ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

Form C-6a
Rev. 3-22-05

CNSP (S) 1-9-06

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
BID PROPOSAL AND CONTRACT

ROUTE NUMBER: 58

FHWA NUMBER: NONE

PROJECT NUMBER: 0058-133-459,C501, B616

COUNTY: SUFFOLK

DISTRICT: HAMPTON ROADS

DESCRIPTION: INTERCHANGE IMPROVEMENTS

FROM: 0.429 MI EAST OF US 13/58/460 BYPASS

TO: 2.536 MI WEST OF SUFFOLK CITY LIMITS

DATE BID SUBMITTED: 10:00 AM WEDNESDAY, FEBRUARY 28, 2024

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

Form C-118
Rev. 7-6-05

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
NOTICE TO BIDDERS

As a matter of information, the bidder's attention is directed to the points noted herein. Every point enumerated below is fully covered by proposal documents that describe them in detail. Bidders should check their proposal against all requirements, as strict compliance with all provisions is mandatory.

1. Bids shall be filed electronically through Bidx (www.bidx.com\main\index.html) at the times designated in the Notice of Advertisement for Bids. For information see (http://cabb.virginiadot.org/cabb/)

2. Unless otherwise specified or permitted in the proposal, prices shall be submitted on all items shown in the proposal.

3. Proposals conditioned by proposed alternates, other than those specified or permitted, or by reserving the right to accept or reject an award or to enter into a contract pursuant to an award will not be considered.

4. A bid total shall be shown in each space provided.

5. Bid bonds shall conform to Section 102.07. The bid bond number shall be placed in the appropriate space in your electronic bid. As an alternative you may complete the bottom line of the Form C-24. This form may be mailed or faxed but must be received prior to the opening of the bids.

6. Joint venture proposals shall show the Firm Name of each party and shall be signed by an authorized representative of each Firm. A letter shall be filed with the prequalification office describing responsibility of each firm and the amount of maximum capacity pledge by each firm of a joint venture.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

Form C-24
Rev. 7-6-05

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
PROPOSAL GUARANTY

KNOW ALL MEN BY THESE PRESENTS, THAT WE _____ as principal, and _____ Surety, are held and firmly bound unto the Commonwealth of Virginia as obligee, in the amount of FIVE PERCENT OF THE DOLLAR VALUE OF THE BID, 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.

SIGNED, sealed and dated this _____ day of _____ , 20 _____

WHEREAS, the above said principal is herewith submitting its proposal for:
PROJECT NUMBER: 0058-133-459,C501, B616

NOW, THEREFORE, the condition of the above obligee is such, that if the aforesaid principal shall be awarded the contract upon said proposal and shall within the time specified in the Specifications after the notice of such award enter into a contract and give bond for the faithful performance of the contract, then this obligation shall be null and void; otherwise to remain in full force and effect and the principal and surety will pay unto the obligee the difference in money between the amount of the bid of the said principal and the amount for which the obligee 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 liability exceed the penal sum hereof.

_____ (Principal*)	_____ (Surety Company)
By: _____ (Officer, Partner or Owner) (Seal)	By: _____ (Attorney-in-Fact**) (Seal)
_____ (Principal*)	_____ (Address)
By: _____ (Officer, Partner or Owner) (Seal)	By: _____ (Surety Company)
_____ (Principal*)	_____ (Attorney-in-Fact**) (Seal)
By: _____ (Officer, Partner or Owner) (Seal)	By: _____ (Address)

*Note: If the principal is a *joint venture*, each party thereof must be named and execution made by same hereon. If there is more than one surety to the bid bond, each surety must be named and execution shall be made by same hereon.

Electronic Bid Only: In lieu of completing the above section of the Contract Performance Bond, the Principal shall file an Electronic Bid Bond when bidding electronically. By signing below the Principal is ensuring the identified electronic bid bond has been executed and the Principal and Surety are firmly bound unto the Commonwealth of Virginia under the same conditions of the bid bond as shown above.

Electronic Bid Bond ID	Company/Bidder Name	Signature and Title

**Attach copy of Power of Attorney

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

Form C-48
Rev. 2-23-11

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION

SUBCONTRACTOR/SUPPLIER SOLICITATION AND UTILIZATION FORM (ALL BIDDERS)

PROJECT NO.:0058-133-459,C501, B616 CONTRACT ID. NO.: C0000118375C01

FHWA NO: NONE DATE SUBMITTED_____

All bidders, including DBEs bidding as Prime Contractors, shall complete and submit the following information as requested in this form within ten (10) business days after the opening of bids.

The bidder certifies this form accurately represents its solicitation and utilization or non-utilization, as indicated, of the firms listed below for performance of work on this contract. The bidder also certifies he/she has had direct contact with the named firms regarding participation on this project.

BIDDER_____SIGNATURE_____

TITLE_____

SUBCONTRACTOR/SUPPLIER SOLICITATION AND UTILIZATION (ALL)

VENDOR NUMBER	NAME OF SUBCONTRACTOR/SUPPLIER	TELEPHONE NUMBER	DBE OR NON-DBE	UTILIZED (Y/N)

NOTE: ATTACH ADDITIONAL PAGES, IF NECESSARY.

BIDDER MUST SIGN EACH ADDITIONAL SHEET TO CERTIFY ITS CONTENT AND COMPLETION OF FORM.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

TERMS OF THE PROPOSAL\CONTRACT
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
SUBMITTED: 10:00 AM WEDNESDAY, FEBRUARY 28, 2024

PROJECT NUMBER: 0058-133-459,C501, B616
ROUTE NUMBER: 58
FHWA NUMBER: NONE

DESCRIPTION: INTERCHANGE IMPROVEMENTS
FROM: 0.429 MI EAST OF US 13/58/460 BYPASS
TO: 2.536 MI WEST OF SUFFOLK CITY LIMITS

DISTRICT: HAMPTON ROADS COUNTY: SUFFOLK

I/we declare that no other person, firm or corporation is interested in this proposal; that I/we have carefully examined the plans, job specifications, current Road and Bridge specifications, and all other documents pertaining thereto and thoroughly understand the contents thereof; that I/we meet the prequalification requirements for bidding on this proposal; that I/we understand that the plans and current Road and Bridge specifications, are a part of this proposal; that all of the quantities shown herewith are a part of this proposal; that all the quantities shown herewith are approximate only; that I/we have examined the location of the proposed work and source of supply of materials; and that I/we agree to bind myself/ourselves upon award by the Commonwealth under this proposal to a contract with necessary surety bond to start work according to project specifications, and to complete all work in accordance with the plans, job specifications and current Road and Bridge Specifications within the time limit set forth in the contract.

COMPLETION DATE: DECEMBER 4, 2026

BID TOTAL $_____

Attached is a bond conforming to the requirements of the current Road and Bridge Specifications, it being understood that such bond is to be forfeited as liquidated damages if, upon acceptance of the terms of this proposal, I/we fail to execute the contract and furnish bond as provided in the current Road and Bridge Specifications.

_____

(Names of Individual(S),Firm(S) Or Corporation)

_____ _____

Street Address City State Zip Code Vendor#/Fin#

_____ _____ _____

Print Name Signature Title

In consideration of the commitments made as shown herein, the Commonwealth of Virginia by The Commonwealth Transportation Commissioner agrees to pay for all items of work performed and materials furnished at the unit price(s) and under the conditions set forth in this proposal, in witnessed by the affixing of the name below.

Contract Execution Date _____ By _____

CHIEF ENGINEER
VIRGINIA DEPARTMENT OF TRANSPORTATION

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616

Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS

Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0010	ATTD	108SP20-0001 BASELINE PROGRESS SCHEDULE	LUMP SUM	LUMP SUM		_____	. _____
0020	ATTD	108SP20-0002 PROGRESS SCHEDULE UPDATES	25.000 EA	_____	. _____	_____	. _____
0030	ATTD	109SX20-0030 MONITORING (VIBRATING WIRE PIEZOMETERS)	5.000 EA	_____	. _____	_____	. _____
0040	301	301SD20-0001 CLEARING AND GRUBBING	LUMP SUM	LUMP SUM		_____	. _____
0050	302, 406	302SD20-0005 REINF. STEEL	1,657.000 LB	_____	. _____	_____	. _____
0060	302	302SD20-0013 ENDWALL EW-12	15.000 EA	_____	. _____	_____	. _____
0070	302	302SD20-0025 15" CONC. PIPE	58.000 LF	_____	. _____	_____	. _____
0080	302	302SD20-0027 15" STORM SEWER PIPE	77.000 LF	_____	. _____	_____	. _____
0090	302	302SD20-0039 24" CONC. PIPE	79.000 LF	_____	. _____	_____	. _____
0100	302	302SD20-0059 36" CONC. PIPE	112.000 LF	_____	. _____	_____	. _____
0110	302	302SD20-0064 42" CONC. PIPE	138.000 LF	_____	. _____	_____	. _____
0120	302	302SD20-0069 48" CONC. PIPE	54.000 LF	_____	. _____	_____	. _____
0130	302	302SD20-0081 60" CONC. PIPE	519.000 LF	_____	. _____	_____	. _____
0140	302	302SD20-0237 DROP INLET DI-1	2.000 EA	_____	. _____	_____	. _____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0150	302	302SD20-0458 DROP INLET DI-10H TY. I,L=14'	1.000 EA	_____	_____	_____	_____
0160	302	302SD20-0500 DROP INLET DI-10K TY. II,L=6'	1.000 EA	_____	_____	_____	_____
0170	302	302SD20-0655 DROP INLET DI-13 TY.I	2.000 EA	_____	_____	_____	_____
0180	302	302SD20-0656 DROP INLET DI-13 TY.II	1.000 EA	_____	_____	_____	_____
0190	302	302SD20-0662 MANHOLE MH-1 OR 2	8.000 LF	_____	_____	_____	_____
0200	302	302SD20-0663 FRAME & COVER MH-1	1.000 EA	_____	_____	_____	_____
0210	303	303SD20-0001 REGULAR EXCAVATION	10,183.000 CY	_____	_____	_____	_____
0220	303	303SD20-0015 SETTLEMENT PLATE	6.000 EA	_____	_____	_____	_____
0230	303	303SD20-0016 MINOR STR. EXCAV. PIPE CULVERT	985.000 CY	_____	_____	_____	_____
0240	303	303SD20-0022 CHECK DAM ROCK TY. I	20.000 EA	_____	_____	_____	_____
0250	303	303SD20-0028 DEWATERING BASIN EC-8	17.000 EA	_____	_____	_____	_____
0260	303	303SD20-0029 SILTATION CONTROL EXCAVATION	2,094.000 CY	_____	_____	_____	_____
0270	303	303SD20-0030 INLET PROTECTION TYPE A	2.000 EA	_____	_____	_____	_____
0280	303	303SD20-0031 INLET PROTECTION TYPE B	8.000 EA	_____	_____	_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0290	303	303SD20-0034 TEMP. SILT FENCE TYPE A	10,147.000 LF	_____.	_____	_____.	_____
0300	ATTD	303SX20-0003 EXCAVATION TEMP. DIVERSION CHANNEL EXCAVATION	467.000 CY	_____.	_____	_____.	_____
0310	303	303SX20-0003 EXCAVATION UNDERCUT EXCAVATION	5,169.000 CY	_____.	_____	_____.	_____
0320	ATTD	303SX20-0008 GEOTEXTILE (GASOLINE RESISTANT GEOMEMBRANE)	5,800.000 SY	_____.	_____	_____.	_____
0330	305	303SX20-0008 GEOTEXTILE (GEOGRID)	2,000.000 SY	_____.	_____	_____.	_____
0340	305	305SD20-0001 BORROW EXCAVATION	44,979.000 CY	_____.	_____	_____.	_____
0350	305	305SD20-0009 GEOTEXTILE SUBGRADE STAB.	7,622.000 SY	_____.	_____	_____.	_____
0360	ATTD	305SX20-0004 SELECT MATERIAL (EXPANDED POLYSTYRENE (EPS) GEOFOAM BLOCK FILL)	9,100.000 CY	_____.	_____	_____.	_____
0370	ATTD	305SX20-0006 SELECT MATERIAL (GRANULAR FILL)	20,500.000 TON	_____.	_____	_____.	_____
0380	307	307SD20-0004 CEM. STAB. AGGR. BASE. MATL. TY. I NO. 21A	5,917.000 TON	_____.	_____	_____.	_____
0390	312	312SD20-0006 COVER MATL. AGGR. NO. 8	56.000 TON	_____.	_____	_____.	_____
0400	313	313SD20-0001 ASPH-STAB. OPEN-GRADED MATERIAL	1,143.000 TON	_____.	_____	_____.	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0410	315	315SD20-0003 ASPHALT CONCRETE TY. SM-12.5E CONST	994.000 TON	_____	_____	_____	_____
0420	315	315SD20-0011 ASPHALT CONCRETE TY. BM-25.0D CONST	6,528.000 TON	_____	_____	_____	_____
0430	315	315SD20-0018 ASPH.CONC.CURB BACKUP MATL. CONST	27.000 TON	_____	_____	_____	_____
0440	315	315SX20-0011 SAW-CUT ASPH CONC (FULL DEPTH)	5,531.000 LF	_____	_____	_____	_____
0450	317, 315	317SD20-0004 STONE MATRIX ASPH. SMA-12.5 64E-22	4,235.000 TON	_____	_____	_____	_____
0460	317, 315	317SD20-0006 STONE MATRIX ASPH. SMA-19.0 64E-22	1,894.000 TON	_____	_____	_____	_____
0470	401	401SD20-0001 STRUCTURE EXCAVATION CONST.	1,104.000 CY	_____	_____	_____	_____
0480	401	401SD20-0005 PIPE UNDERDRAIN 6" CONST.	120.000 LF	_____	_____	_____	_____
0490	401	401SD20-0007 COFFERDAM	16.000 EA	_____	_____	_____	_____
0500	402	402SD20-0004 TEMPORARY SHEET PILING	3,254.000 SF	_____	_____	_____	_____
0510	403	403SD20-0004 DYNAMIC PILE TEST	5.000 EA	_____	_____	_____	_____
0520	403	403SD20-0014 PRESTRESSED CONCRETE STEEL STRAND PILES 18”	4,200.000 LF	_____	_____	_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0530	403	403SD20-0044 DRIVING TEST FOR 18" PRESTR. CONC. PILE	253.000 LF	_____	_____	_____	_____
0540	404	404SD20-0003 CONCRETE CLASS A3, SPR. STRUCT. CONST.	556.300 CY	_____	_____	_____	_____
0550	404	404SD20-0005 CONC. CL. A4 MOD. LOW SHRINK., SPR. STRUCT. CONST.	694.800 CY	_____	_____	_____	_____
0560	404	404SD20-0009 BRIDGE DECK GROOVING CONST.	2,264.000 SY	_____	_____	_____	_____
0570	404	404SD20-0010 COVER DEPTH SURVEY CONST.	2,500.000 SY	_____	_____	_____	_____
0580	404	404SD20-0012 CONCRETE CLASS A4, SUBSTRUCT. CONST.	946.800 CY	_____	_____	_____	_____
0590	406	406SD20-0001 REINFORCING STEEL SPR. STRUCT. CONST.	82,860.000 LB	_____	_____	_____	_____
0600	406	406SD20-0003 CR REINF. STEEL CL. I SPR. STRUCT. CONST.	183,540.000 LB	_____	_____	_____	_____
0610	406	406SD20-0006 REINFORCING STEEL SUBSTRUCT. CONST.	95,930.000 LB	_____	_____	_____	_____
0620	406	406SD20-0008 CR REINF. STEEL CL. I SUBSTRUCT. CONST.	50,320.000 LB	_____	_____	_____	_____
0630	407	407SD20-0007 STR.ST.PLATE GIRDER ASTM A709 GR.50W	LUMP SUM	LUMP SUM		_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0640	410	410SD20-0006 CONCRETE PARAPET 42" CONST.	1,281.000 LF	_____	_____	_____	_____
0650	ATTD	410SX20-0011 PIER PROTECTION SYSTEM 54", CONST	281.000 LF	_____	_____	_____	_____
0660	414	414SD20-0001 EROSION CTRL. STONE CL. A1, EC-1	211.000 TON	_____	_____	_____	_____
0670	415	415SD20-0004 CONC. SLAB SLOPE PROTECTION 4"	231.000 SY	_____	_____	_____	_____
0680	416	416SD20-0003 WATERPROOFING – EPOXY RESIN TYPE EP-3B/EP-3T	213.000 SY	_____	_____	_____	_____
0690	419	419SX20-0008 BRG. CONDUIT SYSTEM STR. NO. 8074	LUMP SUM	LUMP SUM		_____	_____
0700	423	423SD20-0003 TOOTH EXP.JT. ASSEMBLY 2" CONST.	71.000 LF	_____	_____	_____	_____
0710	430	430SX20-0001 NBIS ACCESS, UNDER BRIDGE STR. NO. 8074	2.000 DAY	_____	_____	_____	_____
0720	501	501SD20-0004 UNDERDRAIN UD-4	4,823.000 LF	_____	_____	_____	_____
0730	501	501SD20-0009 OUTLET PIPE	148.000 LF	_____	_____	_____	_____
0740	502	502SD20-0014 CURB, STD. CG-3	136.000 LF	_____	_____	_____	_____
0750	502	502SD20-0020 CURB, ASPHALT MC-3B	657.000 LF	_____	_____	_____	_____
0760	502	502SD20-0037 MEDIAN BARRIER MB-7E	100.000 LF	_____	_____	_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0770	502	502SD20-0038 MEDIAN BARRIER MB-7F	381.000 LF	_____	_____	_____	_____
0780	502	502SD20-0044 MEDIAN BARRIER MB-8A TYPE I	22.000 LF	_____	_____	_____	_____
0790	ATTD	502SX20-0002 MEDIAN BARRIER (F-SHAPED PARAPET WITH MOMENT SLAB)	456.000 LF	_____	_____	_____	_____
0800	302, 504	504SD20-0001 CONCRETE CLASS A3 MISC.	91.000 CY	_____	_____	_____	_____
0810	505	505SD20-0011 GUARDRAIL GR-MGS1	4,895.000 LF	_____	_____	_____	_____
0820	505	505SD20-0017 GUARDRAIL TERMINAL GR-MGS2	1.000 EA	_____	_____	_____	_____
0830	505	505SD20-0018 GUARDRAIL END ANCHORAGE GR-MGS3	3.000 EA	_____	_____	_____	_____
0840	505	505SD20-0019 GUARDRAIL HEIGHT TRANSITION GR-MGS4	9.000 EA	_____	_____	_____	_____
0850	505	505SD20-0039 GUARDRAIL TER.SITE PREPARATION	1.000 EA	_____	_____	_____	_____
0860	505	505SD20-0040 GUARDRAIL GR-10	150.000 LF	_____	_____	_____	_____
0870	505	505SD20-0053 FIXED OBJECT ATTACH. GR-FOA-2 TY. I	1.000 EA	_____	_____	_____	_____
0880	505	505SD20-0055 FIXED OBJECT ATTACH. GR-FOA-5	5.000 EA	_____	_____	_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
0890	505	505SD20-0073 REMOVE EXISTING GUARDRAIL	933.000 LF	_____	_____	_____	_____
0900	ATTD	506SX20-0006 RETAINING WALL TILT-UP WALL	4,722.000 SF	_____	_____	_____	_____
0910	507	507SD20-0001 FENCE FE-W1	2,122.000 LF	_____	_____	_____	_____
0920	508	508SD20-0001 OBSCURING ROADWAY	21.000 UNIT	_____	_____	_____	_____
0930	508	508SD20-0003 DEMO. OF PAVEMENT RIGID	84.000 SY	_____	_____	_____	_____
0940	508	508SD20-0004 DEMO. OF PAVEMENT FLEXIBLE	6,070.000 SY	_____	_____	_____	_____
0950	509	509SD20-0001 FLOWABLE BACKFILL	11.000 CY	_____	_____	_____	_____
0960	ATTD	510SX20-0016 REMOVE EXIST. FENCE REMOVE EXIST. FENCE	1,645.000 LF	_____	_____	_____	_____
0970	ATTD	510SX20-0029 RESET EXIST. (REMOVE AND RESET GATE)	1.000 EA	_____	_____	_____	_____
0980	ATTD	510SX20-0039 REMOVE EXIST. CONDUCTORS	6,900.000 LF	_____	_____	_____	_____
0990	ATTD	510SX20-0040 REMOVE EXIST. ELECTRICAL SERVICE	1.000 EA	_____	_____	_____	_____
1000	ATTD	510SX20-0040 REMOVE EXIST. FLASHING BEACON ASSEMBLY	4.000 EA	_____	_____	_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
1010	ATTD	510SX20-0042 RELOCATE EXISTING LIGHT POLE	8.000 EA				
1020	ATTD	510SX20-0048 INSTALL VALVE & BOX 36" BUTTERFLY VALVE & BOX	2.000 EA				
1030	512	512SD20-0007 IMPACT ATTEN.SER. TY. 1 TL-3, >=40 MPH	6.000 EA				
1040	512	512SD20-0012 TYPE 3 BARRICADE 4'	8.000 EA				
1050	512	512SD20-0013 TYPE 3 BARRICADE 8'	8.000 EA				
1060	512	512SD20-0014 TEMPORARY SIGN	5,674.000 SF				
1070	512	512SD20-0023 TRUCK MOUNTED ATTENUATOR	5,440.000 HR				
1080	512	512SD20-0024 GROUP 2 CHANNELIZING DEVICES	50,542.000 DAY				
1090	512	512SD20-0025 PORT.CHANGEABLE MESS. SIGN	3,616.000 HR				
1100	512	512SD20-0026 ELECTRONIC ARROW BOARD	6,512.000 HR				
1110	512	512SD20-0029 WARNING LIGHT TY. B	15.000 DAY				
1120	512	512SD20-0031 TRAFFIC BARRIER SER. CONC. MB-7D PC	11,912.000 LF				
1130	512	512SD20-0042 ERADICATE LINEAR PVMT MRKG	555.000 LF				

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
1140	512	512SD20-0042 ERADICATE LINEAR PVMT MRKG	400.000 LF				
1150	512	512SD20-0044 TEMP. PAVE. MARKER 1 WAY	100.000 EA				
1160	512	512SD20-0062 TEMP. PVMT MRKG TY. D, CL. III, 6"	8,049.000 LF				
1170	512	512SD20-0063 TEMP. PVMT MRKG TY. D, CL. III, 8"	3,788.000 LF				
1180	513	513SD20-0001 MOBILIZATION	LUMP SUM	LUMP SUM			
1190	514	514SD20-0001 FIELD OFFICE TY.I	25.000 MO				
1200	515	515SD20-0013 FLEXIBLE PAVE.PLANING 0"-2"	15,630.000 SY				
1210	517	517SD20-0001 CONSTRUCTION SURVEYING CONSTR.	LUMP SUM	LUMP SUM			
1220	520	520SD20-0313 54" STEEL JACKED ENCASEMENT PIPE	161.000 LF				
1230	602	602SX20-0005 TOPSOIL (CLASS B 3" DEPTH)	10.000 ACRE				
1240	603	603SD20-0002 TEMPORARY SEED	1,000.000 LB				
1250	603	603SD20-0003 REGULAR SEED	1,750.000 LB				
1260	603	603SD20-0004 OVERSEEDING	1,400.000 LB				

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
1270	603	603SD20-0008 HYDRAULIC EROSION CONTROL PRODUCT TYPE 2	42,350.000 SY				
1280	603	603SD20-0009 HYDRAULIC EROSION CONTROL PRODUCT TYPE 3	66,550.000 SY				
1290	603	603SD20-0011 SEDIMENT RETENTION ROLL 18" MIN	625.000 LF				
1300	603	603SD20-0014 FERTILIZER NITROGEN - N	956.000 LB				
1310	603	603SD20-0015 FERTILIZER PHOSPHOROUS - P	1,313.000 LB				
1320	603	603SD20-0016 FERTILIZER POTASSIUM - K	656.000 LB				
1330	603	603SD20-0017 LIME	45.000 TON				
1340	606	606SD20-0001 ROLLED EROSION CTRL PRODUCT EC-2 TYPE 1	5,160.000 SY				
1350	606	606SD20-0007 ROLLED EROSION CTRL PRODUCT EC-3 TYPE 3	5.000 SY				
1360	608	608SD20-0001 MOWING	100.000 HR				
1370	700	700SD20-0003 REMOVE EXISTING 1 POST SIGN STRUCTURE	13.000 EA				
1380	700	700SD20-0004 REMOVE EXISTING 2 POST SIGN STRUCTURE	3.000 EA				

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
1390	700	700SD20-0012 RELOCATE EX. 1 POST GRND MOUNT SGN PANEL	5.000 EA	_____	_____	_____	_____
1400	700	700SD20-0018 VA SIGN POST W4 X 13	11.000 LF	_____	_____	_____	_____
1410	700	700SD20-0019 VA SIGN POST W6 X 12	86.000 LF	_____	_____	_____	_____
1420	700	700SD20-0024 VIA SIGN POST W14 X 22	40.000 LF	_____	_____	_____	_____
1430	700	700SD20-0034 SIGN POST STP-1, 2", 14 GAUGE	90.000 LF	_____	_____	_____	_____
1440	700	700SD20-0035 SIGN POST STP-1, 2 3/16", 10 GAUGE	48.000 LF	_____	_____	_____	_____
1450	700	700SD20-0036 SIGN POST STP-1, 2 1/2", 10 GAUGE	171.000 LF	_____	_____	_____	_____
1460	700	700SD20-0037 SIGN POST STP-1, 2 1/2", 12 GAUGE	28.000 LF	_____	_____	_____	_____
1470	700	700SD20-0038 CONC. FOUND. STP-1, TY. A	11.000 EA	_____	_____	_____	_____
1480	700	700SD20-0039 CONC. FOUND. STP-1, TY. B	12.000 EA	_____	_____	_____	_____
1490	700	700SD20-0045 CONC. FOUND. SSP-VA, 2'6" DIA. X 7' DEEP	1.000 EA	_____	_____	_____	_____
1500	700	700SD20-0046 CONC. FOUND. SSP-VA, 1'9" DIA. X 4'6" DEEP	1.000 EA	_____	_____	_____	_____
1510	700	700SD20-0047 CONC. FOUND. SSP-VA, 2'6" DIA. X 6' DEEP	6.000 EA	_____	_____	_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
1520	700	700SD20-0049 CONC. FOUND. SSP-VIA, 3' DIA. X 7' DEEP	2.000 EA	_____	_____	_____	_____
1530	700	700SD20-0131 ELECTRICAL SERVICE SE-2, TY. B	1.000 EA	_____	_____	_____	_____
1540	700	700SD20-0143 6 CONDUCTOR CABLE	3,750.000 LF	_____	_____	_____	_____
1550	700	700SD20-0149 CONC. FOUND. LF-1, TY. A	8.000 EA	_____	_____	_____	_____
1560	700	700SD20-0177 JUNCTION BOX JB-S1	4.000 EA	_____	_____	_____	_____
1570	700	700SD20-0191 BORED CONDUIT 2"	160.000 LF	_____	_____	_____	_____
1580	700	700SD20-0194 CONDUIT PVC 2"	1,120.000 LF	_____	_____	_____	_____
1590	700	700SD20-0197 TRENCH EXCAVATION ECI-1	1,120.000 LF	_____	_____	_____	_____
1600	700	700SD20-0199 TEST BORE	1.000 EA	_____	_____	_____	_____
1610	700	700SX20-0003 SIGN STRUCTURE, OVERHEAD CANT. OVERHEAD CANTILEVER	1.000 EA	_____	_____	_____	_____
1620	700	700SX20-0017 REMOVE EXIST. OVERHEAD SIGN STRUCTURE OVERHEAD SIGN STRUCTURE	1.000 EA	_____	_____	_____	_____
1630	ATTD	700SX20-0021 TRAFFIC SIGN (MOUNT SIGN PANEL TO MEDIAN BARRIER)	6.000 EA	_____	_____	_____	_____

Proposal ID: C0000118375C01 Oversight/State Project No.: 0058-133-459,C501,B616
Order No.: K61 Federal Project No.: NONE

Contractor: _____

SECTION: 0001 REGULAR BID ITEMS
Cat Alt Set ID: Cat Alt Mbr ID:

Proposal Line Number	Spec No.	Item ID / Description	Approximate Quantity and Units	Unit Price Dollars	Unit Price Cents	Bid Amount Dollars	Bid Amount Cents
1640	ATTD	700SX20-0022 CONC FOUNDATION CONC FOUNDATION	1.000 EA				
1650	701	701SD20-0001 SIGN PANEL	798.000 SF				
1660	703	703SD20-0048 REMOVE EXISTING MANHOLE/JUNCTION BOX	4.000 EA				
1670	704	704SD20-0027 TYPE B CLASS VI PVMT LINE MRKG 6"	22,419.000 LF				
1680	704	704SD20-0028 TYPE B CLASS VI PVMT LINE MRKG 8"	1,735.000 LF				
1690	704	704SD20-0029 TYPE B CLASS VI PVMT LINE MRKG 12"	2,055.000 LF				
1700	ATTD	704SD20-0032 INLAID PAVEMENT MARKER ASPHALT	233.000 EA				
1710	705	705SD20-0003 CONTROL CENTER CCW-1 TYPE C	1.000 EA				
1720	ATTD	705SX20-0002 LIGHTING PHOTOCELL REMOVAL	18.000 EA				

Section: 0001 Total: _____.____

Total Bid: _____.____

Bid Items Eligible For Fuel Adjustment

Instructions: This form shall be completed in accordance with the Special Provision for Optional Adjustment for Fuel. If you choose to have Fuel Adjustment applied to any of the items listed below, write the word "Yes" in the "OPTION" column beside the item. The form must be signed, dated, and submitted to the Contract Engineer within the timeframe required in the Special Provision.

