations from the sequence of construction shown are acceptable upon review and approval by the Engineer.

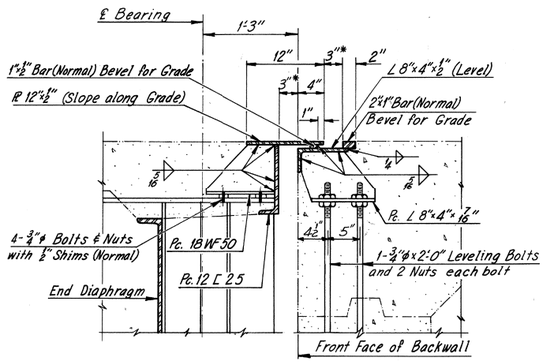
1. Remove the existing area of joint called out in the plans by the air carbon arc process.
2. Install and weld joint patch plate.
3. Clean repair area.



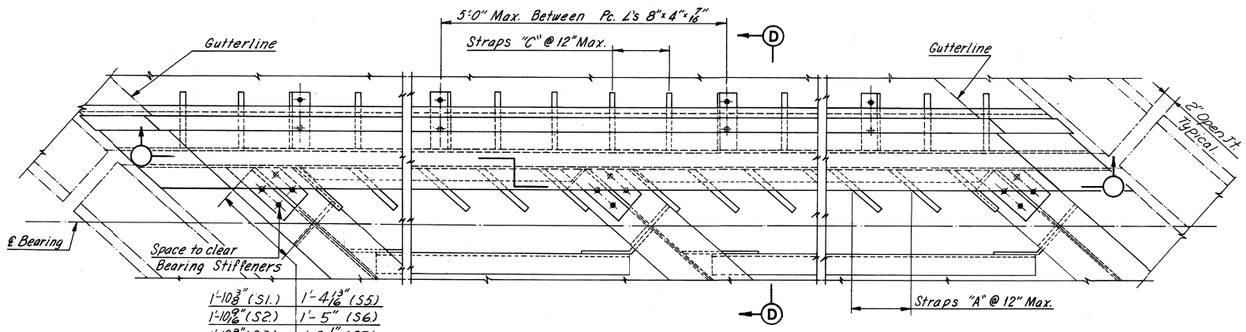
PROPOSED PATCH PLATE



WELD DETAIL



SECTION D-D



1'-10 3/8" (S1.)	1'-4 1/16" (S5)
1'-10 9/16" (S2)	1'-5" (S6)
1'-10 3/4" (S3)	1'-5 1/8" (S7)
1'-10 1/16" (S4)	1'-5 5/16" (S8)

PLAN - EXPANSION JOINT AT NORTH ABUTMENT S-FLOYD

Not to scale

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 17
NORTH ABUTMENT - S-FLOYD
EXPANSION JOINT REPAIR

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	9	13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-9

BRIDGE 65
PIER 6 – Hinge Repair

BRIDGE 66
PIER 16 – Hinge Repair

BRIDGE 68
PIER 1 – Hinge Repair

Typical hinges

BRIDGE 68
PIER 2 – Hinge Repair

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions, and contract.
2. Contractor shall field verify all dimensions and existing hinge sizes prior to fabrication.
3. The existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36.
4. Reference: Bridge B65, B66 and B68 original plans.

Legend:

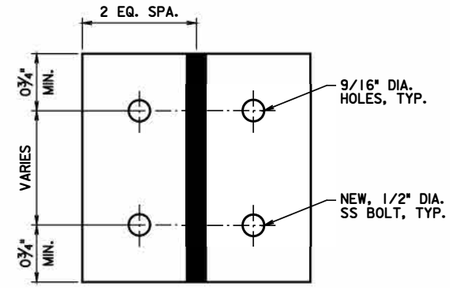
N.S. - Near side
F.S. - Far side

Suggested Sequence of Construction:

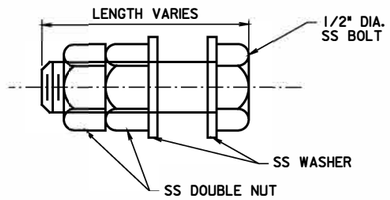
In general, the sequence of construction is as indicated below. Deviation from the sequence of construction shown is acceptable upon review and approval by the Engineer.

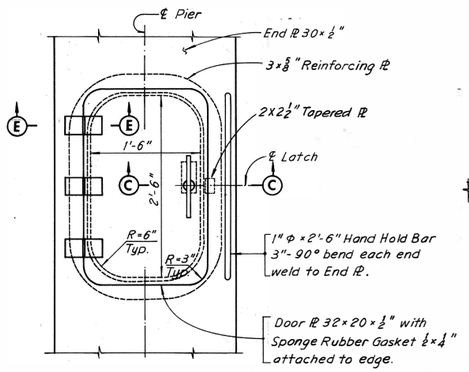
Access Door Hinges:

1. Install four (4) 1/2" dia. stainless steel bolts with washers and double (2) nuts per hinge. Two (2) bolts shall be installed per hinge side four (4) total per hinge.
2. Bolt lengths may vary due to retrofit work performed over the years.
3. Remove existing sponge rubber gasket.
4. Clean gasket area and replace in-kind with new gasket.



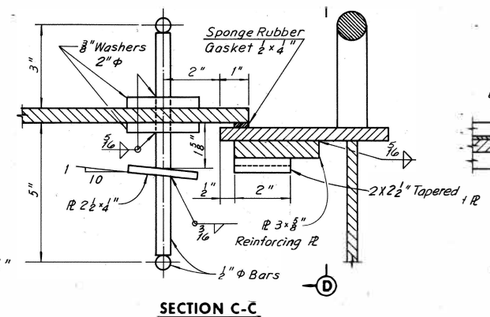
PROPOSED BOLTING





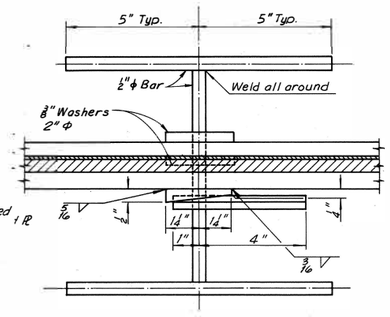
ACCESS DOOR - TYPE B

EXISTING



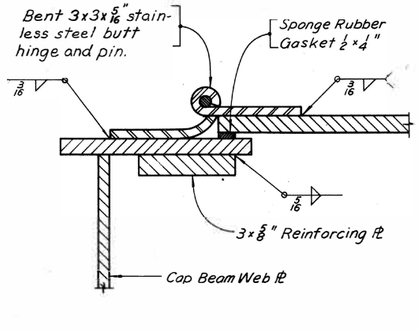
SECTION C-C

EXISTING



SECTION D-D

EXISTING



SECTION E-E

EXISTING

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGES 65, 66 AND 68
CROSS BOX GIRDER
ACCESS DOORS

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	10	13

PLAN NO	PROJECT	FILE NO	SHEET NO
A	MR 2018		SP-1-10

PANEL POINT 6, WEST TRUSS
INTERIOR GUSSET PLATE
LOOKING EAST

ELEVATION VIEW

Notes:

1. Work shall be completed in accordance with the Virginia Department of Transportation Road and Bridge Specification, Issued 2007, current supplemental specifications, contract special provisions and contract.
2. Contractor shall field verify all dimensions and existing plate sizes prior to fabrication.
3. All existing structural steel is ASTM-A36. All new structural steel shall be AASHTO M270, grade 36 and shop primed.
4. All bolts used in repairs shall be A325 bolts.
5. Bolts as noted may not be removed if forecast wind speeds during the course of the repair are expected to exceed 30 mph.
6. Reference: Bridge B-67 As-Built Plans

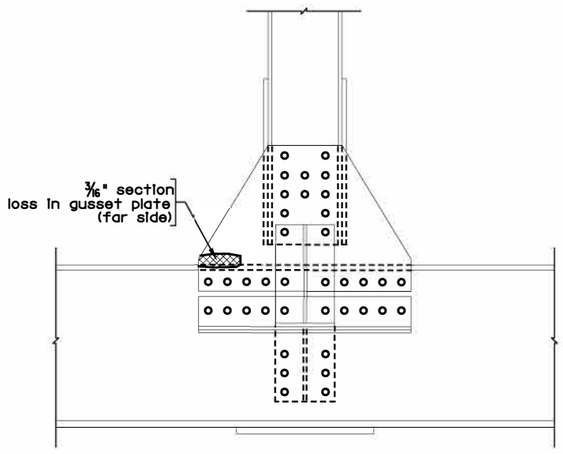
Legend:

- Section loss

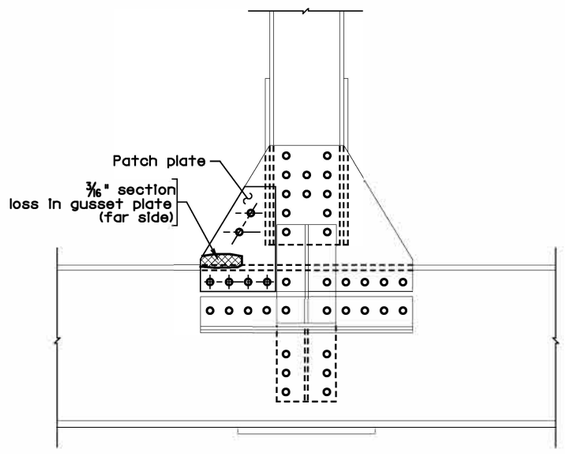
Suggested Sequence of Construction:

In general, the sequence of construction is as indicated below. Deviations from the sequence of construction shown are acceptable upon review and approval by the Engineer.

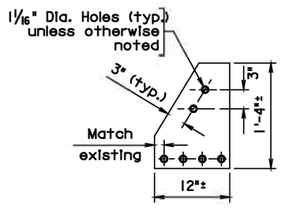
1. All live load such as vehicles, large equipment, etc. shall not be staged in in truss span unit to minimize loading.
2. Drill 1 1/16 dia. holes in existing gusset plate for patch plate.
3. Remove bolts on existing gusset plate as shown.
4. Clean and prime repair area around existing plate with sherwin williams macropoxy 646 epoxy primer at 5.0 - 10.0 mils dry film thickness.
5. Install proposed patch plate on top of existing gusset plate and fasten together with 1" diameter bolts using the existing bolt hole locations and new drilled holes.
6. Caulk seam between the existing and proposed plate around the perimeter while leaving the bottom edge uncaulked for weepage.



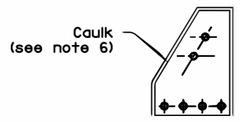
PANEL POINT 6, WEST TRUSS
EXISTING INTERIOR GUSSET PLATE
LOOKING WEST
Not to scale



PANEL POINT 6, WEST TRUSS
PROPOSED PATCH PLATE
LOOKING WEST
Not to scale



PATCH PLATE DETAIL
Not to scale



LIMITS OF CAULKING
Not to scale

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 67
PP 6, WEST TRUSS,
INTERIOR GUSSET PLATE REPAIRS

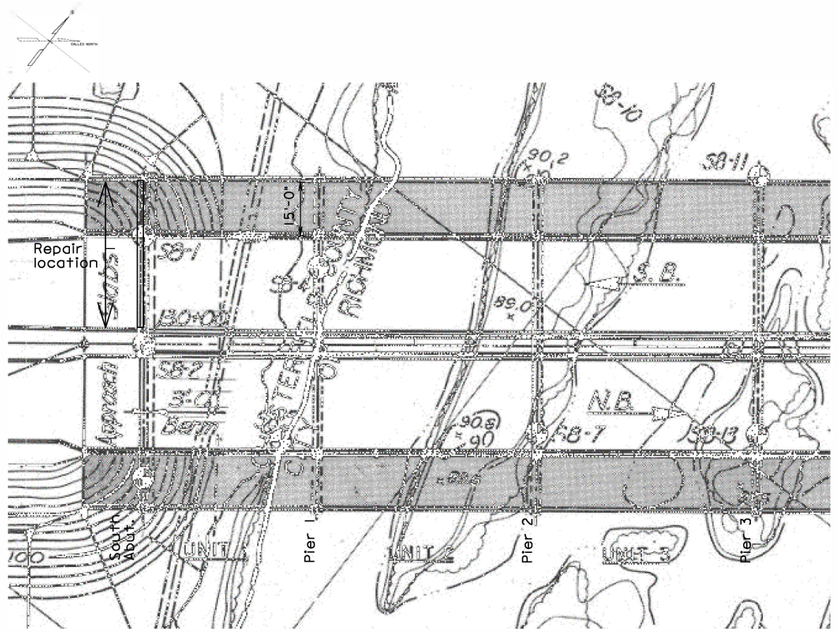
HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	JANUARY 2018	12	13

PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2018		SP-1-11

BRIDGE 8S - SOUTH ABUTMENT
APPROACH SLAB

BRIDGE 8S SOUTH ABUTMENT
APPROACH SLAB

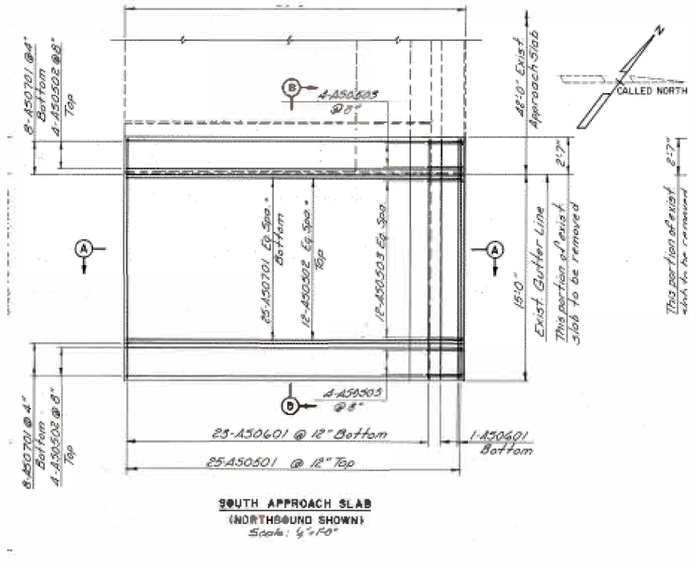


PART PLAN VIEW
EXTRACT AS-BUILT PLANS SHEET 3 of 106

Repair length (to be field verified):
Emergency repair = 34'-0" (+/-)
Future repair (If required) = 34'-0" (+/-)

BRIDGE 8 - DECK SOFFIT AT SOUTH ABUTMENT
PREVIOUS REPAIR CONCRETE CAST
AGAINST BACKWALL

Inspection photos indicate previous remedial repair work to the deck soffit concrete adjacent to the South Abutment joint. It is possible that concrete was placed against the backwall. Following further field inspection the Engineer to determine if any portions of the previous repair concrete shall be removed to restore the working of the joint. Minimum concrete clear cover of 1½" shall be provided.



Part plan Northbound approach slab at south abutment shown
Southbound similar but handed about bridge centerline
Sketch shows limits of bridge widening detail. See plan set sheet 92 of 106

For Notes and Construction Sequence, see Sheet 2 of 2

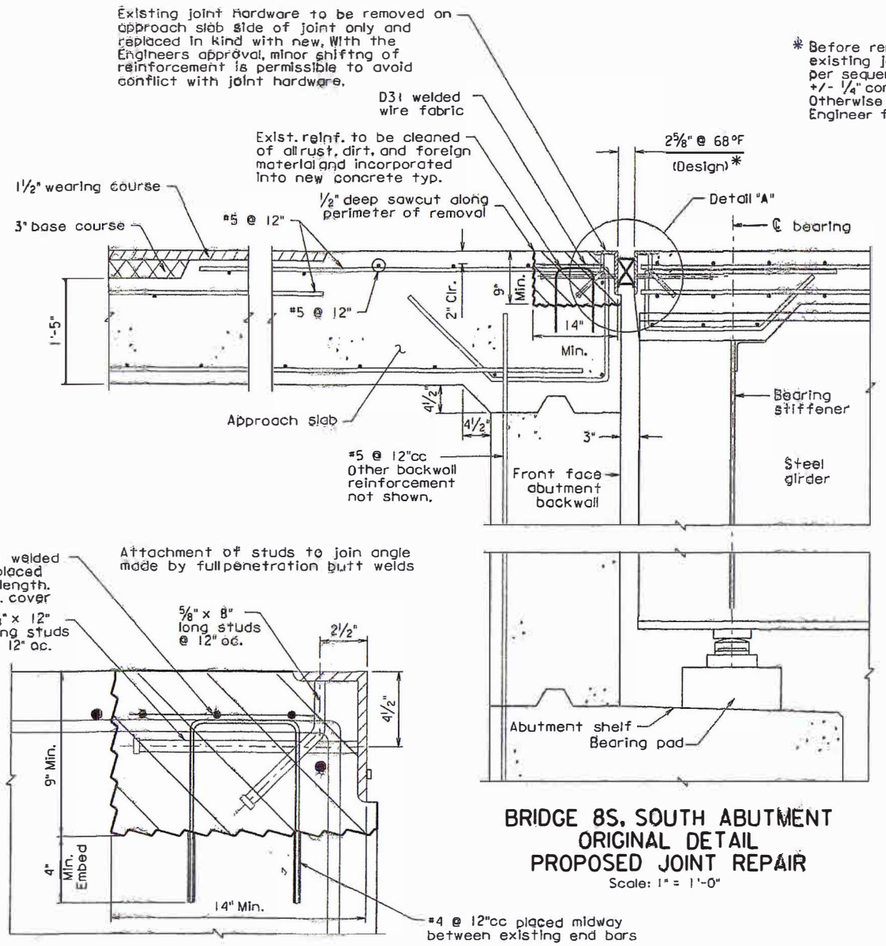
RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 8S
DECK JOINT AND
CONCRETE REPAIRS 1 of 2

HNTB CORPORATION
ARCHITECTS ENGINEERS & PLANNERS
ARLINGTON, VIRGINIA

SCALE	DATE	SHEET	OF
AS NOTED	FEBRUARY 2018		5

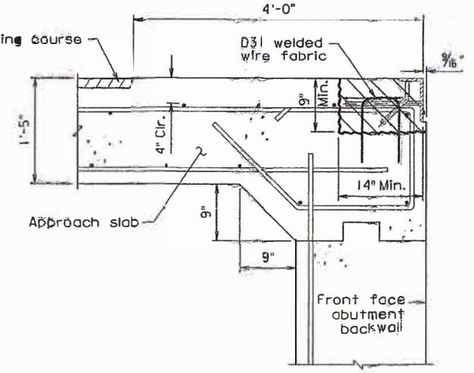
PLAN NO.	PROJECT	FILE NO.	SHEET NO.
A	MR 2017		SP-1-12



* Before removing existing joint armor, confirm existing joint opening is consistant with design per sequence Note 3. If consistant to within +/- ¼" contractor to match existing opening. Otherwise provide measurements to the Engineer for determination of joint gap setting.

BRIDGE 8S, SOUTH ABUTMENT 15' WIDENED DECK DETAIL (APPROACH SIDE SHOWN)

Scale: 1" = 1'-0"

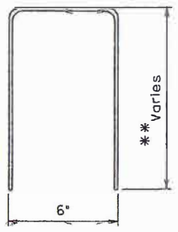


Partial depth removal and replacement. Limits of removal detailed are minimum. See construction sequence Note 1.

BRIDGE 8S, SOUTH ABUTMENT ORIGINAL DETAIL PROPOSED JOINT REPAIR

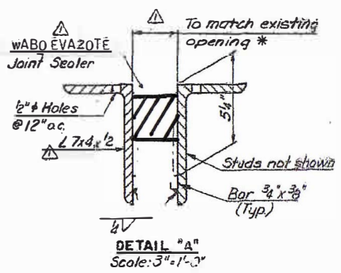
Scale: 1" = 1'-0"

MAGNIFIED VIEW APPROACH SLAB CONCRETE REPAIR



** Length dependent on depth of concrete removal. Bars may be ordered long and field cut to achieve minimum cover and embedment requirements.