SECTION: 0001 REGULAR BID ITEMS

Item Number	Item Description	Fuel Factor gal/unit	Option
303SD20-0001	REGULAR EXCAVATION	0.290	_____
303SD20-0016	MINOR STR. EXCAV. PIPE CULVERT	0.290	_____
303SD20-0029	SILTATION CONTROL EXCAVATION	0.290	_____
305SD20-0001	BORROW EXCAVATION	0.290	_____
307SD20-0004	CEM. STAB. AGGR. BASE. MATL. TY. I NO. 21A	0.600	_____
312SD20-0006	COVER MATL. AGGR. NO. 8	0.600	_____
313SD20-0001	ASPH-STAB. OPEN-GRADED MATERIAL	3.000	_____
315SD20-0003	ASPHALT CONCRETE TY. SM-12.5E CONST	3.500	_____
315SD20-0011	ASPHALT CONCRETE TY. BM-25.0D CONST	3.500	_____
317SD20-0004	STONE MATRIX ASPH. SMA-12.5 64E-22	4.000	_____
317SD20-0006	STONE MATRIX ASPH. SMA-19.0 64E-22	4.000	_____
401SD20-0001	STRUCTURE EXCAVATION CONST.	0.290	_____
404SD20-0003	CONCRETE CLASS A3, SPR. STRUCT. CONST.	1.892	_____
404SD20-0005	CONC. CL. A4 MOD. LOW SHRINK., SPR. STRUCT. CONST.	1.892	_____
404SD20-0012	CONCRETE CLASS A4, SUBSTRUCT. CONST.	1.892	_____
414SD20-0001	EROSION CTRL. STONE CL. A1, EC-1	0.600	_____
504SD20-0001	CONCRETE CLASS A3 MISC.	1.892	_____

Bid Items Eligible For Fuel Adjustment

Instructions: This form shall be completed in accordance with the Special Provision for Optional Adjustment for Fuel. If you choose to have Fuel Adjustment applied to any of the items listed below, write the word "Yes" in the "OPTION" column beside the item. The form must be signed, dated, and submitted to the Contract Engineer within the timeframe required in the Special Provision.

SECTION: 0001 REGULAR BID ITEMS

508SD20-0003	DEMO. OF PAVEMENT RIGID	0.200	_____
508SD20-0004	DEMO. OF PAVEMENT FLEXIBLE	0.200	_____
515SD20-0013	FLEXIBLE PAVE.PLANING 0"-2"	0.071	_____

Date: _____

Signature: _____

_____
(Firm or Corporation)

_____
(Vendor No.)

Bid Items Eligible For Steel Price Adjustment

Instructions: This form shall be completed in accordance with the Special Provision. If you choose to have Steel Price Adjustment applied to any of the items listed below, write the word "Yes" in the "OPTION" column beside the item. The form must be signed, dated, and submitted to the Contract Engineer within the timeframe required in the Special Provision.

SECTION: 0001 REGULAR BID ITEMS

Item Number	Item Description	Option
302SD20-0005	REINF. STEEL	_____
406SD20-0001	REINFORCING STEEL SPR. STRUCT. CONST.	_____
406SD20-0003	CR REINF. STEEL CL. I SPR. STRUCT. CONST.	_____
406SD20-0006	REINFORCING STEEL SUBSTRUCT. CONST.	_____
406SD20-0008	CR REINF. STEEL CL. I SUBSTRUCT. CONST.	_____
407SD20-0007	STR.ST.PLATE GIRDER ASTM A709 GR.50W	_____
505SD20-0011	GUARDRAIL GR-MGS1	_____
505SD20-0017	GUARDRAIL TERMINAL GR-MGS2	_____
505SD20-0018	GUARDRAIL END ANCHORAGE GR-MGS3	_____
505SD20-0019	GUARDRAIL HEIGHT TRANSITION GR-MGS4	_____
505SD20-0040	GUARDRAIL GR-10	_____
507SD20-0001	FENCE FE-W1	_____
520SD20-0313	54" STEEL JACKED ENCASEMENT PIPE	_____
700SD20-0018	VA SIGN POST W4 X 13	_____
700SD20-0019	VA SIGN POST W6 X 12	_____
700SD20-0024	VIA SIGN POST W14 X 22	_____
700SD20-0034	SIGN POST STP-1, 2", 14 GAUGE	_____
700SD20-0035	SIGN POST STP-1, 2 3/16", 10 GAUGE	_____

Bid Items Eligible For Steel Price Adjustment

Instructions: This form shall be completed in accordance with the Special Provision. If you choose to have Steel Price Adjustment applied to any of the items listed below, write the word "Yes" in the "OPTION" column beside the item. The form must be signed, dated, and submitted to the Contract Engineer within the timeframe required in the Special Provision.

SECTION: 0001 REGULAR BID ITEMS

700SD20-0036	SIGN POST STP-1, 2 1/2", 10 GAUGE	_____
700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	_____
700SX20-0021	TRAFFIC SIGN (MOUNT SIGN PANEL TO MEDIAN BARRIER)	_____

Date: _____

Signature: _____

_____
(Firm or Corporation)

_____
(Vendor No.)

Contract ID: C0000118375C01
Order No.: K61

Bid Items Eligible For Asphalt Adjustment within this Project

SECTION: 0001 REGULAR BID ITEMS

Item Number	Item Description
313SD20-0001	ASPH-STAB. OPEN-GRADED MATERIAL
315SD20-0003	ASPHALT CONCRETE TY. SM-12.5E CONST
315SD20-0011	ASPHALT CONCRETE TY. BM-25.0D CONST
315SD20-0018	ASPH.CONC.CURB BACKUP MATL. CONST
317SD20-0004	STONE MATRIX ASPH. SMA-12.5 64E-22
317SD20-0006	STONE MATRIX ASPH. SMA-19.0 64E-22

Determination of Major Items

Item Number	Item Description
305SD20-0001	BORROW EXCAVATION
305SX20-0004	SELECT MATERIAL (EXPANDED POLYSTYRENE (EPS) GEOFOAM BLOCK FILL)
404SD20-0012	CONCRETE CLASS A4, SUBSTRUCT. CONST.
404SD20-0005	CONC. CL. A4 MOD. LOW SHRINK., SPR. STRUCT. CONST.
315SD20-0011	ASPHALT CONCRETE TY. BM-25.0D CONST

Form C-111**S**
6-7-16

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
MINIMUM SWAM REQUIREMENTS

PROJECT NO. 0058-133-459,C501,B616

FHWA NO. NONE

*** * * INSTRUCTIONS * * ***

THIS FORM CAN BE USED BY THE CONTRACTOR TO SUBMIT THE NAMES OF SWAM FIRMS TO BE UTILIZED ON THE PROJECT. THE CONTRACTOR SHALL INDICATE THE DESCRIPTION OF THE CATEGORY (S, M, SP or H) AND THE TYPE OF WORK THAT EACH SWAM WILL PERFORM AND THE ALLOWABLE CREDIT PER ITEM(S). ADDITIONAL SHEETS TO SHOW THE ALLOWABLE CREDIT PER ITEM MAY BE ATTACHED IF NECESSARY. **PLEASE NOTE:** THE AMOUNT OF ALLOWABLE CREDIT FOR A SWAM SUPPLIER IS 60% OF THE TOTAL COST OF THE MATERIALS OR SUPPLIES OBTAINED AND 100% FOR A SWAM MANUFACTURER OF THE MATERIALS AND SUPPLIES OBTAINED. A CONTRACTOR MAY COUNT 100% OF THE FEES PAID TO A SWAM HAULER FOR THE DELIVERY OF MATERIALS AND SUPPLIES TO THE PROJECT SITE, BUT NOT FOR THE COST OF THE MATERIALS AND SUPPLIES THEMSELVES.

SWAM REQUIREMENT **12.00** **%**

PERCENT ATTAINED BY BIDDER _____ **%**

NAMES(S) AND CERTIFICATION NO. OF SWAM(S) TO BE USED	USED AS SUBCONTR. (S) MFG. (M) SUPPLIER (SP) HAULER (H)	TYPE OF WORK AND ITEM NO(S)	$ AMOUNT OF ALLOWABLE CREDIT PER ITEM
		TOTAL	**$**

TOTAL CONTRACT VALUE $ _____ x REQUIRED SWAM _____ % = $ _____

I/WE CERTIFY THAT THE PROPOSED SWAM(S) SUBMITTED WILL BE USED ON THIS CONTRACT AS STATED HEREON AND ASSURE THAT DURING THE LIFE OF THE CONTRACT. I/WE WILL MEET OR EXCEED THE PARTICIPATION ESTABLISHED HEREON BY THE DEPARTMENT.

_____ BY _____
BIDDER SIGNATURE

_____ BY _____
TITLE DATE

Form C-112**S**
6-7-16

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
CERTIFICATION OF BINDING AGREEMENT
WITH
SMALL, WOMEN-OWNED, AND MINORITY-OWNED BUSINESS FIRMS

Project No.: 0058-133-459,C501,B616

Federal Project No.: NONE

This form is to be submitted in accordance with the Department's Special Provision for Section 107.15.

It is hereby certified by the below signed Contractors that there exists a written quote, acceptable to the parties involved preliminary to a binding subcontract agreement stating the details concerning the work to be performed and the price which will be paid for the aforementioned work. This document is not intended to, nor should it be construed to, contain the entire text of the agreement between the contracting parties. This document does not take the place of, nor may it be substituted for, an official subcontracting agreement in those situations that may require such an agreement. A copy of the fully executed *subcontract agreement* shall be submitted to the Engineer within fourteen (14) business days after contract execution.

It is further certified that the aforementioned mutually acceptable quote and fully executed subcontract agreement represent the entire agreement between the parties involved and that no conversations, verbal agreements, or other forms of non-written representations shall serve to add to, delete, or modify the terms as stated.

The prime Contractor further represents that the aforementioned mutually acceptable quote and fully executed subcontract agreement shall remain on file for a period of not less than one year following completion of the prime's contract with the Department or for such longer period as provisions of governing Federal or State law or regulations may require. For purposes of this form, the term Prime Contractor shall refer to any Contractor utilizing a SWAM subcontractor, regardless of tier, in which they are claiming SWAM credit toward the contract goal.

Contractors further jointly and severally represent that said binding agreement is for the performance of a "commercially useful function" as that term is employed in 49 C.F.R. Part 26.55 (c), (d).

SWAM Contractor _____

By: _____ _____
Signature Title

Date: _____

*Subcontractor _____

By: _____ _____
Signature Title

Date: _____

* TO BE SIGNED BY THE SUBCONTRACTOR ONLY IF THEY HAVE A CONTRACT WITH THE ABOVE SWAM FIRM

Prime Contractor _____

By: _____ _____
Signature Title

Date: _____

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

TABLE OF CONTENTS FOR PROVISIONS

FORMS and SCHEDULE OF ITEMS PRECEDE SPCNs, SPs and SUPPLEMENTAL SPECS.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

cn100-000026-08 **GENERAL PROJECT REQUIREMENTS, SUPPLEMENTAL SPECIFICATIONS (SSs), SPECIAL PROVISIONS (SPs) AND SPECIAL PROVISION COPIED NOTES (SPCNs)**

This project shall be constructed according to: the plans; the *Virginia Department of Transportation Road and Bridge Specifications*, dated 2020 and the Supplement thereto, dated 2022; the *Virginia Department of Transportation Road and Bridge Standards*, dated 2016, with revisions issued online as of the advertisement date for this project incorporated; the 2011 edition of the *Virginia Work Area Protection Manual with Revision Number 2.1* incorporated, dated November 1, 2020; the 2009 edition of the *MUTCD with Revision Numbers 1 and 2* incorporated, dated May 2012; and the 2011 edition of the *Virginia Supplement to the MUTCD with Revision Number 1* dated September 30, 2013; and the Supplemental Specifications, Special Provisions and Special Provision Copied Notes in this contract. The status in the Contract of each of these documents will be according to Section 105.12 of the Specifications.

Special Provision Copied Notes in this contract are designated with "(SPCN)" after the date.

The information at the top and left of each Special Provision Copied Note in this contract is file reference information for Department use only. The information in the upper left corner above the title of each Supplemental Specification and Special Provision in this contract is file reference information for Department use only.

4-4-22 (SPCN)

cn105-000610-00 **SECTION 105.06—SUBCONTRACTING** of the Specifications is amended to replace the first paragraph with the following:

No portion of the Contract shall be subcontracted or otherwise disposed of without the written consent of the Engineer, except for work that is $25,000 or less per subcontractor, where the cumulative total of the sublets not requiring the Engineer's written consent will not exceed 10 percent of the original contract value. This will not, however, waive the requirements for prequalification, and will be considered part of the percentage the Contractor is allowed to subcontract. The Contractor shall notify the Engineer of the name of the firm to whom the work will be subcontracted, and the amount and items of work involved. Such notification shall be made and verbal approval given by the Engineer prior to the subcontractor beginning work.

5-15-08; Reissued 7-12-16 (SPCN)

cn315-000100-00

SECTION 315.05(c) **PLACING AND FINISHING** is modified by replacing the third paragraph with the following:

> The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 6 inches or more. The joint in the wearing surface shall be offset 6 inches to 12 inches from the centerline of the pavement if the roadway comprises two traffic lanes. The joint shall be offset approximately 6 inches from the lane lines if the roadway is more than two lanes in width. The longitudinal joint shall be uniform in appearance. On all roads except secondary routes, if the offset for the longitudinal joint varies from a straight line more than 2 inches in 50 feet on tangent alignment, or from a true arc more than 2 inches in 50 feet on curved alignment, the Contractor shall seal the joint using a water-proof sealer at no cost to the Department. The Contractor shall recommend a sealant and installation procedure to the Engineer for approval before proceeding. On all roads except secondary routes, if the offset for the longitudinal joint varies from a straight line more than 3 inches in 50 feet on tangent alignment, or from a true arc more than 3 inches in 50 feet on curved alignment, the Engineer may reject the paving. The Engineer will not require offsetting layers when adjoining lanes are paved in echelon and the rolling of both lanes occurs within 15 minutes after laydown.

1-18-17 (SPCN)

cn512-000130-00

TEMPORARY CONTRAST MARKINGS – Type D, Class III contrast pavement markings shall be used for all longitudinal temporary pavement markings on bridge decks and hydraulic cement concrete riding surfaces if all of the following are met:

- The road has a speed limit of 45 MPH or greater.
- The hydraulic cement concrete riding surface in question is at least 300 feet in length.
- The temporary markings are planned for at least 15 days of use.

Type D, Class III contrast markings are not required for any markings that are parallel to and within two feet of existing guardrail or other longitudinal barrier.

2-26-19 (SPCN)

cn704-000200-00

INLAID PAVEMENT MARKER LOCATION AND SPACING — The Contractor shall not install markers on existing bridge decks Inlaid Pavement Markers shall be installed on new bridge decks where required by the Plans. Inlaid Pavement Markers shall be placed in relation to pavement joints and cracks as follows:

- In existing Asphalt Concrete pavement, new or existing Hydraulic Cement Concrete pavement, and bridge decks, the edge of the groove shall be at least 2 inches from pavement joints and cracks, ensuring that the finished line of markers is straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Offset from the longitudinal joint shall take precedence over straightness of the line of markers.
- In new Hydraulic Cement Concrete pavement or when installed in conjunction with new latex modified microsurfacing or slurry seal treatments, the edge of the groove shall be 2 inches minimum from the surface course pavement joint and 1 inch maximum off alignment from the corresponding pavement marking line. The finished line of markers shall be straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Straightness of the line of markers and alignment with the corresponding pavement marking line takes precedence over offset from the surface course joint.

8-11-21

DRUG-FREE WORKPLACE– The Contractor shall:

- Provide a Drug-Free Workplace for the Contractor's employees.
- Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition.
- State in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a Drug-Free Workplace.
- Include the provisions of the foregoing clauses in every Subcontract or purchase order of over $10,000, so that the provisions will be binding upon each Subcontractor or vendor.

For the purposes of this provision, "Drug-Free Workplace" means a site for the performance of work done in connection with the Contract. The Contractors employees, and those of his Subcontractors, shall be prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession, or use of any controlled substance or marijuana during the performance of the Work.

7-3-19 (SPCN)

cq107-000150-00 EQUAL EMPLOYMENT OPPORTUNITY

Section 107.14(a)1 – Required by §2.2-4201 and §2.2-4311 of the Code of Virginia is replaced with the following:

1. **Required by §2.2-4201 and §2.2-4311 of the Code of Virginia:** During the performance of this Contract, the Contractor agrees as follows:

   a. The Contractor shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, or national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the Contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause, including the names of all contracting agencies with which the Contractor has contracts of over $10,000.

   b. The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that such contractor is an equal opportunity employer. However, notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this chapter.

   c. If the Contractor employs more than five employees, the Contractor shall (i) provide annual training on the Contractor's sexual harassment policy to all supervisors and employees providing services in the Commonwealth, except such supervisors or employees that are required to complete sexual harassment training provided by the Department of Human Resource Management, and (ii) post the Contractor's sexual harassment policy in (a) a conspicuous public place in each building located in the Commonwealth that the Contractor owns or leases for business purposes and (b) the Contractor's employee handbook.

   The Contractor shall include the provisions of subdivisions a, b, and c in every subcontract or purchase order of over $10,000, so that such provisions shall be binding upon each subcontractor or vendor.

   Nothing contained in this chapter shall be deemed to empower any agency to require any contractor to grant preferential treatment to, or discriminate against, any individual or any group because of race, color, religion, sex, or national origin on account of an imbalance that may exist with respect to the total number or percentage of persons of any race, color, religion, sex, or national origin employed by such contractor in comparison with the total number or percentage of persons of such race, color, religion, sex, or national origin in any community or in the Commonwealth.

5-11-22 (SPCN)

SECTION 317—STONE MATRIX ASPHALT CONCRETE PLACEMENT of the Specifications is amended as follows:

317.08—Compaction is amended to replace the second paragraph with the flowing:

The Contractor shall approach the use of vibratory rollers on SMA with caution to minimize coarse aggregate fracture/breakage in the aggregate skeleton of SMA mixes. If the Contractor elects to use a vibratory roller, the mat should receive not more than three vibratory passes. The Contractor shall use the roller only on the highest frequency and lowest amplitude setting.

9-17-18 (SPCN)

CONTRACTOR MAINTENANCE OF TEMPORARY MARKINGS – The second, third, and fourth paragraphs of Section 512.03(k)3 of the Specifications will also apply to Sections 512.03(k)1 and 512.03(k)2 of the Specifications.

6-13-17 (SPCN)

PROTECTION OF BAT SPECIES — If bats are observed roosting on a structure, the Contractor shall immediately notify the Engineer and suspend work in the immediate vicinity of the bats until authorized to continue.

1-17-18 (SPCN)

REMOVE EXISTING ELECTRICAL SERVICE– will be measured and paid for in accordance with Section 510 of the Specifications. The Contract price shall include removal and disposal of all items associated with the electrical service, including but not limited to the disconnect switch, cabinets, meter, post, conduit, and conductors.
10-19-23 (SPCN)

REMOVE AND RESET GATE– will be measured and paid for in accordance with Section 510 of the Specifications. The Contract price shall include all items associated with removal and resetting of an existing gate, including but not limited to fence post, post foundations, fencing, and gate.

10-19-23 (SPCN)

TRAFFIC SIGN (MOUNT SIGN PANEL TO MEDIAN BARRIER)– shall be installed at locations as shown on the Plans or as directed by the Engineer.

Traffic sign (Mount sign panel to median barrier) will be measured in units of each and will be paid for at the Contract each price. This price shall include the posts, bracketing hardware, and sign support hardware.
Payment will be made under:

Pay Item	Pay Unit
Traffic Sign (Mount Sign Panel to Median Barrier)	Each

10-19-23 (SPCN)

DROP INLET COMPATIBLE WITH F-SHAPED PARAPET WITH MOMENT SLAB – Drop Inlet DI-10H Ty. I, L=14 will be measured and paid for in accordance with Section 302 of the Specifications. The Contract price shall include all items associated with construction of the complete unit compatible with a F-shaped parapet with moment slab — including excavation, bedding, construction of the chamber, inlet shaping, steps, and safety slabs.

The price shall not include the Contract unit price for the Median Barrier (F-Shaped Parapet with Moment Slab) that is associated with the length of the drop inlet.

10-20-23 (SPCN)

TEMPORARY DIVERSION CHANNEL EXCAVATION – will be measured and paid for in accordance with Section 302 of the Specifications, except the Contract cubic yard price shall also include tie-ins to the cofferdam and adjustment of the pipe culverts during construction.

10-20-23 (SPCN)

RETAINING WALL (TILT-UP WALL) shall be in accordance with Section 506 of the Specifications, the Plans, and as directed by the Engineer.

Retaining wall (Tilt-up walls) will be measured in square feet and will be paid for at the Contract square foot price of exposed face area. This price shall include furnishing and installing wall panels, footing, connection to the load distribution slab (LDS), coping, waterproofing, and the expansion joint material as shown on the Plans.

Payment will be made under:

Pay Item	Pay Unit
Retaining wall (Tilt-up wall)	Square foot

11-1-23 (SPCN)

RELOCATE EXISTING LIGHT POLE– will be measured and paid for in accordance with Section 510 of the Specifications. The Contract price shall include all items associated with relocating the light poles, including but not limited to: relocating the pole, arms, and luminaires; restoring and cleaning of relocated components; replacing of the cabling within the pole; connecting the cabling and fixture to the proposed circuit; installing ID tags; and removing and disposing of the existing foundation.
10-19-23 (SPCN)

REMOVE LIGHTING PHOTOCELL – shall be in accordance with Section 705 of the Specifications.

Remove lighting photocell will be measured in units of each and will be paid for at the Contract each price. This price shall include removing and disposing the photocell, installing a cap as needed, and any other elements to ensure the luminaire properly functions after the photocell is removed.
Payment will be made under:

Pay Item	Pay Unit
Remove lighting photocell	EA

10-19-23 (SPCN)

REMOVE EXISTING FLASHING BEACON ASSEMBLY– will be measured and paid for in accordance with Section 510 of the Specifications. The Contract price shall include removal and disposal of all items associated with the flashing beacons, including but not limited to the signs, beacons, cabinets, posts, foundations, and conduit/conductors to the nearest junction box.
10-20-23 (SPCN)

STRUCTURAL STEEL PLATE GIRDERS will be measured and paid for in accordance with Section 407 for the Specifications, except the Contract unit price shall also include furnishing and installing twenty high load multi-rotational bearing devices.

10-20-23 (SPCN)

CLEARING AND GRUBBING– will be measured and paid for in accordance with Section 301 of the Specifications. The Contract price shall also include the removal and disposal of any underground conduit within the limits of the clearing and grubbing.

10-19-23 (SPCN)

MEDIAN BARRIER (F-SHAPED PARAPET WITH MOMENT SLAB) This work shall consist of furnishing and installing an F-shape concrete barrier with moment slab as shown on the Plans.

Median barrier (F-shaped parapet with moment slab) will be measured in linear feet along the centerline of barriers and will be paid for at the Contract linear foot price for the Standard specified. This price shall include furnishing and placing delineators, aggregate, excavation, backfill, weep hole covering material, concrete cap, dowels, joint sealer, structural excavation, No. 57 stone, geotextile fabric, reinforcement, concrete, and all incidental items to complete construction as shown on the Plans. This price shall include all materials, labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Median barrier (F-shaped parapet with moment slab)	Linear foot

10-23-23 (SPCN)

PIER PROTECTION SYSTEM shall be installed as shown on the Plans.

Pier protection system will be measured in feet and will be paid for at the Contract linear foot price for the height specified. This price shall include the barrier, reinforcing steel, footing, excavation for footing and backfilling as directed by the Engineer, and all miscellaneious hardware as detailed on the Plans within the pay limits shown in the Plans. This price shall include all materials, labor, tools, equipment, and incidentals necessary to complete the work.

Payment will be made under:

Pay Item	Pay Unit
Pier protection system (height)	Linear foot

10-23-20 (SPCN)

TEMPORARY DRAINAGE is the responsibility of the Contractor and the cost shall be included in the Contract unit price for other appropriate items of work.

10-20-23 (SPCN)

CONCRETE CLASS A4 (SUBSTRUCTURE)—shall be in accordance with the following:

SECTION 217 HYDRAULIC CEMENT CONCRETE of the Specifications is amended as follows and applies to the Class A4 concrete in the piers only:

Section 217.02(a) – Materials

Class A4 concrete used in the substructure shall contain at least 40% Class F fly ash or at least 75% blast-furnace slag, measured by mass of cementitious materials, but not both.

Section 217.06 – Classification of Concrete Mixtures

TABLE II-17

Requirements for Hydraulic Concrete

Class of Concrete	Max. Cementitious Content (lb./cu yd)
A4 General	600

SECTION 404 HYDRAULIC CEMENT CONCRETE of the Specifications is amended as follows and applies to the Class A4 concrete in the pier footings only:

Section 404.03(l) – Procedures

Cracks in the concrete shall not exceed 0.1 mm. If cracking occurs due to the Contractor's negligence or failure to comply with specification requirements, the Engineer may direct the Contractor to make repairs by epoxy injections, concrete removal and replacement, or other methods approved by the Engineer at no additional cost to the Department.

11-1-23 (SPCN)

REMOVE EXISTING CONDUCTORS– Will be measured and paid for in accordance with Section 510 of the Specifications. The Contract price shall include removal and disposal of all conductors within the existing conduit runs as specified in the Plans.
12-19-23 (SPCN)

SP102-000120-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
NON-DISCRIMINATION IN EMPLOYMENT AND CONTRACTING PRACTICES

January 10, 2017

I. Description

This Special Provision implements Executive Order 61, ensuring equal opportunity and access for all Virginians in state contracting and public services.

II. Non-Discrimination

The Contractor shall maintain a non-discrimination policy, which prohibits discrimination by the Contractor on the basis of race, sex, color, national origin, religion, sexual orientation, gender identity, age, political affiliation, disability, or veteran status. This policy shall be followed in all employment practices, subcontracting practices, and delivery of goods or services. The Contractor shall also include this requirement in all subcontracts valued over $10,000.

III. Measurement and Payment

Conformance with this Special Provision will not be measured for individual payment, and will be considered incidental to the Work.

SP105-000100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
INFORMAL PARTNERING

January 14, 2008c; Reissued July 12, 2016

I. DECLARATION AND DESCRIPTION

The Virginia Department of Transportation (VDOT) is firmly committed to the formation of a partnering relationship with the Contractor, all subcontractors, suppliers, FHWA representatives; where appropriate, other federal agencies, local government officials, utilities representatives, law enforcement and public safety officials, consultants, and other stakeholders to effectively and efficiently manage and complete each construction or maintenance contract to the mutual and individual benefits and goals of all parties. Partnering is an approach to fulfilling this commitment where all parties to the contract, as well as individuals and entities associated with or otherwise affected by the contract, willingly agree to dedicate themselves by working together as a team to fulfill and complete the construction or maintenance contract in cost effective ways while preserving the highest standards of safety and quality called for by the Contract combined with the goals of on time/on budget completion. The approach must still allow for the fact that the members of the team share many common interests yet have differing authorities, interests, and objectives that must be accommodated for the project to be viewed as successful by all parties. It is recognized by VDOT that partnering is a relationship in which:

- Trust and open communications are encouraged and expected by all participants
- All parties move quickly to address and resolve issues at the lowest possible level by approaching problems from the perspectives and needs of all involved
- All parties have identified common goals and at the same time respect each other's individual goals and values
- Partners create an atmosphere conducive to cooperation and teamwork in finding better solutions to potential problems and issues at hand

II. INFORMAL PARTNERING STRUCTURE

It is the business intent of the Department that informal partnering will be required on this project, whereby the spirit and principles of partnering are practiced from onsite field personnel to executive level owners and employees. The VDOT Field Guide to Partnering available on the VDOT website http://www.virginiadot.org/business/resources/partnerfinalallowres.pdf will be the standard reference guide utilized to structure and guide partnering efforts. This guide will be systematically evaluated to incorporate better practices as our partnering efforts evolve. Of particular note is the need for effective and responsive communication between parties to the partnering relationship as emphasized in Section 105.03(d) of the Specifications.

Informal partnering need not require the services of a professional facilitator and may be conducted by the actual partnering participants themselves. Informal partnering, and more specifically the Partnering Charter, will not change the legal relationship of the parties to the Contract nor relieve either party from any of the terms of the Contract.

III. PROCEDURES

The following are general procedures for informal partnering and are not to be considered as inclusive or representative of procedural requirements for all projects. Participants shall consult the VDOT Field Guide for Partnering for assistance in developing specific guidelines to those efforts required for their individual projects.

Prior To Project Construction: At least 5 days prior to or in connection with the preconstruction conference the Contractor shall attend a conference with the Engineer at which time he and the Engineer shall discuss the extent of the informal partnering efforts required for the project, how these have been accommodated in the Contractor's bid and the identity of expectations and stakeholders associated with the project. Informal partnering efforts require the Department and the Contractor to mutually choose a single person from among their collective staffs, or a trained facilitator to be responsible for leading all parties through the VDOT Field Guide to Partnering and any subsequent partnering efforts.

Partnering Meetings During Project Construction: In informal partnering efforts the Contractor shall provide a location for regularly scheduled partnering meetings during the construction period. Such meetings will be scheduled as deemed necessary by either party. The Contractor and VDOT will require the attendance of their key decision makers, including subcontractors and suppliers. Both the Contractor and VDOT shall also encourage the attendance of affected utilities, concerned businesses, local government and civic leaders or officials, residents, and consultants, which may vary at different times during the life of the Contract The Department and the Contractor are to agree upon partnering invitees in advance of each meeting. Follow-up partnering workshops may be held throughout the duration of the project as deemed necessary by the Contractor and the Engineer.

IV. MEASUREMENT AND PAYMENT

Informal Partnering, because the extent to which certain partnering activities are pursed is at the Contractor's option, and may vary according to project complexity, work history between the parties, project duration, the Contractor's own unique methods, means, and schedule to execute and complete the work, etc.; will not be paid for as a separate bid item but all the costs associated with informal partnering efforts for the duration of the work shall be considered inclusive and incidental to the cost of other appropriate items.

SP107-000110-00

C-45
Rev. 10-9-14; Reissued 10-27-16

VIRGINIA DEPARTMENT OF TRANSPORTATION

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND THE VIRGINIA POLLUTANT DISCHARGE ELIMINATION SYSTEM (VPDES) GENERAL PERMIT FOR THE DISCHARGE OF STORMWATER FROM CONSTRUCTION ACTIVITIES

CONTRACTOR CERTIFICATION STATEMENT

Order No.: 118375 Project Number: 0058-133-459, C501, B616

Route: 58 Contract ID. #: C0000118375C01

I certify under penalty of law that I understand the terms and conditions of the project contract, plans, permits, specifications and standards related to the erosion and sediment control, stormwater management and stormwater pollution prevention plan requirements for the affected activities associated with this project, and the requirements of the VPDES General Permit for the Discharge of Stormwater from Construction Activities (the VPDES Construction Permit) , if applicable to this project, issued by the Virginia Department of Environmental Quality. The VPDES Construction Permit authorizes the storm water discharges associated with the construction activities from the project site identified and described in the bid documents and subsequent contract including any onsite or off-site support facility areas located within VDOT right of way or easement and required for the complete fulfillment of the work therein.

Signature: _____

Name: _____

Title: _____

Contracting Firm: _____

Address: _____

Phone Number: _____

* Project Address/Location: _____

_____

Certified on this date: _____

* Include any off-site support facility areas located within VDOT right of way or easement.
(Note: This form must be returned with performance and payment bonds)

SP108-000110-01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
PROGRESS SCHEDULES FOR CATEGORY II PROJECTS

March 21, 2022

Section 103.06(e) **Progress Schedule** of the Specifications is deleted and replaced by this provision.

Section 108.03 Progress Schedule of the Specifications is deleted and replaced by this provision.

I. General Requirements

The Contractor shall develop and maintain a Progress Schedule for the entire duration of the Project, which shall be used by all involved parties to plan and execute all work required to complete the Project. The Progress Schedule will be used by the Department to monitor the project, assess progress, and evaluate the effects of time-related issues on the project. Unless specifically stated otherwise, 'days' shall be understood as calendar days.

At the Pre-Construction Conference, in accordance with Section 105.02 or as mutually agreed upon by the Engineer and the Contractor, the Contractor shall attend a Scheduling Conference with the Engineer to discuss the Contractor's overall plan to accomplish the Work. The Contractor shall also discuss its detail work plan for the initial ninety (90) days; as well as project specific requirements and other key issues that are expected to impact the Progress Schedule or are necessary for the preparation, maintenance, and submittal of the Progress Schedule.

II. Progress Schedule Submissions

Unless otherwise directed in writing by the Engineer, the Contractor shall prepare, maintain, and submit a Progress Schedule in accordance with the following requirements:

1. Preliminary Progress Schedule

Within fifteen (15) days of the Contract execution date or within seven (7) days prior to beginning work, whichever occurs first, the Contractor shall submit to the Engineer for review and acceptance a Preliminary Progress Schedule. At its discretion, the Contractor may submit a complete detailed Baseline Progress Schedule for the entire project in lieu of the Preliminary Progress Schedule. Until the Baseline Progress Schedule is accepted by the Engineer, the Contractor shall update and submit the Preliminary Progress Schedule monthly, within seven (7) days of the estimate date or as approved by the Engineer. The Preliminary Progress Schedule will be used by the Department to monitor the Project and assess progress. The Preliminary Progress Schedule submission shall consist of the following:

A. **Preliminary Schedule –** A logic driven Preliminary Schedule, which shall include at a minimum the detailed activities depicting the planned sequence and dates for all work planned during the first ninety (90) days, including as applicable project milestones, work to be performed by sub-contractors, the Department, and third parties. It shall also include summary-level activities for each element of work scheduled beyond the first ninety (90) days. The initial Preliminary Schedule shall be prepared and submitted in the form of a Baseline Schedule as defined herein. Upon acceptance, the Preliminary Schedule shall be updated monthly to show the actual progress of work completed to date and the current plan for accomplishing the remaining work as of the estimate date. The updated Preliminary Schedule shall be prepared and submitted in the form of an Update Schedule as defined herein.

B. **Preliminary Schedule Narrative –** A Preliminary Schedule Narrative describing the Contractor's overall plan to accomplish the entire scope of Work and the detailed plan for work planned during the initial ninety (90) days. The Preliminary Schedule Narrative shall be prepared and submitted in the form of a Baseline Schedule Narrative as defined herein. Upon acceptance, the Preliminary Schedule Narrative shall be updated monthly to reflect the actual progress of work completed to date and the current plan for accomplishing the remaining work as of the Data Date; as well as any deviations from the original plan. It shall be prepared and submitted in the form of an Update Schedule Narrative as defined herein.

2. **Baseline Progress Schedule**

Within thirty (30) days of the Contract execution date, the Contractor shall submit to the Engineer for review and acceptance, a Baseline Progress Schedule representing the Contractor's original complete detailed plan to accomplish the entire scope of the Project according to the Contract. Upon acceptance by the Engineer, the Baseline Progress Schedule shall replace the Preliminary Progress Schedule and shall become the Schedule of Record (SOR). The Baseline Progress Schedule submission shall consist of:

A. **Baseline Schedule –** A logic driven Baseline Schedule depicting all detailed activities required to complete the entire scope of the Project, including as applicable, work to be performed by subcontractors, the Department, and other involved parties. The Baseline Schedule shall incorporate the latest accepted Preliminary Schedule, and shall be prepared and submitted according to the following requirements:

(1) Software: The Baseline Schedule shall be prepared using Primavera P6 scheduling software and submitted in the ".xer" file format.

(2) Project ID and Name: The Project ID and Name for each submission shall be unique and defined as follows:

(a) The Project ID shall be defined using the Contract ID as a prefix followed by a short ID indicating the specific version of the schedule (e.g., PS01, BS, BSR1). For example, Preliminary Schedule (C000XXXXXXX_PS01, C000XXXXXXX_PS02, etc.), Baseline Schedule (C000XXXXXXX_BS, C000XXXXXXX_BSR1, etc.).

(b) The Project Name shall reflect the Project Description as shown in the Contract, appended to indicate the specific version of the schedule (e.g., Route 10 Over I-95 Bridge Replacement Baseline Schedule).

(3) Software Settings: The Contractor shall specify the software properties and settings as follows:

(a) Specify "Active" as the Project Status in the Project Details General tab.

(b) Specify the Must Finish By date in the Project Details Dates tab using a date matching the Completion Date as defined in the Contract or as subsequently adjusted by Change Order.

(c) Specify "Fixed Duration & Units" as the Duration Type for all activities.

(d) Specify "Physical" as the Percent Complete Type for all activities.

(e) Specify "Reset Remaining Duration and Units to Original" in the Project Details Calculation tab.

(f) Activity Unit of Time Duration Format shall be set to "Day", with no decimals.

(g) Activity Date Format shall be set to “MM-DD-YY” (e.g., 12-01-21) format for displaying activity dates.

(4) Work Breakdown Structure (WBS): The Baseline Schedule shall be organized using a logical Project Work Breakdown Structure (WBS). The Work shall be broken down to an appropriate level of WBS nodes and sub-nodes to allow for a hierarchical grouping and summarization of related activities required to complete each phase, feature, deliverable, or work package, as appropriate. Each WBS element shall be defined using a short alpha-numeric WBS Code and a WBS Name describing the WBS element. At a minimum, the WBS shall include as applicable:

(a) Level 1: “Milestones” node for all Contract and other key milestones; “Preliminary” node for all pre-construction activities; and “Construction” node for all construction activities.

(b) Level 2: Under the “Preliminary” node, Level 2 “Submittals”, “VDOT Review”, “Materials” sub-nodes for all initial activities such as submittals, VDOT reviews, long lead materials, etc. Under the “Construction” node, Level 2 “General/Start-up”, “Phase” or “Feature of Work”, and “Close-out” sub-nodes, as applicable.

(c) Level 3: Under the “Phase” or “Feature of Work” node, Level 3 sub-nodes for “Sub-features” or “Location” for all associated construction activities, as applicable.

(5) Level of Details: The Baseline Schedule shall include sufficient activities to ensure adequate planning of the Project and to allow for accurate monitoring and evaluation of progress. The Work shall be broken down into discrete activities to an appropriate level of detail to allow for:

(a) Identification of work by the responsible party; as well as the type, amount, and specific location of work the activity represents.

(b) Identification of work required to ensure timely completion of all Contract milestones and time-related requirements

(c) Accurate documentation of actual performance and progress of Work.

(d) Accurate evaluation of the effect of changes and delays to the Work.

(e) Accurate assessment of resource requirements of the Contractor and the Department.

(f) Coordinate the Work of the Department, other contractors, and third parties (e.g., government agencies and authorities, permitting authorities).

(6) Activity Definition: Activities shall be discrete and shall be defined as follows:

(a) Each activity shall be defined using a unique Activity ID which shall remain unchanged throughout the duration of the Project. If an activity is deleted in a subsequent submission, the corresponding Activity ID shall not be used for any other activity.

(b) Each activity shall be defined using an Activity Name to indicate the type of work, phase (or stage), and specific location in which the work occurs, as applicable (e.g., Drive Steel Piles - Phase 1 - Abut A). For each 'Level of Effort' activity, the Activity Name shall include "(LOE)". Also, for work to be performed by the Department or other contractors, and third parties, the Activity Name shall include "VDOT" or the name of the corresponding responsible party.

(c) Activity durations shall be defined in whole days based on the assigned calendar. For activities such as "Concrete Cure Time", that are not restricted by a standard working calendar, activity durations shall be expressed in terms of calendar days. Activity durations shall be limited to twenty (20) work days, unless otherwise accepted by the Engineer. Longer durations may be allowed as approved by the Engineer for certain administrative, level of effort, or procurement activities that are typically performed over longer periods of time.

(7) Calendars: Each activity shall be assigned an appropriate calendar to establish the planned work days per week; and any non-work days for holidays, weather days, or other restrictions, as applicable. Once the Baseline Schedule is accepted, any changes to calendars shall be identified and explained in the accompanying Schedule Narrative. At a minimum, the Project calendars shall be defined and assigned as follows:

(a) Activity calendars shall be defined and assigned using Project-level calendars. Use of global calendars or project calendars with links to the global base calendars is not allowed and shall be cause for rejecting the schedule.

(b) A "7-Day Calendar" (i.e., 7 days per week with no Holidays) shall be defined and assigned to all activities that are not restricted by weekends, holidays, or other non-work days.

(c) A "5-Day Standard Calendar" (i.e., 5 days per week with Holidays) shall be defined and assigned to all regular activities that are not restricted by weather or other time of year or seasonal restrictions.

(d) A "5-Day Weather Calendar" (i.e., 5 days per week with Holidays and weather days) shall be defined and assigned to all activities that are affected by weather.

(e) A "5-Day Winter Calendar" (i.e., 5 days per week with Holidays, weather days, and winter period, as applicable) shall be defined and assigned to all activities that are affected by winter weather restrictions.

(f) A "5-Day TOYR Calendar" (i.e., 5 days per week with Holidays, weather days, and TOYR, as applicable) shall be defined and assigned to all activities that are affected by specified time of year restrictions (TOYR).

(g) Regardless of the actual or planned working hours per day, all calendars shall be based on a standard 8 work hours/day, with the same daily start and finish times.

(8) Activity Codes: Activity codes shall be defined and assigned to the individual activities to allow for filtering, grouping, and sorting of activities by Responsibility, Phase, Stage, Feature, Work Type, Location, SIA, Change Order, DBE, and other major work categories, as applicable. Activity codes shall be assigned using Project-level activity codes. Use of global activity codes is not allowed and shall be cause for rejecting the schedule.

(9) Network Logic: The Baseline Schedule shall be calculated using the Critical Path Method (CPM). Logic relationships shall be assigned based on the Precedence Diagram Method (PDM) to establish relationships between the activities and the sequence in which the Contractor plans to accomplish the Work. Logic relationships shall be assigned as follows:

(a) Activity relationship types shall be limited to finish-to-start (FS), start-to-start (SS), and finish-to-finish (FF).

(b) All activities, except the first activity shall be assigned at least one predecessor relationship and all activities, except the last activity shall be assigned at least one successor relationship.

(c) If an activity is assigned as a predecessor with a start-to-start (SS) relationship, then the activity must also be assigned as a predecessor to another related activity with a finish-to-start (FS) or finish-to-finish (FF) relationship, as applicable.

(d) The Contractor shall avoid the use of redundant logic relationships when possible. The Contractor shall provide an explanation of the reason for redundant logic upon the request of the Engineer.

(e) The use of lag shall be prohibited unless approved by the Engineer. The Contractor shall remove any lag and replace with an activity upon the request of the Engineer. When lags are used, the Contractor shall provide an explanation for use of the lags in the Schedule Narrative.

(10) Constraints: Use of Constraints shall be limited to milestones specified in the Contract, unless approved by the Engineer. Constraints shall be applied as follows:

(a) For Contracts that include a specified milestone that restricts the start date of an activity, the activity shall be constrained with a “Start On or Before” or “Start On or After” constraint, as applicable, with the date specified in the Contract.

(b) For Contracts that include a specified milestone that establishes a completion date deadline such as Interim Completion or Substantial Completion, the Contract milestone activity shall be constrained with a “Finish On or Before” constraint, with the date specified in the Contract.

(c) Constraints such as “Start On” or “Finish On” that delays the start or finish date of an activity to the specified date as allowed by network logic, or “Mandatory Start” or “Mandatory Finish” that violate network logic are prohibited.

(11) Primavera P6 Software Schedule Options Settings: The Contractor shall calculate the Project Schedule (i.e., F9 in P6) to ensure all changes have been incorporated before submission to the Engineer. The Contractor shall apply the following Primavera P6 software Schedule Options settings when scheduling the Project Schedule:

(a) Unmark the ‘Make open-ended activities critical’ checkbox.

(b) Unmark the ‘Use Expected Finish Dates’ checkbox. Expected finish dates are prohibited.

(c) Unmark the ‘Level resources during scheduling’ checkbox. The use of resource-leveling to determine sequence, order, or timing of the activities is not allowed and shall be cause for rejecting the schedule.

(d) Specify 'Retained Logic' for scheduling progressed activities.

(e) Specify 'Longest Path' to define critical activities.

(f) Specify 'Finish Float = Late Finish – Early Finish' to compute Total Float.

(g) Specify 'Predecessor Activity Calendar' as the calendar for scheduling relationship lags.

(12) Progress As-built Information: The Baseline Schedule shall reflect the current status of the Project and all known information at the time of submission. The Baseline Schedule shall include any progress as-built information showing actual dates for all completed and on-going activities, as of the Data Date, as applicable. The Baseline Schedule shall be calculated using a Data Date as follows:

(a) If the Baseline Schedule includes progress as-built information, then the Data Date shall be within three (3) days of the date of submission.

(b) If the Baseline Schedule does not include progress as-built information, then the Data Date shall be the Contract execution date or the planned start date of the first activity, whichever is earlier.

B. **Baseline Schedule Narrative –** A Baseline Schedule Narrative describing the Contractor's overall plan to accomplish the Work. The Baseline Schedule Narrative shall be the basis for the Baseline Schedule and shall provide the following supporting information, as applicable:

(1) Milestones: Current status of the Project milestones including, as applicable Contract milestones and other key events such as major traffic switches.

(2) Work By Others: Work to be performed by the Department and other involved parties (e.g., utilities), including activities requiring coordination; and a description of when the work must be performed to avoid impacts to the Work.

(3) Overall Sequence of Work: Explanation of the proposed overall sequence of Work, including where the Work will begin and how the Work and crews will flow through the Project.

(4) Project Critical Path: Description of the project critical path indicating the series of operations that are expected to drive the completion date of the project. A listing of the Project Schedule critical path activities will not be accepted as a substitute.

(5) Scheduling Assumptions: Scheduling assumptions including, the general procedures and anticipated daily production rates for accomplishing major operations that are expected to drive the schedule.

(6) Lags: Identification of all logic relationships with Lag and an explanation of the reason for each Lag.

(7) Constraints: Identification of all schedule Constraints used in the Baseline Schedule and an explanation of the reason for each Constraint.

(8) Calendars: Description of the project calendar(s) used in the Baseline Schedule, identifying the Calendar and the proposed number of work days per week, number of shifts per day, and number of hours per day. Also, the anticipated number of non-working days per month shall be identified for each calendar with considerations, as applicable, for holidays, normal adverse weather conditions; as well as seasonal or other known or specified restrictions (i.e. traffic, local events, environmental, permits, utility, etc.).

(9) Resource Plan: The Contractor's resource plan indicating the number and type of crews, crew make-up, and major equipment needed to accomplish the Work as planned. The resource plan shall also explain how the Contractor plans on meeting the resource requirements as reflected on the Baseline Schedule.

(10) DBE Participation: Log of the applicable DBE participation activities in the schedule and the DBE firms performing the work for which the Contractor intends to claim credit for attaining the DBE goal required in the Contract. The list shall indicate the start/finish dates and durations of the DBE participation activities.

(11) Issues and Concerns: Any known or foreseeable issues or concerns that are currently affecting or anticipated to affect the schedule. Also, describe how the issues will affect the schedule and any actions taken or needed to avoid or mitigate the impact.

C. **Baseline Progress Earnings Schedule –** A Baseline Progress Earnings Schedule showing the anticipated monthly earnings for the entire Project. The Baseline Progress Earnings Schedule submission shall be prepared using the VDOT Form C-13C as follows:

(1) The Breakdown of Contract Items form shall be completed to show the bid items and costs associated with each Major Work Category.

(2) The C-13C (Baseline) form shall be completed to show all required information and the monthly anticipated earnings for each Major Work Category.

(3) The C-13C (Update) form shall be completed to show the current Projected Completion Date, Current Estimate Date, and actual monthly earnings, and anticipated earnings for each Major Work Category as of the Current Estimate Date.

(4) The Controls Chart Data form shall be completed to show the Actual Monthly Earnings for each estimate date, as of the Current Estimate Date.

3. **Update Progress Schedule**

After the Baseline Progress Schedule is accepted, on a monthly basis thereafter, and within seven (7) days after the estimate date, the Contractor shall submit an Update Progress Schedule submission to the Engineer for review and acceptance. The Update Progress Schedule submission shall represent the current status of the Project and the Contractor's current plan to complete the remaining Work. The Update Progress Schedule submission shall consist of:

A. **Update Schedule –** An Update Schedule, which shall be based on a copy of the most recent accepted Project Schedule and shall be prepared according to the following:

(1) The Project ID and Name for each submission shall be unique and defined as follows:

(a) The Project ID shall be updated to indicate the specific Update Schedule version (e.g., C000XXXXXXX_U01, C000XXXXXXX_U01R1, C000XXXXXXX_U02).

(b) The Project Name shall be updated to indicate the specific version of the schedule (e.g., Route 10 Over I-95 Bridge Replacement Update Schedule #1).

(2) All activities completed prior to the Data Date shall be updated to show actual start and actual finish dates. And all on-going activities shall be updated to show actual start dates and remaining duration to indicate the amount of time required to complete the remaining work as of the Data Date. Actual dates on or after the Data Date are prohibited.

(3) Activity percent complete for on-going activities shall be based on cost of work completed as of the Data Date relative to the total cost of work planned.

(4) All schedule related changes requested or approved by the Engineer shall be incorporated into the Update Schedule, including as applicable, added or deleted work, changes to Contract Milestones, changes in sequence of work, changes in duration, changes to Contract Amount, and other time-related changes.

(5) Activity logic shall be modified as necessary to correct out-of-sequence progress for on-going and remaining activities to reflect the Contractor's current plan for completing the remaining Work.

(6) The Update Schedule shall be calculated using a Data Date of either the 4th, 11th, or 20th of the month, based on the Contractor's estimate date as defined in Section 109.08(a) – Partial Payments, of the Specifications.

B. **Update Schedule Narrative –** An Update Schedule Narrative describing the current status of the project, deviations from scheduled performance, and changes in Contractor's work plan, and the current work plan for accomplishing the remaining work as of the Data Date. The Schedule Update Narrative shall include a description of:

(1) Milestones: The current status of scheduled Milestone dates, including a description of any deviations from the last accepted Project Schedule and the Contract. The Contractor shall provide an explanation for any Milestone that is scheduled to occur later than the date specified in the Contract and any actions taken or proposed to correct the delay.

(2) Progress % Complete: The current status of the Project in terms of earnings relative to the SOR, based on the Progress Earnings Schedule. If progress is falling behind, provide an explanation for the progress deficiency and any actions taken or proposed to correct the deficiency.

(3) Work Performed Last Period: The work performed during the last update period and any deviations from the work scheduled. A listing of the Project Schedule activities will not be accepted as a substitute.

(4) Changes in Work Plan: Any major changes in the Contractor's work plan in terms of sequence of construction, shifts, means and methods, manpower, or equipment.

(5) Changes to Schedule: Any non-progress changes made to the Project Schedule since the previous submission including, changes requested or approved by Engineer. Also, any justification why changes requested by the Engineer should not be accomplished. A Claim Digger report or Schedule Comparison report will not be accepted as a substitute.

(6) Project Critical Path: The critical path work and any deviations from the previous submission. A listing of the Project Schedule critical path activities will not be accepted as a substitute.

(7) Days Lost Last Period: Number of days lost during the last update period, including activities affected and how the activities were affected; as well as any impacts on the critical path or project milestones. Also, describe any actions taken or proposed to mitigate any resulting delays.

(8) DBE Participation: Log of the applicable DBE participation activities in the schedule and the DBE firms performing the work for which the Contractor intends to claim credit for attaining the DBE goal required in the Contract. The list shall indicate the start/finish dates and durations of the DBE participation activities.

(9) Pending Contract Issues: The status of pending issues such as access, permits, conflicts with other related or adjacent work, Change Orders, time extension requests, etc.

(10) Issues and Concerns: Any issues encountered during the last update period that are currently affecting the Project Schedule or other Project concerns that are anticipated to affect the schedule, including an explanation of any corrective actions taken or required to mitigate or avoid the effects.

(11) Work Planned Next Period: Work planned for the next update period, including any actions needed or expected performance by the Department or other involved parties (e.g., utilities) to avoid impacts to the Work.

C. **Update Progress Earnings Schedule –** An Update Progress Earnings Schedule showing the actual progress earnings to date and the projected earnings for the remaining periods, as of the Data Date. The Update Progress Earnings Schedule shall be prepared as follows:

(1) The C-13C (Baseline) form shall be updated to show the current Projected Completion Date based on the current Update Schedule.

(2) The C-13C (Update) form shall be completed to show the current Projected Completion Date, Current Estimate Date, and actual monthly earnings, and anticipated earnings for each Major Work Category as of the Current Estimate Date.

(3) The Controls Chart Data form shall be completed to show the Actual Monthly Earnings for each estimate date to date, as of the Current Estimate Date.

4. **Revised Baseline Progress Schedule**

The Contractor shall submit a Revised Baseline Progress Schedule as determined by the Engineer. The Engineer may determine that a Revised Baseline Progress Schedule is required when:

A. The Engineer determines that the Work is being performed significantly different from the SOR; or the Engineer approves changes to the Contract that significantly impacts the Project Schedule or causes a major shift in the anticipated progress earnings. In which case, the Engineer will issue a written notice to the Contractor to submit a Revised Baseline Progress Schedule. The Contractor shall respond in writing within seven (7) days, either agreeing to comply with the Engineer's request or providing justification why the request should not be accomplished.

B. The Contractor proposes to perform the Work significantly different from the SOR. In which case, the Contractor shall notify the Engineer in writing at least 14 days prior to performing the Work. The Contractor's notice shall describe the proposed changes and potential impact on the Project Schedule. The Engineer will respond in writing within seven (7) days of the Contractor's notice, either agreeing with the Contractor's proposed revisions or providing reasons why the requested revisions should not be accomplished.

If the Engineer requests a Revised Baseline Progress Schedule or accepts the Contractor's proposed revisions, the Contractor shall submit a Revised Baseline Progress Schedule in lieu of the subsequent required Update Progress Schedule submission or as requested by the Engineer.

If the Engineer does not accept the Contractor's proposed revisions, the Contractor shall not incorporate the proposed revisions into the Project Schedule. In which case, the Contractor shall proceed under the previously accepted Progress Schedule and the current SOR shall remain.

The Revised Baseline Progress Schedule shall be prepared and submitted in the form of a Baseline Progress Schedule, according to Section II.2 above; however, it shall reflect the current status of the Project as of the submittal date, any approved changes in the Work, and the proposed plan for completing the remaining Work. The Revised Baseline Progress Schedule submission shall consist of:

A. **Revised Baseline Schedule –** A Revised Baseline Schedule, which shall be based on the most recent accepted Project Schedule. The Revised Baseline Schedule shall be prepared according to Section II.2.A above and as follows:

   (1) The Project ID and Name for each submission shall be unique and defined as follows:

      (a) The Project ID shall be updated to indicate the specific Update Schedule version being submitted as a Revised Baseline (RB) (e.g., C000XXXXXXX_U06RB, C000XXXXXXX_ U20RB).

      (b) The Project Name shall be updated to indicate the specific version of the schedule (e.g., Route 10 Over I-95 Bridge Replacement Update Schedule #6/Revised Baseline).

   (2) All activities completed prior to the Data Date shall be updated to show actual start and actual finish dates. And all on-going activities as of the Data Date shall be updated to show actual start dates and remaining duration to indicate the amount of time required to complete the remaining work. Actual dates beyond the Data Date are prohibited.

   (3) Activity percent complete for on-going activities shall be based on cost of work completed as of the Data Date relative to the total cost of work planned.

   (4) All schedule related changes requested or approved by the Engineer shall be incorporated into the Revised Baseline Schedule, including as applicable, added or deleted work, changes in sequence of work, changes in duration, approved SIA; and changes to the Contract Amount, Contract Milestones, Completion Date, and other time-related requirements.

   (5) Activity logic shall be modified as necessary to correct out-of-sequence progress for on-going and remaining activities to reflect the Contractor's current plan for completing the remaining Work.

   (6) The Revised Baseline Schedule shall be calculated using a Data Date of either the 4th, 11th, or 20th of the month, based on the Contractor's estimate date as defined in Section 109.08(a) – Partial Payments, of the Specifications, or as approved by the Engineer.

B. **Revised Baseline Schedule Narrative –** A Revised Baseline Schedule Narrative, which shall be the basis for the Revised Project Schedule. The Revised Baseline Schedule Narrative shall be prepared according to Section II.2.B above; however, it shall reflect the current status of the project as of the submittal date, approved changes in the Work, and the proposed plan for completing the remaining Work.

C. **Revised Baseline Progress Earnings Schedule –** A Revised Baseline Progress Earnings Schedule showing the actual earnings to date and anticipated earnings for the remaining Work. The Revised Baseline Progress Earnings Schedule shall be prepared and submitted according to Section II.2.C above, and as follows:

(1) The C-13C (Baseline) form shall be adjusted accordingly to show the current Contract Dates and Amount.

(2) The C-13C (Baseline) form shall be completed to show the actual monthly earnings and anticipated earnings for each Major Work Category as of the Current Estimate Date.

(3) The C-13C (Update) form shall be completed to show the current Completion Date and actual monthly earnings and anticipated earnings for each Major Work Category as of the Current Estimate Date.

(4) The Controls Chart Data form shall be completed to show the Actual Monthly Earnings for each estimate date to date, as of the Current Estimate Date.

5. **Final As-built Schedule**

Within 30 days after Final Acceptance and as a requirement for Final Payment, the Contractor shall submit a Final As-built Schedule. The Final As-built Schedule shall be submitted as the final Update Schedule according to Section II.3.A above, showing the actual start and finish dates for all activities in the Project Schedule. The Contractor shall certify in writing that the Final As-built Schedule accurately reflects the dates on which all activities contained in the Project Schedule were actually performed.