BAR BENDING DIAGRAM



DETAIL "A"

Scale: 3" = 1'-0"

For additional as-built details see:

	Original plan set	Bridge widening plan set
Approach Slabs	Sheet 45 of 53	Sheet 92 of 106
Bridge Joints	Sheet 35 of 53	Sheet 69 of 106
Abutment	Sheet 8 of 53	Sheets 5 to 7 of 106

Suggested Sequence of Construction:
The general sequence of construction is indicated below. Deviations from the sequence of construction shown may be acceptable upon review and approval by the Engineer.

1. Concrete shall be removed to the mimimum limits detailed. Remaining concrete shall be sounded and any spalled and delaminated concrete and previous temporary repair materials removed as necessary to restore the joint to its original dimensions.
2. Drill and clean holes using compressed air and epoxy grout (Using Engineer approved material) embedment lengths of #4 reinforcement bars. Hole diameters shall be per grout manufacturer's recommendation and subject to approval by the Engineer.
3. Clean and re-tie existing reinforcement. Any damaged or missing reinforcing bars shall be reinstated as directed by the Engineer.
4. Accurately measure deck joint opening at several locations along the length of the joint as well as ambient temperature of steel. Determine required joint opening at 68°F.

Notes:

1. Work shall be performed in accordance with the 2016 Virginia Department of Transportation Road and Bridge Specification, current supplemental specifications, contract special provisions and contract.
2. Contractor shall verify all dimensions prior to beginning repair work.
3. Remove existing concrete deck to the extents shown and rebuild the deck in accordance with Section 412 of the Specifications.
4. Existing reinforcing to be carefully exposed, cleaned and incorporated into the new work as shown and in accordance with Section 412 of the Specifications. Additional reinforcment bars to be added as shown on the plans.
5. Concrete for the approach slab repair shall be Class A4, High Early Strength (HES) and shall have minimum 2,500 psi compressive strength prior to opening the repair to traffic. The Contractor shall remove all dirt, debris and remnants of pre-existing joint sealer from the joint and thoroughly clean and prepare existing joint surfaces before installing the new preformed neoprene joint sealer.
6. Low permeability concrete shall be used.
7. Deformed reinforcing bars shall conform to ASTM A615, Grade 60.
8. Structural steel shall be AASHTO M270, grade 36
9. As nearly as possible, sides of joints shall be straight, vertical and parallel. The area of the installation shall be free from cracks and spalls.
10. Joint sealer shall be installed in one continuous piece.
11. Steel sections shall be furnished in minimum lengths of 18' and shall be field welded into continuous sections. Welds shall be ground smooth in areas where they will be in contact with the joint sealer.
12. The detailed joint width for Bridge 8N is the final joint width of the cured concrete when placed at 68°F. The width shall be increased or decreased for every 10°F temperature drop or rise respectively by 1/32" at the South Abutment.
13. Details shown are based on available As-Built drawings. A copy of these plans will be included in the appendix to bid documents.
14. All joint reconstruction and installation shall be performed during nighttime lane closures. The Contractor shall coordinate with adjacent works to schedule this work utilizing any pre-established MOT schemes for nighttime deck overlay work.
15. The Contractor is responsible for the design and installation of a protective shield below all joint work to protect the area below from falling debris resulting from this work. The cost of this shielding and any containment system shall be included in the lump sum pay item for the joint remediation. All material, labor, and incidental costs for all concrete removal and cleaning, shall be included in the lump sum bid item for Bridge 8BS joint remedial work.

Sequence continued..

5. Prepare construction joint surfaces in accordance with section 404.03 (h) of the Specifications.
6. Form up slab end, install and secure expansion dam extrusion to match existing joint opening.
7. Place and tie D31 welded wire fabric as shown.
8. Place HES concrete. Concrete shall be placed beneath the dam in such a manner as to prevent the formation of air pockets in the concrete.
9. Install preformed EVAZOTE joint sealer.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

BRIDGE 8S
DECK JOINT AND
CONCRETE REPAIRS 2 of 2

HNTB CORPORATION
ARCHITECTS, ENGINEERS & PLANNERS
RICHMOND, VIRGINIA

SCALE	AS NOTED	DATE	FEBRUARY 2018	SHEET	OF 5
SUBH NO. A		PROJECT	MR 2017	FILE NO.	SHEET NO. SP-1-12

SSPC: The Society for Protective Coatings

SURFACE PREPARATION SPECIFICATION NO. 1

Solvent Cleaning

1. Scope

1.1 This specification covers the requirements for the solvent cleaning of steel surfaces.

2. Definition

2.1 Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants from steel surfaces.

2.2 It is intended that solvent cleaning be used prior to the application of paint and in conjunction with surface preparation methods specified for the removal of rust, mill scale, or paint.

3. Surface Preparation Before and After Solvent Cleaning

3.1 Prior to solvent cleaning, remove foreign matter (other than grease and oil) by one or a combination of the following: brush with stiff fiber or wire brushes, abrade, scrape, or clean with solutions of appropriate cleaners, provided such cleaners are followed by a fresh water rinse.

3.2 After solvent cleaning, remove dirt, dust, and other contaminants from the surface prior to paint application. Acceptable methods include brushing, blow off with clean, dry air, or vacuum cleaning.

4. Methods of Solvent Cleaning

4.1 Remove heavy oil or grease first by scraper. Then remove the remaining oil or grease by any of the following methods:

4.1.1 Wipe or scrub the surface with rags or brushes wetted with solvent. Use clean solvent and clean rags or brushes for the final wiping.

4.1.2 Spray the surface with solvent. Use clean solvent for the final spraying.

4.1.3 Vapor degrease using stabilized chlorinated hydrocarbon solvents.

4.1.4 Immerse completely in a tank or tanks of solvent. For the last immersion, use solvent which does not contain detrimental amounts of contaminant.

4.1.5 Emulsion or alkaline cleaners may be used in place of the methods described. After treatment, wash the surface with fresh water or steam to remove detrimental residues.

4.1.6 Steam clean, using detergents or cleaners and follow by steam or fresh water wash to remove detrimental residues.

5. Inspection

5.1 All work and materials supplied under this standard shall be subject to timely inspection by the purchaser or his authorized representative. The contractor shall correct such work or replace such material as is found defective under this standard. In case of dispute the arbitration or settlement procedure established in the procurement documents, if any, shall be followed. If no arbitration or settlement procedure is established, then a procedure mutually agreeable to purchaser and contractor shall be used.

5.2 The procurement documents covering work or purchase should establish the responsibility for testing and for any required affidavit certifying full compliance with the standard.

6. Disclaimer

6.1 While every precaution is taken to ensure that all information furnished in SSPC standards and specifications is as accurate, complete, and useful as possible, SSPC cannot assume responsibility nor incur any obligation resulting from the use of any materials, coatings, or methods specified herein, or of the specification or standard itself.

6.2 This specification does not attempt to address problems concerning safety associated with its use. The user of this specification, as well as the user of all products or practices described herein, is responsible for instituting appropriate health and safety practices and for ensuring compliance with all governmental regulations.

7. Note

Notes are not requirements of this specification.

7.1 A Commentary Section is available and contains additional information and data relative to this specification. The Surface Preparation Commentary, SSPC-SP COM, is not part

of this specification. The table below lists the subjects discussed relevant to solvent cleaning and the appropriate Commentary section.

Section Subject	SSPC-SP COM Section
Solvents and Cleaners	5.1.1 through 5.1.3
Steam Cleaning	5.1.4
Threshold Limit Values	5.1.5

SSPC: The Society for Protective Coatings

SURFACE PREPARATION SPECIFICATION NO. 2

Hand Tool Cleaning

1. Scope

1.1 This standard covers the requirements for hand tool cleaning steel surfaces.

2. Definitions

2.1 Hand tool cleaning is a method of preparing steel surfaces by the use of non-power hand tools.

2.2 Hand tool cleaning removes all loose mill scale, loose rust, loose paint, and other loose detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Mill scale, rust, and paint are considered adherent if they cannot be removed by lifting with a dull putty knife.

2.3 SSPC-VIS 3 or other visual standard of surface preparation agreed upon by the contracting parties may be used to further define the surface (see Note 8.1).

3. Referenced Standards

3.1 The latest issue, revision, or amendment of the referenced standards in effect on the date of invitation to bid shall govern, unless otherwise specified. Standards marked with an asterisk (*) are referenced only in the Notes, which are not requirements of this standard.

3.2 If there is a conflict between the requirements of any of the cited reference standards and this standard, the requirements of this standard shall prevail.

3.3 SSPC SPECIFICATIONS:

SP 1	Solvent Cleaning
***SP 3**	Power Tool Cleaning
***SP 11**	Power Tool Cleaning to Bare Metal
***SP 15**	Commercial Grade Power Tool Cleaning
VIS 3	Guide and Reference Photographs for Steel Surfaces Prepared by for Power- and Hand-Tool Cleaning

3.4 INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO):

***8501-1**	Preparation of steel substrates before application of paints and related products: Visual assessment of surface cleanliness—Part I.

4. Surface Preparation Before and After Hand Tool Cleaning

4.1 Before hand tool cleaning, visible deposits of oil, grease, or other materials that may interfere with coating adhesion shall be removed in accordance with SSPC-SP 1 or other agreed-upon methods. Nonvisible surface contaminants such as soluble salts shall be treated to the extent specified by the procurement documents [project specifications] (see Note 8.2).

4.2 After hand tool cleaning and prior to painting, reclean the surface if it does not conform to this standard.

4.3 After hand tool cleaning and prior to painting, remove dirt, dust, or similar contaminants from the surface. Acceptable methods include brushing, blow off with clean, dry air, or vacuum cleaning.

5. Methods of Hand Tool Cleaning

5.1 Use impact hand tools to remove stratified rust (rust scale).

5.2 Use impact hand tools to remove all weld slag.

5.3 Use hand wire brushing, hand abrading, hand scraping, or other similar non-impact methods to remove all loose mill scale, all loose or non-adherent rust, and all loose paint.

5.4 Regardless of the method used for cleaning, if specified in the procurement documents, feather the edges of remaining old paint so that the repainted surface can have a reasonably smooth appearance.

5.5 If approved by the owner, use power tools or blast cleaning as a substitute cleaning method for this standard.

6. Inspection

6.1 Unless otherwise specified in the procurement documents, the contractor or material supplier is responsible for quality control to assure that the requirements of this document are met. Work and materials supplied under this standard are also subject to inspection by the purchaser or an authorized representative. Materials and work areas shall be accessible to the inspector.

6.2 Conditions not complying with this standard shall be corrected. In the case of a dispute, an arbitration or settlement procedure established in the procurement documents (project specification) shall be followed. If no arbitration or settlement procedure is established, then a procedure mutually agreeable to purchaser and material supplier (or contractor) shall be used.

7. Disclaimer

7.1 While every precaution is taken to ensure that all information furnished in SSPC standards and specifications is as accurate, complete, and useful as possible, SSPC cannot assume responsibility nor incur any obligation resulting from the use of any materials, coatings, or methods specified herein, or of the specification or standard itself.

7.2 This standard does not attempt to address problems concerning safety associated with its use. The user of this standard, as well as the user of all products or practices described herein, is responsible for instituting appropriate health and safety practices and for ensuring compliance with all governmental regulations.

8. Notes

Notes are not requirements of this standard.

8.1 Note that the use of visual standards in conjunction with this standard is required only when they are specified in the procurement documents (project specification) covering the work. It is recommended, however, that the use of visual standards be made mandatory in the procurement documents.

SSPC-VIS 3 provides a suitable comparative visual standard for SSPC-SP 2, SSPC-SP 3, SSPC-SP 11, and SSPC-SP 15. ISO 8501-1 may also serve as a visual standard.

8.2 The SSPC Surface Preparation Commentary (SSPC-SP COM) contains additional information and data relevant to this specification. The Commentary is non-mandatory and is not part of this specification. The table below lists the subjects discussed relevant to hand tool cleaning and the appropriate Commentary Section.

Subject	Commentary Section
Film Thickness	10
Maintenance Painting	4.2
Rust, Stratified Rust, Pack Rust, and Rust Scale	4.3.1
Visual Standards	11
Weld Spatter	4.4.1

product data carboline®

Carbomastic® 15

Selection & Specification Data

Generic Type Epoxy mastic

Description Aluminum-pigmented, low-stress, high-solids mastic with outstanding performance properties and proven field history. Carbomastic 15 was the pioneer mastic coating in a number of industrial markets and today still provides unmatched levels of barrier protection and corrosion resistance over existing finishes and rusted or SSPC-SP2 or SP3-cleaned steel.

Features

- Excellent performance over minimal surface preparation of steel substrates
- Suitable as a topcoat for most tightly adhered existing coatings
- Excellent choice for field touch-up of zinc-rich primers and galvanized steel
- Unique formulation with aluminum flakes provides exceptional barrier protection
- May be applied at 35°F (2°C) when CM 15 FC's part B is utilized
- Suitable for use under insulation on hot surfaces operating up to 300°F(150°C)
- VOC compliant to current AIM regulations

Color Aluminum (C901); Red (M500)
Color variations within a batch and from batch to batch may occur due to the metallic pigments and variations in application techniques and conditions. Neither product is color matched, nor will they match each other. (15 FC may have a greenish appearance.) *Red (M500) is available for use as a contrasting primer in multiple coat applications, but should always be topcoated.

Primers Self-priming. May be applied over most tightly adhering coatings as well as inorganic zinc primers. A mist coat may be required to minimize bubbling over inorganic zinc primers.

Topcoats May be coated with Acrylics, Epoxies, Alkyds, or Polyurethanes depending on exposure and need.

Dry Film Thickness 3.0 - 5.0 mils (76 - 127 microns) per coat
7.0 - 10.0 mils (178 - 254 microns) per coat
Do not exceed 10.0 mils (250 microns) in a single coat.

Solids Content By Volume 90% +/- 2%

HAPs Values As supplied: 0.70 lbs/solid gal

Theoretical Coverage Rate
1444 ft^2 at 1 mil (35 m^2/l at 25 microns)
481 ft^2 at 3 mils (12 m^2/l at 75 microns)
144 ft^2 at 10 mils (4 m^2/l at 250 microns)

Allow for loss in mixing and application.

Severe Exposures Temperature resistance under insulation: Up to 300°F(150°C)
Discoloration is observed above 180°F(82°C) but does not affect performance.

VOC Values
Thinner 10 32 oz/gal: 2.o lbs/gal (242 g/l)
Thinner 236 E 32 oz/gal: 0.7 lbs/gal (88 g/l)
Thinner 76 32 oz/gal: 1.9 lbs/gal (231 g/l)
As Supplied 0.7 lbs/gal (88 g/l)
These are nominal values.

Selection & Specification Data

Substrates & Surface Preparation

General Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating.

Steel Immersion: SSPC-SP10 with a 2.0-3.0 mil (50-75 micron) surface profile.
Non-Immersion: SSPC-SP6 with a 2.0-3.0 mil (50-75 micron) surface profile for maximum protection. SSPC-SP2, SP3, SP7, or SP12 are also acceptable methods.

Galvanized Steel For optimum performance sweep blast cleaning is recommended. Consult your Carboline Sales Representative for specific recommendations.

Previously Painted Surfaces Lightly sand or abrade to roughen and degloss the surface. Existing paint must attain a minimum 3A rating in accordance with ASTM D3359 “X-Scribe” adhesion test.

Performance Data

Test Method	System	Results
ASTM 4060 Taber Abrasion	1 ct. CM15	130 mg loss; 1000 cycles using CS 17 wheel and 1000 gm load,
ASTM B117 Salt Spray	Rusted Steel 1 ct. CM 15	No blistering, rusting, or softening No rust creep from scribe
ASTM D1735 Water Fog	Rusted Steel 1ct CM 15	No blistering or softening, No creep from scribe
ASTM D522 Flexibility	Blasted steel 1 ct. CM15	A) Conical - crack 0.38", actual elongation 48.57% B) Cylindrical- no cracking observed
ASTM G 14 Impact Resistance	A) Blasted Steel 1 ct. CM 15, B) Rusted Steel 1 ct. CM 15	Area Damaged A) 1/4 inch (0.25") B) 1/4 - 9/16 inch (0.44")

Test reports and additional data available upon written request.

Mixing & Thinning

Mixing Power mix separately, then combine and power mix. DO NOT MIX PARTIAL KITS.

Thinning May be thinned up to 32 oz/gal (25%) with thinner #10. Substitute Thinner #72 when non-photochemically reactive thinners are desired or Thinner 236E if exempt thinners are required. To extend pot life, may be thinned up to 32 oz/gal (25%) with Thinner 72. Use of thinners other than those supplied by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Ratio 1:1 Ratio (A to B)

March 2012

0185

Carbomastic® 15

Mixing & Thinning

Pot Life Approximately 30 minutes at 75°F (24°) unthinned. When thinned 12%, pot life will be 45 minutes at 75°F. Pot life ends when coating becomes too viscous to use.

*For CM 15 FC

Application Equipment Guidelines

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

Spray Application (General) The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Conventional Spray Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, .086" I.D. fluid tip and appropriate air cap.

Airless Spray Pump Ratio: 30:1 (min.)*
GPM Output: 3.0 (min.)
Material Hose: 3/8" I.D. (min.)
Tip Size: .019-.025"
Output PSI: 1900-2100
Filter Size: 60 mesh
*Teflon packings are recommended and available from the pump manufacturer.

Plural Component May be applied by plural component spray equipment. Contact Carboline Technical Service for specific recommendations.

Brush & Roller (General) Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or rerolling. Use clean natural bristle brush or medium nap phenolic core roller. Work coating into all irregularities.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Minimum	50 °F (10 °C)	50 °F (10 °C)	50 °F (10 °C)	0%
Maximum	90 °F (32 °C)	130 °F (54 °C)	100 °F (38 °C)	95%

This product simply requires the substrate temperature to be above the dew point. Condensation due to substrate temperatures below the dew point can cause flash rusting on prepared steel and interfere with proper adhesion to the substrate. Special application techniques may be required above or below normal application conditions.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Final Cure Immersion	Dry to Recoat or Topcoat
50 °F (10 °C)	15 Days	5 Days
60 °F (16 °C)	10 Days	3 Days
75 °F (24 °C)	5 Days	24 Hours
90 °F (32 °C)	3 Days	18 Hours

For CM 15 Dry to Touch is 5 hours at 75°F (24°C). Maximum re-coat/topcoat times are 30 days for epoxies and 90 days for polyurethanes at 75°F (24°C).
These times are based on a 5.0-7.0 mil (125-175 micron) dry film thickness. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure. Excessive humidity or condensation on the surface during curing can interfere with the cure, can cause discoloration and may result in a surface haze. Any haze or blush must be removed by water washing before recoating. If the maximum recoat time is exceeded, the surface must be abraded by sweep blasting prior to the application of additional coats.
Note: This product contains conductive pigments and cannot be holiday tested.

Cleanup & Safety

Cleanup Use Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Safety Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation When used as a tank lining or in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. In addition to ensuring proper ventilation, appropriate respirators must be used by all application personnel.

Packaging, Handling & Storage

Shelf Life Part A & B: Min. 36 months at 75°F (24°C)

*Shelf Life : (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.

Shipping Weight (Approximate) 2 Gallon Kit - 25 lbs (11 kg)
10 Gallon Kit - 124 lbs (56 kg)

Storage Temperature & Humidity 45° - 110°F (7-43°C)
0-90% Relative Humidity

Flash Point (Setaflash) Part A: >200°F (93°C)
Part B: 76°F (24°C)

Storage Store Indoors.

carboline®
Coatings - Linings - Fireproofing
2150 Schuetz Rd., St. Louis, MO 63146
PH: 314-644-1000 Toll-Free: 800-848-4645
www.carboline.com

An RPM Company

March 2012
0185

Carbothane® 133 LH

carboline®

MARINE/OFFSHORE COATINGS product data

Selection & Specification Data

Generic Type
Aliphatic Acrylic-Polyester Polyurethane

Description
High build, low sheen finish that has excellent resistance to corrosion, chemicals and abrasion. Suitable for application over a number of Carboline primers and intermediates, this material provides very good weathering performance in a broad range of colors.