6. **Early Completion Incentive Duration –** For Contracts that include an incentivized provision for completing a portion of the Work before a specified milestone date or all of the Work before the Completion Date, the Contractor may insert an “Early Completion Date” milestone activity to indicate its intent to complete the Work early. In which case, the Contractor may insert an “Early Completion Incentive Duration” activity between the proposed “Early Completion Date” milestone activity and the Contract completion milestone activity. The incentive duration shall be specified in calendar days, which shall not exceed the maximum allowable incentive days at any time. The incentive duration shall be adjusted accordingly each Update Schedule to reflect any slippage or contraction of the Project Schedule.

7. **Use of Total Float –** Total float shall be considered a project property that is shared amongst all activities on the network. Total float shall be calculated relative to the Completion Date or a related Contract milestone, as applicable. The Contractor may submit a Progress Schedule showing completion of a portion of the Work before a specified milestone date or all of the Work before the Completion Date. If this occurs, any total float available in the Project Schedule, at any time, shall belong to the Project. It shall be understood that total float is not for the exclusive use or benefit of either the Department or the Contractor and that either party has the right to full use of any available total float. Until such time that all available total float is depleted, total float shall be used responsibly on a first come first serve basis for the benefit of the Project. Changes to the Project Schedule at any time for the purpose of manipulating float is prohibited, with the exception of adjustments to incentive duration activities for Contracts with incentive provisions for early completion, as defined herein. Negative total float will not be allowed in the Preliminary Schedule, Baseline Schedule, or Revised Baseline Schedule.

8. **Progress Schedule Submittal Format and Reports**

Unless otherwise approved in writing by the Engineer, the Contractor shall submit for each Preliminary Schedule, Baseline Schedule, Update Schedule, or Revised Baseline Schedule submission, the following submittal items and reports, in the formats specified below:

A. **File Naming Convention –** Each electronic submittal file shall have a unique file name using a file naming convention that identifies the file by the Contract ID (e.g., C000XXXXXXX), version of Progress Schedule (e.g., PS1, BS, BSR1, U01, U04RB), type of submission (e.g., Preliminary Schedule, Baseline Schedule Narrative, Form C-13C), and Data Date of the submission. For example: C000XXXXXXX_PS1_Preliminary Schedule_04-01-21.xer.

B. **Transmittal Email –** An electronic mail to the Engineer, identifying which Progress Schedule is being submitted for review and what submittal items are included.

C. **Project Schedule –** For each submission of the Project Schedule, the Contractor shall submit:

(1) A backup copy of the working schedule in Primavera P6 ".xer" file format.

(2) A copy of the "Schedule Log" in ".pdf" file format.

(3) A time-scaled bar-chart plot of the "Complete Detailed Schedule" in ".pdf" file format, showing for each activity, Activity ID, Activity Name, Original Duration, Start, Finish, Activity % Complete, Remaining Duration, and Total Float.

(4) A time-scaled bar-chart plot of the "Critical Path Schedule" in ".pdf" file format, showing for each critical path activity, Activity ID, Activity Name, Original Duration, Start, Finish, Activity % Complete, Remaining Duration, and Total Float.

(5) A tabular "Predecessor and Successor Report (PSR)" in ".pdf" file format showing the predecessors and successors for each activity. The PSR shall be sorted by WBS and in ascending order by Activity ID and shall show for each activity.

(a) Activity ID and Activity Name.

(b) Original Duration and Remaining Duration.

(c) Early Start, Early Finish, Late Start, Late Finish.

(d) Free Float, Total Float, and Critical ("Yes" or "No").

(e) For each Predecessor/Successor activity, show the Activity ID, Activity Name, Relationship Type, Lag, Free Float, Total Float, Driving ("Yes" or "No"), and Critical ("Yes" or "No").

D. **Schedule Narrative –** For each submission of the Project Schedule, the Contractor shall submit a file copy of the "Project Schedule Narrative" in ".pdf" format.

E. **Progress Earnings Schedule –** For each submission of the Project Schedule, the Contractor shall submit a Progress Earnings Schedule report as follows:

(1) A copy of the "Progress Earnings Schedule (Form C-13C)" in ".xlsm" file format.

(2) Copies of the "Monthly Progress Earnings Schedule" and "S-Curve" in ".pdf" file format.

III. **Review and Acceptance**

The Engineer will review each Progress Schedule submission for acceptance and will respond within fourteen (14) days of receipt of the Contractor's complete submittal. The Engineer will determine acceptance or rejection based on conformance with this specification and other requirements of the Contract and will respond as follows:

1. **Accepted, No Exceptions –** When the submission is complete and in full compliance with this specification and other requirements of the Contract, the Engineer will respond to the Contractor with a notice indicating the submission is "Accepted, No Exceptions".

2. **Accepted As Noted –** When the submission is complete and generally in compliance with this specification and other requirements of the Contract, but contains minor flaws or exceptions, the Engineer will respond to the Contractor with a notice indicating the submission is "Accepted As Noted". In which case, the Contractor shall make the necessary corrections in the next required Progress Schedule submission to address the Engineer's comments or provide justifications in the narrative why the corrections should not be made.

3. **Rejected, As Noted –** When the submission is incomplete or not in compliance with this specification or other requirements of the Contract, the Engineer will respond to the Contractor with a notice indicating the submission is "Rejected, As Noted". The Progress Schedule submission will be immediately rejected and returned by the Engineer for the following reasons:

   A. Failure to include all required reports and submittal items.

   B. Failure to calculate the Project Schedule using the correct Data Date.

   C. Primavera P6 software settings are different from those specified in the Contract.

   D. The Schedule Log shows use of prohibited constraints.

   E. The Schedule Log shows activity without predecessors or successors with exception of the first and last activities.

   F. Repeated failure to correct out-of-sequence activities.

   G. The Schedule Log shows Actual Dates > Data Date.

   H. The Schedule Log shows Milestone Activities with invalid relationships.

   I. Failure to respond to the Engineer's review comments from the previous submission.

   If the submission is rejected and returned by the Engineer, the Contractor shall make the necessary corrections to address the Engineer's comments and resubmit the Progress Schedule within seven (7) days of receipt of the Engineer's response.

When the Engineer determines that a meeting with the Contractor is necessary to discuss proposed changes to the schedule or to resolve issues concerning acceptance of the Progress Schedule submission, the Contractor shall meet with the Engineer as requested.

If the Contractor or Engineer discovers an error after the Engineer has accepted a Progress Schedule, the Contractor shall correct the error in the next required submission.

The Engineer's acceptance of a Progress Schedule submission does not attest to the validity of the Project Schedule, sequencing, logic, duration, or assumptions on which the schedule is based. Acceptance by the Engineer does not transfer any of the Contractor's responsibilities to the Department. Failure of the Contractor to include in the Project Schedule any element of work required by the Contract for timely completion will not excuse the Contractor from completing the Work within the Contract specified Milestone(s) or the Contract time limit, as applicable.

Upon acceptance by the Engineer, the Baseline Progress Schedule or a subsequent Revised Baseline Progress Schedule will be established as the Project "Schedule of Record (SOR)". The SOR is the latest agreed upon and only Project Baseline with which all parties will plan and execute all work required to complete the Project; and against which progress of the Project and the Contractor's performance will be assessed.

IV. **Failure to Comply with Progress Schedule Submission Requirements**

The Engineer may delay approval of the monthly progress estimate for failure to submit an acceptable Progress Schedule on time and as required. Payments withheld for violation of the schedule requirements will be included in the next progress estimate following the Contractor's submission of an acceptable Progress Schedule. However, no payments will be made for monthly Update Progress Schedule pay items for late submissions. Any delays resulting from payment withholding due to the Contractor's failure to provide an acceptable Progress Schedule will not be considered just cause for extension of the Contract time limit or for additional compensation.

V. **Delays and Schedule Impact Analysis (SIA)**

The Contractor shall promptly notify the Engineer when it discovers or encounters any changes to the Work or conditions that are expected to impact the Project Schedule. In the event of an excusable delay that extends the completion date of the Project or a Contract milestone, as applicable, beyond the Contract specified date, for which the Contractor is seeking an extension of time, the Contractor shall promptly submit a request for an adjustment to the Contract in accordance with Section 108.04 of the Specifications. Unless directed otherwise in writing by the Engineer, the Contractor shall submit along with its request for an adjustment to the Contract, a Schedule Impact Analysis (SIA) in accordance with the following:

1. **Prospective SIA for Anticipated Impacts Due to Directed or Authorized Changes**

The Engineer may issue a written request to the Contractor for proposed additions, deletions, or other changes to the Work in accordance with Section 104 of the Specifications. If this occurs and the Contractor is seeking an extension of time, the Contractor shall submit a Prospective SIA within seven (7) days after receipt of the Engineer's request and prior to proceeding with the changed work, unless directed otherwise in writing by the Engineer. The Prospective SIA submission shall consist of the following:

A. **Prospective SIA Schedule –** The Prospective SIA Schedule shall reflect all known information at the time of analysis and shall be prepared and submitted as follows.

(1) A Pre-impact SIA Schedule shall be prepared by updating a copy of the latest accepted Project Schedule in place prior to the proposed change with progress only through the date before the proposed change.

(2) An Impacted SIA Schedule shall be prepared by inserting a fragnet (fragmentary network) of the detail activities representing the added or changed Work into a copy of the Pre-impact SIA Schedule. The added activities shall be linked to other related and affected activities accordingly.

(3) The Prospective SIA Schedule submission shall include a bar-chart schedule layout showing the added activities, related and affected activities, critical path activities, and any affected Contract milestones. It shall also show a graphical comparison between the Impacted SIA Schedule and Pre-impact SIA Schedule and variances in activity duration, start dates, and finish dates.

(4) The Prospective SIA Schedule submission shall include ".pdf" copies and electronic backup copies of the Pre-impact and Impacted SIA Schedules in the ".xer" file format.

B. **Prospective SIA Narrative –** The Prospective SIA Narrative shall describe:

(1) The proposed changes to the Work and timeline of events associated with the changes.

(2) Any changes made to the Project Schedule and current status of the Project prior to the proposed change as reflected on the Pre-impact SIA Schedule.

(3) The changes made to the Pre-impact SIA Schedule including, added or deleted activities, affected activities and how the activities are expected to be affected.

(4) Any shifts to the Critical Path and overall impact to related Contract milestones or the Project Completion Date as reflected on the Impacted SIA Schedule.

(5) Any actions taken or proposed to mitigate or avoid the potential impact.

2. **Retrospective SIA for Impacts Due to Unforeseen Changes and Delays**

In the event of an excusable delay resulting from unforeseen changes to the Work or conditions, for which the Contractor is seeking a time extension, the Contractor shall submit along with its request for time extension, a Retrospective SIA within fourteen (14) days after the end date of the delay event, unless directed otherwise in writing by the Engineer. The Retrospective SIA submission shall consist of the following:

A. **Retrospective SIA Schedules –** The Retrospective SIA Schedules shall include all accepted monthly Update Schedules immediately before, during, and after the delay event and shall consider all known information as of the time of analysis. If there are update periods with missing Update Schedules or Update Schedules returned with a notice of "Rejected, As Noted", the Contractor shall prepare acceptable Update Schedules with progress only for the missing periods using the previous accepted Update Schedule accordingly. If there are Update Schedules returned with a notice of "Accepted As Noted", the Contractor shall modify the Update Schedules accordingly to address the Engineer's comments. The Retrospective SIA shall be prepared and submitted as follows:

(1) Each accepted monthly Update Schedule submitted during the period of occurrence of the delay event shall be compared against the accepted Update Schedule for the previous update period, to identify any variances between actual and planned performance for the work performed during each update period.

(2) Each SIA Schedule shall show the activities performed during last update period, including any activities added to the SIA Schedule to identify delay events; as well as the Project Critical Path activities. The SIA Schedule layout shall show:

(a) For each activity, Original Duration, Start, Finish, Criticality, and Total Float. It shall also show the previous Update Schedule Start, Finish; and the Start, Finish, and Duration variances relative to the **previous Update Schedule**.

(b) A bar-chart plot showing a graphical comparison between the SIA Schedule and previous Update Schedule

(3) If there are Update Schedules with schedule changes that negatively impacts the schedule, the analysis shall be split to determine the impact due to the changes and impact due to progress separately by updating a copy of the previous Update Schedule with progress alone.

(4) Any related impact resulting from projected delays due to calendar restrictions such winter weather or TOYR shall be deferred until after the delays have actually occurred.

(5) The Retrospective SIA Schedule submission shall include ".pdf" copies and electronic backup copies of the SIA Schedules in the ".xer" file format.

B. **Retrospective SIA Narrative –** The Retrospective SIA Narrative shall describe:

(1) The changes to the Work or conditions or delay events, including explanation of who is responsible and why the delay is excusable.

(2) Timeline of events associated with the delay, including all actions and waiting times.

(3) For each update period, identify the SIA Schedule and previous Update Schedule and:

(a) Any changes made to the SIA Schedule, including activities added to identify delay events, deleted activities, affected activities and how the activities were affected.

(b) The controlling critical path activity and any causal link to the delay event.

(c) Any shifts to the Critical Path, Milestone, or the Project Completion Date.

(4) Any actions taken or proposed to mitigate the impact.

(5) A summary of any incremental time gains or losses in the Milestones, or the Project Completion Date for each update period.

The Engineer will review the Contractor's request and SIA and will respond within 14 days of submittal. The Contractor must adhere to the notice of a change, request for time extension, and SIA submission requirements; as well Section 105.19 of the Specifications to preserve their rights to file a claim. The Contractor's notice of a change, a subsequent meeting with the Engineer, or submittal of a request for modification of the Contract as defined herein, shall not constitute a notice of intent to file a claim as required by Section 105.19. *No part of this provision is intended to alter, replace, or supersede Section 105.19 of the Specifications*.

VI. **Monitoring the Work and Assessing Progress**

The Engineer will monitor and assess progress of the Work regularly relative to the SOR to identify deviations from the Contractor's scheduled performance and to determine if progress is satisfactory according to the following:

1. **Progress and Coordination Meetings**

Once the Work is underway and until the Project is completed, the Contractor shall keep the Engineer up-to-date on the short-term work plan on a regular basis, including any changes in the work plan or issues that may impact the schedule, as follows:

A. **Weekly Progress Meetings –** Unless directed otherwise by the Engineer, the Contractor's personnel (i.e., Project Manager, Superintendent, Field Supervisor) shall on a weekly basis meet with the Engineer on a day and time as mutually agreed upon. The meeting shall be held to discuss the current progress of Work and any work planned for the upcoming two (2) weeks, including work by the Department and others; as well as any on-going or upcoming issues that are anticipated to impact the schedule. At the weekly progress meeting and until all Work is completed, the Contractor shall furnish in Bar Chart format, a detailed Two-Week Look-Ahead (TWLA) Schedule to the Engineer. The TWLA Schedule shall depict in a greater level of detail, the daily operations, showing actual dates for work performed since the last TWLA Schedule submission and planned dates for work to be performed in the upcoming two (2) weeks. The daily operations included in the TWLA Schedule shall specifically reference the applicable Activity IDs in the Project Schedule. The TWLA Schedule may be prepared using a computer software or by hand.

B. **Monthly Progress Meetings –** Unless directed otherwise by the Engineer, the Contractor shall attend a monthly progress meeting with the Engineer on a day as mutually agreed upon. At the progress meeting the Contractor shall furnish a 60-day Look-ahead Schedule Report and shall be prepared to discuss the current status of the Project, work performed during the last period, on-going work, and work planned for the following sixty (60) days; as well as any issues that are currently impacting the schedule or anticipated to impact the schedule. The 60-day Look-ahead Schedule shall be based on the Contractor's current Update Schedule, showing actual dates for work performed during the last update period and planned dates for work to be performed in the upcoming sixty (60) days.

2. **Progress Evaluation and Unsatisfactory Performance**

A. **Progress Deficiency and Schedule Slippage –** The Engineer will assess the current status of the Work each month, based on the monthly Update Progress Schedule submission, and relative to the SOR. The Contractor's actual progress may be considered unsatisfactory, as determined by the Engineer, if any of the following conditions occur:

(1) The Actual Progress Percent Complete for Work completed to date, based on the current estimate, falls behind the Baseline Cumulative Progress Percent Complete by more than ten (10) percent, relative to the SOR.

(2) A Contract milestone or the Project Completion Date is currently projected to complete more than twenty-one (21) days after the date specified in the Contract, as applicable.

B. **Notice of Unsatisfactory Performance –** When the Engineer determines that actual progress of the Work is unsatisfactory, the Engineer will issue a written notice of unsatisfactory performance to the Contractor. The Engineer will also advise the Contractor that five (5) percent retainage of the monthly progress estimate is being withheld and will continue to be withheld as described in Section 109.08(c), for each month the Contractor's actual progress is remains unsatisfactory. Within fourteen (14) days from the date of receipt of the Engineer's notice, the Contractor shall respond by submitting a written statement describing any actions taken or proposed by the Contractor to correct the progress deficiency. If the Contractor's response includes a proposed recovery plan, the current Project Schedule shall be modified accordingly to reflect the Contractor's proposed recovery plan. The Contractor may submit to the Engineer a written explanation along with supporting documentation to establish that such delinquency is attributable to conditions beyond its control. If the Engineer accepts the Contractor's recovery plan, the modified Project Schedule showing the recovery plan will be considered the current Update Schedule and will not replace the SOR.

If the Contractor fails to respond within the time required, or the response is unacceptable, its prequalification status may be changed as provided in Section 102.01 of the Specifications, and the Contractor may be temporarily disqualified from bidding on contracts with the Department as provided in Section 102.08, if progress remains unsatisfactory at the time of preparation of the next monthly progress estimate. The Engineer may delay these actions when a Contract time extension is under consideration.

VII. **Measurement and Payment**

Baseline Progress Schedule will be measured and paid for at the Contract Lump Sum price. This price shall include all work associated with the preparation and submission of the Preliminary Progress Schedule and the Baseline Progress Schedule and will be paid as follows:

1. Twenty-five (25) percent of the Contract Lump Sum price will be paid upon acceptance of the Preliminary Progress Schedule submission. No separate measurement and payment will be made for preparation and submission of updates to the Preliminary Progress Schedule. All costs associated with updating and submitting the updated Preliminary Progress Schedule shall be considered incidental.

2. Seventy-five (75) percent of the Contract Lump Sum price will be made upon acceptance of the Baseline Progress Schedule submission.

3. All costs associated with attendance of the Scheduling Conference and other Baseline Progress Schedule related meetings shall be considered incidental.

Progress Schedule Update will be measured in units of each and paid for at the Contract each price. This price shall include **a**ll costs associated with the preparation and submission of the Update Progress Schedule, Revised Baseline Progress Schedule, Final As-built Schedule, and SIA and will be paid as follows:

1. Progress payments of one each (1 EA) at the Contract each price will be made upon acceptance of the Update Progress Schedule, Revised Baseline Progress Schedule, and Final As-built Schedule submission. Progress payments will not be made for Progress Schedule Updates submitted for any time in excess of the time limit established in the Contract as extended in accordance with Section 108.04.

2. No separate measurement and payment will be made for preparation and submission of the SIA or for attendance of related meetings. All costs associated with the SIA shall be considered incidental.

3. No separate measurement and payment will be made for attendance of progress meetings or other Update Progress Schedule related meetings. All costs associated with attendance of the scheduling meetings shall be considered incidental.

Payment will be made under:

Pay Item	Pay Unit
Baseline Progress Schedule	Lump sum
Progress Schedule Updates	Each

SP109-000100-04

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
ASPHALT MATERIAL PRICE ADJUSTMENT

June 29, 2023

All asphalt material contained in the master listing on the Construction Division web site of eligible bid items and designated by pay items in the Contract will be price adjusted according to the provisions as set forth herein. Other items will not be adjusted, except as otherwise specified in the Contract. If new pay items which contain asphalt material are established by Change Order, they will not be subject to Price Adjustment unless specifically designated in the Change Order to be subject to Price Adjustment.

Each month, the Department will publish an average state-wide PG 64S-22 f.o.b. price per ton and an average PG 64E-22 f.o.b. price per ton developed from the average terminal prices provided to the Department from suppliers of asphalt cement to contractors doing work in Virginia. The Department will collect terminal prices from approximately 12 terminals each month. These prices will be received once each month from suppliers on or about the last weekday of the month. The high and low prices will be eliminated and the remaining values averaged to establish the average statewide price for the following month. The monthly state-wide average price will be posted on the Construction Division website on or about the first weekday of the following month. In the event the average prices were to change by 10 percent or more of the Base Index during the middle of the month the Contractor can submit a letter to the Department and supplier that provides evidence of the difference in price. Upon receipt of the letter consideration will be given to extend additional adjustments as deemed necessary.

This monthly statewide average price will be the Base Index for all contracts on which bids are received during the calendar month of its posting and will be the Current Index for all asphalt placed during the calendar month of its posting. In the event an index changes radically from the apparent trend, as determined by the Engineer, the Department may establish an index which it determines to best reflect the trend.

The amount of adjustment applied will be based on the difference between the contract Base Index and the Current Index for the applicable calendar month during which the work is performed. The quantity of asphalt cement for asphalt concrete pavement to which adjustment will be applied will be the quantity based on the percent of asphalt cement shown on the appropriate approved job mix formula.

Adjustment of any asphalt material other than PG 64S-22 and PG 64E-22 will be based on the indexes for PG 64S-22.

The quantity of asphalt emulsions to which adjustment will be applied will be the quantity based on 65 percent residual asphalt.

Price adjustment will be shown as a separate entry on the monthly progress estimate; however, such adjustment will not be included in the total cost of the work for progress determination or for extension of contract time. Price adjustment will be calculated using the same units as the corresponding Pay Items in the Contract.

Any apparent attempt to unbalance bids in favor of items subject to price adjustment or failure to submit required cost and price data as noted hereinbefore may result in rejection of the bid proposal.

SP109-000110-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
OPTIONAL ADJUSTMENT FOR FUEL

July 1, 2015; Reissued July 12, 2016

The Department will adjust monthly progress payments up or down as appropriate for cost changes in fuel used on specific items of work identified in this provision. The Department will provide a master listing of standard bid items eligible for fuel adjustment on its website.

Included with this proposal is a listing of standard bid items the Department has identified as eligible for fuel adjustment on this project(s) as well as the respective fuel factors per pay unit for those items. Only items on this listing will be eligible for adjustment. The fuel usage factor for each item is considered inclusive of all fuel usage. Generally, non-standard pay items are not eligible for fuel adjustment.

The listing of eligible items applicable to this particular project is shown on Form C-21B "Bid Items Eligible for Fuel Adjustment" included with the bidding documents. The Bidder may choose to have fuel adjustment applied to any or all eligible items on this project's listing by designating the items for which the fuel adjustment will apply. The Bidder's selection of items for fuel adjustment may not be changed once he has submitted Form C-21B to the Department.

In order to be eligible for fuel adjustment under this provision, the apparent lowest responsive and responsible Bidder shall clearly identify on Form C-21B those pay items he chooses to have fuel adjustment applied on. Within 21 days after the receipt of bids the apparent successful Bidder shall submit his designated items on Form C-21B to the Contract Engineer. Items the successful Bidder chooses for fuel adjustment must be designated by writing the word "Yes" in the column titled "Option" by each bid item chosen for fuel adjustment. The successful Bidder's designations on Form C-21B must be written in ink or typed, and signed by this Bidder to be considered complete. Items not properly designated or left blank on the Bidder's C-21B "Bid Items Eligible for Fuel Adjustment" form may be not considered for adjustment. If the apparent successful Bidder fails to return his Form C-21B within the timeframe specified, items will not be eligible for fuel adjustment on this project.

The monthly index price to be used in the administration of this provision will be calculated by the Department from the Diesel fuel prices published by the U. S. Department of Energy, Energy Information Administration on highway diesel prices, for the Lower Atlantic region. The monthly index price will be the price for diesel fuel calculated by averaging each of the weekly posted prices for that particular month.

For the purposes of this provision, the base index price will be calculated using the data from the month preceding the receipt of bids. The base index price will be posted by the Department at the beginning of the month for all bids received during that month.

The current index price will be posted by the Department and will be calculated using the data from the month preceding the particular estimate being vouchered for payment.

The current monthly quantity for eligible items of work selected by the Contractor for fuel adjustment will be multiplied by the appropriate fuel factor to determine the gallons of fuel to be cost adjusted. The amount of adjustment per gallon will be the net difference between the current index price and the base index price. Computation for adjustment will be made as follows:

$$S = (E - B) QF$$

Where; S = Monetary amount of the adjustment (plus or minus)
B = Base index price
E = Current index price
Q = Quantity of individual units of work
F = Appropriate fuel factor

Adjustments will not be made for work performed beyond the original contract time limit unless the original time limit has been changed by an executed Work Order.

If new pay items are added to this contract by Work Order and they are listed on Department's master listing of eligible items, the Work Order must indicate which of these individual items will be fuel adjusted; otherwise, those items will not be fuel adjusted. If applicable, designating which new pay items will be added for fuel adjustment must be determined during development of the Work Order and clearly shown on Form C-10 Work Order. The Base Index price on any new eligible pay items added by Work Order will be the Base Index price posted for the month in which bids were received for that particular project. The Current Index price for any new eligible pay items added by Work Order will be the Index price posted for the month preceding the estimate on which the Work Order is paid.

When quantities differ between the last monthly estimate prepared upon final acceptance and the final estimate, adjustment will be made using the appropriate current index for the period in which that specific item of work was last performed.

In the event any of the base fuel prices in this contract increase more than 100 percent (i.e. fuel prices double), the Engineer will review each affected item of work and give the Contractor written notice if work is to stop on any affected item of work. The Department reserves the right to reduce, eliminate or renegotiate the unit price for remaining portions of affected items of work.

Any amounts resulting from fuel adjustment will not be included in the total cost of work for determination of progress or for extension of contract time.

SP109-000120-01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
PRICE ADJUSTMENT FOR STEEL

July 2, 2019

The Department will adjust monthly progress payments up or down as appropriate for cost changes in steel used on specific items of work identified in the Contract according to this provision. The master list of standard Pay Items the Department has determined are eligible for steel price adjustment is posted on the Construction Division website.

Items eligible for steel price adjustment for this Project will be shown on Form C-21C, included with the Proposal. Only items on the form C-21C will be eligible for steel price adjustment. Non-standard Pay Items will not be eligible for steel price adjustment unless such steel items are project-specific modifications of items normally eligible, are clearly and specifically identified by a separate and distinct steel Pay Item, and the quantities present on the Project constitute major items of the work.

The Bidder shall submit Form C-21C to the State Contract Engineer no later than 15 calendar days after the date of Award Recommendation letter to identify those pay items to which he chooses to apply steel price adjustment. The Bidder may choose to have steel price adjustment applied to any, all, or none of the eligible items shown on Form C-21C. However, the Bidder's selection of items for steel price adjustment or non-selection (non-participation) may not be changed once he has submitted Form C-21C to the Department. Items the Bidder chooses for steel price adjustment must be designated by writing the word "Yes" in the column titled "Option" by each Pay Item chosen for adjustment. The Bidder's designations on Form C-21C must be written in ink or typed, and signed by the Bidder to be considered complete. Items not properly designated, or designated with "No" or left blank on the Bidder's C-21C form will automatically be removed from consideration for adjustment. No steel items will be eligible for steel price adjustment on this Project if the Bidder fails to return his Form C-21C on time.

Inventoried materials from the list of eligible items are specifically excluded for consideration. Items from the list of eligible items for which the Contractor has requested payment as Material on Hand according to Section 109.09 are also specifically excluded for consideration past the delivery date to the fabricator.

This provision shall apply only to material cost changes that occur between the date of the receipt of bids by the Department and the date the material is shipped to the fabricator. The Contractor, subcontractor, and supplier are required to place their purchase order for the steel items designated in this Contract for price adjustment within 30 calendar days after the date of execution of this Contract with the Department. The timeliness of the Contractor's response is also to ensure the receipt of such items in a timely manner that shall not adversely affect his progress schedule or Contract completion date. The items shall further be specifically stored, labeled, or tagged, recognizable by color marking, and identifiable by Project for inspection and audit verification immediately upon arrival at the fabricator.

The Contractor shall submit documentation to the Engineer for all items listed in the Contract for which the Contractor is requesting a steel price adjustment. This documentation shall consist of material price quotes, bid papers, or other similar type of documentation satisfactory to the Department and support the completion of the form establishing the average price per pound for the eligible steel bid item. The Contractor must use the format as shown with this provision; no other format for presenting this information will be permitted. The Contractor shall certify that all items of documentation are original and were used in the computation of the amount bid for the represented eligible Pay Items for the month bids were opened. This documentation shall support the base line material price ("Base Price") of the steel item only. No adjustment will be made for changes in other components of the item unit price, including, but not limited to, fabrication, shipping, storage, handling, and erection.

The Contractor will not be eligible for price adjustment of steel items if the Contractor fails to submit specifically required information (i.e., purchase order, price data, bill of lading, material information or other requested information) as noted herein.

Price adjustment of each qualifying item will only be considered if there is an increase or decrease in the cost of eligible steel materials in excess of 10 percent up to a maximum of 60 percent from the Base Price when compared with the latest published price index ("Price Index") in effect at the time material is shipped to the fabricator.

The Price Index the Department is using is based on The U.S. Department of Labor, Bureau of Labor Statistics, Producers Price Index (PPI), which measures the average price change over time of the specific steel eligible item from the perspective of the seller of goods. The specific PPI to be used to adjust the price for the eligible VDOT steel items is shown on the list posted on the Department's website. The PPI is subject to revision 4 months after original publication, therefore, price adjustments and payments will not be made until the index numbers are finalized.

Items under consideration for price adjustment will be compared to the steel category index items and the corresponding I.D. numbers in the master list of standard Pay Items eligible for steel price adjustment.

The price adjustment will be determined by comparing the percentage of change in index value beyond 10 percent above or below the index on the bid date to the index value on the date the steel material is shipped to the fabricator (Please see included sample examples). Weights and date of shipment must be documented by a bill of lading provided to the Department. The final price adjustment dollar value will be determined by multiplying this percent increase or decrease in the index (after 10%) by the represented quantity of steel shipped, by the Base Price per pound subject to the limitations herein.

Price increase/decrease will be computed as follows:

$$A = B \times P \times Q$$

Where;

- A = Steel price adjustment in lump sum dollars
- B = Average weighted price of steel submitted with bid on Project in $ per pound
- P = Adjusted percentage change in PPI average from shipping date to bid date minus 10% (0.10) threshold
- Q = Total quantity of steel in pounds shipped to fabricator for specific Project

Delays to the work caused by steel shortages may be justification for a Contract time extension but will not constitute grounds for claims for standby equipment, extended office overhead, or other costs associated with such delays.

The Engineer will determine, and specify in the Change Order, the need for application of the adjustments herein to extra work on an individual basis.

This price adjustment is capped at 60 percent. This means the maximum "P" value for increase or decrease that can be used in the above equation is 50% (60%-10% threshold).

Calculations for price adjustment shall be shown separate from the monthly progress estimate and will not be included in the total cost of work for determination of progress or for extension of Contract time.

Any apparent attempt to unbalance bids in favor of items subject to price adjustment may result in rejection of the bid proposal.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

20-Jan-05

Steel Price Adjustment Sample Submission Form
(All prices to be supported by project-specific quotes)

BID DATE 28-Apr-04

Bid Item 61720 High Strength Structural Steel

Supplier	Description of material	Unit price f.o.b supplier $/lbs	Quantity In lbs.	Price Extension	Date of Quote
XYZ mill	Structural beams Various sizes (see quote)	$0.28	1,200,000	$336,000.00	21-Apr-04
ABC distributing	Various channel & angle shapes (see quote)	$0.32	35,000	$11,200.00	20-Apr-04
		Total	1,235,000	$347,200.00	
		Average weighted price =		$0.2816	

Note: All prices are to include any surcharges on materials quoted as if they are shipped in the month the bid is submitted. Vendors must include this surcharge along with their base price on their quotes.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

20-Jan-05

Price Adjustment Sample Calculation (increase)

Project bid on April 28, 2004.

Project has 450,000 lb. of structural steel.

Orders placed in timely manner and according to contract.

Contractor's *f.o.b. supplier price for the structural steel in bid is $0.2816 per pound. *free on board

Adjusted** BLS Producers Price Index (PPI) most recently published average at time of bid is 139.6.
** final change
after 4 months
All steel shipped to fabricator in same month, October 2004.

Adjusted BLS PPI most recently published average for month of October is 161.1

Adjustment formula is as follows:

A = B X P X Q

Where;
- A = Steel price adjustment in lump sum dollars
- B = Average weighted price of steel submitted with bid on Project in $ per pound
- P = Adjusted percentage change in PPI average from shipping date to bid date minus 10% (0.10) threshold
- Q = Total quantity of steel shipped to fabricator in October 2004 for this Project in pounds

B = $0.2816

P = (161.1- 139.6)/139.6 – 0.10 = 0.054

Q = 450,000 lb.

A = 0.2816 x 0.054 x 450,000

A = $6,842.88 pay adjustment to Contractor

20-Jan-05

Price Adjustment Sample Calculation (decrease)

Project bid on April 28, 2004.

Project has 450,000 lb. of structural steel.

Orders placed in timely manner and according to contract.

Contractor's *f.o.b. supplier price for structural steel in bid is $0.2816 per pound. *free on board

Adjusted BLS Producers Price Index (PPI) most recently published average at time of bid is 156.6.

All steel shipped to fabricator in same month, October 2004.

Adjusted BLS PPI most recently published average for month of October is 136.3

Adjustment formula is as follows:

A = B X P X Q

Where;
- A = Steel price adjustment in lump sum dollars
- B = Average weighted price of steel submitted with bid on Project in $ per pound
- P = Adjusted percentage change in PPI average from shipping date to bid date minus 10% (0.10) threshold
- Q = Total quantity of steel shipped to fabricator in October 2004 for this Project in pounds

B = $0.2816

P = (156.6 – 136.3)/156.6 – 0.10 = 0.030

Q = 450,000 lb.

A = 0.2816 x 0.030 x 450,000

A = $3,801.60 credit to Department

SP515-000100-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
COLD PLANING (MILLING) ASPHALT CONCRETE OPERATIONS

July 12, 2016

I. DESCRIPTION

This provision shall govern cold planing (milling) asphalt concrete operations in preparation for pavement repair and/or pavement overlay. Cold planing of asphalt concrete pavement shall be performed according to Section 515 of the Specifications and the requirements herein.

II. GENERAL PROCEDURES

The Contractor is permitted to perform either regular pavement planing or performance pavement planing to the Contract specified depth or as directed by the Engineer in order to provide a uniform sound substrate prior to paving roadways designated in the schedules according to Section 315 of the Specifications, the requirements herein, or elsewhere in the Contract.

A. Regular and Performance Planing

The following general conditions apply to either type of cold pavement planing:

Limitations of operations for planing shall be performed according to Section 108.02 of the Specifications, other Contract specific requirements, and as specified herein.

Where the depth of planing designated in the Contract or directed by the Engineer is 2 inches or less, the Contractor shall have the option of planing the abutting lane or shoulder on alternate days or squaring up the planing operation at the end of each work shift. However, abutting lanes or shoulders shall be planed and squared up regardless of planing depth prior to holidays or any temporary shutdowns.

Where the depth of planing designated in the Contract or directed by the Engineer is greater than 2 inches in the Contract, the Contractor shall square up the planing operation at the end of each workday or plane adjacent lanes including abutting shoulders within the same day for the length of that day's planing operation.

The Contractor will not be permitted to plane a portion of the width of a travel lane, ramp, loop or shoulder and leave it unpaved and open to traffic. Abutting shoulders may also be planed during single and multiple lane planing operations. Planing operations shall be planned and performed to maintain positive drainage according to Section 315.05(c) of the Specifications.

In the event an emergency or an unforeseen circumstance such as equipment failure or breakdown occurs during the Contractor's operations and such emergency or unforeseen circumstance within his control prevents the Contractor from squaring up the planed surface on adjacent lanes prior to a holiday or temporary shutdown, any additional signage, traffic control devices or temporary markings or markers required to protect the traveling public shall be the Contractor's responsibility and at his expense.

Where uneven pavement joints exist either transversely or longitudinally at the edges of travel lanes, the Contractor shall provide advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract for the scope of operation he is performing. The cost for such advance warning signage and traffic control devices shall be included in the cost of other appropriate items

Where appropriate according to Contract requirements and site specific conditions, the existing asphalt concrete layers shall be planed to permit the transition of the top course of the asphalt concrete overlay according to the details of the ACOT-1 Standard. Any sub-courses termination may be notched into the existing pavement or blended with the next course of pavement.

B. Performance Planing Only Limitations:

When the Contractor elects to performance plane on roadways specified to be planed to a depth of 2 inches or less, the Contractor shall performance plane only that amount of pavement which can be paved back within the time allowance specified herein for completion of planing the roadway or portion of roadway. The Contractor is required to perform pavement surface testing as specified in Section 515.04 of the Specifications to verify the Contractor has achieved the acceptable surface texture specified in that Section prior to opening the performance planed surface to traffic. Additional traffic control devices and signage required for the extended pave back time allowance specified herein for performance planing operations versus the traffic control devices required for the pave back operations for regular pavement planing operations specified herein shall be at the Contractor's expense.

III. ROADWAY CLASSIFICATION LIMITATIONS

The following restrictions, based on the type of roadway, shall apply:

A. All Interstates and other Limited Access Roadways including Ramps and Loops posted at 55 Mph or Greater

1. Regular planing and performance planing in multiple lanes

The Contractor shall plan, execute and maintain pavement planing operations to avoid trapping water on the roadway. On roadways with a combination of 3 or 4 lanes and shoulders (i.e. 2 travel lanes and 1 or 2 shoulders in one direction) where the travel lanes and shoulders will not be completely planed to drain prior to the start of paving operations, planing shall be performed so that water will not pond on the travel surface. When the Contract does not include the removal of the shoulder at the specific roadway planing location, the Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates (excluding curb and gutter sections) for those portions of the planed roadway that are to be opened to traffic. The Contractor shall restore the shoulders to their original grades once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring roadway shoulders shall be included in the price bid for other items of work.

On roadways with a combination of 5 or more lanes and shoulders (i.e. 3 or more travel lanes and 2 shoulders in one direction, the extent to which the interior lanes shall be planed will be such that the planed portions can be repaved within the work-zone time limits unless provisions are made to mitigate the ponding of water (i.e., milling adjacent lane(s) and shoulders or cutting drainage outlets through the shoulder).

Ramps and exits shall be planed in such a manner that an even longitudinal joint (elevation difference of greater than 1 inch) is not left for vehicles to cross within the posted speed limits in a "run on" situation. To prevent this, the Contractor can plane ramps and exits to the extent that the joint line between new and existing pavement crossed by traffic is traversed at an angle close to ninety (90) degrees per the ACOT-1 Standard for temporary transverse joints or can perform tapered planing along the ramp/exit longitudinal joint to provide a smooth transition for vehicles to cross, or can square up ramp or exit pavement with the adjacent mainline lane at the time of installation.

The following additional restrictions will apply to roadways where **regular pavement planing** is applicable:

- The Contractor will be limited in the case of regular pavement planing, whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 24 hours of completion of planing that roadway or portion of roadway.

- The Contractor shall pave all roadways, ramps and loops planed during the week before that weekend.

- On roadways with a combination of 4 or more lanes and shoulders (i.e. 2 or more travel lanes and 2 shoulders) in one direction, all travel lanes must be paved back before the weekend. Up to two thousand five hundred (2,500) feet of shoulder may be planed and left over the weekend provided the portion of planed shoulder left unpaved over the weekend is paved within 24 hours after the end of the weekend period.

The following additional restrictions will apply to roadways where **performance pavement planing** is planned by the Contractor:

- Performance planing may be performed in multiple lanes across the entire widths of the lanes up 4 miles of travel lane unless otherwise stated in the Contract. Performance planed travel lanes surfaces must be paved back within 96 hours from the end of the performance planing operation

- Where the Contractor decides to performance plane multiple lanes, the Contractor shall be responsible for furnishing and installing advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract. Temporary pavement markings and markers used for lane demarcation on performance planed surfaces will be according to Section 704.04 of the Specifications and the *Special Provision for* ***SECTION 704—PAVEMENT MARKINGS AND MARKERS*** included in the Contract. The cost for such warning devices and advance signage required by multiple lane planing operations shall be included in the cost of other appropriate items unless otherwise specified in the Contract by a specific pay item(s) for separate payment.

B. Non-Limited Access Roadways with an ADT of 10,000 or Greater (Traffic Group XV and above) and a Posted Speed Limit of 45 Mph or Greater

1. Regular planing and performance planing in multiple lanes

The Contractor shall plan and proceed with the pavement planing operation to avoid trapping water on the roadway. On roadways with a combination of 3 or 4 lanes and shoulders (i.e. 2 travel lanes and 1 or 2 shoulders) in one direction where the travel lanes and shoulders will not be completely planed prior to the start of paving operations, planing operations shall be performed so water will not pond on the travel surface. When the Contract does not include the removal of the shoulder, the Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates, excluding curb and gutter sections, for those portions of the planed roadway that are to be opened to traffic. The Contractor shall restore the shoulders to their original grades once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring the roadway shoulder shall be included in the price bid for other items of work.

On roadways with a combination of 5 or more lanes and shoulders (i.e. 3 or more travel lanes and 2 shoulders in one direction), the extent of pavement planing on the interior lanes shall be such that the planed surface can be repaved within the timeframe of the work-zone time limits unless provisions are made to mitigate the ponding of water (i.e.planing adjacent lane(s) to mitigate the ponding of water).

The following additional restrictions will apply to roadways where **performance pavement planing** is planned by the Contractor:

- Performance planing may be performed in multiple lanes across the entire widths of the lanes up a total of 4 miles of travel lane unless otherwise stated in the Contract.

- Performance planed travel lane surfaces must be paved back within 10 days from the start of the performance planing operation.

- Where the Contractor decides to performance plane multiple lanes, the Contractor shall be responsible for furnishing and installing advance warning signage and traffic control devices to inform the traveling public according to the details provided in the Contract. The cost for such warning devices and advance signage required by multiple lane planing operations shall be included in the cost of other appropriate items unless otherwise specified in the Contract by a specific pay item(s) for separate payment. Temporary pavement markings required by such operations will be handled according to Section 704.04 and the *Special Provision for* ***SECTION 704—PAVEMENT MARKINGS AND MARKERS*** included in the Contract.

The following additional restrictions will apply to roadways where **regular pavement planing** is applicable:

- The Contractor will be limited whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 24 hours of completion of planing that roadway or portion of roadway.

- The Contractor shall pave all roadways that have been regular planed during the week before that weekend.

- On roadways with a combination of 4 or more lanes and shoulders (i.e. 2 or more travel lanes and 2 shoulders in one direction, all travel lanes must be paved back before the weekend. Up to two thousand five hundred (2,500) feet of shoulder may be planed and left over the weekend provided the portion of planed shoulder left unpaved over the weekend is paved within 24 hours after the end of the weekend period.

C. All Other Roadways

1. Regular Pavement Planing (single or multiple lanes)

If the Contractor elects to perform regular pavement planing the Contractor will be permitted to leave up to two miles of travel lane open to the traveling public provided such planing (milling) is performed across the entire lane width. This same total length restriction will apply in cases where multiple-lane regular pavement planing is permitted in the Contract or allowed by the Engineer. The Contractor will be limited in the case of regular pavement planing, whether in a single lane or multiple lane operation, to only that amount of pavement that can be paved back within 96 hours of completion of planing that roadway or portion of roadway.

2. Performance Pavement Planing

When the Contractor elects to performance plane roadways specified to be planed to a depth of 2 inches or less, the Contractor shall plane only the amount of pavement that can be paved back within 14 calendar days of completion of planing that roadway or portion of roadway. The Contractor is required to perform pavement surface testing as specified in Section 515.04 of the Specifications to verify the Contractor has achieved the acceptable surface texture prior to opening the performance planed surface to traffic. The additional traffic control devices and signage required for the 14 calendar day pave back operation allowance for performance planing operations shall be at the Contractor's expense.

Temporary pavement markings required by such operations will be handled according to Section 704.04 and the *Special Provision for* ***SECTION 704—PAVEMENT MARKINGS AND MARKERS*** included in the Contract.

Roadways on which the roadway edges (i.e. edge milling) are to be planed shall be paved back within 10 days from the completion of the planing operation.

IV. MEASUREMENT AND PAYMENT

Measurement and payment will be according to Section 515.05 of the Specifications.

SP700-000180-03 September 29, 2020

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
MODIFICATIONS TO AASHTO'S SIGN STRUCTURE SPECIFICATION

I. GENERAL REQUIREMENTS

Lighting (conventional and high mast), signal (overhead, mast arm and span wire), pedestal poles, overhead (span, cantilever and butterfly) sign structures, and ITS structures (camera poles, dynamic message signs (DMS), etc.) shall conform to the requirements of the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals, 6th Edition (LTS-6), 2013 with 2015 and 2019 interims* as modified by this Special Provision. Any AASHTO Specification optional design parameter noted as "may be used at the discretion of the owner" that are not addressed in this document shall not be used for design.

Square tube sign post (STP-1 and STP-2), wood post, SSP-VA and SSP-VIA structures shall be provided in accordance with the requirements as shown in the Standard Drawings.

II. WIND LOADING (LTS-6 Article 3.8 and Appendix C)

1. The alternate method for wind pressures provided in AASHTO Appendix C shall be used. Linear interpolation between wind contours is not permitted. The next higher contour shall be used for design. Reduced forces shall not be used for free swinging traffic signal and free swinging sign wind loadings.

2. **LTS-6 Article C.2** is supplemented with the following: Wind speeds using 50-year mean recurrence shall be used for all conventional light poles, high mast light poles, ITS device support poles, and overhead sign structures (span, cantilever and butterfly).

3. Mast arm signal poles, mast arms, and strain poles shall be designed using the following wind speeds:

District	Design Wind Speed for strain poles, mast arms, and mast arm poles
Bristol, Salem, Lynchburg, Staunton and Culpeper	70 mph
Richmond, Northern Virginia and Fredericksburg	80 mph
Hampton Roads	90 mph

Ancillary structures procured under regional signal contracts that encompass multiple districts shall be designed for the District with the greatest wind speed within that Region.

Mast arm signal pole and strain pole foundations shall be designed for wind speeds at the foundation location using the 25-year mean recurrence.

4. For special wind regions in Bristol District shown in Figure 3.8.3-2 of LTS-6, the selection of the design wind speed shall consider localized effects. The minimum design wind speed for 50 year mean in these areas is 90 MPH, 25 year mean in these areas is 80 MPH and 10 year mean in these areas is 70 MPH.

5. For structures elevated above the surrounding terrain (e.g. bridge mounted light pole, overhead sign, and other structures), the height factor shall be increased to account for the increased wind effects.

III. STEEL DESIGN

1. **Laminated Structures (LTS-6 Article C5.1):** Laminated or multi-ply structures shall only be used in tapered sections.

2. **Holes and Cutouts, Unreinforced and Reinforced (LTS-6 Article 5.14.5):** The location and size of hand holes and cutouts shall be in accordance with the details shown in the Standard Drawings. For high mast light poles, the width of unreinforced and reinforced holes and cutouts in the cross-sectional plane of the tube shall not be greater than 50 percent of the tube diameter at that section.

3. **Welding:** A connection detail using a full penetration groove weld with a backing ring may be considered for all traffic structures. For tubes 18" diameter and greater, the backing ring shall be attached at the top and bottom face of the ring using a continuous fillet weld. For tubes less than 18" diameter, the backing ring shall be attached at the bottom face using a continuous fillet weld and the top shall be caulked to provide a thick durable continuous seal. The caulk shall be a durable material approved by the Engineer which is formulated for this type of Industrial application.

4. **Diameter:** Mast arm signal pole structures shall have the following maximum column and arm outside diameters, unless otherwise approved by the Engineer.

Configuration	Arm Length	Design Loading	Max. column diameter at base of column	Max. arm diameter at base of arm
Dual arm	Length of one arm exceeds 70 feet or total length of both arms exceeds 130 feet	Varies (Project specific loads will be provided on the Plans)	22 inches	20 inches
	All other dual-arm structures	Design loading does not exceed Standard Drawing MP-3	20 inches	18 inches
Single arm	> 75 feet	Varies (Project specific loads will be provided on the Plans)	22 inches	20 inches
	≤ 75 feet	"Case 2" loading as per Standard Drawing MP-3	22 inches	20 inches
		"Case 1" loading as per Standard Drawing MP-3	20 inches	18 inches

IV. FATIGUE DESIGN

1. **Fatigue Importance Categories (LTS-6 Article 11.6):** The following fatigue importance categories shall apply to structures:

Fatigue Importance Categories

Structure Type	Span Length[1], ft.	Fatigue Category
All structures supporting dynamic message signs or partial dynamic message signs[3]	All span lengths	Category I
Overhead sign span structure	> 150	Category I
	≤ 150	Category II
Overhead sign cantilever structure	> 50	Category I
	≤ 50	Category II
Overhead sign butterfly structure	All span lengths	Category II
Signal mast arm structure[2]	> 75	Category I and an approved mitigation device
	50 to ≤ 75	Category II
	< 50	No fatigue design required
Overhead signal structure	> 190	Category I
	≤ 190	Category II
High mast light poles	All lengths	Category I
Signal span wires, conventional lights poles and ITS device support poles (excluding DMS)		No fatigue design required

[1]Span length is defined as center-to-center of column(s) for span structure and face-of-column to tip of arm for cantilever and signal structures.

[2]For twin mast arms, the pole, arms and connections shall be designed for the applicable fatigue category for the longest arm attached.

[3]For signs that are a combination of primarily static sign panels and thin dynamic message elements, if less than 40% of the sign consist of thin dynamic message elements, the sign may be treated as a static sign for the purposes of determining appropriate fatigue category as long as the thickness of the partial dynamic sign does not exceed 14 inches. A special design is required for the attachment of these structures; the weight and thickness of the thin dynamic message sign element shall be included in the structural analysis.

2. **Mitigation Devices (LTS-6 Article 11.6 and 11.7.1):** Mitigation devices shall not be used in lieu of designing for fatigue. Approved mitigation devices shall be used for Signal Mast Arm Structures greater than 75 feet in addition to Fatigue Category I design.

3. **Aluminum light poles (LTS-6 Article 11.6 and 11.7.1):** Internal first and second mode vibration dampeners shall be provided and installed according to the manufacturer's instructions in all cases. External dampeners may be used if approved by the Engineer.

4. **Galloping Loads (LTS-6 Article 11.7.1):** Galloping loads shall not be considered in the design of overhead sign cantilevered structures with four chord trusses, signal mast arm structures, and multi-chord overhead signal structures.

5. **Truck-Induced Gust Loads (LTS-6 Article 11.7.1.3):** Truck induced gust loads shall not be considered in the design of signal mast arm and overhead signal structures.

6. **Vertical Deflection (LTS-6 Article 11.8):** The vertical deflection of the free end of the arm for overhead sign cantilevered structures due to the wind load effects of galloping or truck-induced gusts shall not exceed 8".

V. FOUNDATION DESIGN

The AASHTO Standard Specifications for Highway Bridges, 1996, and the 1997 and 1998 Interim Specifications, as referenced in the AASHTO *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*, are modified as follows:

1. **Geotechnical Design:** The factor of safety shall be as follows:

MINIMUM FACTORS OF SAFETY[1]

	Drilled Shaft		
	Overhead Sign Structures and all other types of ancillary structures except for Mast arm traffic Signals	**Mast arm traffic Signals**	**Spread Footing**
Axial resistance/ Bearing pressure	1.75	1.75	2.0
Torsion/Sliding/Skin Friction	1.75[2]	1.3[2]	1.2[3]
Overturning (Broms Method)	See horiztonal deflection limits	See horizontal deflection limits	1.5

[1]The factors of safety shown above already account for the 1.33/1.40 group overload/overstress factor. No reduction shall be applied to the design loading used in the analysis.
[2]Torsion Resistance may be evaluated using the rational method as presented in FHWA-NHI-10-016 Drilled Shafts for Construction Procedures and LRFD design methods. A value of 1.0 shall be used in lieu of the resistance factors.
[3]Passive resistance shall be reduced by 50% to limit foundation movement.

In capacity calculations for the foundation design of a drilled shaft, the soil resistance of the top 2.0 feet shall be neglected in the analysis for torsion/skin friction/overturning. Soil resistance from the shaft bottom shall not be included in either torsional or axial resistance of the shaft.

2. **Horizontal Deflection Limits:** In lieu of Broms method, COM624P or other commercially available software may be used to evaluate the overturning of shafts and to estimate shaft deflections. For mast arm signals and span wire signals, the total horizontal deflection shall be limited to 0.75 inches at the ground level and the tip of the pile deflection shall not exceed -0.25 inches. For other structures, the total horizontal deflection shall be limited to 0.50 inches at the ground level and the tip of the pile deflection shall not exceed -0.15 inches. The loading used in the analysis shall not be reduced by the allowable overload/overstress factor. The shafts shall be modeled such that the nonlinear flexural rigidity (non-linear EI, or "cracked" section) is accounted for when the horizontal deflections are calculated.

3. **Reinforcement:** Where tremie placement of concrete is anticipated, a minimum spacing of 5 inches or 10 times the size of the largest coarse aggregate whichever is greater shall be provided in both horizontal and vertical direction. For dry shafts, a smaller space of 5 times the size of the largest coarse aggregate may be considered. A dry shaft is when the amount of standing water in the base of the shaft prior to concreting is less than or equal to 3 inches and water is entering the shaft at a rate of less than 12 inches/hour.

4. **Drilled Shafts:** For mast arm traffic signals with an arm 60 feet or greater, the minimum length of drilled shaft shall be 10 feet of embedment unless a spread footing is proposed.

SP704-000120-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
INLAID PAVEMENT MARKERS

August 26, 2019

I. Description

This work shall consist of furnishing and installing inlaid pavement markers in accordance with the Contract and manufacturer's installation instructions. Snow-plowable raised pavement markers conforming to Section 704.03(d)1 of the Specifications shall not be used in the Work.

II. Materials

1. **All components** of the inlaid pavement marker shall be listed on the Department's Approved List 22.

2. **Retroreflectors** shall conform to ASTM D4383. The color and directional properties (one-way or two-way) of retroreflector lenses shall conform to Standard Drawing PM-8.

3. **Holders** shall be made of polycarbonate plastic that are nominally 4.75 inches wide (excluding breakaway tabs), can hold retroreflectors from the Department's Approved List 22 under Inlaid Pavement Markers, comes with two breakaway positioning tabs, and will hold the retroreflector just below the pavement surface when installed with the breakaway positioning tabs resting on the pavement surface.

III. Procedure

The Contractor shall furnish the manufacturer's recommendations for adhesives and installation procedures to the Department before installing the markers.

1. Location and Spacing

The Contractor shall not install markers on bridge decks.

The edge of the groove shall be at least 2 inches from pavement joints and cracks, ensuring that the finished line of markers is straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Offset from the longitudinal joint shall take precedence over straightness of the line of markers.

2. Installation

Retroreflectors shall be affixed to holders, using an adhesive from the Department's Approved List 22 (Inlaid Pavement Markers) prior to installation.

The Contractor shall cut tapered grooves and plunge cuts into the concrete or final course of asphalt. Grooves and plunge cuts shall be at the dimensions specified in Figure 1, unless specified otherwise in the manufacturer's installation instructions. The groove length may be shortened to 54 inches on sharp curves if approved by the Engineer.

Tapered grooves and plunge cuts shall be cut using diamond blades that can accurately control the groove dimensions, resulting in smooth uniform tapers and smooth groove bottoms and ensuring the pavement does not tear or ravel. The Contractor shall remove all dirt, grease, oil, loose or unsound layers, and any other material from the groove which would reduce the bond of the adhesive. Pavement surfaces shall be maintained in a clean and dry condition until the marker is placed.

Holders shall be installed in the same shift as grooving.

The epoxy adhesive shall be thoroughly mixed until it is uniform in color, and applied in accordance with the manufacturer's installation instructions. The Contractor shall partially fill the plunge cut with sufficient epoxy adhesive such that the epoxy adhesive bed area is equal to the bottom area of the holder. The Contractor shall then set the holder in the epoxy adhesive such that the breakaway tabs are resting on the road surface, the holder is centered in the cut, and then fill in additional epoxy adhesive if necessary so the entire perimeter of the holder is completely surrounded in epoxy, with the epoxy level with the edge of the holder in accordance with the manufacturer instructions.

The Contractor shall remove all adhesive and foreign matter from the face of the retroreflector or replace the retroreflector if adhesive and foreign matter cannot be removed. The marker shall be replaced if it is not properly positioned and adhered in the plunge cut.