Features
- Exceeds SSPC Paint 36 specification for a Level 3 urethane
- Outstanding performance properties in both mild and aggressive environments
- High build; suitable for many two-coat systems
- Application by spray, brush or roller
- Indefinite recoatability
- VOC compliant to current AIM regulations
- Low HAPs content

Color
Refer to Carboline Color Guide.

Finish
Satin

Primers
Carbozinc, Carboguard and Carbomastic or other primers as specified. Refer to *Substrates & Surface Preparation*

Topcoats
Carbothane® Clear Coat when required.

Dry Film Thickness
3.0-5.0 mils (75-125 microns) per coat.
Dry film thickness in excess of 7 mils (175 microns) per coat is not recommended.

Solids Content
By Volume: 61% ± 2%

Theoretical Coverage Rate
978 mil ft^2 (24 m^2/l at 25 microns)
244 ft^2 at 4 mils (6 m^2/l at 100 microns)
Allow for loss in mixing and application.

VOC Values
As supplied: 2.7 lbs./gal (324 g/l)
Thinning:
4 oz/gal w/ Thinner 25: 2.8 lbs/gal (340 g/l)
4 oz/gal w/ Thinner 214: 2.8 lbs/gal (339 g/l)
3.6 oz/gal w/ Thinner 230: 2.8 lbs/gal (340 g/l)
4 oz/gal w/ Thinner 215: 2.8 lbs/gal (340 g/l)
13 oz/gal w/ Thinner 225e: 2.7 lbs/gal (324 g/l)
13 oz/gal w/ Thinner 236e: 2.7 lbs/gal (324 g/l)
13 oz/gal w/ Thinner 241: 2.7 lbs/gal (376 g/l)
13 oz/gal w/ Thinner 243e: 2.7 lbs/gal (324 g/l)
4 oz/gal w Thinner 252: 2.9 lbs/gal (341 g/l)
1.5 oz/gal w/ Additive 101: 2.78 lbs/gal (334 g/l)
These are nominal values and may vary slightly with color.

Dry Temp. Resistance
Continuous: 200°F (93°C)
Non-Continuous: 250°F (121°C)
Discoloration and loss of gloss is observed above 200°F (93°C).

Substrates & Surface Preparation

General
Surfaces must be clean and dry. Employ adequate methods to remove dirt, dust, oil and all other contaminants that could interfere with adhesion of the coating. Refer to the specific primer's Product Data Sheet for detailed requirements of the specified primer.

Steel
SSPC-SP6 with a 1.5-2.5 mil (37.5-62.5 micron) surface profile for maximum protection. SSPC-SP2 or SP3 as minimum requirement. Prime with specific Carboline primers as recommended by your Carboline sales representative.

Galvanized Steel
Prime with specific Carboline primers as recommended by your Carboline Sales Representative. Refer to the specific primer's Product Data Sheet for substrate preparation requirements.

Aluminum
SSPC-SP1 and prime with appropriate Carboline primer as recommended by your Carboline sales representative.

Previously Painted Surfaces
Lightly sand or abrade to roughen and degloss the surface. Existing paint must attain a minimum 3B rating in accordance with ASTM D3359 "X-Scribe" adhesion test. Prime with specific Carboline primers as recommended by your Carboline sales representative.

Packaging, Handling & Storage

	1 Gallon Kit	5 Gallon Kit
Shipping Weight (Approximate)	15 lbs (7 kg)	70 lbs (32 kg)

Flash Point (Setaflash)
Part A: 68°F (20°C)
Part B: 28°F (-2°C)

Storage (General)
Store Indoors.

Storage Temperature & Humidity
40° -110°F (4°-43°C)
0-90% Relative Humidity

Shelf Life
Part A: Min. 24 months at 75°F (24°C)
Part B: Min. 24 months at 75°F (24°C)

***Shelf Life: (actual stated shelf life) when kept at recommended storage conditions and in original unopened containers.**

April 2014 replaces March 2010 8837

Carbothane®133 LH

Application Equipment

Listed below are general equipment guidelines for the application of this product. Job site conditions may require modifications to these guidelines to achieve the desired results.

General Guidelines:

Spray Application (General) This is a high solids coating and may require adjustments in spray techniques. Wet film thickness is easily and quickly achieved. The following spray equipment has been found suitable and is available from manufacturers such as Binks, DeVilbiss and Graco.

Conventional Spray Pressure pot equipped with dual regulators, 3/8" I.D. minimum material hose, .070" I.D. fluid tip and appropriate air cap.

Airless Spray

Pump Ratio:	30:1 (min.)*
GPM Output:	3.0 (min.)
Material Hose:	3/8" I.D. (min.)
Tip Size:	.013-.015"
Output PSI:	2100-2300
Filter Size:	60 mesh

*Teflon packings are recommended and available from the pump manufacturer.

Brush & Roller (General) Multiple coats may be required to obtain desired appearance, recommended dry film thickness and adequate hiding. Avoid excessive re-brushing or re-rolling. For best results, tie-in within 10 minutes at 75°F (24°C).

Brush Recommended for touch-up only. Use a medium, natural bristle brush.

Roller Use a medium-nap synthetic roller cover with phenolic core.

Mixing & Thinning

Mixing Power mix Part A separately, then combine and power mix. DO NOT MIX PARTIAL KITS.

Ratio 4:1 Ratio (A to B)

	1.0 Gal. Kit	5.0 Gal. Kit
Part A:	1 gal. can (partial filled)	5 gal. can (partial filled)
UC 8800:	1 qt. (parital filled)	1 gallon can

Thinning Thinning not normally required. Carboline Thinner #225e, 236e or 243e may be used to thin this product to minimize HAP and VOC emissions. Thinner #25, #214, #215, or #230 may also be used. See "VOC Values" or Consult Carboline Technical Service for guidance.

Use of thinners other than those supplied or recommended by Carboline may adversely affect product performance and void product warranty, whether expressed or implied.

Pot Life 4 Hours at 75°F (24°C) and less at higher temperatures. Pot life ends when coating becomes too viscous to use. MOISTURE CONTAMINATION WILL SHORTEN POT LIFE AND CAUSE GELLATION.

Cleanup & Safety

Cleanup Use Thinner #2 or Acetone. In case of spillage, absorb and dispose of in accordance with local applicable regulations.

Cleanup & Safety Cont.

Safety Read and follow all caution statements on this product data sheet and on the MSDS for this product. Employ normal workmanlike safety precautions. Hypersensitive persons should wear protective clothing, gloves and use protective cream on face, hands and all exposed areas.

Ventilation When used in enclosed areas, thorough air circulation must be used during and after application until the coating is cured. The ventilation system should be capable of preventing the solvent vapor concentration from reaching the lower explosion limit for the solvents used. User should test and monitor exposure levels to insure all personnel are below guidelines. If not sure or if not able to monitor levels, use MSHA/NIOSH approved supplied air respirator.

Caution This product contains flammable solvents. Keep away from sparks and open flames. All electrical equipment and installations should be made and grounded in accordance with the National Electric Code. In areas where explosion hazards exist, workmen should be required to use non-ferrous tools and wear conductive and non-sparking shoes.

Application Conditions

Condition	Material	Surface	Ambient	Humidity
Normal	65°-85°F (18°-29°C)	65°-85°F (18°-29°C)	65°-85°F (18°-29°C)	35-60%
Minimum	40°F (4°C)	40°F (4°C)	40°F (4°C)	0%
Maximum	100°F (38°C)	110°F (43°C)	110°F (43°C)	90%

Industry standards are for substrate temperatures to be 5°F (3°C) above the dew point. This product simply requires the substrate temperature to be above the dew point.

Caution: This Product is moisture sensitive in the liquid stage and until cured. Protect from high humidity, dew and direct moisture contact until cured. Application and/or curing in humidities above maximum, or exposure to moisture from rain or dew may result in a loss of gloss and/or microbubbling of the product.

Curing Schedule

Surface Temp. & 50% Relative Humidity	Dry to Handle	Minimum Dry to Recoat*	Final Cure
40°F (4°C)	24 Hours	24 Hours	28 Days
50°F (10°C)	15 Hours	15 Hours	14 Days
75°F (24°C)	6 Hours	6 Hours	7 Days
90°F (32°C)	3 Hours	3 Hours	4 Days

These times are based on a 3.0-5.0 mil (75-125 micron) dry film thickness. Higher film thickness, insufficient ventilation or cooler temperatures will require longer cure times and could result in solvent entrapment and premature failure.

*Maximum recoat times are indefinite. Surface must be clean and dry.

carboline®
Coatings - Linings - Fireproofing
2150 Schuetz Rd., St. Louis, MO 63146
PH: 314-644-1000 Toll-Free: 800-848-4645
www.carboline.com

An RPM Company

April 2014 replaces March 2010

SPECIAL PROVISION
CONCRETE SIDEWALK

DESCRIPTION

This work shall consist of removing and replacing sections of Sidewalk.

MATERIALS

ITEM	VDOT SECTION
HYDRAULIC CEMENT CONCRETE SIDEWALK (4 inch)	404 and 504

LOCATION:

Sidewalk	
Bridge #	Approximate Area (SY)
13	69
55	5
58	79

Other locations for sidewalk replacement may be determined by the Engineer.

PROCEDURES

Contractor shall inspect each location to determine the limits of work and shall submit plans to Engineer for approval prior to commencing work. Sidewalk to be replaced shall be sawcut and removed in the designated area, then disposed of in an approved disposal area. New sidewalk shall be installed in accordance with VDOT Specification 404 and 504 and shall match the width of the existing sidewalk. The sidewalk shall be finished in accordance with VDOT Specification 404.07(g) Class 7, Sidewalk Finish. Contractor shall preserve and protect adjacent roadway features such as curb, curb and gutter, guardrail, bridge parapets, etc. Items damaged in the prosecution of this work shall be replaced in like condition at no additional expense to the RMTA.

MEASUREMENT AND PAYMENT

HYDRAULIC CEMENT CONCRETE SIDEWALK (4 inch) shall be measured in square yards and will be paid for at the contract unit price per square yard. This price shall include the removal and disposal of the existing sidewalk; subgrade preparation, bedding material, reinforcing steel, Class A3 Concrete, in addition to all equipment, labor, material, and incidentals required to complete the new installation.

Payment will be made under:

Pay Item	Pay Unit
HYDRAULIC CEMENT CONCRETE SIDEWALK (4 inch)	Square Yards

SPECIAL PROVISION
SLOPE STABILIZATION

DESCRIPTION

This work shall consist of placing aggregate material at designated locations as directed by the Engineer. The contractor shall submit the source of supply for Engineers approval.

MATERIALS

ITEM	VDOT SECTION
CRUSHER RUN AGGREGATE NO. 25 OR 26	205
COARSE AGGREGATE NO. 57	203
AGGREGATE MATERIAL NO. 1	203
FINE AGGREGATE A - SAND	202
CLASS I RIP RAP	414

LOCATIONS

Forest Hill Ramp
SB Powhite S. End of Bridge
Boulevard Bridge
Service Road
Police #1 turn around
Culvert 69
Culvert 70
Culvert 1827
Culvert 1831

PROCEDURES

Generally, all work shall be performed from the edge of pavement or shoulder, utilizing lane closures as necessary to protect workers and the motoring public. Removal of guardrail is not

anticipated but if removed, is incidental to work performed. It is solely the responsibility of the Contractor for acquiring permits or permissions for access from areas not owned by the RMTA. If the Contractor removes fence fabric to facilitate the repair work, the cost of removing and reinstalling the fence fabric will be incidental to the scope of work. Equipment shall be capable of depositing repair materials over existing guardrail. Compaction of stone will not be required.

MEASUREMENT AND PAYMENT

Stone will be measured by cross-sectioning the area filled, prior to the placement of stone and then converting to tons by using an appropriate conversion factor. If, by mutual consent, the Engineer and Contractor should agree to use a weight ticket furnished with the stone to gage either the quantity of stone placed at various locations or the total quantity of stone placed at multiple locations to arrive at final quantities, this will be an acceptable method in lieu of the previously specified method.

Pay Item	Pay Unit
21A/21B AGGREGATES	TON
COARSE AGGREGATE NO. 57	TON
AGGREGATE MATERIAL NO. 1	TON
FINE AGGREGATE A - SAND	TON
CLASS I RIP RAP	TON

SPECIAL PROVISION
MISCELLANIOUS BRIDGE COATINGS

DESCRIPTION

This work shall consist of cleaning and coating miscellaneous steel surfaces of existing bridge structural members. The intent of this work is to re-coat isolated structural members which exhibit corrosion and possible minor section loss. Structures are assumed to be Type B structures.

MATERIALS

All cleaned surfaces shall receive the following coating system, or engineer approved equal:

A. Polymeric Epoxy Amine at 1.0 -2.0 mils DFT. A thixotropic penetrating primer/sealer with excellent wetting properties that cures down to 35°. High solids that contains corrosion inhibitors and is compatible with a variety of topcoats.

B. Epoxy Polyamide (3/4 tint formula) at 3.0 – 5.0 mils DFT. Low temperature and rapid curing primer/finish that is VOC compliant with current AIM regulations. Solids content by Volume 63% ±2%.

C. Aliphatic Acrylic-Polyester Polyurethane (full tint formula) at 3.0 – 5.0 mils DFT. High build, low sheen finish that has excellent resistance to corrosion, chemicals and abrasion. VOC compliant with to current AIM regulations. Solids content by volume 61% ± 2%.

PROCEDURES

Contractor shall remove deteriorated coating back around the edges of the repair until an area of completely intact and adherent coating film, with no rust or blisters underneath, is attained. Edges of tightly adherent coating remaining around the repair shall be recoated and must be feathered so that the recoated surface can have a smooth appearance to provide a transition from the area of repair to the intact coating.

The remaining existing coating should have sufficient adhesion so that it cannot be lifted as a layer by inserting the blade of a dull putty knife under it using moderate pressure. Unless experience or spot tests show otherwise and to the approval of the Engineer, the contractor should use the same generic type of coating for this work as is in the existing coating.

The cleaning method required shall be power tool cleaning (SSPC-SP-3). This is Method 3 in Section 411.

LOCATIONS

Work areas will be determined by the Engineer.

MEASUREMENT AND PAYMENT

Miscellaneous Coatings will be measured in units of square foot of surface area and will be paid for at the contract unit price. This price shall include costs of any necessary staging for access, equipment required, labor, environmental protection, proper disposal of material offsite, and any incidentals required to complete the work.

The minimum square footage payment for an individual work location shall be 30 square feet. An individual work location shall be defined as a single bridge span.

Payment for MOT required at individual work locations shall be paid for in accordance with the individual Electronic arrow, Group 2 channelizing devices and Truck mounted attenuator bid items listed in Section 512.

Payment will be made under:

Pay Item	Pay Unit
Miscellaneous Coatings	Square Foot

SPECIAL PROVISION
CONCRETE CURB

DESCRIPTION

This work shall consist of removing and replacing sections of Hydraulic Cement Concrete Curb.

MATERIALS

ITEM	VDOT SECTION
Hydraulic Cement Concrete Curb	502

LOCATIONS

Curb Replacement		
Location	Type	Approximate Length (FT)
B13	CG-2	124
B58	CG-2	36

Other locations for curb replacement may be determined by the Engineer.

PROCEDURES

Contractor shall inspect each location to determine the limits of work and shall submit plans to Engineer for approval prior to commencing work. Curb to be replaced shall be sawcut and removed in the designated area, then disposed of in an approved disposal area. New curb shall be installed in accordance with VDOT Specification 502 and shall match the profile of the existing curb.

MEASUREMENT AND PAYMENT

Curb shall be measured in linear feet and will be paid for at the contract unit price per linear foot. This price shall include the removal and disposal of the existing curb, repair of any adjacent damage to pavements, sidewalks, landscaping or turf areas; in addition to all equipment, labor, material, and incidentals required to complete the new installation. No additional payment will be made on the basis of varying curb shapes.

Payment will be made under:

Pay Item	Pay Unit
Standard 6" Curb, CG-2	Linear foot
Standard 4" Curb, CG-3	Linear foot

SPECIAL PROVISION
BRIDGE 66 ON-RAMP REHABILITATION

DESCRIPTION

This Work shall consist of the repair and rehabilitation of the existing Richmond Metropolitan Transportation Authority (RMTA) Downtown Expressway (DTE) 10th Street, Eastbound (Bridge 66) on-ramp roadway. This Work is to correct settlement caused by surface water infiltration and subsequent drainage system localized failures within the on-ramp roadway section. The Work Area is adjacent the Bridge 66 retaining wall with general limits being the **existing on-ramp concrete full pavement width** (curb to curb), including corresponding sub-base and Select Backfill depths from the asphalt pavement joint up to the Approach Slab joint. All pavement rehabilitation shall be in accordance with 2016 VDOT Road and Bridge Specifications (hereafter VDOT Specifications) Section 412 for Bridge Decks unless otherwise noted herein. The new on-ramp replacement pavement details shall also be consistent with the existing reinforced concrete details of the adjacent Approach Slab as shown in the Preliminary Plans.

The provided Preliminary Plans show **dimensions as estimates only**, and that no claim for extra quantities or minimized work scope shall be accepted based on these values except for the Select Backfill (Abutment Zone) material which shall be paid on a per Ton basis (based upon weight tickets submitted to the Inspector). The Preliminary Plans were prepared from information contained within the as-built bridge approach plans of this Bridge 66 abutment. These **as-built plans are also provided in the Appendix for Contractor's reference only**. The Contractor and Engineer shall jointly inspect the site and be in mutual agreement regarding all final Work Area limits and final Work Plan details required to perform the Work.

The overall on-ramp rehabilitation work shall specifically consist of removing the existing concrete pavement and any additional unsound concrete pavement that makes up the roadway slab (demolition). Where applicable, additionally carry out Structure Excavation and corresponding Select Backfill (Abutment Zone) repair and rehabilitation procedures to minimize long-term roadway slab settlement. Preliminary Plan limits of the Select Backfill (Abutment Zone) material removal and replacement have been projected to be commensurate with estimated existing structure geometrics; whereby, the established final work limits shall be subject to the approval of the Engineer. This Work is also intended to replace the existing (failed) underdrain system consisting of repairing and constructing new underdrains, crossdrains, edgedrains, or prefabricated geocomposite pavement edgedrains (PGPE), including outlet pipe, (collectively, "underdrains") using equivalently dimensioned pipe, aggregate, and geosynthetics corresponding to these same Engineer approved limits.

The 10th Street on-ramp is critical to the DTE operations whereby time is of the essence. *Please be advised that* **once the Contractor begins the demolition process of the existing on-ramp roadway slab, the Work must immediately progress in an expedient manner to complete the entire repair and rehabilitation process and provide lanes back open to traffic within**

the stipulated seven (7) calendar days in accordance with all dates and times listed in the Maintenance of Traffic special provision SP-B. Work not completed within the 7-day work schedule stipulation may be subject to corresponding Liquidated Damages also per SP-B at the sole discretion of the RMTA. Standard Maintenance of Traffic pay items will also be measured and paid as per SP-B.

Prior to beginning any work, the Contractor shall submit to the Engineer for approval an overall Work Plan inclusive of the on-ramp concrete pavement demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and all related ancillary work. The complete on-ramp rehabilitation plan details shall be provided per the **required Work Plan** Section contained herein as confirmed by the Engineer. This plan also requires inclusion of the specific on-ramp closure MOT plan with detours subject to the approval by the Engineer and RMTA.

MATERIALS

All materials identified herein, and including all associated ancillary items, necessary for the full and complete performance of the **On-Ramp Rehabilitation** work is to be included and paid for at the contract lump sum price provided under the Measurement and Payment Section of this contract. The primary materials, at a minimum, are identified in this Section.