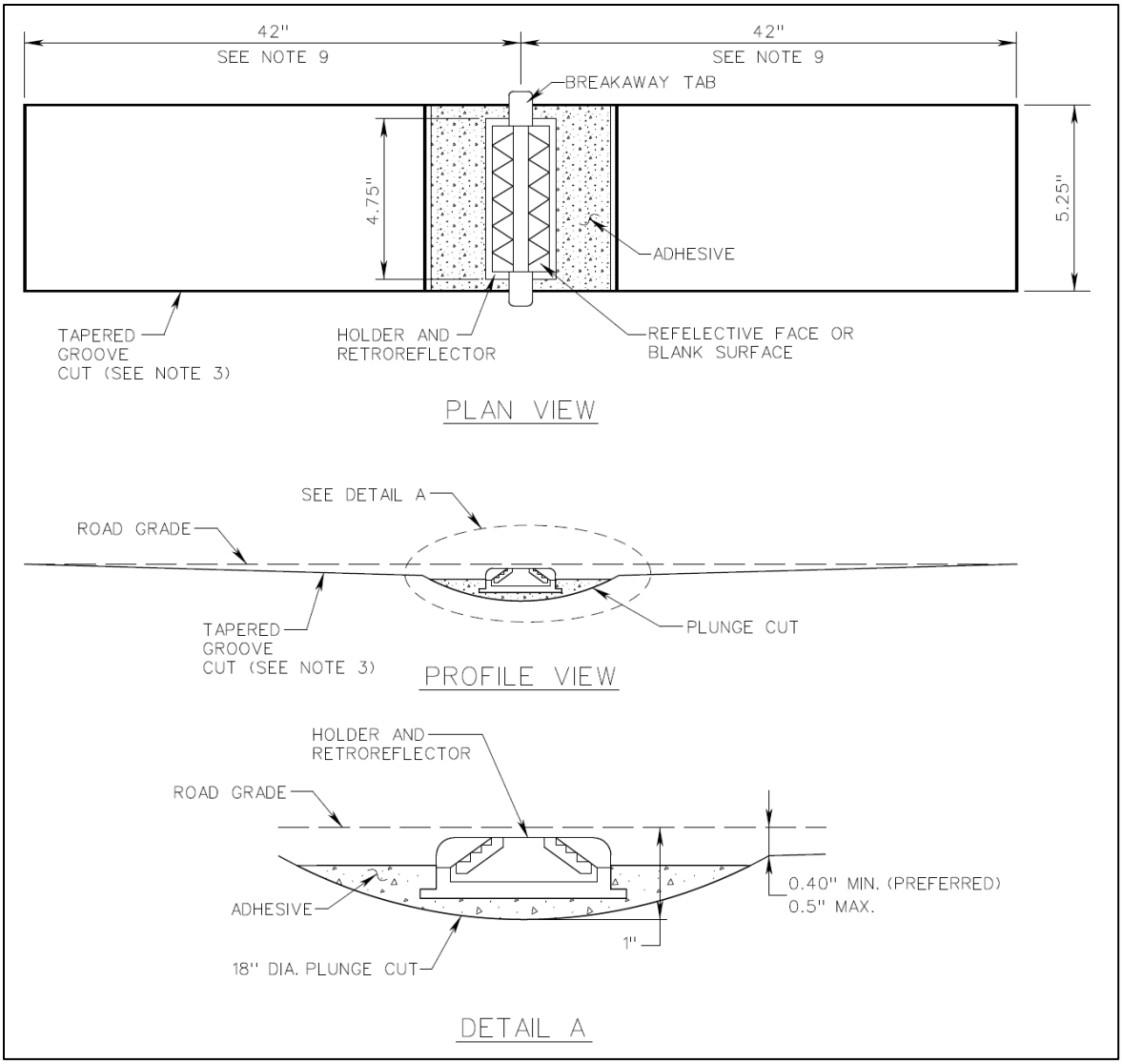


Figure 1: Installation of Inlaid Pavement Marker

IV. **Measurement and Payment**

Inlaid Pavement Marker will be measured in units of each and will be paid for at the Contract each price. This price shall include surface preparation, furnishing, installing, retroreflectors, pavement cutting, adhesives, and holder.

Payment will be made under:

Pay Item	Pay Unit
Inlaid Pavement Marker (type pavement)	Each

SP801-000100-01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
LANE CLOSURE COORDINATION (LCC)/LANE CLOSURE IMPLEMENTATION (LCI)

September 20, 2017

I. General Requirements

This work shall consist of coordinating and communicating lane closure operations through the local Transportation Operations Centers (TOC's). The Contractor shall coordinate lane closures in accordance with this Special Provision, and only implement lane closures with approval from the Department.

II. Training

The Contractor shall have individuals trained to input work-zone information into the Department's LCC/LCI system, currently LCAMS and VaTraffic, on a weekly basis and to update as needed. These individuals shall be able to speak, understand, read, and write English, and be able to operate a computer. No advanced computer skills are needed to use the LCAMS or VaTraffic systems. The Contractor shall have a computer with internet connectivity and email capability.

The Contractor shall contact the Regional TOC Work Zone Lane Closure (LCAMS/VaTraffic) Coordinator to initiate system access and schedule training, when necessary. The Department requires a 10 business-day notice to schedule classroom training for LCAMS. The Contractor's designated individuals shall complete the courses Introduction to VaTraffic, VaTraffic Reports, VaTraffic Planned Events, and VaTraffic Work Zones. LCAMS and VaTraffic training for the individuals shall be completed prior to the Notice to Proceed date.

III. Lane Closure Process

1. **Lane Closure Coordination Process.** All lane closures shall be entered as precisely as possible into the Lane Closure Advisory Management System (LCAMS) and VaTraffic no later than 8 AM on Thursday of the week prior to the planned lane closure, and updated as needed. For the purposes of this Special Provision, a week starts on Sunday. If this submission deadline changes (e.g., for weeks involving a holiday), the Engineer will notify the Contractor at least one week in advance. Final approval for the lane closure will be issued by the Engineer. All fields in LCAMS and VaTraffic must be properly filled out.

   A. **Point of Contact.** The data fields labeled "Requesting Org POC" in LCAMS and "Point of Contact" in VaTraffic shall contain the name and email address of the person physically entering the request into LCAMS.

   B. **Conflict Resolution.** LCAMS will identify and flag most conflicts, and will automatically assign priority as first-come, first-serve. The Contractor has the right to contact the higher-priority party and attempt resolution with them, provided the Contractor submits the final resolution to the Engineer no later than 5 PM on Thursday of the week prior to the planned lane closure. The Engineer will handle all unresolved conflicts between requests and other events according to the priorities listed below, with the highest priority item first. If some or all requests involved in the conflict are the same priority level, conflict resolution will be on a first-come, first-serve basis.

      (1) **Emergency Work.** Work that if not done "will result" in damage to a motorist vehicle or infrastructure, or danger to public health and safety.

(2) **Lower Priority Items Previously Delayed.** Work that while considered a lower priority, if perpetually delayed could result in severe consequences.

(3) **Urgent Work.** Work that if not done “may result” in damage to the motorist vehicle or infrastructure, or danger to public health and safety.

(4) **Contractual Obligated Work.** Work that is expected to be accomplished “on-time, on-budget”.

(5) **Weather Dependent Work.** Work that is dependent on the temperature and clear or dry conditions.

(6) **Routine Maintenance Work.** Work that is routine in nature that can be rescheduled and moved around, within limits, without undue risk.

C. The request shall be supported by the Schedule of Record, and the Engineer may deny requests which are not. The Contractor will be allowed to request lane closures to accommodate potential weather delays.

D. The Contractor may revise his entries in LCAMS and VaTraffic after the Thursday deadline subject to the approval of the Engineer and the conflict resolution requirements herein.

2. **Lane Closure Implementation Process.** The Contractor shall notify the Regional TOC no later than 15 minutes, but no earlier than 45 minutes, prior to installing the lane closure, or no later than 15 minutes prior to scheduled start time if lane closure is delayed or canceled. The Contractor shall notify the TOC and update VaTraffic of any changes in lane-closure impact during the execution of work. The Contractor shall notify the Regional TOC no later than 15 minutes after the lane is reopened to traffic.

3. **Emergency Lane Closure.** If an Emergency Lane Closure is required, the Contractor shall coordinate directly with the TOC regarding the lane closure as soon as the location and size of the lane closure is known. An Emergency Lane Closure is defined as road work which could not have been anticipated and is required to protect the public from immediate, severe harm, and has a priority as defined by Section III-1B(1).

IV. **Measurement and Payment**

Lane closure coordination will not be measured or paid for separately, but the cost thereof shall be included in the price of other items.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SECTION 105.06–SUBCONTRACTING
(STATE FUNDED PROJECTS)

February 9, 2017

SECTION 105.06–Subcontracting of the Specifications is amended to include the following:

(d) According to Commonwealth of Virginia Executive Order 20, the Contractor is encouraged to seek out and consider Small, Women-owned, and Minority-owned (SWaM) businesses certified by the Department of Small Business and Supplier Diversity (DSBSD) as potential subcontractors and vendors. Further, the Contractor shall furnish and require each subcontractor (first-tier) to furnish information relative to subcontractor and vendor involvement on the project.

For purposes of this provision, the term "vendor" is defined as any consultant, manufacturer, supplier or hauler performing work or furnishing material, supplies or services for the contract. The Contractor and, or subcontractor (first-tier) must insert this provision in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). The applicable requirements of this provision are incorporated by reference for work done by vendors under any purchase order, rental agreement or agreement for other services for the contract. The Contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or vendor.

The submission of a bid will be considered conclusive evidence that the Contractor agrees to assume these contractual obligations and to bind subcontractors contractually to the same at the Contractor's expense.

When an approved Form C-31 "Subletting Request" is required according to IIM-CD-2013-06.01, the Contractor shall indicate on the Subletting Request if a subcontractor is a certified DBE or SWaM business.

The Contractor shall report all SWaM vendor payments quarterly to the District Civil RightsOffice.

The Contractor shall provide the information in a format consistent with revised Form C-61 Vendor Payment Report, subject to the approval of the Engineer.

If the Contractor fails to provide the required information, the Department may delay final payment according to Specification Section 109.10 of the Specifications.

It is the policy of the Department that Small, Women-Owned, and Minority-Owned (SWaM) Businesses shall have the maximum opportunity to participate in the performance of VDOT contracts. The Contractor is encouraged to take necessary and reasonable steps to ensure that SWaM firms have the maximum opportunity to compete for and perform work on the Contract, including participation in any subsequent subcontracts. If the Contractor intends to sublet a portion of the work on the project according to the provisions of Section 105.06 of the Specifications, the Contractor is encouraged to seek out and consider SWaM firms as potential subcontractors.

SWaM participation shall be according to the special provision for Section 107.15 Use of Small, Women-Owned, And Minority-Owned Businesses (SWaMS).

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SECTION 107.15 USE OF SMALL BUSINESSES (SWAM PROGRAM)

June 7, 2021

SECTION 107 – LEGAL REQUIREMENTS of the Specifications is amended as follows:

Section 107.15 – Use of Small, Women-Owned, and Minority-Owned Businesses (SWaMs), is replaced in its entirety with the following:

Section 107.15 – Use of Small Businesses, Including Small Women-Owned, Small Minority-Owned, and Small Service Disabled Veteran-Owned Businesses (SWaM Program)

(a) **SWaM Program**

In accordance with applicable rules, regulations, and laws, it is the policy of the Department that small businesses, including those owned by women, minorities, and service disabled veterans (SWaMs) shall have the maximum opportunity to participate in the performance of the Contract. The Contractor is encouraged to seek out and to take necessary and reasonable steps to provide SWaMs with the maximum opportunity possible to compete for and perform work as subcontractors and suppliers on the Contract.

For the purposes of VDOT's SWaM Program, SWaMs are small businesses certified by the Department of Small Business and Supplier Diversity (DSBSD) and defined in Virginia Code § 2.2-1604 and § 2.2-4310 as: (i) small, (ii) any subcategory of small, (iii) small women-owned, (iv) small minority-owned, and (v) small service disabled veteran-owned. For the purpose of this SWaM Program, performance of the Contract shall include, but not be limited to, furnishing labor, materials, supplies, equipment, and services; and leasing equipment or, where applicable, any combination thereof.

By bidding on, and by accepting and executing this Contract on the basis of that bid, the Contractor agrees to assume these contractual obligations. The Contractor shall carry out applicable requirements of this SWaM Program in the award, administration, and performance of this Contract. Failure by the Contractor to carry out these requirements is a material breach of this Contract, which may result in the termination of this Contract or other such remedy, as VDOT deems appropriate, which may include, but is not limited to: (1) withholding monthly progress payments; (2) assessing sanctions; (3) liquidated damages; and/or (4) disqualifying the contractor from future bidding.

(a) **SWaM Certification**

The only subcontractors eligible to perform work on a state funded contract and receive SWaM goal credit are SWaMs certified by DSBSD. Additionally, SWaM businesses must be certified in a NIGP code applicable to the kind of work the businesses would perform on the Contract to receive credit toward the SWaM goal. A directory listing of certified SWaM businesses can be obtained from the DSBSD website, www.sbsd.virginia.gov.

In support of the SWaM Program, VDOT has a service that easily locates SWaM certified businesses that are near a job site using an interactive map that can be accessed using the following link: VDOT's SWaM Patrol - Path to 42.

(b) **SWaM Program-Related Certifications Made by Bidders/Contractors**

By bidding on, and by accepting and executing the Contract on the basis of that bid, the Bidder/Contractor certifies to each of the following SWaM Program-related conditions and assurances:

1. Under penalty of perjury and other applicable penal law that it has complied with the SWaM Program requirements in submitting the bid, and shall comply fully with these requirements in the bidding, award, and execution of the Contract.

2. To ensure that SWaMs have been given full and fair opportunity to participate in the performance of the Contract, the Contractor certifies that all reasonable steps were, and will be, taken to ensure that SWaMs had, and will have, an opportunity to compete for and perform work on the Contract.

3. As a Bidder, good faith efforts were made to obtain SWaM participation in the proposed Contract at or above the goal for SWaM participation established by the Department. If necessary, it has submitted as a part of its bid true, accurate, complete, and detailed documentation of the good faith efforts it performed to meet the Contract goal for SWaM participation. The Bidder, by signing and submitting its bid, certifies the SWaM participation information submitted within the stated time thereafter is true, correct, and complete, and that the information provided includes the names of all SWaMs that will participate in the contract, the specific line items that each listed SWaM will perform, and the creditable dollar amounts of the participation of each listed SWaM. The specific line item must reference the VDOT line number and item number contained in the Proposal.

4. The Bidder further certifies, by signing its bid, it has committed to use each SWaM listed for the specific work item shown to meet the Contract goal for SWaM participation. Award of the Contract will be conditioned upon meeting these requirements and other applicable requirements in the Contract. By signing the bid, the Bidder certifies on work that it proposes to sublet, it has made good faith efforts to seek out and consider SWaMs as potential subcontractors.

5. The Contractor shall make good faith efforts to utilize SWaMs to perform work designated to be performed by SWaMs at or above the amount or percentage of the dollar value specified in the Contract. Further, the Contractor understands it shall not unilaterally terminate, substitute for, or replace any SWaM that was designated in the executed Contract in whole or in part with another SWaM, any non-SWaM, or with the Contractor's own forces or those of an affiliate of the Contractor without the prior written consent of the Department as set out within this provision.

6. The Contractor shall designate and make known to the Department a liaison officer who is assigned the responsibility of administering and promoting an active and inclusive SWaM Program as required by this Special Provision. The designation and identity of this officer need be submitted only once by the Contractor during any 12-month period at the preconstruction conference for the first contract the Contractor has been awarded during that reporting period.

7. Each SWaM participating in the Contract shall fully perform the designated work items with the SWaM’s own forces and equipment under the SWaM’s direct supervision, control, and management. Where a contract exists and where the Contractor, SWaM, or any other subcontractor retained by the Contractor has failed to comply with the SWaM Program requirements on that contract, VDOT has the authority and discretion to determine the extent to which the SWaM Contract requirements have not been met, and will assess against the Contractor any remedies available at law or provided in the Contract in the event of such a Contract breach.

8. In the event a bond surety assumes the completion of work, if for any reason the Department has terminated the Contractor, the surety shall be obligated to meet the same SWaM Program Contract terms and requirements as were required of the original Contractor in accordance with this Special Provision.

(c) **Compliance Procedures**

In addition to procedures applicable to subcontractors in general, the following procedures shall apply for SWaM Program compliance purposes.

1. **Contract Goal, Good Faith Efforts Specified.** The Contract will only be awarded to a Bidder who makes good faith efforts to meet the SWaM goal. A Bidder has made good faith efforts if the Bidder does the following:

   A. The Bidder completes and submits as a part of the Bid:

      (1) **Form C-111S, Minimum SWaM Requirements,** documenting its small business subcontracting plan to attain SWaM participation equal to or greater than the SWaM goal established for the project. Form C-111S may be submitted electronically or may be faxed to the Department, but in no case shall the Bidder's Form C-111S be received later than 10:00 a.m. the next business day after the date and time stated in the bid proposal for the receipt of bids. Contractors who are SWaMs are deemed to have met all the compliance procedures.

      Where the award of a contract for services is made to a SWaM Contractor and the Contractor intends to subcontract work as part of its performance under this Contract, the Contractor shall submit Form C-111S and comply with the subcontracting procedures.

      (2) **Form C-48, Subcontractor/Supplier Solicitation and Utilization,** representing its solicitation of subcontractors/suppliers, whether the listed businesses are SWaMs or non-SWaMs, and utilization or non-utilization of the businesses listed for performance of work on the Contract. Form C-48 may be submitted electronically or may be faxed to the Department, but the Bidder's Form C-48 must be received within 10 business days after the bid opening.

      (3) **Form C-31, Subletting Request,** identifying proposed subcontractors, proposed items and amounts proposed to be sublet, and whether subcontractors are SWaM certified. For each subcontractor not identified at the time of bid, a Form C-31 shall be submitted to the Department electronically or by fax prior to the subcontractor beginning work.

   Failure of the Bidder to submit these Forms in the time frame specified may be cause for rejection of the bid in accordance with this SWaM Program and the Specifications.

   B. If the Bidder is not able to meet the SWaM goal, the Bidder must submit Form C-111S exhibiting the SWaM participation it commits to attain as a part of its bid documents within the time required above. The Bidder shall then submit **Form C-49S, SWaM Good Faith Efforts Documentation**, electronically or by fax, within 2 business days after the bid opening.

   C. The lowest responsive and responsible Bidder must submit its properly executed Form C-112S within 3 business days after the bids are opened. SWaMs bidding as prime contractors are not required to submit Form C-112S. Contractors who are SWaMs are deemed to have met all the compliance procedures.

D. If, after review of the apparent lowest bid, the Department determines the SWaM goal or other requirements have not been met, the apparent lowest successful Bidder must submit Form C-49S which must be received by the State Contract Engineer within 2 business days after official notification of such failure to meet the aforementioned SWaM requirements.

E. The procurement of the Contract shall be conducted in accordance with small business enhancement terms set forth in this SWaM Program for small businesses certified by DSBSD.

Forms C-31, C-48, C-49S, C-61, C-111S, and C-112S can be obtained from the VDOT website at: http://vdotforms.vdot.virginia.gov/.

2. **Good Faith Efforts Described**

Good faith efforts means all necessary and reasonable steps that the Bidder/Contractor took to achieve the SWaM goal or comply with the requirements of this SWaM Program which, by their scope, intensity, and appropriateness to the objective, can reasonably be expected to obtain or fulfill the requirement.

In order to award a contract to a Bidder who has failed to meet the SWaM goal, or otherwise evaluate whether the Contractor has complied with the requirements of the SWaM Program, VDOT will determine if the Bidder/Contractor made adequate good faith efforts, and if given all relevant circumstances, those efforts were made actively and aggressively to meet the SWaM goal. Efforts to obtain SWaM participation are not good faith efforts if they could not reasonably be expected to produce a level of SWaM participation sufficient to meet the SWaM goal.

Good faith efforts may be determined through use of the following list of the types of actions the Bidder/Contractor may take to obtain SWaM participation. This is not intended to be a mandatory checklist, nor is it intended to be exclusive or exhaustive. Other factors or types of efforts of similar intent may be relevant in appropriate cases:

A. Soliciting SWaM participation through reasonable and available means, such as but not limited to, attending pre-bid meetings, advertising, and sending written notices to SWaMs who have the capability to perform the work of the Contract. Examples include: (i) advertising the opportunity to bid in at least one daily/weekly/monthly newspaper of general circulation or on the internet with supporting documentation, including copies of the advertisement; (ii) telephoning SWaMs as shown by a completely documented telephone log, including the date and time called, contact person, or voice mail status; or (iii) emailing SWaMs as shown by copies of the email and responses. The Bidder/Contractor shall solicit this interest no less than five (5) business days before the bids are due so that the solicited SWaMs have enough time to reasonably respond to the solicitation. The Bidder/Contractor shall determine with certainty if the SWaMs are interested by taking reasonable steps to follow up initial solicitations as evidenced by documenting such efforts as requested on Form C-49S.

B. Selecting portions of the work to be performed by SWaMs in order to increase the likelihood that the SWaM goal will be achieved. This includes, where appropriate, breaking out contract work items into economically feasible units to facilitate SWaM participation, even when the Contractor might otherwise prefer to completely perform all portions of this work in its entirety or use its own forces.

C. Providing interested SWaMs with adequate information about the Plans, Specifications, and requirements of the Contract in a timely manner, which will assist the SWaMs in responding to a solicitation.

D. Negotiating for participation in good faith with interested SWaMs.

(1) Evidence of such negotiation shall include the names, addresses, and telephone numbers of SWaMs that were considered; dates SWaMs were contacted; a description of the information provided regarding the Plans, Specifications, and requirements of the Contract for the work selected for subcontracting; and, if insufficient SWaM participation seems likely, evidence as to why additional agreements could not be reached for SWaMs to perform the work.

(2) A Bidder/Contractor using good business judgment should consider a number of factors in negotiating with subcontractors, including SWaM subcontractors, and should take a firm's price, qualifications, and capabilities, as well as contract goals, into consideration. However, the fact that there may be some additional costs involved in finding and using SWaMs is not sufficient reason for a Bidder's/Contractor's failure to meet the Contract goal for SWaM participation, as long as such costs are reasonable and comparable to costs customarily appropriate to the type of work under consideration. Also, the ability or desire of a Bidder/Contractor to perform the work on the Contract with its own organization does not relieve the Bidder/Contractor of the responsibility to make diligent good faith efforts. Bidders/Contractors are not, however, required to accept higher quotes from SWaMs if the Bidder can show price difference to be excessive, unreasonable, or greater than would normally be expected by industry standards.

E. A Bidder/Contractor cannot reject a SWaM as being unqualified without sound reasons based on a thorough investigation of the SWaM's capabilities. The SWaM's standing within its industry, membership in specific groups, organizations, associations, and political or social affiliations, and union versus non-union employee status are not legitimate causes for the rejection or non-solicitation of bids in the Bidder's efforts to meet the project goal for SWaM participation.

F. Making efforts to assist interested SWaMs in obtaining necessary equipment, supplies, materials, or related assistance or services subject to the restrictions contained in these provisions.

G. Effectively using the services of appropriate personnel from the Department and from (i) DSBSD, (ii) available community organizations, (iii) contractors' groups, (iv) local, state, and Federal business assistance offices, (v) the Virginia Department of Veterans; and (vi) other organizations as allowed on a case-by-case basis; to provide assistance in the recruitment and utilization of qualified SWaMs.

(d) **Documentation and Administrative Reconsideration of Good Faith Efforts**

1. **During Bidding**: As described in Section 107.15(d)(1), where a Bidder fails to meet the SWaM goal, the Bidder must submit Form C-49S documenting its good faith efforts made to meet the SWaM goal within 2 business days after notification of such failure. The means of transmittal and the risk for timely receipt of this information shall be the responsibility of the Bidder. The Bidder shall attach additional pages to the certification, if necessary, in order to fully document specific good faith efforts made to obtain the SWaM goal.

A. A Bid may be found non-responsive where the Bidder has failed to submit the required documentation in the time and manner specified.

B. Before awarding a contract or renewing a renewable contract with the Contractor, the Department will review the Contractor's record of compliance with its small business subcontracting plan requirements in Form C-111S submitted on past contracts. The failure to meet satisfactorily the designated small business subcontracting procurement plan requirements shall be considered in the prospective award or renewal of a contract in accordance with applicable rules, regulations, and laws, and Section 102.08

C. If the lowest Bidder's Bid is rejected the Department may award the Contract to the next lowest Bidder, re-advertise the Proposal at a later date, or proceed otherwise as determined by the Department.

2. **Administrative Reconsideration.**

Where the Department determines that the apparent low Bidder has failed or appears to have failed to meet the requirements of Section 107.15(d)(1) and has failed to adequately document that it made a good faith effort to obtain sufficient SWaM participation to meet the SWaM goal, the Department will notify the Bidder and provide the opportunity for the Bidder to request administrative reconsideration before the Department rejects that bid as non-responsive. The Bidder may submit a request for reconsideration in writing to the State Contract Engineer within 5 business days of receipt of notification by the Department and shall be given the opportunity to discuss the issue and present its evidence to the Administrative Reconsideration Panel (Panel), either in person or by telephone or video conference as the Panel chooses. The Panel will be made up of VDOT Division Administrators or their designees, none of whom took part in the initial determination that the Bidis non-responsive. After presentation by the Bidder, the Panel shall notify the Bidder in writing of its decision and explain the basis for finding that the Bid is or is not responsive.

If the Panel determines the Bidder failed to meet the requirements of the SWaM goal and has failed to make adequate good faith efforts to achieve the level of SWaM participation as specified in the Proposal, the Bidder's Bid will be rejected.

If the Panel determines sufficient documented evidence was presented to demonstrate that the apparent low Bidder made reasonable good faith efforts, the Department will award the Contract and reduce the SWaM requirement to the Bidder's actual commitment shown in their Form C-111S at the time of its Bid. The Contractor is still encouraged to seek additional SWaM participation during the life of the Contract.

(e) **SWaM Participation for Contract Goal Credit**

SWaM participation on the Contract will count toward meeting the SWaM goal in accordance with the following criteria:

1. Cost-plus subcontracts will not be considered to be in accordance with normal industry practice and will not normally be allowed for credit.

2. The applicable percentage of the total dollar value of the subcontract awarded to the SWaM will be counted toward meeting the SWaM goal in accordance with Section 107.15(c) for the value of the work, materials, equipment, supplies, or services that are actually performed or provided by the SWaM itself or subcontracted by the SWaM to other SWaMs.

3. When a SWaM performs work as a participant in a joint venture with a non-SWaM, the Contractor may count toward the SWaM goal only that portion of the total dollar value of the Contract equal to the distinctly defined portion of the Work that the SWaM has performed with the SWaM's own forces or in accordance with the provisions of this Section. The Department shall be contacted in advance regarding any joint venture involving both a SWaM and a non-SWaM to coordinate Department review and approval of the joint venture's organizational structure and proposed operation where the Contractor seeks to claim the SWaM's credit toward the SWaM goal.

4. When a SWaM subcontracts part of the work of the Contract to another business, the value of that subcontracted work may be counted toward the SWaM goal only if the SWaM's subcontractor is a certified SWaM. Work that a SWaM subcontracts to either a non-SWaM or to a non-certified SWaM will not count toward the SWaM goal. The cost of supplies and equipment a SWaM subcontractor purchases or leases from the Contractor or the Contractor's affiliates will not count toward the Contract goal for SWaM participation.

5. A Contractor may not count the participation of a SWaM Subcontractor toward the Contractor's final compliance with the SWaM goal obligations until the amount being counted has actually been paid to the SWaM.

(f) **Performing a Commercially Useful Function (CUF)**

No credit toward the SWaM goal will be allowed for Contract payments or expenditures to a SWaM firm if that SWaM firm does not perform a CUF on the Contract. A SWaM performs a CUF when the SWaM is solely responsible for execution of a distinct element of the Work and the SWaM actually performs, manages, and supervises the work involved with the firm's own forces or in accordance with the provisions of Section 107.15(f). To perform a CUF the SWaM alone shall be responsible and bear the risk for the material and supplies used on the Contract, selecting a supplier or dealer from those available, negotiating price, determining quality and quantity, ordering the material and supplies, installing those materials with the SWaM's own forces and equipment where applicable, and paying for those materials and supplies itself. Whether the SWaM is performing a CUF will be determined based on the amount of work subcontracted, and whether the amount the SWaM is to be paid under the Contract shall be commensurate with the work the SWaM actually performs and the SWaM credit claimed for the SWaM's performance.

1. **Monitoring CUF Performance:** It shall be the Contractor's responsibility to ensure that all SWaMs selected for subcontract work on the Contract, for which he seeks to claim credit toward the SWaM goal, perform a CUF. Further, the Contractor is responsible for and shall ensure that each SWaM fully performs the SWaM's designated tasks with the SWaM's own forces and equipment under the SWaM's own direct supervision and management or in accordance with the provisions of Section 107.15(f). For the purposes of this provision the SWaMs equipment will mean either equipment directly owned by the SWaM as evidenced by title, bill of sale or other such documentation, or leased by the SWaM, and over which the SWaM has control as evidenced by the leasing agreement from a firm not owned in whole or part by the Contractor or an affiliate of the Contractor under the Contract.

   The Department will monitor the Contractor's SWaM involvement during the performance of the Contract. However, the Department is under no obligation to warn the Contractor that a SWaMs participation will not count toward the goal.

2. **SWaMs Must Perform a Useful and Necessary Role in Contract Completion:** A SWaM does not perform a CUF if the SWaM's role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of SWaM participation. In determining whether a SWaM is such an extra participant, VDOT will examine similar transactions, particularly those in which SWaMs do not participate.

3. **SWaMs Must Perform The Contract Work With Their Own Workforces:** If a SWaM does not perform and exercise responsibility for at least 30% of the total cost of the SWaM's contract with the SWaM's own work force, or the SWaM subcontracts a greater portion of the work of a contract than would be expected on the basis of normal industry practice for the type of work involved, the Department will presume that the SWaM is not performing a CUF and such participation will not be counted toward the SWaM goal. When a SWaM is presumed not to be performing a CUF, the SWaM may present evidence to rebut this presumption. The Department may determine that the SWaM is performing a CUF given the type of work involved and normal industry practices.

4. **VDOT Makes Final Determination On Whether a CUF Is Performed:** VDOT has the final authority to determine whether a SWaM firm has performed a CUF. To determine whether a SWaM is performing or has performed a CUF, VDOT will evaluate the amount of work subcontracted by that SWaM or performed by other firms and the extent of the involvement of other firms' forces and equipment. Any SWaM work performed by the Contractor or by employees or equipment of the Contractor shall be subject to disallowance under the SWaM Program, unless the independent validity and need for such an arrangement and work is demonstrated.