Structural Excavation shall conform to the requirements set forth in Section 401 Structure Excavation of VDOT Specifications.

Select Backfill (Abutment Zone) shall specifically consist of Number 21A or 21B stone conforming to Section 208 or Select Material Type I, minimum CBR 30 conforming to Section 207 of the VDOT Specifications. All Select Backfill materials used for the repair and rehabilitation work should also be granular, free-draining materials. Where adjacent embankment and existing wall structures retain in-situ cohesive soils, drainage shall be provided to reduce hydrostatic water pressure behind these structures.

Class A4 Bridge Deck Concrete shall be used for the on-ramp roadway construction in conformance with Section 217 inclusive of additional modifications to minimize cracking with shrinkage reducing admixtures; and, the rehabilitation work shall be in accordance with Section 412 for Bridge Decks and Section 509 for Hydraulic Cement Concrete Pavement of VDOT Specifications unless otherwise noted herein.

Steel Reinforcement / Deformed Reinforcing Bars shall conform to ASTM A615, Grade 60. These specifications cover steel items designed to give added flexural strength to hydraulic cement concrete or to control and reduce cracking in such applications per Section 223 requirements of the VDOT Specifications.

Coarse Aggregate material used to backfill underdrain, crossdrain, and outlet pipe trenches shall conform to Section 203 and be No. 57 aggregate, and No. 8 aggregate material gradation requirements of VDOT Specifications.

Drainage Pipe for underdrains shall conform to Section 232 and the associated **Geosynthetics**, including geotextile drainage fabrics and prefabricated (PGPE) drains shall conform to Section 245. This integral underdrain rehabilitation work shall also be in accordance with Section 501 all per the VDOT Specifications.

Ancillary Items including, but not limited to, pavement markings, delineators, joint material, materials for any required repairs, and all other necessary materials shall be per the appropriate VDOT Specifications unless otherwise noted herein.

SCOPE OF WORK

The full extent of the Work Area should be to ensure that the on-ramp rehabilitation work length, width and depth are all compatible with the observed settlement limits. Overall, the Work primarily includes on-ramp concrete pavement demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and all related ancillary work. Consequently, field verification of all Work Area limits is necessary to complete this Work. All required ancillary work performed shall also be at no additional cost to the RMTA and with no extension of contract time. This shall also include any required permits.

Demolition Operations work shall consist of **demolishing ONLY existing on-ramp roadway pavement** in general conformance with Section 508 of VDOT Specifications. The intent is to remove the existing on-ramp concrete pavement strictly limited to Work Areas being rehabilitated in conformity to the lines and contours shown on the Preliminary Plans and as finalized by the Engineer. Specifically, this on-ramp pavement shall be broken into pieces and either used in fill areas as rock embankment in accordance with Section 303 or disposed of at locations selected by the Contractor and approved by the Engineer. *Contrary to Section 508.02 Procedures, sub-section (a) Demolition of Pavement Structures, sub-part (b),* ***no material shall be left within the roadway prism***.

SPECIAL PROVISION
BRIDGE 66 ON-RAMP REHABILITATION

The Contractor shall first evaluate the on-ramp concrete pavement thickness over the existing Select Backfill and adjust the depth of demolition as to prevent damage to the adjacent retaining wall, existing roadway Approach Slab inclusive of back of bridge abutment and median embankment structures. Prior to any existing pavement demolition work the Contractor shall also perform a work site analysis, jointly with the Engineer, to locate any potential problem areas where there may be adverse impacts to adjacent structural elements. With the approval of the Engineer, the final outer limits of the entire demolition work may be adjusted to avoid destructive contact with the existing retaining wall and other, in-place structures. Due to demolition operations, and milling machine limitations, the Contractor shall also utilize jack hammering and saw cutting to remove any remaining existing concrete pavement not removed during the initial demolition process.

After completing concrete pavement demolition operations, the Contractor shall clean up all associated debris. Clean-up operations shall directly follow the demolition process to prevent any debris from resettling into the surrounding sub-base and other in-situ material to the Engineer's satisfaction.

Structure Excavation will be performed per Section 401 of VDOT Specifications. The limits are estimated to be from the surface of the original ground or on-ramp roadway down to the bottom of the foundation shown on the Preliminary Plans or such limit modifications as a part of the Work Plan as approved by the Engineer. This may involve depths down to 18 inches below the bottom of the neat work not directly over footings, or to the top of existing concrete where excavation exposes existing footings. All final depths are subject to the approval of the Engineer.

Drainage System Replacement and Associated Repair work shall be performed in accordance with Section 302 and 510 of the VDOT Specifications for drainage structures. The work may also consist of replacing existing drainage outlets to ensure proper, long-term drainage flow. All final lengths and drainage system replacement attributes are subject to the approval of the Engineer.

Select Backfill (Abutment Zone) material consisting of Number 21A or 21B stone conforming to Section 208 or Select Material Type I, minimum CBR 30 conforming to Section 207 shall be explicitly used by the Contractor to replace the material removed during the Structure Excavation operations. The Contractor and Engineer shall jointly inspect the site and be in mutual agreement regarding the detail indicating the final limits (zone) of the Select Backfill resulting from the excavation work and based on the Work Plan detail sheet(s). The Contractor shall compact the material in accordance with Sections 305 and 303, respectively. The top surface of the backfill material shall be neatly graded. Where only one side of abutments, wingwalls, piers, or culvert headwalls can be backfilled, care shall be taken that the area immediately adjacent to the structure is not compacted to the extent that it will cause overturning or excessive pressure against the structure.

Mechanical Milling may be performed as additional option for pavement removal in accordance with the VDOT Specifications for Type A Milling. The anticipated depth range is possibly 8 inches (minimum) up to 1 foot, 9 inches and must be field verified to confirm sufficient removal depths of **ONLY the on-ramp roadway reinforced concrete pavement** strictly limited to within the designated Work Area as confirmed by the Engineer. Prior to initiating Mechanical Milling or any other existing concrete pavement demolition work, the Contractor shall remove all debris from the ramp roadway and dispose of it offsite.

The Contractor shall use extra caution during the milling procedures. Damaged surrounding reinforcing steel involving any adjacent existing concrete pavements shall be repaired in accordance with Section 412.03 of the VDOT Specifications at no additional cost to the Authority and with no extension of contract time. Reinforcing steel shall be ASTM A615 Grade 60 deformed and plain uncoated for all associated pavement repairs.

Class A4 Concrete shall be used for all reinforced concrete pavement rehabilitation work consisting of the construction of new sections of hydraulic cement concrete within the Work Area or other areas as identified by the Engineer. These repairs shall be in accordance with Section 412 for Bridge Decks and Section 509 for Hydraulic Cement Concrete Pavement unless otherwise noted herein. Specifically, ANY pavement repairs will be made using a rapid-cure cement-based patching product, matching the requirements of VDOT Class A4 Concrete, modified as necessary to achieve a compressive strength of at least 3,000 psi in a maximum of 8 hours. The product *recommended* for bridge deck and pavement repairs is *Heartland High Performance Volumetric Concrete*. Substitute products may be used as approved by the Engineer. All products used must be listed on the most current VDOT Approved Products List. Contractor shall submit proposed product data sheet to Engineer for approval prior to use.

Pavement Markings and Delineator work shall require Eradication of Existing Pavement Markings, applying new Pavement Markings and removal and replacement of Delineators. Type B markings will be installed only on concrete surfaces per the manufacturer's recommendations. Prior to installation of any pavement markings the Contractor and Engineer shall jointly review the site and be in mutual agreement on which markings are being removed / installed. In general, the Contractor shall match all existing markings in their current location unless directed by the Engineer. All pavement marking shall be installed per the Manufacturers recommendations or as approved by the Engineer. The Contractor shall also make sure that the surface is clear of any debris, by removing it with compressed air. Installing delineators along existing concrete barrier walls in locations determined by the engineer shall be per the manufacturer's recommendations. The Contractor shall refer to Section 3F.04 Delineator Placement and Spacing on pages 426-427 of the Manual for Uniform Traffic Control Devices for

additional guidance. Any costs for removing and disposing offsite of existing Pavement Markings, Eradication and Delineators shall be incidental to this work.

New Joints shall be designed, furnished and installed to accommodate the movement of rigid structures (See Section E-E, Anchor Slab Type I Detail of the Preliminary Plans), such as component parts of hydraulic cement concrete, and seal the joint from intrusion of water or incompressibles. The Contractor shall provide final details based on the Preliminary Plans and as-built drawings from Bridge B66 which are all included in the Appendix for reference only. Joints using steel dowels and forming using rigid Styrofoam, wood, or other materials shall be as approved by the Engineer. The Contractor shall use elevation measurements taken during the previous work to ensure that the new joints match both the elevations on each surrounding structures and cross slope of the existing joints of the Approach Slab and pavements. The Contractor shall also remove all remnants of existing joint sealer material, dirt, and debris from the joint and any damaged Approach Slab adjacent to the failed existing joint material and thoroughly clean and prepare concrete surfaces before installing the new joint material. Install joint sealer along all repair lengths shall use **Wabo Evazote UV** or approved equivalent. All spaces between newly formed joints shall also be uniform in width so that one size of Evazote joint sealant material can be installed once the replacement reinforced concrete pavement has properly cured. The cost of joint material and installation shall be incidental to the lump sum cost of performing the Work Area rehabilitation.

WORK PLAN (Required)

Prior to beginning the Work, the Contractor shall submit to the Engineer for approval an overall repair and rehabilitation plan inclusive of the on-ramp concrete pavement demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and all related ancillary work. This overall Work Plan shall include complete details of the following items, as a minimum:

a) The Contractor shall also submit Maintenance of Traffic and, specifically, Detour plans to the Engineer for review and approval prior to commencing **ANY** work. See Maintenance of Traffic special provision SP-B for details and requirements.

b) The Contractor's means of controlling unintended adverse impacts or destructive contact with collateral structural elements surrounding the failed pavement area shall be identified prior to commencing any work. The intent is to confirm that the Contractor shall make every attempt to prevent un-intended damage to the in-situ and existing, in-place structures surrounding the repair and rehabilitation work area.

c) The Contractor shall provide specific details of the method of demolition and Structural Excavation procedures of the on-ramp roadway slab and corresponding underlying sub-base prior to commencing any work. This should also include some details for removing and replacing the existing failed drainage systems.

d) The Contractor's methods of protecting these existing structural systems shall also be provided for review and comment by the Engineer prior to commencing any work.

e) A detailed plan indicating the limits of the Structural Excavation and corresponding Select Backfill material with notes shall be included on the Contractor's detail sheets of the overall repair and rehabilitation work plan.

f) A detailed (Class A4) paving plan shall be provided to the Engineer for review and approval prior to commencing **ANY** paving work.

g) All repaired or reconstructed joints shall be free of cracked and spalled areas and their faces shall be free of all foreign matter, curing compounds, oils, greases and dirt. All faces must be sandblasted or brushed with a mechanical rotary wire brush. Just prior to sealing, the joint shall be blown out with oil-free compressed air.

h) The Contractor's method for material inspection and approval for use by the Engineer shall be coordinated with the project schedule.

COORDINATION AND SCHEDULING

Contractor shall coordinate all work activities with the Engineer. Contractor shall provide at least fourteen (14) days' notice of any closure prior to starting work.

To complete the Work, Contractor may require access from property owned or managed by parties other than the RMTA. Contractor shall coordinate and schedule with appropriate owner, party or agency work activities on non-RMTA property. In addition, Contractor shall secure all necessary permits required for site access to perform work. Contractor shall abide by all permits, regulations and guidelines issued by the governing agency.

Upon completion of the use of properties adjacent to or below bridges for storage or work areas, Contractor shall restore the property to a condition similar or equal to that existing before work started. Any costs related to gaining access to property, stabilizing property, sediment control devices and restoring property shall be incidental to the other work items established for the on-ramp rehabilitation.

Contractor shall protect all utilities on Bridges from all work, specifically during the existing pavement demolition and associated Structural Excavation operations.

MEASUREMENT AND PAYMENT

All on-ramp rehabilitation work will be measured and paid for at the contract lump sum price at the specific 10th Street on-ramp (BR #66) location per the pay item specified below. This price shall include all materials and labor to complete the on-ramp concrete pavement demolition work, associated Structural Excavation, replacement drainage system and associated repairs, Select Backfill (Abutment Zone), replacement reinforced concrete (Class A4) paving and any and all associated ancillary work to complete the entirety of the repair and rehabilitation of the on-ramp roadway. Environmental Protection and Health Safety will also be included and paid for at this contract lump sum price for this location. Disposal of Material will also be included and paid for at this contract lump sum price at this location. Maintenance of Traffic will also be included and paid for at this contract lump sum price at this location.

Measurement for Select Backfill shall be made on a per Ton basis (based upon weight tickets submitted to the Inspector) for all compacted stone placed for leveling and backfill in accordance with specifications and accepted by the Agency. No separate measurement will be made for random backfill as it shall be considered incidental to excavation.

Payment will be made under;

Pay Item	Pay Unit
On-Ramp Rehabilitation: *Existing Concrete Pavement Demo / Structure Excavation / Replacement Drainage System and Repair / Select Backfill / Reinforced Concrete (Class A4) Pavement / Joints / Markings and Delineators / Environmental Protection / Disposal of Material and Cleanup (B66)*	LS
Select Backfill (Abutment Zone)	TONs

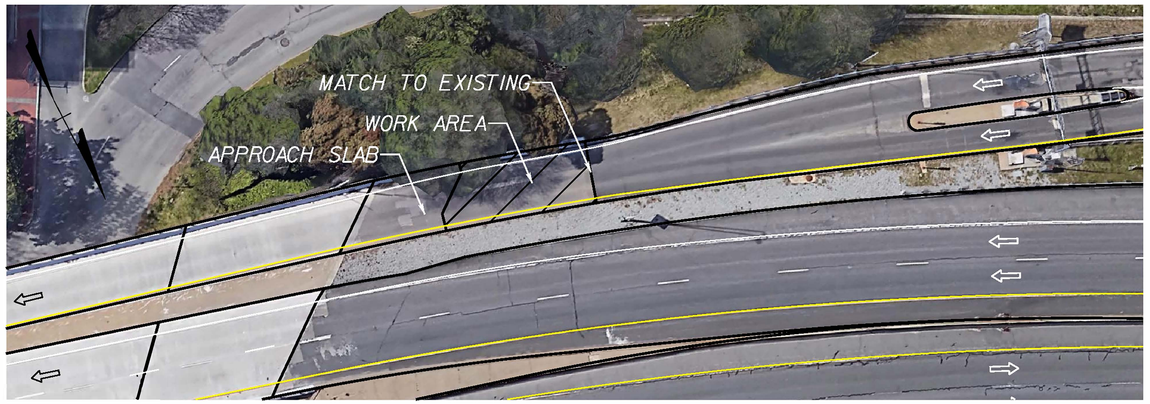
Select Backfill (Abutment zone) Number 21A or 21B stone conforming to Section 208 will be measured in Tons and shall be paid for at the contract unit price per Ton. This price shall include furnishing, excavating, placing, compacting, and grading select backfill material. In computing volumes of backfill, methods having general acceptance in the engineering profession will be used. When the measurement is based on the cross-sectional area, the average end area method will be used subject to the approval of the Engineer.

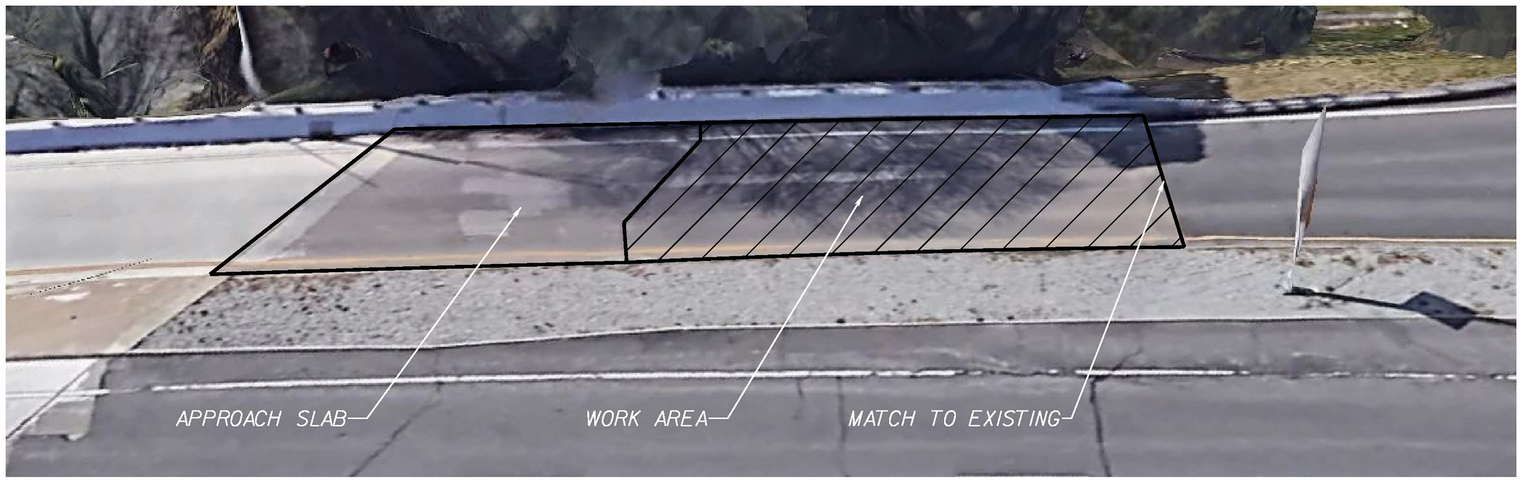
PROJECT MANAGER <Project Mgr. Name. (000).000-0000. (District)> _____
SURVEYED BY, DATE <Surveyor Name. (000).000-0000. (District)>_____
DESIGN BY <Designer Name. (000).000-0000. (District)> _____.
SUBSURFACE UTILITY BY, DATE <Surveyor Name. (000).000-0000. (District).

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	.	.

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

10TH STREET ON RAMP REHABILITATION





NOTE: ALL WORK AREAS RELATING TO EXISTING STRUCTURES, PAVEMENTS, DRAINAGE, AND ANCILLARY INFASTRUCTURE DETAILS ARE FROM AS-BUILT PLANS AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. REFERENCE ONLY - SEE AS-BUILT PLANS.

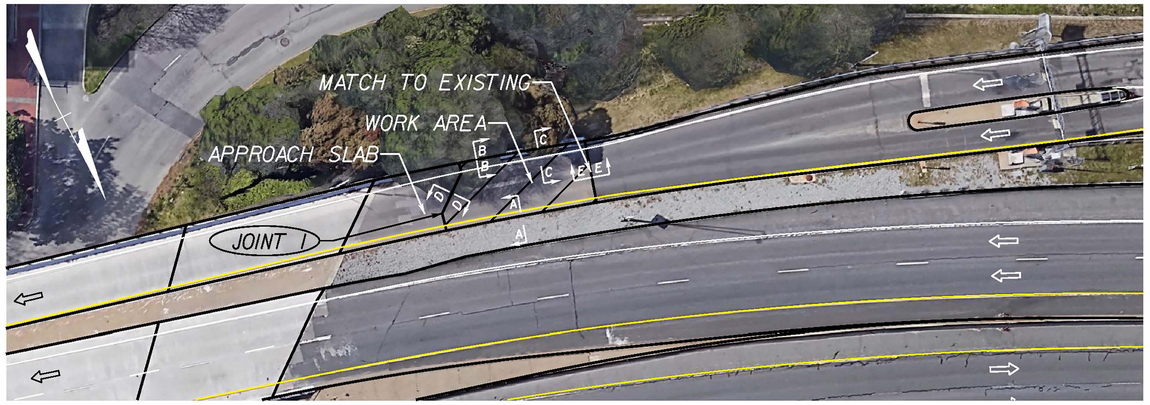
N.T.S.	PROJECT MR 2018 · SP-N-1	SHEET NO. 1

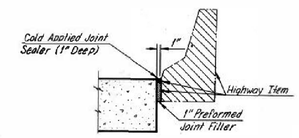
PROJECT MANAGER <Project Mgr. Name. (000).000-0000. (District)> _____
SURVEYED BY, DATE <Surveyor Name. (000).000-0000. (District)> _____
DESIGN BY <Designer Name. (000).000-0000. (District)> _____
SUBSURFACE UTILITY BY, DATE <Surveyor Name. (000).000-0000. (District).

REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	. . .	2

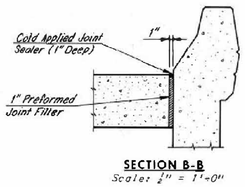
DESIGN FEATURES RELATING TO CONSTRUCTION OR TO REGULATION AND CONTROL OF TRAFFIC MAY BE SUBJECT TO CHANGE AS DEEMED NECESSARY BY THE DEPARTMENT

10TH STREET ON RAMP REHABILITATION

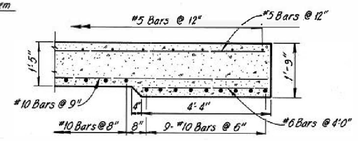




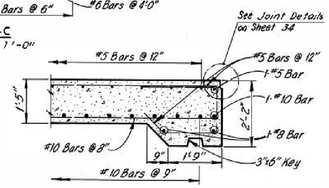
SECTION A-A
Scale: 1" = 1'-0"



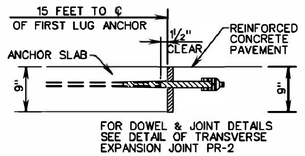
SECTION B-B
Scale: 1" = 1'-0"



SECTION C-C
Scale: 1" = 1'-0"

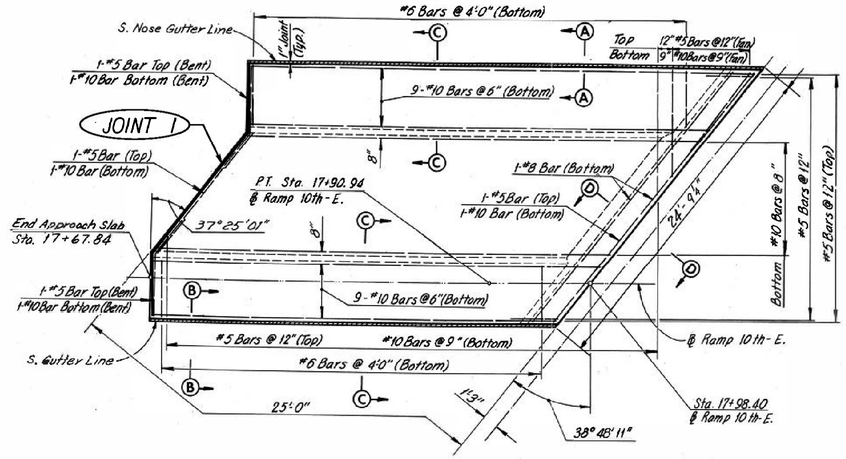


SECTION D-D
Scale: 1" = 1'-0"



FOR DOWEL & JOINT DETAILS SEE DETAIL OF TRANSVERSE EXPANSION JOINT PR-2

SECTION E-E
ANCHOR SLAB TYPE I



WEST APPROACH SLAB - PLAN
Scale: 3/16" = 1'-0"

NOTE: ALL DIMENSIONS AND ELEVATIONS ARE FROM AS-BUILT PLANS AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. REFERENCE ONLY - SEE AS-BUILT PLAN SHEET 39 OF 46.

MATCH WEST APPROACH SLAB PLAN CONSTRUCTION

N.T.S.	PROJECT MR 2018 SP-N-2	SHEET NO. 2

PROJECT MANAGER<Project Mgr. Name. (000).000-0000. (District)> _____
SURVEYED BY, DATE <Surveyor Name. (000).000-0000. (District)>_____
DESIGN BY <Designer Name. (000).000-0000. (District)> _____
SUBSURFACE UTILITY BY, DATE <Surveyor Name. (000).000-0000. (District).

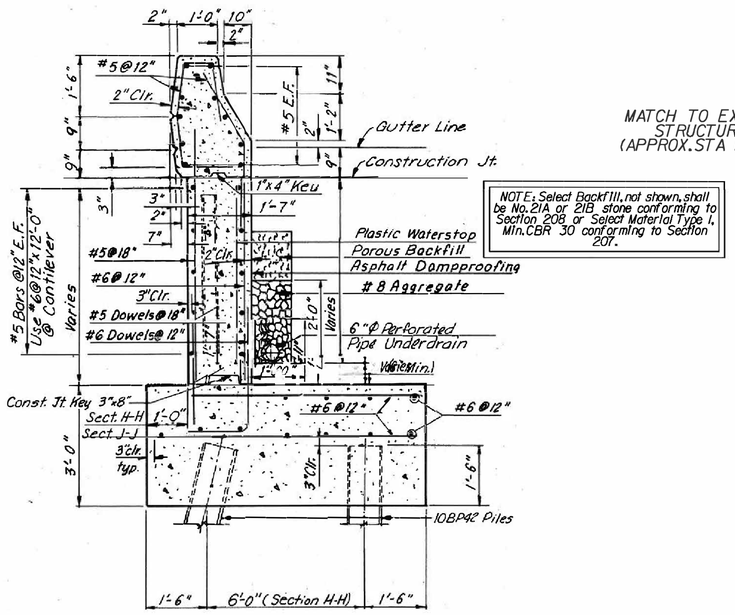
REVISED	STATE	STATE ROUTE	STATE PROJECT	SHEET NO.
	VA.	.	. . .	3

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

10TH STREET ON RAMP REHABILITATION

10TH STREET RAMP CROSS SECTION

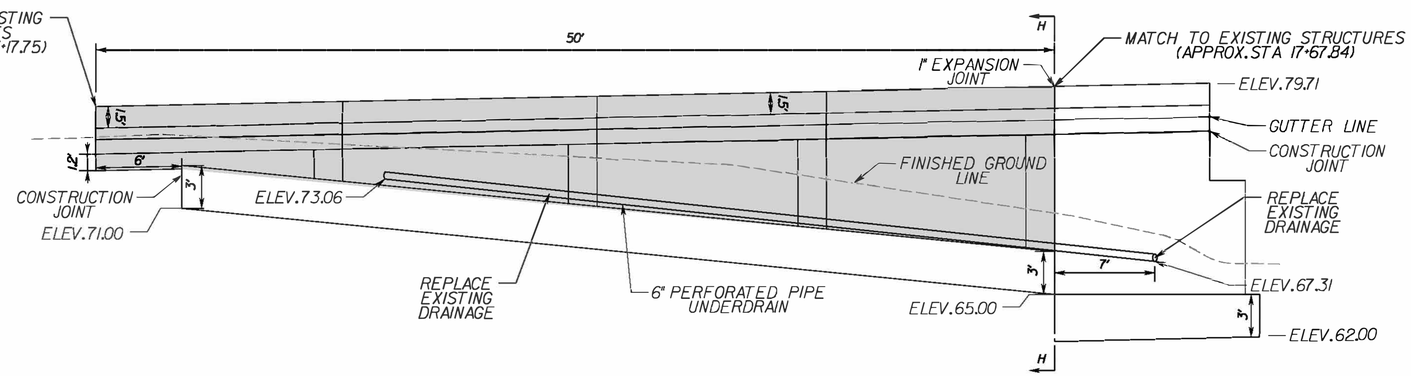
(N.T.S.)



NOTE: Select Backfill, not shown, shall be No. 21A or 21B stone conforming to Section 208 or Select Material Type I, Min. CBR 30 conforming to Section 207.

10TH STREET RAMP WEST ABUTMENT ELEVATION AS-BUILT

(N.T.S.)



NOTE: ALL DIMENSIONS AND ELEVATIONS ARE FROM AS-BUILT PLANS AND MUST BE VERIFIED IN THE FIELD BY THE CONTRACTOR. REFERENCE ONLY - SEE AS-BUILT PLAN SHEET 5 OF 46.

N.T.S.	PROJECT MR 2018 SP—N—3	SHEET NO. 3

SPECIAL PROVISION
BRIDGE DECK SEALING

DESCRIPTION

This work shall consist of furnishing and applying a concrete sealant to Bridges 6, 11, 12, 13, 17, 46, 47, 48 decks including all lanes and shoulders and other areas as directed by the Engineer.

LOCATION

Deck Sealing	
Location	**Approximate Qty (S.Y)**
Bridge 6	1491
Bridge 11	1123
Bridge 12	1140
Bridge 13	942
Bridge 17	1139
Bridge 46	664
Bridge 47	602
Bridge 48	1088

MATERIAL

Contractor shall apply Chem-Crete Pavix CCC100 concrete sealant or Engineer approved equal.

SURFACE PREPARATION

The deck surface shall be cleaned by pressure washing only, to remove oils, dirt, curing compounds, weak surface mortar and other contaminants. Alternative cleaning methods shall require approval of the Engineer. Contractor shall make sure the deck surface is free of any sealers, which may impede absorption of the product.

No vehicle traffic will be allowed on the prepared surface prior to applying the concrete sealant. In the event the lane must be opened to traffic; the surface shall be cleaned again to the approval of the Engineer.

The Contractor shall be aware that the bridges received a full deck overlay one year ago. Extra care shall be taken not to damage any of the recently installed contrast pavement markings, snow-plowable raised pavement markers, and bridge deck joint sealant. Any damage to existing components shall be repaired at the Contractors expense, to the approval on the Engineer and with no extension in contract time.

APPLICATION

The contractor shall follow all the manufacturer's recommendation for applying the concrete sealant. The concrete substrate shall be at least 40 °F prior to application. The Contractor shall use an application rate at a minimum of 150 square feet per gallon to a maximum of 200 square feet per gallon.

The contractor shall use a truck or trailer mounted low pressure sprayer to apply the sealant in an expeditious manner. The sealant shall cure for a minimum of one hour or per manufacturer's recommendations whichever is greater at an air temperature of 75 ˚F before opening the lane to traffic.

During the drying process, the Contractor will be required to remain inside the lane closure until the lane is opened to traffic.

MEASUREMENT AND PAYMENT

Concrete Bridge Deck Sealant will be measured in square yards and paid for at the contract unit price, which shall be full compensation for, surface preparation, furnishing and applying the concrete sealant, any additional cleanup required, and all equipment, labor and incidentals required to complete the work. MOT will be paid as per Maintenance of Traffic special provision SP-B.

Pay Item	Pay Unit
Concrete Bridge Deck Sealant	S.Y.

SPECIAL PROVISION
DRAINAGE STRUCTURE REPAIRS

DESCRIPTION

This work shall be performed in accordance with Section 302 and 510 of the Specifications and VDOT 2016 Road and Bridge Standards for drainage structures. The work shall consist of repairing and adjusting existing drainage inlets and manholes and installation of metal nosing.

MATERIALS

All materials shall conform to section 302.02 of the Specifications. Concrete shall be Class A3.

MEASUREMENT AND PAYMENT

REPAIRING EXISTING DROP INLET or MANHOLE TOP shall be measured and paid for in units of each, complete in place, which price shall include removal of portions of existing structure, forming, furnishing and placing all Class A3 concrete, reinforcing steel, resetting manhole frame and cover, labor, tools, equipment and all incidentals necessary to complete the work.

Pay Item	Pay Unit
REPAIR EXISTING DROP INLET or MANHOLE TOP	Each

SPECIAL PROVISION
CONCRETE COATINGS

DESCRIPTION

This work shall consist of cleaning, patching and coating the piers, and abutments. The intent of this work is to provide a properly prepared concrete surface that is suitable for application and adhesion of the specified protective coating system.

MATERIALS

All cleaned surfaces shall receive the following coating system, or Engineer approved equal:

A. PPG Amercoat 385 Polyamide Epoxy at 3.0 -8.0 mils DFT. A multi-purpose high build epoxy compatible with a wide range of substrates and surface preparations that cures down to 40°.
B. PPG Amercoat 114A Epoxy Filler Compound for bug holes and surface cracks in concrete.

PROCEDURES

Contractor shall repair all delamination, spalls and significant cracks and allow proper curing as per manufacturer's recommendations before applying coating. Surface Preparation will be in accordance with SSPC SP-13 guidelines with minimum high-pressure water cleaning of 3000 PSI. Detergent water cleaning and steam cleaning may be used to remove oils and grease from concrete. After pressure cleaning the surface of the piers and abutments, it must dry for a minimum of 24 hours before applying the coating.

Coating application must be in accordance with the approved manufactures recommendation. Application will be by brush and roller only. No spraying will be permitted. A minimum of two coats will be necessary to achieve adequate film-build. One coat application will not be allowed.

QUANTITIES

RMTA Bridge #	Area (S.F)
4	4117
5	8951
6	10797
9	8546
10	9811
11	5951
12	7326
13	6124
17	7040
36	3000
37	5856
46	3582
47	3174
48	5901
49	3754
50	4448
51	11863
54	5201
55	3480
56	3838
57	3709
58	3449
60	5247
61	2994
62	1710

MEASUREMENT AND PAYMENT

The Piers and Abutments, will be measured by square feet and paid for at the contract price. This price shall be full compensation for any necessary patching/crack sealing, surface preparation, environmental protection, proper disposal of waste material offsite, furnishing and installing coatings per manufacturer's recommendations, all equipment, labor, materials, and incidentals required to complete the work.

Maintenance of Traffic items for Wall Coatings will be paid as per MOT Special Provision SP-B and the Supplemental Specifications.

Payment will be made under:

Pay Item	Pay Unit
Piers	Square Feet
Abutments	Square Feet

SPECIAL PROVISION
REPAIRING ASPHALT CONCRETE PAVEMENT CRACKS

DESCRIPTION

This work includes repairing pavement cracks in asphalt pavement. The repair consists primarily of filling the joint with hot poured liquid asphalt and applying a detack liquid over top to remove surface tack.

LOCATIONS

A table of currently identified locations of Asphalt Concrete Pavement Cracks is presented below. This table is provided for informational purposes only. The estimated quantities below are provided for planning purposes only and are in no way a guarantee of actual quantities. The RMTA reserves the right to add or delete locations to the scope of work. The Contractor is responsible to inspect these locations prior to bidding. No adjustments in unit price shall be made as a result of the addition or deletion of work locations from the scope of work.

Asphalt Concrete Pavement Cracks	
Location	**Area (lf)**
Powhite Parkway	15000
Downtown Expressway	5000

MATERIALS

Asphalt shall conform to VDOT Spec. Section 210. Detack shall be manufactured by Crafco or Engineer approved equal.

Contractor shall submit product data or information sheet to the Engineer for review a minimum of 7 calendar days prior to starting work.

PROCEDURES

Joints shall be prepared by blowing loose debris from them with compressed air. Compressors shall be of sufficient capacity to clean the crack opening with relative ease. Hot liquid asphalt shall then be poured into the crack to a level 3/16" ± 1/16" below the existing asphalt surface (horizontal) and as per Manufacturers Recommendations. Immediately after asphalt application apply Detack over hot liquid asphalt.

MEASUREMENT AND PAYMENT

Repair of asphalt pavement cracks shall be measured and paid by the linear foot which shall include joint preparation, hot liquid asphalt, detack, and all labor, equipment, and incidentals necessary to complete the work.

Pay Item	Pay Unit
Repair Asphalt Concrete Pavement Cracks	Linear Foot

SPECIAL PROVISION
DEICING CHEMICAL

DESCRIPTION

This work shall consist of delivering 4400 Gallons of Deicing Chemical product to the RMTA's holding tank at the Powhite South Storage yard. Delivery date must be submitted to the Engineer for approval at a minimum 7 days prior to actual delivery. The liquid chemical shall be deposited into the holding tank by the contractor. Delivery must be in bulk quantity, 55-gallon drums or other containers will not be acceptable. In the event of a spill, contractor shall take all necessary actions to mitigate affected area, and shall replace spilled quantity at no additional cost to the Authority.

MATERIALS

The de-icing chemical shall be CF7 or approved equal, and be 50% aqueous potassium acetate solution, by weight, plus corrosion inhibitors. Density at 68 degrees F shall be 10.68 lbs/gallon. It shall be nonflammable with a freezing point of -76 degrees F. Typical pH shall be between 10.5 and 11.5. Specific Gravity at 68 degrees F shall be between 1.25 – 1.30. Contractor's proposed product specification sheet shall be submitted for approval by the Engineer.

PROCEDURES

Contractor will be required to provide testing of the existing liquid in the tank if required by a new provider. The Contractor shall determine the volume of the existing chemical in the tank prior to placing the order with the supplier.

MEASUREMENT AND PAYMENT

Pay Item for delivery will be paid for by the gallon of product transferred to the RMTA storage tank located on Powhite Parkway. This price shall include all costs necessary to complete the delivery including the chemical, transportation costs, equipment, labor, and any other associated costs with testing of the existing chemical, determining the current volume of chemical in the tank, delivery, and transferring chemical into the existing storage tank.

Transportation costs and other fees for returning any unused product back to the supplier will be the responsibility of the Contractor.

Pay Item	Pay Unit
De-Icing Chemical	Gal

CRYOTECH CF7®
MATERIAL SAFETY DATA SHEET

1. PRODUCT NAME & DESCRIPTION

CRYOTECH CF7® Liquid Commercial Deicer

MANUFACTURED AND SUPPLIED IN THE USA BY:
Cryotech Deicing Technology
6103 Orthoway
Fort Madison, IA 52627
United States

CRYOTECH CONTACT INFORMATION:
Telephone: (800)346-7237
FAX: (319)372-2662
email: deicers@cryotech.com
website: http://www.cryotech.com

2. CHEMICAL COMPOSITION

The percent compositions are given to allow for the various ranges of the components present in the whole product and may not equal 100%.

PERCENT	COMPONENT	CAS#
100%	Cryotech CF7® Liquid Commercial Deicer	
CONTAINING		
50%	Potassium Acetate	127-08-2
<1.0%	Corrosion Inhibitors in	
50%	Water	7732-18-5

CAS - Chemical Abstract Service Number

3. HAZARD IDENTIFICATION
(also see Sections 11 and 12)

CAUTION! - MAY CAUSE EYE IRRITATION

EYE CONTACT:
This substance is slightly irritating to the eyes and could cause prolonged (days) impairment of your vision.
The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment.
Signs and symptoms may include pain, tears, swelling, redness and blurred vision.
SKIN IRRITATION:
This substance is not expected to cause prolonged or significant skin irritation.
DERMAL TOXICITY:
The systematic toxicity of this substance has not been determined. However, it should be practically non-toxic to internal organs if it gets on the skin.
RESPIRATORY/INHALATION:
This material does not present an inhalation hazard.
INGESTION:
If swallowed, this substance is considered practically non-toxic to internal organs. Ingestion may cause irritation of the digestive tract which may result in nausea, vomiting and diarrhea.
This product contains potassium salts. Ingestion of large amounts (25 or more grams) of potassium salts usually causes a person to vomit. If the person is not suffering from a preexisting kidney condition, the absorbed potassium is rapidly excreted in the urine. However, very young children or individuals with compromised kidney and/or cardiac function could experience the following effects after ingesting excessively large doses of potassium salts: irritation and inflammation of the stomach lining, muscular weakness, burning, tingling and numbness sensations of hands and feet, slower heart beat, reduced blood pressure, irregular heart beat and cardiac arrest.
OCCUPATIONAL EXPOSURE LIMITS:
None identified

4. FIRST AID MEASURES

Chemical Emergency: Spill, leak, fire, or accident call
Chemtrec day or night (800)424-9300;
Outside continental USA call (703)527-3887

EYE CONTACT:
Flush eyes immediately with fresh water for at least 15 minutes while holding the eyelids open. Remove contact lenses if worn. No additional first aid should be necessary. However, if irritation persists, see a doctor.
SKIN CONTACT:
No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.
INHALATION:
Since this material is not expected to be an immediate inhalation problem, no first aid procedures are required.
INGESTION:
If swallowed, give water or milk to drink and telephone for medical advice.
DO NOT make the person vomit unless directed to do so by medical personnel.
If medical advice cannot be obtained, then take the person and product container to the nearest medical emergency treatment center or hospital.