5. **Factors Used to determine if a SWaM Trucking Firm is performing a CUF:**

   A. To perform a CUF the SWaM trucking firm shall be completely responsible for the management and supervision of the entire trucking operation for which the SWaM is responsible by subcontract on a particular contract. There shall not be a contrived arrangement, including, but not limited to, any arrangement that would not customarily and legally exist under regular construction project subcontracting practices for the purpose of meeting the SWaM goal.

   B. The SWaM must own and operate at least one fully licensed, insured, and operational truck used in the performance of the Contract work. This does not include a supervisor's pickup truck or a similar vehicle that is not suitable for and customarily used in hauling the necessary materials or supplies.

   C. The SWaM receives full credit for the total reasonable amount the SWaM is paid for the transportation services provided on the Contract using trucks the SWaM owns, insures, and operates using drivers that the SWaM employs and manages.

   D. The SWaM may lease trucks from another certified SWaM firm, including from an owner-operator who is certified as a SWaM. The SWaM firm that leases trucks from another SWaM will receive credit for the total fair market value actually paid for transportation services the lessee SWaM firm provides on the Contract.

   E. The SWaM may also lease trucks from a non-SWaM firm, including an owner-operator. The SWaM who leases trucks from a non-SWaM is entitled to credit for the total value of the transportation services provided by non-SWaM leased trucks equipped with drivers, not to exceed the value of transportation services on the Contract provided by SWaM-owned trucks or leased trucks with SWaM employee drivers. For additional participation by non-SWaM lessees, the SWaM will only receive credit for the fee or commission it receives as a result of the lease arrangement.

Example*:* SWaM Firm X uses two (2) of its own trucks on a contract. The firm leases two (2) trucks from SWaM Firm Y and six (6) trucks equipped with drivers from non-SWaM Firm Z. SWaM credit would be awarded for the total transportation services provided by SWaM Firm X and SWaM Firm Y, and may also be awarded for the total value of transportation services by four (4) of the six (6) trucks provided by non-SWaM Firm Z. In all, full SWaM credit would be allowed for the participation of eight trucks.

With respect to the other two trucks provided by non-SWaM Firm Z, SWaM credit could be awarded only for the fees or commissions pertaining to those trucks that SWaM Firm X receives as a result of the lease with non-SWaM Firm Z.

F. The SWaM may lease trucks without drivers from a non-SWaM truck leasing company. If the SWaM leases trucks from a non-SWaM truck leasing company and uses its own employees as drivers, it is entitled to credit for the total value of these hauling services.

Example: SWaM Firm X uses two of its own trucks on a contract. It leases two additional trucks from non-SWaM Firm Z. Firm X uses its own employees to drive the trucks leased from Firm Z. SWaM credit would be awarded for the total value of the transportation services provided by all four trucks.

G. For purposes of this section, the lease must indicate that the SWaM firm leasing the truck has exclusive use of and control over the truck. This will not preclude the leased truck from working for others during the term of the lease with the consent of the SWaM, provided the lease gives the SWaM absolute priority for and control over the use of the leased truck. Leased trucks must display the name and identification number of the SWaM firm that has leased the truck at all times during the life of the lease.

(g) **Verification of SWaM Participation**

1. **During the Contract**

Within 14 days after contract execution, the Contractor shall submit to the Engineer, with a copy to the District Civil Rights Office (DCRO), a fully executed Subcontract for each SWaM used to claim credit in accordance with the requirements stated on Form C-112S. The Subcontract shall be executed by both parties stating the work to be performed, the details or specifics concerning such work, and the price which will be paid to the SWaM.. In lieu of subcontracts, purchase orders may be submitted for haulers, suppliers, and manufacturers. Such purchase orders must contain, at least, the following information: authorized signatures of both parties; description of the scope of work to include contract item numbers, quantities, and prices; and required contract provisions.

Within 14 days after contract execution, the Contractor shall submit to the Department a fully executed Form C-61 showing the name(s) and certification numbers of the SWaMs who will perform work to be reported as said participation credit. Each month during the Project, the Contractor shall furnish information relative to all SWaM involvement on the project using Form C-61. The District Civil Rights Office (DCRO) will monitor good faith effort documentation monthly to determine progress being made toward meeting the SWaM goal established for the Contract based on the Form C-61 that the Contractor submits during the monthly reporting periods after notice to proceed.

The Department reserves the right to request proof of payment via copies of cancelled checks with appropriate identifying notations. Failure to provide Form C-61 to the DCRO within 5 business days after the reporting period may result in delay of approval of the Contractor's monthly progress estimate for payment. The names and certification numbers of SWaM businesses provided by the Contractor on the various forms indicated in this Special Provision shall be exactly as shown on the DSBSD's latest list of certified SWaMs. Signatures on all forms indicated herein shall be those of authorized representatives of the Contractor as shown on Form C-32 or Form C-32A, or authorized by letter from the Contractor.

The Contractor shall submit to the Engineer its progress schedule with a copy to the DCRO, as required by Section 108.03 or other such specific contract scheduling specification that may include contractual milestones, i.e., monthly or VDOT requested updates. The Contractor shall include a narrative of applicable SWaM activities relative to work activities of the Contractor's progress schedule, including the approximate start times and durations of all SWaM participation to be claimed for credit that shall result in full achievement of the SWaM goal required in the Contract.

If the Contractor plans to use SWaMs who have not been previously documented with the Contractor's Bid and for which the Contractor desires to claim credit toward the SWaM goal, before the SWaM begins work the Contractor shall be responsible for a revised Form C-111S showing the names and certification numbers of any current SWaMs.

The Contractor shall obtain the prior approval of the Department for any assistance it may provide to the SWaM beyond its existing resources in executing its commitment to the work in accordance with the requirements listed in Section 107.15(d). If the Contractor is aware of any assistance beyond a SWaM's existing resources that the Contractor, or another subcontractor, may be contemplating or may deem necessary and that have not been previously approved, the Contractor shall submit a new or revised narrative statement for VDOT's approval prior to assistance being rendered.

2. **SWaM Non-Performance.** If a SWaM, through no fault of the Contractor, is unable or unwilling to fulfill their agreement with the Contractor, the Contractor shall immediately notify the Department in writing and provide all relevant facts. If a Contractor intends to terminate or relieve a SWaM of the responsibility to perform work under their subcontract, the Contractor is required to comply with termination provisions below.

3. **Contractor Non-Compliance.**

   If the Contractor fails to conform to the schedule of SWaM participation as shown on the progress schedule, fails to meet the SWaM participation goals for each month of the Contract as shown on the progress schedule, or at any point at which it is clearly evident that the remaining dollar value of allowable credit for performing work is insufficient to obtain the scheduled participation, and the Contractor has not taken the actions required when a SWaM is unwilling or unable to perform, the Contractor may be disqualified from bidding as provided in Section 107.15(i) for a period up to 60 days, or until such time as conformance with the schedule of SWaM participation is achieved or until the preceding actions are taken. Disqualification may be avoided if the Contractor can show: (1) the SWaM is unable or unwilling to complete their portion of the Work, and the Contractor shows reasonable good faith effort to fulfill the SWaM requirement otherwise; or (2) the Department has eliminated or delayed work which the Contractor, as shown on the progress schedule, had planned to sublet to a SWaM.

If the Contractor fails to comply with correctly completing and submitting any of the required documentation required by this provision within the specified time frames, the Department will withhold payment of the monthly progress estimate until such time as the required submissions are received by the Department. Where such failures to provide required submittals or documentation are repeated the Department may disqualify the Contractor and any prime contractual affiliates, as in the case of a joint venture, from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects until such submissions are received in accordance with Section 107.15(i).

4. **Contract Changes.** During construction there may be changes in the Work necessary for the satisfactory completion of the Project. The SWaM goal applicable to the Contract includes change orders that have more than a minimal impact on the overall Contract amount or the expected SWaM participation. The Contractor should closely monitor changes in the Work to verify if they will impact work to be performed by SWaMs.

A. Increases in Contract Amount

To meet the SWaM goal as applied to a change order increasing the overall Contract amount, the Contractor must make good faith efforts to obtain additional SWaM participation to meet the SWaM goal on the increase in the overall Contract amount. The Contractor could meet this obligation either by obtaining the additional work from SWaM subcontractors or suppliers or by documenting good faith efforts to do so.

For example, if a project has a 10% SWaM participation goal, and during the project the Department issues a change order that will add $500,000 to the overall Contract amount, the 10% goal applies to this additional $500,000. To meet the SWaM goal as applied to the Change Order, the Contractor would have to make good faith efforts to obtain an additional $50,000 in SWaM participation.

If after making a good faith effort the Contractor cannot obtain additional SWaM participation sufficient to meet the increased SWaM goal, the Contractor shall document its good faith efforts by submitting a revised Form C-111S exhibiting the SWaM participation it commits to attain. The Contractor shall also submit a revised Form C-49S. If the Department determines that these Forms demonstrate that the Contractor made reasonable good faith efforts, the Department will reduce the SWaM goal to the Contractor's actual commitment shown in the revised Form C-111S. The Contractor is still encouraged to seek additional SWaM participation during the life of the Contract.

The Contractor may notify the Department if it believes that a Change Order has such a minimal impact on the overall Contract amount or the expected SWaM participation that it would not be sensible to apply the goal to the Change Order. The Department will determine whether it is necessary to apply the SWaM goal to the Change Order.

B. Decreases in Amount of SWaM Work

If changes in the Work eliminate or decrease the amount of work designated to be performed by SWaM(s), the Contractor must follow the procedures in Section 107.15(l)(2)(D), and must make good faith efforts to meet the SWaM goal by finding additional work for SWaMs to perform or finding additional SWaMs to perform work under the Contract to the extent needed to meet the SWaM goal.

5. **Documentation Required for Semi-Final Payment**

On those projects nearing completion, the Contractor must submit Form C-61 marked “Semi-Final” to the DCRO within 20 days after the submission of the last regular monthly progress estimate. The form must include each SWaM used on the Contract work and the work performed by each SWaM. The form shall include the actual dollar amount paid to each SWaM for the accepted creditable work on the Contract. The form shall be certified under penalty of perjury, or other applicable law, to be accurate and complete. The Department will use this certification and other information available to determine applicable SWaM credit allowed to date by the Department and the extent to which the SWaMs were fully paid for that work. The Contractor shall acknowledge by the act of filing the form that the information is supplied to obtain SWaM credit, and that Contractor has complied with the requirements of the SWaM Program. A letter of certification, signed by both the Contractor and appropriate SWaMs will accompany the form, indicating the amount, including any retainage, if present, that remains to be paid to the SWaMs.

6. **Documentation Required for Final Payment**

On those projects that are complete, the Contractor shall submit a Form C-61 marked “Final Report” to the DCRO, within 60 days after final acceptance of the Project. The form must include each SWaM used on the Contract and the work performed by each SWaM. The form shall include the actual dollar amount paid to each SWaM for the creditable work on the Contract. The Department may delay final payment until the Contractor provides the required documentation or complies with its small business subcontracting plan in Form C111S.

Before final payment is made, the Department will use this form and other information available to confirm that the Contractor has certified compliance with the Contract’s small business subcontracting plan shown in Form C111S, and determine if the Contractor has satisfied the SWaM goal percentage specified in the Contract and the extent to which credit was allowed. The Contractor shall acknowledge by the act of signing and filing the form that the information is supplied to obtain SWaM credit, and that Contractor has complied with the requirements of the SWaM Program.

If there are any variances between the Contractor’s required small business subcontracting plan in Form C111S and the actual participation, the Contractor shall provide a written explanation to the Department in the final Form C-61. The written explanation shall be kept with the Contract file and made available upon request. The Contractor's written explanation must substantiate that the variance: (i) was due solely to quantitative underruns, elimination of items subcontracted to SWaMs, or circumstances beyond their control; and (ii) all feasible means have been used to obtain the required participation. The State Contract Engineer upon evaluation of such written explanation will make a determination whether or not the Contractor has met the requirements of the Contract in accordance Section 107.15(i). If the determination is that the Contractor failed to meet the SWaM goal or otherwise comply with the requirements of this SWaM Program, the Contractor may be disqualified from bidding as provided in Section 107.15(i).

(h) **Disqualification of Contractor**

Contractors may be disqualified from bidding for failure to comply with this SWaM Program. Disqualification means the suspension or revocation of the Contractor's prequalification privileges. The disqualification of the Contractor will also result in the disqualification of each member when the Contractor is a joint venture, and any affiliate of the Contractor that has essentially the same operational management or draws from the same labor resource pool. Disqualification, for the purpose of this SWaM Program, means that the Contractor, the members of the joint venture when applicable, and its affiliates, will retain their prequalification status, but will be restricted from bidding as a prime contractor, or performing work as a subcontractor on VDOT projects for the specified period of time if the State Contract Engineer determines that such work could adversely affect other work under contract to VDOT.

Before disqualification as provided herein, the Contractor may submit documentation to the State Contract Engineer to substantiate that the failure was due solely to quantitative underruns, elimination of items subcontracted to SWaMs, or to circumstances beyond their control, and that all feasible means have been used to obtain the required participation.

The State Contract Engineer upon evaluation of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract. Before the issuance of a written determination of disqualification, the State Contract Engineer shall (i) notify the Contractor in writing of the results of the evaluation, (ii) disclose the factual support for the determination, and (iii) allow the Contractor an opportunity to inspect any documents that relate to the determination, if so requested by the Contractor within 5 business days after receipt of the notice.

Within 10 business days after receipt of the notice, the Contractor may submit rebuttal information challenging the evaluation. The State Contract Engineer shall issue the written determination of disqualification based on all information in the possession of the Department, including any rebuttal information, within 5 business days of the date the State Contract Engineer received such rebuttal information.

If the State Contract Engineer determines that the Contractor should be disqualified, the decision shall be administratively final unless the Contractor requests an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. If the Administrative Reconsideration Panel's evaluation reveals that the Contractor should not be disqualified, the Department shall cancel the proposed disqualification action. If the evaluation reveals that the Contractor should be disqualified, the Administrative Reconsideration Panel shall so notify the Contractor. The notice shall state the basis for the determination. The decision of the Administrative Reconsideration Panel shall be final and conclusive unless the Contractor appeals the decision within 10 calendar days after receipt of the notice by instituting a legal action as provided in Virginia Code § 2.2-4364.

If the decision is made to disqualify the Contractor as described herein, the disqualification period will begin upon the Contractor’s failure to request an appearance before the Administrative Reconsideration Panel or instituting a legal action within the designated time frame or upon the Administrative Reconsideration Panel’s or a court's decision to affirm the disqualification, as applicable.

As used above, "all feasible means" refers to reasonable good faith efforts to obtain sufficient SWaM participation to meet the SWaM goal as specified in Section 107.15(d)(2).

(i) **Miscellaneous SWaM Program Requirements**

1. **Loss of SWaM Eligibility**: When a SWaM has been removed from eligibility as a certified SWaM, the following actions will be taken:

   A. When a Contractor has made a commitment to use a Subcontractor that is not currently SWaM certified, thereby making the Contractor ineligible to receive SWaM participation credit for work performed, and a Subcontract has not been executed, the ineligible Subcontractor does not count toward either the SWaM goal or overall goal. The Contractor shall meet the SWaM goal with a Subcontractor that is eligible to receive SWaM credit for work performed, or must demonstrate to the State Contract Engineer that it has made good faith efforts to do so.

   B. When a Contractor has executed a Subcontract with a certified SWaM before official notification of the SWaM's loss of eligibility, the Contractor may continue to use the subcontractor on the Contract and shall continue to receive SWaM credit toward its SWaM goal for the subcontractor's work.

   C. When the Department has executed a prime contract with a SWaM that is certified at the time of contract execution but that is later ruled ineligible, the portion of the ineligible contractor's performance on the contract before the Department has issued the notice of its ineligibility shall count toward the SWaM goal.

2. **Termination of SWaM**: If a SWaM that the Contractor committed to use to meet the SWaM goal fails, refuses, or is unable to complete their work on the Contract for any reason, the Contractor shall promptly notify the Department. The Contractor shall not terminate, substitute or replace that SWaM without providing the notices and obtaining the Department's prior written consent in accordance with this section. This includes, but is not limited to, instances in which the Contractor seeks to perform work originally designated for a SWaM with its own forces or those of an affiliate, a non-SWaM, or with another SWaM. Unless the Contractor obtains the Department's prior written consent the Contractor shall utilize the specific SWaMs listed in its Form C-111S to perform the work and supply the materials for which each is listed, and the Contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed SWaM.

   A. Written consent from the Department for terminating the performance of any SWaM shall be granted only when the Contractor can demonstrate that it has good cause to do so. For purposes of this section, good cause includes the following circumstances:

      (1) The listed SWaM fails or refuses to execute a written contract.

      (2) The listed SWaM fails or refuses to perform the work of its subcontract in a way consistent with normal industry standards. Provided, however, that good cause does not exist if the failure or refusal of the SWaM to perform its work on the Subcontract results from the bad faith or discriminatory action of the Contractor.

      (3) The listed SWaM fails or refuses to meet the Contractor's reasonable, nondiscriminatory bond requirements.

      (4) The listed SWaM becomes bankrupt, insolvent, or exhibits credit unworthiness.

      (5) The listed SWaM is ineligible to work on public works projects because of suspension, debarment, disqualification, lack of prequalification, or applicable state law.

      (6) The Department has determined that the listed SWaM is not a responsible contractor.

(7) The listed SWaM voluntarily withdraws from the project and provides to the Department written notice of its withdrawal.

(8) The listed SWaM is ineligible to receive SWaM credit for the type of work required.

(9) A SWaM owner dies or becomes disabled with the result that the listed SWaM is unable to complete its work on the Contract.

(10) Other documented good cause that the Department determines compels the termination of the SWaM. Provided, that good cause does not exist if the Contractor seeks to terminate a SWaM it relied upon to obtain the Contract so that the Contractor can self-perform the work for which the SWaM was engaged or so that the Contractor can substitute another SWaM or non-SWaM contractor after contract award.

The Department's written consent by to terminate any SWaM shall concurrently constitute written consent to substitute or replace the terminated SWaM with another SWaM. Consent to terminate a SWaM shall not be based on the Contractor's ability to negotiate a more advantageous contract with another subcontractor whether that subcontractor is, or is not, a certified SWaM.

B. All Contractor requests to terminate, substitute, or replace a certified SWaM shall be in writing, and shall include the following information:

(1) The date the Contractor determined the SWaM to be unwilling, unable, or ineligible to perform.

(2) The projected date that the Contractor shall require a substitution or replacement SWaM to commence work if consent is granted to the request.

(3) A brief statement of facts describing and citing specific actions or inaction by the SWaM giving rise to the Contractor's assertion that the SWaM is unwilling, unable, or ineligible to perform.

(4) A brief statement of the affected SWaM's capacity and ability to perform the work as determined by the Contractor.

(5) A brief statement of facts regarding actions taken by the Contractor which are believed to constitute good faith efforts toward enabling the SWaM to perform.

(6) The current percentage of work completed on each bid item by the SWaM.

(7) The total dollar amount currently paid per bid item for work performed by the SWaM.

(8) The total dollar amount per bid item remaining to be paid to the SWaM for work completed, but for which the SWaM has not received payment, and with which the Contractor has no dispute.

(9) The total dollar amount per bid item remaining to be paid to the SWaM for work completed, but for which the SWaM has not received payment, and over which the Contractor and the SWaM have a dispute.

C. Contractor's Written Notice to SWaM of Pending Request to Terminate and Substitute with another SWaM.

Before transmitting its request to terminate and substitute a SWaM to the Department, the Contractor shall send a written notice of its intent to terminate or substitute to the affected SWaM, with a copy sent to the DCRO. The affected SWaM may submit a response letter to the DCRO within 5 business days of receiving the notice to terminate from the Contractor. The affected SWaM shall explain its position concerning performance on the committed work, and the reasons, if any, why it objects to the proposed termination of its Subcontract and why the Department should not approve the Contractor's action. The Department will consider both the Contractor's request and the SWaM's response and explanation before approving the Contractor's termination and substitution request, or determining if any action should be taken against the Contractor.

If, after making its best efforts to deliver a copy of the "request to terminate and substitute" letter, the Contractor is unsuccessful in notifying the affected SWaM, the Department will verify that the affected SWaM is unable or unwilling to continue the contract. The Department will immediately approve the Contractor's request for a substitution.

D. Proposed Substitution With Another Certified SWaM

Upon termination of a SWaM, or when a SWaM fails to complete its work on the Contract for any reason, the Contractor shall use reasonable good faith efforts to replace the terminated SWaM. These good faith efforts shall be directed at finding another SWaM to perform at least the same amount of work under the Contract as the original SWaM, to the extent needed to meet the SWaM goal. The termination of such SWaM shall not relieve the Contractor of its obligations pursuant to this section, and the unpaid portion of the terminated SWaM's contract will not be counted toward the SWaM goal.

When a SWaM substitution is necessary, the Contractor shall submit an amended Form C-111S with the name of another SWaM, the proposed work to be performed by that, and the dollar amount of the work to replace the unfulfilled portion of the work of the originally committed SWaM. The Contractor shall furnish all pertinent information including the Contract I.D. number, project number, bid item, item description, bid unit and bid quantity, unit price, and total price. In addition, the Contractor shall submit documentation for the requested substitute SWaM as described in this section of this Special Provision.

Should the Contractor be unable to find another SWaM to perform at least the same amount of work under the Contract as the terminated SWaM, the Contractor shall provide written documentation of its good faith efforts made to do so to VDOT within 7 days, which may be extended for an additional 7 days if necessary at the Contractor's request. The Department will review the quality, thoroughness, and intensity of those efforts. Efforts that are viewed by VDOT as merely superficial or pro-forma will not be considered good faith efforts to meet the Contract goal for SWaM participation. The Contractor must document the steps taken that demonstrated its good faith efforts to obtain participation as set forth in Section 107.15(d)2. The Department will provide a written determination to the Contractor stating whether or not good faith efforts have been demonstrated.

Should the Contractor fail to submit the documentation and information as required any work performed by the substitute SWaM will not be counted toward the SWaM goal.

(j) **Suspected Evidence of Criminal Conduct**

Failure of a Bidder, Contractor, or Subcontractor to comply with the Specifications and the SWaM Program wherein there appears to be evidence of criminal, false, fraudulent, or dishonest conduct shall be considered a violation of the Virginia Governmental Frauds Act, punishable as allowed by the Code of Virginia for a Class 6 Felony, and the Virginia Fraud Against Taxpayers Act, subject to the civil penalties allowed by the Code of Virginia, and referred to the Attorney General for the Commonwealth of Virginia for investigation and, if warranted, prosecution.

SQ107-001620-00 May 11, 2021

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION FOR

PREVAILING WAGE RATES

SECTION 107 – LEGAL RESPONSIBILITIES of the Specifications is amended as follows:

Section 107.13 – Labor and Wages is amended as follows:

Section 107.13(a) Predetermined Minimum Wages is replaced with the following:

(a) **Prevailing Wage Rates:** The provisions of laws requiring the payment of a prevailing minimum wage rate are incorporated in and expressly made a part of this Contract. The Contractor and the Contractor's subcontractors shall pay wages, salaries, benefits, and other remuneration to any mechanic, laborer, or worker employed, retained, or otherwise hired to perform services in connection with the Contract at a rate at least equal to the prevailing wage rates determined by the Commissioner of Labor and Industry for work to be performed under this Contract, which are listed below. The wage determination establishes the rates that must be paid for the entire term of the Contract.

1. If the Contractor needs a job classification not listed in the wage determination to submit a bid or comply with this provision, the Contractor shall submit to the Department a completed Request for Additional Wage Classification, along with the reason for the additional classification, the proposed rate, and any supporting documentation. The Request form is available on the Virginia Department of Labor and Industry (VDOLI) website at: www.doli.virginia.gov/wp-content/uploads/2021/04/Request-for-Additional-Wage-Classification.pdf.

   If other or additional classifications are used, omission of classifications shall not be cause for additional compensation to the Contractor. The Contractor shall be responsible for determining local practices with regard to the application of the various labor classifications.

2. The Contractor or the Contractor's subcontractors who employ any mechanic, laborer, or worker to perform work contracted to be done under the Contract at a rate that is less than the prevailing wage rate may be subject to civil and criminal liabilities and penalties as provided in § 2.2-4321.3 of the Code of Virginia.

3. Upon the award of the Contract, the Contractor shall certify, under oath, to the Commissioner of VDOLI the pay scale for each craft or trade employed on the project to be used by the Contractor and any of the Contractor's subcontractors for work to be performed under the Contract. This certification shall, for each craft or trade employed on the project, specify the total hourly amount to be paid to employees, including wages and applicable fringe benefits, provide an itemization of the amount paid in wages and each applicable benefit, and list the names and addresses of any third party fund, plan or program to which benefit payments will be made on behalf of employees. The certification form is available at: www.doli.virginia.gov/wp-content/uploads/2021/04/DOLI-Pay-Scale-Certification-for-Public-Works-Projects.pdf. The form may be emailed to prevailingwage@doli.virginia.gov, faxed to 804-371-6524, or mailed to Virginia Department of Labor and Industry, 600 East Main St., Suite 207, Richmond, VA, 23219, Attn: Prevailing Wage.

4. The Contractor and the Contractor's subcontractors shall keep, maintain, and preserve (i) records relating to the wages paid to and hours worked by each individual performing the work of any mechanic, laborer, or worker and (ii) a schedule of the occupation or work classification at which each individual performing the work of any mechanic, laborer, or worker on the public works project is employed during each work day and week. These records should include but are not limited to: (i) time cards, time sheets, daily work records, etc.; (ii) payroll ledger or journals and canceled checks or check register; and (iii) fringe benefit records must include program, address, account number, and canceled checks. The employer shall preserve these records for a minimum of six years and make such records available to VDOLI within 10 days of a request and shall certify that records reflect the actual hours worked and the amount paid to its workers for whatever time period they request.

5. The Contractor and the Contractor's subcontractors performing work on this Contract shall post the general prevailing wage rate for each craft and classification involved, as determined by the Commissioner of Labor and Industry, including the effective date of any changes thereof, in prominent and easily accessible places accessible to all employees at the site of the work or at any such places as are used by the Contractor or subcontractors to pay workers their wages. Within 10 days of such posting, the Contractor or subcontractors shall certify to the Commissioner of VDOLI their compliance with this requirement. The certification is form available at: www.doli.virginia.gov/wp-content/uploads/2021/04/PW_Posting_Compliance_Form.pdf. The form may be emailed to prevailingwage@doli.virginia.gov, faxed to 804-371-6524, or mailed to Virginia Department of Labor and Industry, 600 East Main St., Suite 207, Richmond, VA, 23219, Attn. Prevailing Wage.

6. Helpers. Helpers are not included in the VDOLI wage determinations. If the Contractor thinks the project needs a “helper” wage determination, the Contractor must prove the following conditions:

   a. The work duties are defined and distinct from listed classifications;
   b. The use of helpers is an established practice in the area; and
   c. The helper is not employed as a trainer, or apprentice

7. Apprentices and trainees. If an apprentice or trainee is registered in a bona fide apprenticeship program that is registered with the US Department of Labor, the Commonwealth, or an out-of-state agency then the wages paid to such an individual will be specified by the apprenticeship, or training agreement and not subject to prevailing wage rates.

8. Appeal of wage determination. If the Contractor thinks an error has occurred, either in the listing of wage determinations, or in the calculation of specific wages, the Contractor may fill out the form available on the VDOLI website titled “Appeal for Clarification of Wage Determination”. In this form the Contractor can list the reason for the appeal, and can submit all relevant documents to support the appeal. The form should be submitted VDOLI, the agency responsible for processing the appeal.

9. Prevailing wage rates for work done off-site. For the purposes of this provision, the requirement to pay prevailing wage rates for "services in connection with the Contract" includes services performed at the site of work, at a site dedicated exclusively, or near so, to the performance of the Contract, or a site adjacent, or virtually adjacent to the site of the work; but does not include the Contractor's home office or branch locations, tool yards, fabrication or batch plants, or similar locations not established specifically for the project.

10. Subcontracts. The Contractor shall insert this Special Provision into any subcontracts let to subcontractors for performance of services in connection with the Contract.