5. FIRE FIGHTING MEASURES

FLASH POINT:
>100°C
AUTO IGNITION:
No data available
FLAMMABILITY LIMITS (% by volume in air):
Lower: No data available
Upper: No data available
Non-flammable
EXTINGUISHING MEDIA:
Use extinguishing media appropriate for surrounding fire.
FIRE FIGHTING PROCEDURES:
Fire fighters should wear proper protective equipment, self-contained breathing apparatus with full face piece operated in positive pressure mode.
COMBUSTION PRODUCTS:
Normal combustion forms carbon dioxide and water.
NFPA RATINGS:
Health 1; Flammability 0; Reactivity 0; Special NDA:
(Least - 0, Slight - 1, Moderate - 2, High - 3, Extreme - 4)
These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint Coating Association.

6. ACCIDENTAL RELEASE MEASURES

Chemical Emergency: Spill, leak, fire, or accident call
Chemtrec day or night (800)424-9300;
Outside continental USA call (703)527-3887

SPILL/LEAK PRECAUTIONS:
Contain spillage and absorb on suitable material e.g. sawdust, sand or earth. Transfer to a container for disposal. See section 13.
Wash the spillage area with plenty of water.

7. HANDLING AND STORAGE

STORAGE:
Store in clean vessels and containers away from direct heat and strong oxidizing agents. Do not store or handle product with systems constructed of wetted parts that have galvanized steel, zinc or brass components.
SPECIAL PRECAUTIONS:
Avoid contact with skin and eyes. Avoid breathing mist when spraying.

CRYOTECH CF7®
MATERIAL SAFETY DATA SHEET

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYE PROTECTION:
Do not get this material in your eyes. Eye contact can be avoided by wearing chemical goggles.
SKIN PROTECTION:
No special skin protection is usually necessary. Avoid prolonged or frequently repeated skin contact with this material. Skin contact can be minimized by wearing protective clothing.
RESPIRATORY PROTECTION:
No special respiratory protection is normally required.
VENTILATION:
No special ventilation is necessary.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:
Clear, colorless to light straw colored liquid. (May be dyed blue at customer request)
pH (20°C):
10.5 - 11.5
BOILING POINT:
~115°C
SPECIFIC GRAVITY (20°C):
1.28
EVAPORATION:
No data available
VAPOR PRESSURE (20°C):
17 mm Hg
PERCENT VOLATILE (VOLUME %):
No data available
VAPOR DENSITY (AIR = 1):
No data available
VISCOSITY (20°C):
6.5 cP
FREEZING POINT:
-60°C
SOLUBILITY:
Completely miscible in water.

10. STABILITY & REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS:
None known.
STABILITY:
Stable
HAZARDOUS POLYMERIZATION:
Polymerization will not occur.
INCOMPATIBILITY:
May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc. Avoid prolonged contact with reactive metals such as magnesium and zinc, especially in closed systems where hydrogen gas may accumulate over time.
SPECIAL PRECAUTIONS:
READ AND OBSERVE ALL PRECAUTIONS ON PRODUCT LABEL.
Store away from strong oxidizing materials.

11. TOXICOLOGICAL INFORMATION

EYE IRRITATION:
No product toxicology data available. The hazard evaluation was based on data from similar products.
SKIN IRRITATION:
No product toxicology data available. The hazard evaluation was based on data from similar products.
DERMAL TOXICITY:
No product toxicology data available. The hazard evaluation was based on data from similar products.
RESPIRATORY/INHALATION:
No product toxicology data available. The hazard evaluation was based on data from similar products.
INGESTION:
The oral LD50 in rats is greater than 5.0 g/kg.

12. ECOLOGICAL INFORMATION

COD (TOD):	0.32 g O_2/g deicer
BOD_5 @ 20° C:	0.25 g O_2/g deicer

13. DISPOSAL CONSIDERATION

Based on information available to Cryotech Deicing Technology, this product is neither listed as a hazardous waste nor does it exhibit any of the characteristics that would cause it to be classified or disposed of as an RCRA hazardous waste. If product should spill or be otherwise unsuitable for normal deicing applications, it may be absorbed on suitable materials and disposed of in sanitary landfill unless state or local regulations prohibit such disposal.

14. TRANSPORT INFORMATION

Not restricted under any transport regulations.

15. REGULATORY INFORMATION

ALL OF THE COMPONENTS IN THIS PRODUCT ARE ON THE FOLLOWING INVENTORY LISTS:
U.S.A. (TSCA)
Europe (EINECS)
Canada (DSL/NDSL)
TSCA SECTION 12(b):
None of the components in this product are regulated under TSCA Section 12(b).
OSHA HAZARD CLASSIFICATION:
Hazardous Chemical (Irritant);
None of the components in this product are considered highly hazardous by OSHA.
CERCLA HAZARDOUS SUBSTANCES:
There is no CERCLA Reportable Quantity for this material.
SARA 311 CATEGORIES:

Immediate (Acute) Health Hazard:	Yes
Delayed (Chronic) Health Hazard:	No
Fire Hazard:	No
Sudden Release of Pressure Hazard:	No
Reactivity Hazard:	No

SARA 313:
None of the components in this product are subject to reporting under SARA Section 313.
CLEAN WATER ACT:
None of the components in this product are listed as Priority Pollutants under the CWA.
None of the components in this product are listed as Toxic Pollutants under the CWA.
STATE RIGHT-TO-KNOW:
This product does not contain components at levels which are required to be reported under the statutes of the following states: PA, MA, NJ
This product does not contain components known to the State of California (Proposition 65) to cause cancer and/or reproductive harm at levels which would require a warning under the statute.
WHMIS (Canada) CLASSIFICATION:
Not controlled

16. OTHER INFORMATION

This Material Safety Data Sheet contains environmental, health and toxicology information for your employees. Please make sure this information is given to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this MSDS must be given to the buyer or the information incorporated in your MSDS. Discard any previous edition of this MSDS.

Latest version of this MSDS can be found at http://www.cryotech.com

SPECIAL PROVISION
EQUIPMENT PURCHASE AND DELIVERY

DESCRIPTION

This work shall consist of purchasing new fully assembled and installed equipment for and delivery to the RMTA. Presented below are a list of items to be purchased and their minimum specification are contained herein. The Utility Trailer shall be delivered no later than May 18, 2018 and the Bucket Truck shall be ordered no later than 30 days after notice to proceed.

1. Bucket Truck
2. 16 FT Utility Trailer

The Contractor shall submit specifications certified by the manufacturer to the Engineer for approval prior to purchase of equipment. If the Contractor finds a similar product not meeting the minimum specifications, the Contractor may submit all applicable documents in writing for the Engineer to review. Alternate products not meeting minimum specification shall be substituted only with Approval by both the RMTA and the Engineer.

Once items have been approved, the Contractor shall submit a time for delivery to the Engineer and RMTA for approval. The Contractor shall be aware that delivery times shall take place typically between the hours of 8 A.M. to 5 P.M. Monday through Friday. All equipment shall be delivered to the SB Powhite Parkway Storage Yard.

All manuals, warranty information, registration information, and other paperwork shall be neatly organized in a binder when delivered. Additionally, all equipment shall be tested and have all fluids topped off, including, but not limited to fuel, oil, hydraulic fluid, etc.; so that each piece of equipment can be used in the manner it was intended for once it was delivered. All completed units shall comply and be tested in accordance with all applicable O.S.H.A. ANSI, FMVSS, etc. standards and regulations.

ITEMS FOR PURCHASE

1. Bucket Truck

2018 Ford F-550 Chassis Cab, 4x2, 169" Wheel base, 19500 # GVWR

Features

- XL Trim / Standard Equipment
- Oxford White Paint

- Medium Earth Vinyl Seat
- 6.7 V-8 Power Stroke Diesel Engine
- 6-Speed Automatic Transmission
- 4.88 Limited Slip Rear Axle
- Payload Plus Upgrade Package
- XL Décor Package
- Engine Block Heater
- Snow Plow Prep Package
- Jack
- Transmission Power Take-Off "PTO"
- Aft Axle Fuel Tank
- Dual Alternators
- 225 BSW AS 19.5 Tires

Additional Requirements

- Dur-A-Lift Bucket Model DTAXS-44P
- Knapheide Service Body Model 6132D54

Sheey Ford – Municipal Sales & Service may have the specified vehicle in stock. A point of contact with Sheey Ford is Nick Crist, (804) 419-1376 and nickcrist@sheehy.com

2. **16 FT U8 7K Utility Trailer**

Features

- 2ft Exp Metal Sides, Black
- 2 Inch Bulldog Coupler
- Safety Chains
- 2000 lb Swivel Jack
- 2 3500 lb Posi-Lube Axles w/Electric Brakes on One Axle
- 15 Inch Radial Tires
- Stake Pockets
- Treadplate Removable Aluminum Fenders
- 4-inch Channel Frame & Tongue
- 2 ½ Inch x 2 ½ Inch x 3/16 Inch Angle Crossmembers
- 2 Inch x 2 Inch Removable Side Rail
- 2 Inch x 2 Inch Top Rail
- Treated Floor
- 83-Inch-Wide Deck

- DOT Approved Flushmount Lights
- Sealed Wire Harness
- Sand Blasted, Acid Washed and Powder Coated
- Steel diamond Plate Fenders
- Black Spoke Wheels
- Front Toolbox
- 7K Jack
- 4 Cargo Tie Down Loops
- Spare Tire Mount

Additional Requirements

- EZ Gate Tailgate Lift Assist
- 3 Position Classic Series Trim (Open Trailer)

Superior Trailer may have the specified trailer in stock. A point of contact with Superior Trailer is Scott Stanley, (804) 275-5557 and scott@superior-trailer.com

MEASUREMENT AND PAYMENT

Acquisition and Delivery of the Bucket Truck will be measured per lump sum and paid for at the contract unit price. The price shall include; purchasing for the RMTA, delivering equipment to the RMTA, all labor and equipment to connect the Dur-A-Lift to the body, any testing and break-in procedures, organization of all paperwork neatly in a binder, and all equipment, labor and incidentals required to complete the work.

Acquisition and Delivery of Utility Trailer will be measured per lump sum and paid for at the contract unit price. The price shall include; purchasing for the RMTA, delivering equipment to the RMTA, any testing and break-in procedures, additional costs associated with filing required reservoirs (fuel, oil, Hydraulic fluid, etc.), organization of all paperwork neatly in a binder, and all equipment, labor and incidentals required to complete the work.

Pay Item	Pay Unit
Acquisition and Delivery of Bucket Truck	L.S.
Acquisition and Delivery of Utility Trailer	L.S.

SPECIAL PROVISION
MAINLINE APPROACH SLAB TYPE A MILLING AND
VERY EARLY STRENGTH LATEX MODIFIED CONCRETE OVERLAY

I. DESCRIPTION

This work shall consist of the removal of a portion of the existing concrete bridge approach slabs and any additional unsound concrete using Type A milling and replacing the milled approach slab with a new Very Early Strength Latex Modified Concrete (VESLMC) overlay. The work locations are generally the approaches to the RMTA bridges 61 (WB), 63 (EB & WB) and 66 (WB). Once the Contractor begins the process of replacing the existing bridge approach surface, the work must progress in an expedient manner to complete the entire overlay process and provide lanes open to traffic in accordance with all dates and times listed in the Maintenance of Traffic special provision SP-B. The record plans for these bridges are included in the Appendix for reference. The Contractor shall adhere to the 2016 Road and Bridge Specifications Section 425 and the special provisions herein.

This work shall consist of: Type A Milling approximately 1.5 inches of the top surface of bridge approach slabs; removing all unsound concrete using procedures; sounding the surrounding deck and approach pavement for additional unsound concrete; removing loose and unsound concrete with hand tools as necessary; removal and disposal of all concrete and debris off-site including any required permits; vacuuming; shielding; water control; forming for full depth repairs if needed; and all aspects of work necessary to prepare for the placement of VESLMC in areas where unsound concrete was removed and the placement of VESLMC Overlay.

Contractor shall also refer to the Maintenance of Traffic special provision SP-B for lane closure times, a copy of VDOT Detail 305.01, and liquidated damages. All asphalt, asphalt placement and removal shall be incidental to the mechanical milling.

II. MECHANICAL MILLING (TYPE A MILLING)

Preparation prior to initiating any Mechanical Milling, the Contractor shall remove all debris from the deck and dispose of it offsite. Next the Contractor shall evaluate the concrete cover over the existing reinforcing steel in order to adjust the actual depth of milling as to prevent damage to the existing reinforcing steel. Where steel rebar has less than 2" concrete cover, with the approval of the Engineer, the milling depth may be reduced to avoid contact with these shallow reinforcing bars; however, in no case shall the demolition depth be less than 0.75 inch nor shall the overall depth of the approach slab removal be less than 1.5 inches. The Contractor **may** consider the use of Ground-Penetrating Radar (GPR) for this purpose with such use being incidental to the Contractor's responsibility and account for GPR in their bid.

Mechanical Milling shall be performed in accordance with the Specifications for Type A Milling at a depth of 1.5 inches. If analysis results indicate that the top mat of reinforcement is less than 1.25 inches from the deck surface, and with the approval of the Engineer, the Contractor may reduce the height of milling to avoid damage to the reinforcing steel. A reduced mill depth of ¾ inches shall only be used in these areas with the approval of the Engineer.

The Contractor shall use extra caution during the milling procedures. Damaged reinforcing steel shall be repaired in accordance with Section 412.03 of the 2016 Road and Bridge Specifications at no additional cost to the Authority and with no extension of contract time. Reinforcing steel shall be ASTM A615 Grade 60 deformed and plain uncoated.

Due to the limitations of the milling machine, the Contractor shall utilize jack hammering and saw cutting to remove unsound concrete not removed during the milling process. When saw cutting the deck near bridge joints and scuppers, adequate shielding to the approval of the Engineer should be used to protect nearby live traffic and pedestrians that may be present both near and below the work area, from sparks and other debris.

The limits of work will be from the following;

Bridge:	Location:	Work Limits:
61 (Both Ends)	WB DTE Over S 12th Street	Asphalt Pavement to Abutment
63 (East End)	WB DTE over Virginia St and S. 14th St / CSC RR adjacent 12th St Off-Ramp	Asphalt Pavement to Abutment
66 (West End)	EB DTE over Virginia St, S. 12th St / 14th St / CSX RR adjacent 10th St On-Ramp	Asphalt Pavement to Abutment

The Contractor will be permitted, at his discretion to allow traffic to drive on the milled surface for no more than 48 hours after milling (e.g. the deck could be milled Wednesday night before a weekend lane closure). An extension of the 48-hour limit may be granted in writing at the discretion of the Engineer. If traffic is allowed on milled surfaces, temporary pavement wedges must be installed per VDOT Detail 305.01. Additional signing and use of Temporary Type D pavement markings shall be required to adequately warn motorists of this condition and delineate the lanes. No lane shall be opened to traffic until these pavement wedges are installed and temporary markings are installed. All lanes of the bridge must be open and available to traffic Monday through Friday during peak rush hour times. Contractor shall be responsible for maintaining milled surfaces when open to traffic. Contractor shall maintain pavement wedges and have proper drainage measures in-place prior to forecasted inclement weather. Drainage

measures shall be submitted to the Engineer for approval prior to installation. All equipment, materials including Type D pavement markings, and labor required to maintain drainage measures and pavement wedges of the milled surface will be incidental.

III. LATEX MODIFIED CONCRETE OVERLAY

Latex Modified Concrete overlay shall be Very Early Strength Latex Modified Concrete (VESLMC). Required patches and overlays incidental to the Work shall be constructed in accordance with the requirements of Section 217.13 and 425 of the Specifications of the Virginia Department of Transportation. Supplemental requirements for Very Early Strength Latex Modified Concrete (VESLMC) are:

- Compressive Strength, minimum (ASTM C39):
  - 3 hours: 2500 psi
  - 24 hours: 3500 psi
- Compressive strength specimens shall be cured in the molds until tested and in conditions identical to the material placed on the structure.
- Permeability, maximum at 28 days, AASHTO T277 and ASTM C1202: 1000 coulombs.
- Permeability samples shall be cured 1 day in the molds and air cured 28 days.
- Contractor shall submit compressive strength and permeability test results to Engineer for approval (14) days prior to initial placement of VESLMC.

Prior to placing the overlay, the Contractor shall calibrate the mobile concrete mixers. Once the mixers are calibrated, the mixtures shall be sampled and tested for slump and air content. Specimens shall be prepared and tested to demonstrate that the concrete mixture will obtain a compressive strength of at least 2500 psi within the curing period, and at the curing temperatures in which the overlay will be placed. The compressive strength shall reach at least 3500 psi at an age of 1 day. During the overlay, placement samples shall be taken for testing of compressive strength and permeability but slump and air content measurements will not be required.

The overlay shall be one continuous pour over the entire length of the slab between joints. All lanes and shoulders shall be poured back in essentially the same location. The Contractor will not be permitted to have a “cold joint” in the transverse direction along any span between the bridge joints. Additionally, the Contractor will not be allowed to place any longitudinal cold joint in the vehicle wheel path as determined by the Engineer.

The Contractor shall furnish VESLMC overlay at a depth of 2 inches, however in areas where the milling is limited due to the depth to the top mat of reinforcement a minimum depth of 1 1/2

inches will be allowed with approval of the Engineer. This depth will increase in areas where additional unsound concrete was removed.

Placing and consolidating VESLMC shall be conducted to form a compact, dense, impervious mass of consistent texture that will show uniform faces on exposed surfaces. Any defective concrete section found shall be removed or repaired as directed by the Engineer. The Contractor shall ensure that all concrete trucks leaving the work site have been properly cleaned to ensure that concrete deposits are not left on any roadway as they return to the staging area to be refilled.

The concrete shall be maintained in a moist condition by fogging after screeding and until covered with the sheeting. Fogging with pressure sprayers acceptable to the Engineer and sufficient to maintain a moist surface shall be required. Burlap used to aid in curing shall be cut into manageable pieces. Material shall be in strips no greater than the width of the lane being poured by an arm span in length to sufficiently cover the freshly placed concrete overlay. The burlap must be soaked in water and rung out before being placed onto the deck. Spraying water on burlap alone will not be allowed. Burlap shall be taught and placed in a manner as not to adversely affect the final riding surface. Dragging the wet burlap across the new LMC will not be allowed. Moist burlap shall be placed in such a manner as to provide a uniform and even finished surface. A 1 foot minimum overlap shall between pieces of burlap. The Contractor shall also use a soaker hose, or misting hose to help keep the burlap wet for the first 90 minutes of curing.

The deck surface shall be tested with a 10-foot straightedge and rescreeded as many times as is necessary to ensure a smooth riding surface. The straightedge shall be held in successive positions at the edges and quarter points and on the centerline, parallel thereto and in contact with the surface. Advancement along the deck shall be in successive stages of not more than the length of the straightedge. The surface shall also be checked transversely at the ends, quarter points, and center of the span. The top of the proposed VESLMC overlay shall match the line and grade between the adjacent joints.

Areas showing high spots or depressions of more than 1/8 inch in 10 feet in the longitudinal direction and 1/4 inch in 10 feet in the transverse direction shall be struck off or filled with freshly mixed concrete. Attention shall be given to ensure that the surface across joints conforms to the requirements for smoothness.

IV. QUANTITIES – Field Verification Required

The approximate quantities of Type A Milling is about 175 SY; and, furnishing and placing the corresponding VESLMC is about 3 to 5 CY. These quantities require field verification and which are to be made part of the Contract Lump Sum price.

V. FINAL PAYMENT

The Contractor and the Engineer shall agree on a suitable debris removal technique in the field. Typical methods include vacuuming and / or pressure washing. The Contractor shall dispose of all debris properly off site. The cost of cleaning shall be incidental to the Type A Milling quantity.

VI. METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The **Mainline Approach Slab Rehabilitation Work** in its entirety shall be measured and paid for on a **Lump Sum** basis for the depth and length specified in the as-built plans or as approved by the Engineer. The bid price will be considered full compensation for the removal and disposal of unsound and loose concrete, replacement of any damaged reinforcing steel, pavement wedges, if used (including maintaining the pavement wedges, disposal of asphalt and cleaning the deck after removal), installation and maintenance of drainage measures on milled surfaces, and all labor, tools, equipment, materials, and incidentals required to complete the Work. Specifically, the following items, at a minimum, are to be included:

Mechanical Milling Type A will be for the length of the approach slab rehabilitation shall be approximately eight (8) feet laterally beyond the abutment joint into the existing and adjacent asphalt paving subject to the approval of the Engineer. The width shall be from edge of pavement to edge of pavement. The work to be performed by the Contractor will also be to the edge of the joint. Any damage to the joints shall be repaired up to full joint replacement to the approval of the Engineer and at no additional cost to the RMTA and with no extension of contract time.

Very Early Strength Latex Modified Concrete (VESLMC) Overlay will be measured and paid for under the following (2) Items:

> ***Furnish*** Very Early Strength Latex Modified Concrete shall be measured in cubic yards and will be paid for at the contract unit price per cubic yard. This price shall be full compensation for trial batching, compressive strength and permeability testing, producing the Very Early Strength Latex Modified Concrete, and delivering it to the job site. The Engineer may direct additional depth of Very Early Strength Latex Modified Concrete to address cross slope and other surface irregularities and rideability issues. Additional Very Early Strength Latex Modified Concrete beyond the depth range of the pay item that is requested to address such issues, at the direction of the Engineer, will be compensated for in accordance with VDOT Specifications Sections 104.02 and 109.05. Only those volumes of additional Very Early Strength Latex Modified Concrete that are approved for additional

payment by the Engineer prior to or during the placement of the overlay will be considered for additional payment.

Place Very Early Strength Latex Modified Concrete shall be measured and paid for at the contract unit price per square yard. This price shall also include handling, finishing, and curing the Very Early Strength Latex Modified Concrete and all material, labor, tools, equipment, and incidentals necessary to complete the work. Very Early Strength Latex Modified Concrete shall be placed to the minimum depth as specified in the plans and verified by the Engineer prior to and during placement operations. Placement also shall include those depths necessary to accomplish all partial and full depth repairs at no additional cost to the Authority. Any survey cost associated with matching the proposed overlay to the line and grade between the adjacent joints shall be incidental to this work.

Pavement Line Markings required by the newly placed Very High Early Strength Latex Modified Concrete Overlay shall be Contrast Type B Class VI Pavement Line Markings (4") and Gore Type B Class VI (8"). The Contractor shall install pavement markings per the manufacturer's recommendations and Section 704 of the VDOT Specifications. The Contractor shall be aware that permanent markings shall be inlaid or "recessed" into the overlay. All pavement line markings are considered incidental to the Work.

Type B Class VI Pavement Line Marking 4" Contrast shall also be an additional 3 inches wider minimum, then the width specified in the pay item. This additional tape width shall be black non-reflective with 1 ½ inches minimum on both sides of the white or yellow. Pavement markings shall conform to the requirements of Section 246 and the glass beads shall conform to the requirements of Section 234.

Snow-Plowable raised pavement markers shall conform to the requirements of Section 235 in the VDOT Specifications.

ALL payment herein will be made under:

Pay Item	Pay Unit
Mainline Approach Slab Rehabilitation: Type A Milling 1.5" / Furnish and Place Very Early Strength Latex Modified Concrete (VESLMC) Overlay / Type B Class VI Pavement Markings	**LUMP SUM**

The Contractor shall be aware that clearance issues may exist with large equipment due to bridge overpasses. Large milling machines may have to lower their waste chutes and smaller dump trucks used as a result. It shall be the Contractor's responsibility to account for this in their bid.

SPECIAL PROVISION
CSX AGREEMENT

Project: Richmond, Virginia - Proposed shotcrete, coatings and steel repairs on RMTA Structures at the following locations:

RMTA Bridge 8 Piers 14-15 over and adjacent to CSXT; Milepost CAB 3.67, in the Rivanna Subdivision, within the Florence Division.

RMTA Bridge 9 Span 1 over and adjacent to CSXT; Milepost ARN 1.02, in the North End Subdivision, within the Florence Division.

RMTA B13 Piers 2-3 over and adjacent to CSXT; Milepost ARN 1.22, in the North End Subdivision, within the Florence Division.

RMTA Bridge 67 Pier 1 over and adjacent to CSXT; Milepost S-0.15, in the Bellwood Subdivision, within the Florence Division.
CSXT OP# (*TBD*),

CONSTRUCTION AGREEMENT

This Construction Agreement ("**Agreement**") is made as of _____,2018, by and between CSX TRANSPORTATION , INC., a Virginia corporation with its principal place of business in Jacksonville, Florida ("**CSXT**"), and the RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY, a body corporate and political subdivision of the Commonwealth of Virginia ("**Agency**" and "RMTA").

EXPLANATORY STATEMENT

1. Agency has proposed to repair, or to cause to be repaired, RMTA Bridges in Richmond, Virginia (the "Project").
    - B8 Northbound Powhite Parkway (RTE. 76) over James River, Kanawha Canal and CSX Railroad.
        - Piers 14-15 over and adjacent to CSXT; Milepost CAB 3.67, in the Rivanna Subdivision, within the Florence Division.
    - B9 CSX Railroad over northbound Powhite Parkway (RTE.76)
        - Span 1 over and adjacent to CSXT; Milepost ARN 1.02, in the North End Subdivision, within the Florence Division.
    - B13 Douglasdale Road over I-195 Connector/Powhite Parkway (RTE. 76) and CSX Railroad
        - Piers 2-3 over and adjacent to CSXT; Milepost ARN 1.22, in the North End Subdivision, within the Florence Division.

- B67 Ramp from eastbound Downtown Expressway (RTE. 195) to northbound I-95 over Dock Street, East Cary Street, East Main Street (RTE. 60) and CSX Railroad.
    - Pier 1 over and adjacent to CSXT; Milepost S-0.15, in the Bellwood Subdivision, within the Florence Division.

2. Agency has obtained, or will obtain, all authorizations, permits and approvals from all local, state and federal agencies (including Agency), and their respective governing bodies and regulatory agencies, necessary to proceed with the Project and to appropriate all funds necessary to construct the Project.

3. Agency acknowledges that: (i) by entering into this Agreement, CSXT will provide services and accommodations to promote public interest in this Project, without profit or other economic inducement typical of other Agency contractors; (ii) neither CSXT nor its affiliates (including their respective directors, officers, employees or agents) will incur any costs, expenses, losses or liabilities in excess of payments made to CSXT, by or on behalf of Agency or its contractors, pursuant to this Agreement; and (iii) CSXT retains the paramount right to regulate all activities affecting its property and operations.

NOW, THEREFORE, in consideration of the foregoing Explanatory Statement and other good and valuable consideration, the receipt and sufficiency of which are acknowledged by the parties, the parties agree as follows:

1. Project Plans and Specifications

1.1. Preparation and Approval. Pursuant to Exhibit A of this Agreement, all plans, specifications, drawings and other documents necessary or appropriate to the design and construction of the Project shall be prepared, at Agency's sole cost and expense, by Agency or CSXT or their respective contractors. Project plans, specifications and drawings prepared by or on behalf of Agency shall be subject, at CSXT's election, to the review and approval of CSXT. Such plans, specifications and drawings, as prepared or approved by CSXT, are referred to as the "Plans", and shall be incorporated and deemed a part of this Agreement. Plans prepared or submitted to and approved by CSXT as of the date of this Agreement are set forth in Exhibit B to this Agreement.

1.2. Effect of CSXT Approval or Preparation of Plans. By its review, approval or preparation of Plans pursuant to this Agreement, CSXT signifies only that such Plans and improvements constructed in accordance with such Plans satisfy CSXT's requirements. CSXT expressly disclaims all other representations and warranties in connection with the Plans, including, but not limited to, the integrity, suitability or fitness for the purposes of Agency or any other persons of the Plans or improvements constructed in accordance with the Plans.

1.3. Compliance with Plans. The Project shall be constructed in accordance with the Plans.

2. Allocation and Conduct of Work

Work in connection with the Project shall be allocated and conducted as follows:

2.1. CSXT Work. Subject to timely payment of Reimbursable Expenses as provided by Section 4, CSXT shall provide, or cause to be provided, the services as set forth by Exhibit A to this Agreement. Agency agrees that CSXT shall provide all services that CSXT deems necessary or appropriate (whether or not specified by Exhibit A) to preserve and maintain its property and operations, without impairment or exposure to liability of any kind and in compliance with all applicable federal, state and local regulations and CSXT's contractual obligations, including, but not limited to, CSXT's existing or proposed third party agreements and collective bargaining agreements.

2.2. Agency Work. Agency shall perform, or cause to be performed, all work as set forth by Exhibit A, at Agency's sole cost and expense.

2.3. Conduct of Work. CSXT shall commence its work under this Agreement following: (i) delivery to CSXT of a notice to proceed from Agency; (ii) payment of Reimbursable Expenses (as provided by Section 4.1) as required by CSXT prior to the commencement of work by CSXT; (iii) issuance of all permits, approvals and authorizations necessary or appropriate for such work; and (iv) delivery of proof of insurance acceptable to CSXT, as required by Section 9. The initiation of any services by CSXT pursuant to this Agreement, including, but not limited to, the issuance of purchase orders or bids for materials or services, shall constitute commencement of work for the purposes of this Section. The parties intend that all work by CSXT or on CSXT property shall conclude no later than March 1, 2017, unless the parties mutually agree to extend such date.

3. Special Provisions. Agency shall observe and abide by, and shall require its contractors ("**Contractors**") to observe and abide by the terms, conditions and provisions set forth in Exhibit C to this Agreement (the "Special Provisions"). To the extent that Agency performs Project work itself, Agency shall be deemed a Contractor for purposes of this Agreement. Agency further agrees that, prior to the commencement of Project work by any third party Contractor, such Contractor shall execute and deliver to CSXT Schedule I to this Agreement to acknowledge Contractor's agreement to observe and abide by the terms and conditions of this Agreement.

4. Cost of Project and Reimbursement Procedures

4.1. ·Reimbursable Expenses. Agency shall reimburse CSXT for all costs and expenses incurred by CSXT in connection with the Project, including, without limitation: (1) all out of pocket expenses, (2) travel and lodging expenses, (3) telephone, facsimile, and mailing expenses, (4) costs for equipment, tools, materials and supplies, (5) sums paid to CSXT's consultants and

subcontractors, and (6) CSXT labor in connection with the Project, together with CSXT labor overhead percentages established by CSXT pursuant to applicable law (collectively, "**Reimbursable Expenses**"). Reimbursable Expenses shall also include expenses incurred by CSXT prior to the date of this Agreement to the extent identified by the Estimate provided pursuant to Section 4.2.

4.2. Estimate. CSXT has estimated the total Reimbursable Expenses for the Project as shown on Exhibit D (the "**Estimate**", as amended or revised). In the event CSXT anticipates that actual Reimbursable Expenses for the Project may exceed such Estimate, it shall provide Agency with the revised Estimate of the total Reimbursable Expenses, together with a revised Payment Schedule (as defined by Section 4.3.1), for Agency's approval and confirmation that sufficient funds have been appropriated to cover the total Reimbursable Expenses of such revised Estimate. CSXT may elect, by delivery of notice to Agency, to immediately cease all further work on the Project, unless and until Agency provides such approval and confirmation.

4.3. Payment Terms.

4.3.1. Agency shall pay CSXT for Reimbursable Expenses as set forth in the Payment Schedule as shown on Exhibit E (the "Payment Schedule", as revised pursuant to Section 4.2). CSXT agrees to submit invoices to Agency for such amounts and Agency shall remit payment to CSXT at the later of thirty (30) days following delivery of each such invoice to Agency or, the payment date (if any) set forth in the Payment Schedule.

4.3.2. Following completion of the Project, CSXT shall submit to Agency a final invoice that reconciles the total Reimbursable Expenses incurred by CSXT against the total payments received from Agency. Agency shall pay to CSXT the amount by which Reimbursable Expenses exceed total payments as shown by the final invoice, within thirty (30) days following delivery of such invoice to Agency. In the event that the payments received by CSXT from Agency exceed the Reimbursable Expenses, CSXT shall remit such excess to Agency.

4.3.3. In the event that Agency fails to pay CSXT any sums due CSXT under this Agreement: (i) Agency shall pay CSXT interest at the lesser of 1.0% per month or the maximum rate of interest permitted by applicable law on the delinquent amount until paid in full; and (ii) CSXT may elect, by delivery of notice to Agency: (A) to immediately cease all further work on the Project, unless and until Agency pays the entire delinquent sum, ·together with accrued interest; and/or (B) to terminate this Agreement.

4.3.4. All invoices from CSXT shall be delivered to Agency in accordance with Section 16 of this Agreement. All payments by Agency to CSXT shall be made by certified check and

mailed to the following address or such other address as designated by CSXT's notice to Agency:

CSX Transportation, Inc.
P. O. Box 116651
Atlanta, GA 30368-6651

4.4. Effect of Termination. Agency's obligation to pay to CSXT Reimbursable Expenses in accordance with Section 4 shall survive termination of this Agreement for any reason.

5. Appropriations. Agency represents to CSXT that: (i) Agency has appropriated funds sufficient to reimburse CSXT for the Reimbursable Expenses encompassed by the Estimate attached as Exhibit D; (ii) Agency shall use its best efforts to obtain appropriations necessary to cover Reimbursable Expenses encompassed by subsequent Estimates approved by Agency; and (iii) Agency shall promptly notify CSXT in the event that Agency is unable to obtain such appropriations.

6. Easements and Licenses

6.1. Agency Obligation. Agency shall acquire all necessary licenses, permits and easements required for the Project.

6.2. Temporary Construction Licenses. Insofar as it has the right to do so, CSXT hereby grants Agency a nonexclusive license to access and cross CSXT's property, to the extent necessary for the construction of the Project (excluding ingress or egress over public grade crossings), along such routes and upon such terms as may be defined and imposed by CSXT and such temporary construction easements as may be designated on the Plans approved by CSXT.

7. Permits At its sole cost and expense, Agency shall procure all permits and approvals required by any federal, state, or local governments or governmental agencies for the construction, maintenance and use of the Project, copies of which shall be provided to CSXT.

8. Termination

8.1. By Agency. For any reason, Agency may, as its sole remedy, terminate this Agreement by delivery of notice to CSXT. Agency shall not be entitled to otherwise pursue claims for consequential, direct, indirect or incidental damages or lost profits as a consequence of CSXT's default or termination of this Agreement or Work on the Project by either party.

8.2. By CSXT. In addition to the other rights and remedies available to CSXT under this Agreement, CSXT may terminate this Agreement by delivery of notice to Agency in the event Agency or its Contractors fail to observe the terms or conditions of this Agreement and such failure continues more than ten (10) business days following delivery of notice of

such failure by CSXT to Agency.

8.3. Consequences of Termination. If the Agreement is terminated by either party pursuant to this Section or any other provision of this Agreement, the parties understand that it may be impractical for them to immediately stop the Work. Accordingly, they agree that, in such instance a party may continue to perform Work until it has reached a point where it may reasonably and safely suspend the Work. Agency shall reimburse CSXT pursuant to this Agreement for the Work performed, plus all costs reasonably incurred by CSXT to discontinue the Work and protect the Work upon full suspension of the same, the cost of returning CSXT's property to its former condition, and all other costs of CSXT incurred as a result of the Project up to the time of full suspension of the Work. Termination of this Agreement or Work on the Project, for any reason, shall not diminish or reduce Agency's obligation to pay CSXT for Reimbursable Expenses incurred in accordance with this Agreement. In the event of the termination of this Agreement or the Work for any reason, CSXT's only remaining obligation to Agency shall be to refund to Agency payments made to CSXT in excess of Reimbursable Expenses in accordance with Section 4.

9. Insurance. In addition to the insurance that Agency requires of its Contractor, Agency shall acquire or require its Contractor to purchase and maintain insurance in compliance with CSXT's insurance requirements attached to this Agreement as Exhibit F. Neither Agency nor Contractor shall commence work on the Project until such policy or policies have been submitted to and approved by CSXT's Risk Management Department.

10. Ownership and Maintenance

10.1. By Agency. Agency shall own and, without cost to CSXT, shall maintain, repair, replace and renew, or cause same to be done, in good condition and repair to CSXT's satisfaction, the Bridge #I OS railroad bridge structure (excluding only those components which CSXT owns and has agreed to maintain, repair and replace pursuant to this Section}, the highway underpass structure, the roadway surfacing, the roadway slopes, the retaining walls, the roadway drainage facilities, sidewalks and lighting. In the event that Agency fails to properly maintain such structures and improvements, and such failure, in the opinion of CSXT, jeopardizes the safe and efficient operation of its property, CSXT shall be entitled to remedy such failure and recover from Agency the costs incurred by CSXT in doing so.

Agency shall own and, without cost to CSXT, maintain, repair, replace and renew, or cause same to be done, in good condition and repair to CSXT's satisfaction, the RMTA Bridge #65 highway overpass structures, the roadway surfacing, the roadway slopes, the retaining walls, and the highway drainage facilities. In the event that Agency fails to properly maintain such structures and improvements and such failure, in the opinion of CSXT, jeopardizes the safe

and efficient operation of its property, CSXT shall be entitled to remedy such failure and recover from Agency the costs incurred by CSXT in doing so. Upon the cessation of use of the Project by Agency, Agency shall remove the bridge structures and restore CSXT's property to its original condition, at Agency's sole cost and expense, to CSXT's satisfaction.

10.2. By CSXT. CSXT shall own and, at its sole cost and expense, maintain, repair, replace and renew its tracks, ballast and approach embankments, and railroad signal and communication systems, and CSXT shall be permitted to install, maintain, repair and replace other utilities, facilities and cable, or cause same to be done, as CSXT authorizes from time to time on or within the railroad bridge structure.

10.3. Alterations. Agency shall not undertake any alteration, modification or expansion of the Project, without the prior approval of CSXT, which may be withheld for any reason, and the execution of such agreements as CSXT may require.

11. Indemnification

11.1. Generally. To the maximum extent permitted by applicable law, Agency and its Contractors shall indemnify, defend, and hold CSXT and its affiliates harmless from and against all claims, demands, payments, suits, actions, judgments, settlements, and damages of every nature, degree, and kind (including direct, indirect, consequential, incidental, and punitive damages), for any injury to or death to any person(s) (including, but not limited to the employees of CSXT, its affiliates, Agency or its Contractors), for the loss of or damage to any property whatsoever (including but not limited to property owned by or in the care, custody, or control of CSXT, its affiliates, Agency or its Contractors, and environmental damages and any related remediation brought or recovered against CSXT and its affiliates), arising directly or indirectly from the negligence, recklessness or intentional wrongful misconduct of the Contractors, Agency, and their respective agents, employees, invitees, contractors, or its contractors' agents, employees or invitees in the performance of work in connection with the Project or activities incidental thereto, or from their presence on or about CSXT's property . The foregoing indemnification obligation shall not be limited to the insurance coverage required by this Agreement, except to the extent required by law or otherwise expressly provided by this Agreement.

11.2. Compliance with Laws. Agency shall comply, and shall require its Contractors to comply, with any federal, state, or local laws, statutes, codes, ordinances, rules, and regulations applicable to its construction and maintenance of the Project. Agency's Contractors shall indemnify, defend, and hold CSXT and its affiliates harmless with respect to any fines, penalties, liabilities, or other consequences arising from breaches of this Section.

11.3. "CSXT Affiliates". For the purpose of this Section 11, CSXT's affiliates include CSX Corporation and all entities, directly or indirectly, owned or controlled by or under

common control of CSXT or CSX Corporation and their respective officers, directors, employees and agents.

11.4. Notice of Incidents. Agency and its Contractor shall notify CSXT promptly of any loss, damage, injury or death arising out of or in connection with the Project work.

11.5. Survival. The provisions of this Section 11 shall survive the termination or expiration of this Agreement.

12. Independent Contractor The parties agree that neither Agency nor its Contractors shall be deemed either agents or independent contractors of CSXT. Except as otherwise provided by this Agreement, CSXT shall exercise no control whatsoever over the employment, discharge, compensation of, or services rendered by Agency or Agency's Contractors, or the construction practices, procedures, and professional judgment employed by Agency or its Contractor to complete the Project. Notwithstanding the foregoing, this Section 12 shall in no way affect the absolute authority of CSXT to prohibit Agency or its Contractors or anyone from entering CSXT's property, or to require the removal of any person from its property, if it determines, in its sole discretion, that such person is not acting in a safe manner or that actual or potential hazards in, on or about the Project exist.

13. "Entire Agreement " This Agreement embodies the entire understanding of the parties, may not be waived or modified except in a writing signed by authorized representatives of both parties, and supersedes all prior or contemporaneous written or oral understandings, agreements or negotiations regarding its subject matter. In the event of any inconsistency between this Agreement and the Exhibits, the more specific terms of the Exhibits shall be deemed controlling.

14. Waiver If either party fails to enforce its respective rights under this Agreement, or fails to insist upon the performance of the other party's obligations hereunder, such failure shall not be construed as a permanent waiver of any rights or obligations in this Agreement.

15. Assignment CSXT may assign this Agreement and all rights and obligations herein to a successor in interest, parent company, affiliate, or future affiliate. Upon assignment of this Agreement by CSXT and the assumption of CSXT's assignee of CSXT's obligations under this Agreement, CSXT shall have no further obligation under this Agreement. Agency shall not assign its rights or obligations under this Agreement without CSXT's prior consent, which consent may be withheld for any reason.

16. Notices All notices, consents and approvals required or permitted by this Agreement shall be in writing and shall be deemed delivered upon personal delivery, upon the expiration of three (3) days following mailing by first class U .S. mail , or upon the next business day following mailing by a nationally recognized overnight carrier, to the parties at the addresses set forth below, or such other addresses as either party may designate by delivery of prior notice to the other party:

If to CSXT: CSX Transportation, Inc.
500 Water Street, J-301
Jacksonville, Florida 32202
Attention: Director Project Management- Public Projects

If to Agency: Richmond Metropolitan Transportation Authority
901 East Byrd Street, Suite 1120
Richmond, VA 23219
Attention: Theresa Simmons, PE, Director of Operations

17. Severability The parties agree that if any part, term or provision of this Agreement is held to be illegal, unenforceable or in conflict with any applicable federal, state, or local law or regulation, such part, term or provision shall be severable, with the remainder of the Agreement remaining valid and enforceable .

18. Applicable Law This Agreement shall be governed by the laws of the Commonwealth of Virginia, exclusive of its choice of law rules. The parties further agree that the venue of all legal and equitable proceedings related to disputes under this Agreement shall be situated in Duval County, Florida, and the parties agree to submit to the personal jurisdiction of any State or Federal court situated in Duval County, Florida.

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed in duplicate, each by its duly authorized officers, as of the date of this Agreement.

RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

By:_____

Print Name:_____

Title: _____

CSX TRANSPORTATION, INC.

By:_____

Print Name : Dale W. Oplfardt

Title: Assistant Vice President – Engineering

EXHIBIT A

ALLOCATION OF WORK

Subject to Section 2.1, work to be performed in connection with the Project is allocated as follows:

A. Agency shall let by contract to its Contractors:

1. Bridge Repairs on RMTA System.
    a. B8 Northbound Powhite Parkway (RTE 76) -Shotcrete
    b. B9 CSX Railroad over Northbound Powhite Parkway (RTE 76) -steel repair
    c. B13 Douglasdale Road over I-195 Connector/Powhite Parkway (RTE 76) and CSX Railroad -concrete coatings
    d. B67 Eastbound Downtown Expressway (RTE. 195) ramp to northbound I-95 -shotcrete

Subject to Section 2.1, work to be performed in connection with the Project is allocated as follows:

B. CSXT shall perform or cause to be performed :

1. Preliminary Engineering Services
2. Railroad Flagging Services
3. Construction Monitoring

EXHIBIT B

PLANS AND SPECIFICATIONS

Plans, Specifications and Drawings:

As of the date of this Agreement, the following plans, specifications and drawings have been submitted by Agency to CSXT for its review and approval:

Miscellaneous As-Built Plans for Bridges 8, 9, 13 and Bridges 67; Titled: Richmond Expressway System, Downtown Expressway; Prepared by Howard, Needles, Tammen & Bergendoff

NOTE: **In the event subsequent plan submissions are made by Agency to CSXT for review and approval, once approved, said plans shall be considered to be incorporated into this Exhibit B as of the date of CSXT's written approval**

EXHIBITC

CSXT SPECIAL PROVISIONS

DEFINITIONS:

As used in these Special Provisions, all capitalized terms shall have the meanings ascribed to them by the Agreement, and the following terms shall have the meanings ascribed to them below:

"CSXT" shall mean CSX Transportation, Inc., its successors and assigns.

"CSXT Representative" shall mean the authorized representative of CSX Transportation, Inc.

"Agreement" shall mean the Agreement to which this Exhibit C is made a part thereof and as may be amended from time to time.

"Agency" shall mean the Richmond Metropolitan Transportation Authority.

"Agency Representative" shall mean the authorized representative of Richmond Metropolitan Transportation Authority.

"Contractor" shall have the meaning ascribed to such term by the Agreement.

"Work" shall mean the Project as described in the Agreement.

I. AUTHORITY OF CSXT ENGINEER

The CSXT Representative shall have final authority in all matters affecting the safe maintenance of CSXT operations and CSXT property, and his or her approval shall be obtained by the Agency or its Contractor for methods of construction to avoid interference with CSXT operations and CSXT property and all other matters contemplated by the Agreement and these Special Provisions.

II INTERFERENCE WITH CSXT OPERATIONS

A. Agency or its Contractor shall arrange and conduct its work so that there will be no interference with CSXT operations, including train, signal, telephone and telegraphic services, or damage to CSXT's property, or to poles, wires, and other facilities of tenants on CSXT's Property or right-of-way. Agency or its Contractor shall store materials so as to prevent trespassers from causing damage to trains, or CSXT Property. Whenever Work is likely to affect the operations or safety of trains, the method of doing such Work shall first be submitted to the CSXT Representative for approval, but such approval shall not relieve Agency or its Contractor from liability in connection with such Work.

B. If conditions arising from or in connection with the Project require that immediate and unusual provisions be made to protect train operation or CSXT's property, Agency or its Contractor shall make such provision. If the CSXT Representative determines that such provision is insufficient , CSXT may, at the expense of Agency or its Contractor, require or provide such provision as may be deemed necessary, or cause the Work to cease immediately.

III NOTICE OF STARTING WORK. Agency or its Contractor shall not commence any work on CSXT Property or right-of-way until it has complied with the following conditions:

A. Notify CSXT in writing of the date that it intends to commence Work on the Project. Such notice must be received by CSXT at least ten (10) business days in advance of the date Agency or its Contractor proposes to begin Work on CSXT property. The notice must refer to this Agreement by date. If flagging service is required, such notice shall be submitted at least thirty (30) business days in advance of the date scheduled to commence the Work.

B. Obtain authorization from the CSXT Representative to begin Work on CSXT property, such authorization to include an outline of specific conditions with which it must comply.

C. Obtain from CSXT the names, addresses and telephone numbers of CSXT's personnel who must receive notice under provisions in the Agreement. Where more than one individual is designated, the area of responsibility of each shall be specified.

IV WORK FOR THE BENEFIT OF THE CONTRACTOR

A. No temporary or permanent changes to wire lines or other facilities (other than third party fiber optic cable transmission systems) on CSXT property that are considered necessary to the Work are anticipated or shown on the Plans. If any such changes are, or become, necessary in the opinion of CSXT or Agency, such changes will be covered by appropriate revisions to the Plans and by preparation of a force account estimate. Such force account estimate may be initiated by either CSXT or Agency, but must be approved by both CSXT and Agency. Agency or Contractor shall be responsible for arranging for the relocation of the third party fiber optic cable transmission systems, at no cost or expense to CSXT.

B. Should Agency or Contractor desire any changes in addition to the above, then it shall make separate arrangements with CSXT for such changes to be accomplished at the Agency or Contractor's expense.

V HAUL ACROSS RAILROAD

A. If Agency or Contractor desires access across CSXT property or tracks at other than an existing and open public road crossing in or incident to construction of the Project, the Agency or Contractor must first obtain the permission of CSXT and shall execute a license

agreement or right of entry satisfactory to CSXT, wherein Agency or Contractor agrees to bear all costs and liabilities related to such access.

B. Agency and Contractor shall not cross CSXT's property and tracks with vehicles or equipment of any kind or character, except at such crossing or crossings as may be permitted pursuant to this section.

VI COOPERATION AND DELAYS

A. Agency or Contractor shall arrange a schedule with CSXT for accomplishing stage construction involving work by CSXT. In arranging its schedule, Agency or Contractor shall ascertain, from CSXT, the lead time required for assembling crews and materials and shall make due allowance therefor

B. Agency or Contractor may not charge any costs or submit any claims against CSXT for hindrance or delay caused by railroad traffic; work done by CSXT or other delay incident to or necessary for safe maintenance of railroad traffic; or for any delays due to compliance with these Special Provisions.

C. Agency and Contractor shall cooperate with others participating in the construction of the Project to the end that all work may be carried on to the best advantage.

D. Agency and Contractor understand and agree that CSXT does not assume any responsibility for work performed by others in connection with the Project. Agency and Contractor further understand and agree that they shall have no claim whatsoever against CSXT for any inconvenience, delay or additional cost incurred by Agency or Contractor on account of operations by others.

VII STORAGE OF MATERIALS AND EQUIPMENT

Agency and Contractor shall not store their materials or equipment on CSXT's property or where they may potentially interfere with CSXT's operations, unless Agency or Contractor has received CSXT Representative's prior written permission. Agency and Contractor understand and agree that CSXT will not be liable for any damage to such materials and equipment from any cause and that CSXT may move, or require Agency or Contractor to move, such material and equipment at Agency's or Contractor's sole expense. To minimize the possibility of damage to the railroad tracks resulting from the unauthorized use of equipment, all grading or other construction equipment that is left parked near the tracks unattended by watchmen shall be immobilized to the extent feasible so that it cannot be moved by unauthorized persons.

VIII CONSTRUCTION PROCEDURES

A. General

1. Construction work on CSXT property shall be subject to CSXT's inspection and approval.
2. Construction work on CSXT property shall be in accord with CSXT's written outline of specific conditions and with these Special Provisions.
3. Contractor shall observe the terms and rules of the CSXT Safe Way manual, which Agency and Contractor shall be required to obtain from CSXT, and in accord with any other instructions furnished by CSXT or CSXT's Representative.

B. Blasting

1. Agency or Contractor shall obtain CSXT Representative's and Agency Representative's prior written approval for use of explosives on or adjacent to CSXT property. If permission for use of explosives is granted, Agency or Contractor must comply with the following:

    a. Blasting shall be done with light charges under the direct supervision of a responsible officer or employee of Agency or Contractor.

    b. Electric detonating fuses shall not be used because of the possibility of premature explosions resulting from operation of two-way train radios.

    c. No blasting shall be done without the presence of an authorized representative of CSXT. At least thirty (30) days advance notice to CSXT Representative is required to arrange for the presence of an authorized CSXT representative and any flagging that CSXT may require.

    d. Agency or Contractor must have at the Project site adequate equipment, labor and materials, and allow sufficient time, to (i) clean up (at Agency's expense) debris resulting from the blasting without any delay to trains; and (ii) correct (at Agency's expense) any track misalignment or other damage to CSXT's property resulting from the blasting, as directed by CSXT Representative, without delay to trains. If Agency's or Contractor's actions result in delay of any trains, including Amtrak passenger trains, Agency shall bear the entire cost thereof.

    e. Agency and Contractor shall not store explosives on CSXT property.

2. CSXT Representative will:

a. Determine the approximate location of trains and advise Agency or Contractor of the approximate amount of time available for the blasting operation and clean-up.

b. Have the authority to order discontinuance of blasting if, in his or her opinion, blasting is too hazardous or is not in accord with these Special Provisions.

IX MAINTENANCE OF DITCHES ADJACENT TO CSXT TRACKS

Agency or Contractor shall maintain all ditches and drainage structures free of silt or other obstructions that may result from their operations. Agency or Contractor shall provide erosion control measures during construction and use methods that accord with applicable state standard specifications for road and bridge construction, including either (1) silt fence; (2) hay or straw barrier; (3) berm or temporary ditches; (4) sediment basin; (5) aggregate checks; and (6) channel lining. All such maintenance and repair of damages due to Agency's or Contractor's operations shall be performed at Agency's expense.

X FLAGGING *I* INSPECTION SERVICE

A. CSXT has sole authority to determine the need for flagging required to protect its operations and property . In general, flagging protection will be required whenever Agency or Contractor or their equipment are, or are likely to be, working within fifty (50) feet of live track or other track clearances specified by CSXT, or over tracks.

B. Agency shall reimburse CSXT directly for all costs of flagging that is required on account of construction within CSXT property shown in the Plans, or that is covered by an approved plan revision, supplemental agreement or change order.

C. Agency or Contractor shall give a minimum of thirty (30) days advance notice to CSXT Representative for anticipated need for flagging service. No work shall be undertaken until the flag person(s) is/are at the job site. If it is necessary for CSXT to advertise a flagging job for bid, it may take up to ninety (90) days to obtain this service, and CSXT shall not be liable for the cost of delays attributable to obtaining such service.

D. CSXT shall have the right to assign an individual to the site of the Project to perform inspection service whenever, in the opinion of CSXT Representative, such inspection may be necessary. Agency shall reimburse CSXT for the costs incurred by CSXT for such inspection service. Inspection service shall not relieve Agency or Contractor from liability for its Work.

E. CSXT shall render invoices for, and Agency shall pay for, the actual pay rate of the flagpersons and inspectors used, plus standard additives, whether that amount is above or below the rate provided in the Estimate. If the rate of pay that is to be used for inspector or flagging service is changed before the work is started or during the progress of the work, whether by law or agreement between CSXT and its employees, or if the tax rates on labor are changed, bills will be rendered by CSXT and paid by Agency using the new rates. Agency and Contractor shall perform their operations that require flagging protection or inspection service in such a manner and sequence that the cost of such will be as economical as possible.

XL UTILITY FACILITIES ON CSXT PROPERTY

Agency shall arrange, upon approval from CSXT, to have any utility facilities on or over CSXT Property changed as may be necessary to provide clearances for the proposed trackage.

XII CLEAN-UP

Agency or Contractor, upon completion of the Project, shall remove from CSXT's Property any temporary grade crossings, any temporary erosion control measures used to control drainage, all machinery, equipment, surplus materials, falsework, rubbish, or temporary buildings belonging to Agency or Contractor. Agency or Contractor, upon completion of the Project, shall leave CSXT Property in neat condition, satisfactory to CSXT Representative.

XIII FAlLURE TO COMPLY

If Agency or Contractor violate or fail to comply with any of the requirements of these Special Provisions, (a) CSXT may require Agency and/or Contractor to vacate CSXT Property; and (b) CSXT may withhold monies due Agency and/or Contractor; (c) CSXT may require Agency to withhold monies due Contractor; and (d) CSXT may cure such failure and the Agency shall reimburse CSXT for the cost of curing such failure.

EXHIDIT D

INITIAL ESTIMATE
ATTACHED

EXHIBIT E

PAYMENT SCHEDULE

Agency shall remit payment to CSXT for its Reimbursable Expenses within thirty (30) days following delivery to Agency of an invoice.

EXHIBIT F

INSURANCE REQUREMENTS

Insurance Policies:

Agency and Contractor, if and to the extent that either is performing work on or about CSXT's property, shall procure and maintain the following insurance policies:

1. Commercial General Liability coverage at their sole cost and expense with limits of not less than $5,000,000 in combined single limits for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional insured.

2. Statutory Worker's Compensation and Employers Liability Insurance with limits of not less than $1,000,000, which insurance must contain a waiver of subrogation against CSXT and its affiliates [if permitted by state law].

3. Commercial automobile liability insurance with limits of not less than $1,000,000 combined single limit for bodily injury and/or property damage per occurrence, and such policies shall name CSXT as an additional insured.

4. Railroad protective liability insurance with limits of not less than $5,000,000 combined single limit for bodily injury and/or property damage per occurrence and an aggregate annual limit of $10,000,000, which insurance shall satisfy the following additional requirements:

    a. The Railroad Protective Insurance Policy must be on the ISO/RIMA Form of Railroad Protective Insurance- Insurance Services Office (ISO) Form CG 00 35.
    b. CSX Transportation must be the named insured on the Railroad Protective Insurance Policy.
    c. Name and Address of Contractor and Agency must be shown on the Declarations page.
    d. Description of operations must appear on the Declarations page and must match the Project description, including project or contract identification numbers.
    e. Authorized endorsements must include the Pollution Exclusion Amendment-CG 28 31, unless using form CG 00 35 version 96 and later.
    f. Authorized endorsements may include:
        i. Broad Form Nuclear Exclusion- IL 00 21
        ii. 30-day Advance Notice of Non-renewal or cancellation
        iii. Required State Cancellation Endorsement
        iv. Quick Reference or Index- CLIIL 240
    g. Authorized endorsements may not include:
        i. A Pollution Exclusion Endorsement except CG 28 31
        ii. A Punitive or Exemplary Damages Exclusion

iii. A "Common Policy Conditions" Endorsement
iv. Any endorsement that is not named in Section 4 (e) or (f) above.
v. Policies that contain any type of deductible

5. All insurance companies must be A.M. Best rated A- and Class VII or better.

6. Such additional or different insurance as CSXT may require.

Additional Terms

1. Contractor must submit the original Railroad Protective Liability policy, Certificates of Insurance and all notices and correspondence regarding the insurance policies to:

Jonathan MacArthur
Insurance Department
CSX Corporation
500 Water Street- C907
Jacksonville, FL 32202
904.359.3394 (Phone)
904.306.5325 (Fax)
Jonathan_MacArthur@csx.com

2. Neither Agency nor Contractor may begin work on the Project until it has received CSXT's written approval of the required insurance.

Project: Richmond, Virginia - Proposed shotcrete, coatings and steel repairs on RMTA Structures at the following locations:

RMTA Bridge 8 Piers 14-15 over and adjacent to CSXT; Milepost CAB 3.67, in the Rivanna Subdivision, within the Florence Division.

RMTA Bridge 9 Span 1 over and adjacent to CSXT; Milepost ARN 1.02, in the North End Subdivision, within the Florence Division.

RMTA B13 Piers 2-3 over and adjacent to CSXT; Milepost ARN 1.22, in the North End Subdivision, within the Florence Division.

RMTA Bridge 67 Pier 1 over and adjacent to CSXT; Milepost S-0.15, in the Bellwood Subdivision, within the Florence Division.

CSXT OP# (*TBD*),

SCHEDULE I

CONTRACTOR'S ACCEPTANCE

To and for the benefit of CSX Transportation, Inc. ("CSXT") and to induce CSXT to permit Contractor on or about CSXT's property for the purposes of performing work in accordance with the Agreement dated _____ between the RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY and CSXT, Contractor hereby agrees to abide by and perform all applicable terms of the Agreement, including, but not limited to Exhibits C and F to the Agreement, and Sections 3, 9 and 11 of the Agreement.

Contractor: _____

By: _____

Name: _____

Title: _____