COMMONWEALTH of VIRGINIA
DEPARTMENT OF LABOR AND INDUSTRY

Gary G. Pan
COMMISSIONER

Main Street Centre
600 East Main Street, Suite 207
Richmond, Virginia 23219
PHONE (804) 371-2327
FAX (804) 371-6524

Virginia Department of Labor and Industry Wage Determination Decision

Project Name	VDOT - K61
State Project Code	0058-133-459
DOLI Project Number	VDOT-23-0212
County or Independent City	Suffolk (City)
Publication Date	11/30/2023
Construction Type	Highway

Wage Determinations	Wage	Fringe
Carpenter (Includes Form Work)	$20.21	
Cement Mason/Concrete Finisher	$16.03	
Electrician, Includes Traffic Signalization	$30.55	$11.51
Ironworker, Reinforcing	$24.03	
Ironworker, Structural	$27.38	
Laborer: Asphalt, Includes Raker, Shoveler, Spreader and Distributor	$18.62	$2.62
Laborer: Common or General	$14.85	
Laborer: Grade Checker	$14.88	
Laborer: Pipelayer	$17.76	
Laborer: Power Tool Operator	$15.69	
Operator: Asphalt Spreader and Distributor	$19.09	$1.81
Operator: Backhoe/Excavator/Trackhoe	$20.74	

Wage Determinations	Wage	Fringe
Operator: Bobcat/Skid Steer/Skid Loader	$19.16	$4.45
Operator: Broom/Sweeper	$17.40	$2.01
Operator: Bulldozer, Including Utility	$19.43	
Operator: Crane	$24.42	$4.69
Operator: Drill	$24.66	
Operator: Gradall	$19.26	
Operator: Grader/Blade	$23.21	
Operator: Hydroseeder	$16.64	
Operator: Loader	$17.86	
Operator: Mechanic	$21.43	
Operator: Milling Machine	$23.12	$3.60
Operator: Paver (Asphalt, Aggregate, and Concrete)	$20.12	$3.81
Operator: Piledriver	$21.83	$4.08
Operator: Roller	$21.32	
Operator: Screed	$22.13	$4.89
Traffic Control: Flagger	$12.89	
Traffic Sign Mechanic	$23.00	
Truck Driver: 1/Single Axle Truck	$18.26	$4.88
Truck Driver: Fuel and Lubricant Service	$18.25	
Truck Driver: Heavy 7CY & Under	$15.53	
Truck Driver: Heavy Over 7CY	$16.98	
Truck Driver: Single & Multi Axle	$18.77	$4.63

Additional Notes

All wage rates to be used on a contract will be set at the time the contract is awarded. While DOLI maintains a list of wage determinations online for reference purposes, only the wage determinations made in an official Wage Determination Decision, sent by DOLI to the contracting agency, can be used to ascertain the exact rates to be paid for a specific contract.

All rates are determined by DOLI and any appeals of specific classifications may be made through the Wage Determination Appeal form available at http://www.doli.virginia.gov/wp-content/uploads/2021/04/Appeal-for-Wage-Determination-Clarification.pdf
Any additional classifications may be requested through the Additional Wage Classification form available at http://www.doli.virginia.gov/wp-content/uploads/2021/04/Request-for-Additional-Wage-Classification.pdf

Understand your duties as a contractor under Virginia law by referencing our Contractor Responsibilities information sheet available at http://www.doli.virginia.gov/wp-content/uploads/2021/04/PREVAILING-WAGE-CONTRACTOR-RESPONSIBILITIES.pdf

Your employees have specific rights, which can be found on our List of Employee Rights information sheet available at http://www.doli.virginia.gov/wp-content/uploads/2021/04/PREVAILING-WAGE-EMPLOYEE-RIGHTS.pdf
Any further questions should be directed to PrevailingWage@doli.virginia.gov

SS109-002020-01 May 1, 2023

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 109—MEASUREMENT AND PAYMENT

SECTION 109—MEASUREMENT AND PAYMENT of the Specifications is amended as follows:

SECTION 109.08—Partial Payments is replaced in its entirety with the following:

(a) **General**

Partial payments will be based on a monthly progress estimate consisting of approximate quantities and value of work performed as determined by the Engineer. When the method of measurement for a Contract item is in units of each or lump sum, the value of work accomplished for partial payment will be determined on a pro rata basis. Partial payments will be made once each month for the work performed in accordance with the Contract requirements. The Contractor will be given the opportunity to review the monthly progress estimate prior to each partial payment. Upon final acceptance, one last monthly estimate will be prepared and any additional payment due will be vouchered for payment.

The monthly progress estimates will be prepared in accordance with the following schedule:

1. **Contractor companies whose name begins with the letter A through F:** The monthly progress estimate will be prepared on the 4th day of each month, beginning on the first 4th day following the date of the Contract execution, and on the same day of the succeeding months as the work progresses.

2. **Contractor companies whose name begins with the letter G through P:** The monthly progress estimate will be prepared on the 11th day of each month, beginning on the first 11th day following the date of the Contract execution, and on the same day of the succeeding months as the work progresses.

3. **Contractor companies whose name begins with the letter Q through Z:** The monthly progress estimate will be prepared on the 20th day of each month, beginning on the first 20th day following the date of the Contract execution, and on the same day of the succeeding months as the work progresses.

For contracts without a payment bond, the Contractor shall submit to the Engineer a letter from each materials supplier and subcontractor involved stating that the Contractor has paid or made satisfactory arrangements for settling all bills for materials and subcontracted work that was paid on the previous month's progress estimate. The Department will use the source of supply letter and approved subletting request to verify that certifications have been received for work that was paid on the previous monthly estimate. The Contractor shall furnish these and other certificates as are required as a prerequisite to the issuance of payment for the current monthly estimate.

The Department may withhold the payment of any partial or final estimate voucher or any sum(s) thereof from such vouchers if the Contractor fails to make payment promptly to all persons supplying equipment, tools, or materials; or for any labor he uses in the prosecution of the Contract work.

Unless otherwise provided under the terms of the Contract, interest shall accrue at the rate of one percent per month.

Contractors doing business as an individual must provide their social security numbers; proprietorships, partnerships, and corporations must provide their federal employer identification numbers.

(b) **Payment to Subcontractors**

Payment to subcontractors shall be in accordance with the provisions of Code of Virginia § 2.2-4354 and § 2.2-4355 as follows.

1. Department has paid Contractor for Subcontractor's Work.

   Upon the Department's payment to the Contractor for the subcontractor's portion of the work as shown on the monthly progress estimate and the receipt of payment by the Contractor for such work, the Contractor shall make compensation in full to the subcontractor. For the purposes of this Section, payment of the subcontractor's portion of the Work shall mean that payment has been issued for that portion of the Work that was identified on the monthly progress estimate for which the subcontractor has performed service.

   The Contractor shall take one of the following two actions within 7 days after receipt of payment from the Department for the subcontractor's portion of the Work as shown on the monthly progress estimate:

   a. Pay the subcontractor for the proportionate share of the total payment received from the agency attributable to the Work performed by the subcontractor; or

   b. Notify the Department and subcontractor, in writing, of his intention to withhold all or a part of the subcontractor's payment along with the reason for nonpayment.

   In the event payment is not made as required, the Contractor shall pay interest at the rate of one percent per month, unless otherwise provided in the Contract, to the subcontractor on all amounts that remain unpaid after 7 days, except for the amounts withheld as provided in this Section.

2. Department has not paid Contractor for Subcontractor's Work.

   In the event that the Contractor has not received payment from the Department for work performed by a subcontractor under the Contract, the Contractor is liable for the entire amount owed to such subcontractor and shall pay such subcontractor within 60 days of the receipt of an invoice following satisfactory completion of the work for which the subcontractor has invoiced. The Contractor shall not be liable for amounts otherwise reducible due to the subcontractor's noncompliance with the terms of the Contract. However, in the event that the Contractor withholds all or part of the amount invoiced by the subcontractor under the terms of the Contract, the Contractor shall notify the subcontractor within 50 days of the receipt of such invoice, in writing, of his intention to withhold all or part of subcontractor's payment with the reason for nonpayment, specifically identifying the contractual noncompliance, the dollar amount being withheld, and the lower-tier subcontractor responsible for the contractual noncompliance. Payment by the party contracting with the Contractor shall not be a condition precedent to payment to any lower-tier subcontractor,

regardless of the Contractor receiving payment for amounts owed to them. Any contrary provisions shall be unenforceable.

3. Nothing in this Section shall be construed to (i) apply to or prohibit the inclusion of any retainage provisions in a construction contract or (ii) apply to contracts awarded solely for professional services as that term is defined in Code of Virginia § 2.2-4301 where the Department is contracting directly with an architectural and engineering firm.

4. The Contractor shall include in each of its subcontracts provision**s** requiring each subcontractor to include or otherwise be subject to the same payment and interest requirements with respect to each lower tier subcontractor.

5. If the Contractor fails to make payment to the subcontractor within the time frame**s** specified herein, the subcontractor shall notify the Engineer and the Contractor's bonding company in writing. The Contractor's bonding company shall be responsible for insuring payment in accordance with this Section and Section 107.01.

(c) **Retainage**

If the Engineer determines the Contractor's progress is unsatisfactory according to Section 108.03 or other applicable Contract documents, the Engineer will send a notice of unsatisfactory progress to the Contractor advising him of such determination. This notification will also advise the Contractor that five percent retainage of the monthly progress estimate is being withheld and will continue to be withheld for each month the Contractor's actual progress is determined to be unsatisfactory.

When the Engineer determines that the Contractor's progress is satisfactory in accordance with these requirements, the 5 percent retainage previously withheld because of unsatisfactory progress will be released in the next monthly progress estimate, and the remaining monthly progress estimates will be paid in full provided the Contractor's progress continues to be satisfactory.

VIRGINIA DEPARTEMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 211 – ASPHALT CONCRETE

SECTION 211 – ASPHALT CONCRETE of the Specifications is amended as follows:

Section 211.01 – Description is replaced with the following:

Asphalt concrete shall consist of a combination of mineral aggregate and asphalt material mixed mechanically in a plant specifically designed for such purpose.
An equivalent single-axle load (ESAL) will be established by the Engineer, and SUPERPAVE mix types may be specified as one of the types listed as follows:

Mix Type[1]	Equivalent Single-Axle Load (ESAL) Range (millions)	Minimum Asphalt Performance Grade (PG)[2]	NominalMaximum Aggregate Size[3]
SM-4.75A	0 to 3	64S-16	No. 4
SM-4.75D	3 to 10	64H-16	No. 4
SM-4.75E	3 to 10	64E-22	No. 4
SM-9.0A	0 to 3	64S-16	3/8 in
SM-9.0D	3 to 10	64H-16	3/8 in
SM-9.0E	Above 10	64E-22	3/8 in
SM-9.5A	0 to 3	64S-16	3/8 in
SM-9.5D	3 to 10	64H-16	3/8 in
SM-9.5E	Above 10	64E-22	3/8 in
SM-12.5A	0 to 3	64S-16	1/2 in
SM-12.5D	3 to 10	64H-16	1/2 in
SM-12.5E	Above 10	64E-22	1/2 in
IM-19.0A	Less than 10	64S-16	3/4 in
IM-19.0D	10 to 20	64H-16	3/4 in
IM-19.0E	20 and above	64E-22	3/4 in
BM-25.0A	All ranges	64S-16	1 in
BM-25.0D	Above 10	64H-16	1 in

[1]SM = Surface Mixture; IM = Intermediate Mixture; BM = Base Mixture

[2]**Minimum Asphalt Performance Grade (PG)** is defined as the minimum binder performance grade for the job mix formulas as determined by AASHTO T170 or AASHTO M332.

[3]**Nominal Maximum Aggregate Size** is defined as one sieve size larger than the first sieve to retain more than 10 percent aggregate.

Asphalt concrete shall conform to the requirements for the mix type designated on the plans or elsewhere in the Contract for use.
At the Contractor's option, an approved Warm Mix Asphalt (WMA) additive or process may be used to produce the asphalt concrete mix type designated.

Table II-12A – Standard Deviation is renamed Aggregate Properties and is replaced with the following:

TABLE II-12A
Aggregate Properties

	Coarse Aggregate Properties			Fine Aggregate Properties	
	CAA		ASTM D4791		
Mix Type	1 fractured face	2 fractured faces	F & E (5:1) % by weight	SE	FAA
SM-4.75A				40% min	40% min
SM-4.75D				45% min	45% min
SM-4.75E				45% min	45% min
SM-9.0 A	85% min.	80% min.	10% max.[1]	40% min.	40% min.
SM-9.0 D	85% min.	80% min.	10% max.[1]	45% min.	45% min.
SM-9.0 E	95% min.	90% min.	10% max.[1]	45% min.	45% min.
SM-9.5 A	85% min.	80% min.	10% max.[1]	45% min.	45% min.
SM-9.5 D	85% min.	80% min.	10% max.[1]	45% min.	45% min.
SM-9.5 E	95% min.	90% min.	10% max.[1]	45% min.	45% min.
SM-12.5 A	85% min.	80% min.	10% max.[1]	45% min.	45% min.
SM-12.5 D	85% min.	80% min.	10% max.[1]	45% min.	45% min.
SM-12.5 E	95% min.	90% min.	10% max.[1]	45% min.	45% min.
IM-19.0 A	85% min.	80% min.	10% max.[1]	45% min.	45% min.
IM-19.0 D	95% min.	90% min.	10% max.[1]	45% min.	45% min.
IM-19.0 E	95% min.	90% min.	10% max.[1]	45% min.	45% min.
BM-25.0 A	80% min.	75% min.	10% max.[1]	45% min.	45% min.
BM-25.0 D	80% min.	75% min.	10% max.[1]	45% min.	45% min.

[1]10 percent measured at 5:1 on maximum to minimum dimensions

Table II-13 – Asphalt Concrete Mixtures: Design Range is replaced with the following:

TABLE II-13
Asphalt Concrete Mixtures: Design Range

	Percentage by Weight Passing Square Mesh Sieves										
Mix Type	**1 1/2 in**	**1 in**	**¾ in**	**½ in**	**3/8 in**	**No. 4**	**No. 8**	**No. 16**	**No. 30**	**No. 50**	**No. 200**
SM-4.75 A,D,E				100[1]	95-100	90-100		30-55			6-13
SM-9.0 A,D,E				100[1]	90-100	90 max.	47-67				2-10
SM-9.5 A,D,E				100[1]	90-100	58-80	38-67		23 max		2-10
SM-12.5 A,D,E			100	95-100	90 max.	58-80	34-50		23 max		2-10
IM-19.0 A,D,E		100	90-100	90 max.	--	--	28-49				2-8
BM-25.0 A,D	100	90-100	90 max.	--	--	--	19-38				1-7
C (Curb Mix)				100	92-100	70-75	50-60		28-36	15-20	7-9

[1]A production tolerance of 1% will be applied to this sieve regardless of the number of tests in the lot.

Table II-14 – Mix Design Criteria is replaced with the following:

TABLE II-14
Mix Design Criteria

Mix Type	VTM (%) Production	VFA (%) Design	VFA (%) Production	Min. VMA (%)	Fines/Asphalt Ratio	No. of Gyrations N Design
SM4.75A [2, 4]	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75D [2, 4]	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM4.75E [2, 4]	3.0-6.0	70-75	70-80	16.5	1.0-2.0	50
SM-9.0A [1,2]	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0D [1,2]	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.0E [1,2]	2.0-5.0	75-80	70-85	17.0	0.6-1.3	50
SM-9.5A [1,2]	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5D [1,2]	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-9.5E [1,2]	2.0-5.0	75-80	70-85	16.0	0.7-1.3	50
SM-12.5A [1,2]	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5D [1,2]	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
SM-12.5E [1,2]	2.0-5.0	73-79	68-84	15.0	0.7-1.3	50
IM-19.0A [1,2]	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0D [1,2]	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
IM-19.0E [1,2]	2.0-5.0	69-76	64-83	14.0	0.6-1.3	50
BM-25.0A [2,3]	1.0-4.0	67-87	67-92	13.0	0.6-1.3	50
BM-25.0D [2,3]	1.0-4.0	67-87	67-92	13.0	0.6-1.3	50

[1]Binder content should be selected at 4.0% air voids for A & D mixes, 3.5% air voids for E mix.
[2]Fines-asphalt ratio is based on effective bindercontent.
[3]Base mix shall be designed at 2.5% air voids. BM-25A shall have a minimum binder content of 4.4% unless otherwise approved by the Engineer. BM-25D shall have a minimum binder content of 4.6% unless otherwise approved by the Engineer.
[4] Binder content shall be selected at 5.0 percent air voids.

211.02—Materials (h)- is replaced with the following

(h) An antistripping additive shall be used in all asphalt mixes. It may be hydrated lime or a chemical additive from the Materials Division Approved List No. 7 or a combination of both. When using an approved chemical additive, it shall be added at a rate of not less than 0.30 percent by weight of the total asphalt content of the mixture unless otherwise indicated on the Department's Approved List No. 7.

211.02—Materials (m)- is replaced with the following

(m) Warm Mix Asphalt (WMA) additives or processes shall be approved by the Department prior to use and shall be obtained from the Department's ApprovedList No. 66. When using an approved chemical additive, it shall be added at a rate of not less than 0.50 percent by weight of the total asphalt content of the mixture unless otherwise indicated on the Department's ApprovedList No.66.

Section 211.03(d)8 – For surface mixes is replaced with the following:

For surface mixes, permeability test data shall be submitted in accordance with VTM-120 using either single point verification or the regression method for each surface mix having a different gradation. The specimen height shall be one inch for SM-4.75 mix types. If the average of the permeability results from the single point verification method exceeds 150 x 10^{-5} cm/sec, or if the regression method predicts a permeability exceeding 150 x 10^{-5} cm/sec at 7.5% voids, the Contractor shall redesign the mixture to produce a permeability number less than 150 x 10^{-5} cm/sec.

Section 211.04(a) – Types SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete is renamed Types SM-4.75A, SM-4.75D, SM-4.75E, SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete and replaced with the following:

Types SM-4.75A, SM-4.75D, SM-4.75E, SM-9.0A, SM-9.0D, SM-9.0E, SM-9.5A, SM-9.5D, SM-9.5E, SM-12.5A, SM-12.5D, and SM-12.5E asphalt concrete shall consist of crushed stone, crushed slag, or crushed gravel and fine aggregate; slag or stone screenings; or a combination thereof combined with asphalt binder.

For all surface mixes, except where otherwise noted, no more than 5% of the aggregate retained on the No. 4 sieve and no more than 20% of the total aggregate may be polish-susceptible. At the discretion of the Engineer, SM-9.5AL or SM-12.5AL may be specified and polish susceptible aggregates may be used (without percentage limits).

Unless Type C (curb mix) is specified by the Engineer in the Contract, SM-9.0, SM-9.5, and SM-12.5 mix types are acceptable for use in the construction of asphalt curbing.

Section 211.04(e) – Type SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete is renamed Type SM-4.75, SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete and amended to replace the first paragraph with the following:

> Type SM-4.75, SM-9.5, SM-12.5, IM-19.0 and BM-25.0 asphalt concrete may be designated E (polymer modified), or stabilized (S). Asphalt concrete mixtures with the E designation may not be stabilized.

Table II-15 – Process Tolerance is replaced with the following:

TABLE II-15
Process Tolerance

Tolerance on Each Laboratory Sieve and Binder Content: Percent Plus and Minus													
No. Tests	**Top Size[1]**	**1 ½"**	**1"**	**¾"**	**½"**	**3/8"**	**No. 4**	**No. 8**	**No. 16**	**No. 30**	**No. 50**	**No. 200**	**A.C.**
1	0.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	6.0	5.0	2.0	.60
2	0.0	5.7	5.7	5.7	5.7	5.7	5.7	5.7	5.7	4.3	3.6	1.4	0.43
3	0.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	3.3	2.8	1.1	0.33
4	0.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	3.0	2.5	1.0	0.30
5	0.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	2.7	2.2	0.9	0.27
6	0.0	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	2.4	2.0	0.8	0.24
7	0.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.3	1.9	0.8	0.23
8	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.1	1.8	0.7	0.21
12	0.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	1.7	1.4	0.6	0.17

[1]Defined as the sieve that has 100% passing as defined in Table II-13.

Section 211.08 – Acceptance is amended by replacing the sixth paragraph with the following:

Binder content will be measured as extractable binder or weight after ignition. The Contractor shall submit a copy of burn tickets from an ignition oven to the Engineer and all the original tickets shall be available upon Engineer's request. The Engineer shall be notified within 24 hours from testing of a report edit if the date and time on a ticket do not match information submitted in PLAID.Original tickets shall be maintained on file by the Contractor for a period of 5 years or until final acceptance of the applicable contract, whichever is greater.

Section 211.09 – Adjustment System is amended by replacing the first paragraph and following table with the following:

If a lot of material does not conform to the acceptance requirements of Section 211.08, the Department will determine adjustment points as follows:

Adjustment Points for Each 1% the Gradation Is Outside the Process Tolerance Permitted In Table II-15

Sieve Size	(Applied in 0.1% increments)
1 1/2 in	1
1 in	1
3/4 in	1
1/2 in	1
3/8 in	1
No. 4	1
No. 8	1
No. 16	1
No. 30	2
No. 50	2
No. 200	3

SS220-002020-01 **August 28, 2020**

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 220 – CONCRETE CURING MATERIALS

SECTION 220 – CONCRETE CURING MATERIALS of the Specifications is amended as follows:

Section 220.02(a) – Waterproof paper is replaced with the following:

Waterproof paper shall conform to ASTM C171. One side shall be composed of white, light-reflecting paper.

Section 220.02(b) – PE film is replaced with the following:

PE film shall conform to ASTM C171 except that its nominal thickness shall be 3.0 mils. The thickness at any point shall be at least 2.5 mils.

Section 220.02(c) – Burlap and PE film is replaced with the following:

Burlap and PE film may be used in combination. They shall be bonded securely so that they cannot be easily separated in a dry or saturated condition. White PE film shall conform to the reflectance requirements of ASTM C171. Burlap shall conform to Section 220.02(f). The combination product shall have a total weight of 11 ounces per square yard with 11 threads of burlap per inch.

Section 220.02(f) – Burlap is inserted as follows:

Burlap used by itself shall conform to AASHTO M 182, Class 3, except the weight of each sample may vary by 10%. Acceptance shall be based on the average weight of all samples submitted according to AASHTO M 182, Table 3. If any individual sample is outside the 10% tolerance, the lot will be rejected.

SS223-002020-02 April 4, 2023

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS

SECTION 223 – STEEL REINFORCEMENT

SECTION 223 – STEEL REINFORCEMENT of the Specifications is amended as follows:

SECTION 223.02(a) – Reinforcement is replaced as follows:

1. **Deformed bars** shall conform to ASTM A615, Grade 40 or 60; or ASTM A706, Grade 60. Longitudinal bars for continuous reinforced hydraulic cement concrete pavement shall be Grade 60.

2. **Plain bars** shall conform to ASTM A615, Grade 40 or 60; or ASTM A706, Grade 60, deformation waived. When used as a dowel, material may be a plain bar conforming to the requirements of ASTM A615, Grade 40 or 60, or a plain dowel conforming to the requirements of ASTM A709, Grade 36; or ASTM A706, Grade 60.

3. **Welded wire fabric** shall conform to ASTM A1064. When used in continuously reinforced hydraulic cement concrete pavement wire fabric shall be deformed, furnished in flat sheets, and shall conform to ASTM A1064, Grade 70.

4. **Structural steel** shall conform to Section 226.

5. **Bar mats** shall conform to ASTM A184.

6. **Spiral wire** shall conform to AASHTO M32 or ASTM A1064.

7. Wire mesh for use in gabions shall be made of galvanized steel wire at least 0.105 inch, 12 gage, in diameter. The tensile strength of the wire shall be at least 60,000 pounds per square inch. Wire mesh shall be galvanized in accordance with ASTM A641, Class 3. When PVC coating is specified, it shall be at least 0.015 inch in thickness and shall be black.

   Wire shall be welded to form rectangular openings or twisted to form hexagonal openings of uniform size. The linear dimension of the openings shall be not more than 4 1/2 inches. The area of the opening shall be not more than 9 square inches. The unit shall be nonraveling. Nonraveling is defined as the ability to resist pulling apart at any of the twists or connections forming the mesh when a single wire strand in a section is cut.

SS234-002020-01 May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 234 – GLASS BEADS AND RETROREFLECTIVE OPTICS

SECTION 234 – GLASS BEADS FOR REFLECTORIZING TRAFFIC MARKINGS of the Specifications is replaced as follows:

SECTION 234 – GLASS BEADS AND RETROREFLECTIVE OPTICS

234.01 – Description

This specification covers glass beads and retroreflective optics applied on the surface or incorporated into traffic-marking materials so as to produce a retroreflective surface.

234.02 – Detail Requirements

Glass beads and retroreflective optics shall be supplied from a supplier listed on Materials Approval List No. 76.

The Contractor shall provide a written certification that each batch of glass beads or retroreflective optics used in or on VDOT pavement markings meets VDOT specifications and does not exceed the AASHTO M 247 maximum concentration limits for Lead and Arsenic.

(a) **Glass beads** shall have a composition designed to be highly resistant to traffic wear and weather. Materials other than glass will be allowed if the pavement marking product was tested on the NTPEP test deck with the alternative bead material.

Glass beads shall have a Refractive Index of 1.50-1.79 when tested as per AASHTO T 346.

Glass beads shall conform to AASHTO M 247, except that at least 80 percent of the beads shall be round when tested in accordance with ASTM D 1155, Procedure B.

(b) **Retroreflective Optics** shall have a concentration designed to be highly resistant to traffic wear and weather. Retroreflective Optics shall be composed of glass beads, ceramic materials, or a combination of glass beads or ceramic materials affixed to a glass bead core.

Retroreflective Optics shall have a Refractive Index of 1.8 or higher when tested as per AASHTO T 346.

SS235-002020-01 May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 235 – RETROREFLECTORS

SECTION 235 – RETROREFLECTORS of the Specifications is deleted and replaced as follows:

235.01 – Description

Retroreflectors are retroreflective surfaces that redirect the vehicle headlights back to the driver to delineate the road. The retroreflective surface may consist of a plastic prismatic reflector or retroreflective sheeting. Retroreflectors are used with:

- Pavement Markers (Permanent and Temporary)
- Delineators (Guardrail, Barrier, Flexible Post, Road Edge)

Pavement markers and Delineators shall be approved by reviewing performance data from one or both of the following test programs:

(a) AASHTO's National Transportation Product Evaluation Program (AASHTO/NTPEP). Test data values used for approval may be based upon the data generated per the applicable NTPEP Work Plan.

(b) VDOT Test Facility – VDOT may elect to evaluate performance from their own test facility.

235.02 – Detail Requirements

(a) **Inlaid Pavement Markers –** Holders for inlaid pavement markers shall be made of polycarbonate plastic nominally 4.75 inches wide excluding breakaway tabs, and shall be able to hold retroreflectors from the Department's Approved List 22 under Inlaid Pavement Markers.The top of the the retroreflector shall be 1/8 inch below the pavement surface when installed with the breakaway positioning tabs resting on the pavement surface.

Retroreflectors for inlaid pavement markers shall have a nominal width of 4 inches excluding the holders.

(b) **Pavement Markers (Temporary)** – Refer to VTM-70 for testing and approval

(c) **Pavement Markers (Permanent)** – Refer to VTM-70 for testing and approval

(d) **Delineators** – Refer to VTM-70 for testing and approval

(e) **Aluminum panels for delineators** shall be at least 0.064 inch thick conforming to ASTM B-209, alloy 5052.

SS236-002020-01 May 14, 2021

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 236 – WOOD PRODUCTS

SECTION 236 WOOD PRODUCTS of the Specifications is amended as follows:

236.02 – Detail Requirements is replaced with the following:

(a) **Structural timber and lumber** shall conform to AASHTO M168. The species and grade of structural lumber shall be as shown on the plans. .

Except as otherwise specified, the species and grade of structural lumber, timber, and posts for the following applications shall be as follows:

1. **Bridges** shall be at least 1,550(psi) Fb (Fiber Bending) and:

   - 5 inch by 5 inch and larger: Southern Pine, No. 1 Dense.
   - 2 inch through 4 inch by 2 inch through 4 inch: Southern Pine, No. 1 Dense.
   - 2 inch through 4 inch by 5 inch and through 6 inch: Southern Pine, Non-Dense Select Structural
   - 2 inch through 4 inch by 8 inch only: Southern Pine, Non-Dense Select Structural.
   - 2 inch through 4 inch by 10 inch only: Southern Pine, Select Structural.
   - 2 inch through 4 inch by 12 inch only: Southern Pine, Select Structural.

2. **Signs** shall be at least 1,100 (psi) Fb with material being dressed on all sides and:

   - 4 inches and less in the least dimension: Southern Pine, No. 2.
   - Over 4 inches in the least dimension: Southern Pine, No. 1.

3. **Guardrail** shall be at least 1550 (psi) Fb Southern Pine, No. 1 Dense.

4. **Fence** shall be Southern Pine, No. 2, for line, corner, and brace units.

5. **Signalization and electrical service** shall conform to ANSI Class 05.1. Sawn material, both rough and dressed, shall be certified by the mill as to grade and shall be grade marked in accordance with the grading rules and basic provisions of the American Lumber Standards (PS-20-70) by a lumber grading or inspection bureau or agency approved by the Department. The grade mark shall be applied after dressing if the sawn material is dressed.

(b) **Timber piles** shall conform to ASTM D25. Piles shall be clean peeled and have a butt circumference of at least 31 inches. The Engineer will accept piles for fender systems or other nonload bearing uses under the following criteria provided the piles can be properly driven: A straight line from the center of the butt to the center of the tip may lie partly outside the body of the pile, but the distance between the line and pile shall be not more than 1/2 percent of the length of the pile or 3 inches, whichever is smaller.

Points for timber piles shall be steel or cast iron and of a shape that will allow a secure connection to the pile and withstand driving.

Timber piles shall be branded prior to shipment with the supplier brand, year of treatment, species of timber and preservative treatment, retentions, class, and length. Brand symbols shall conform to AWPA M6.

(c) **Wood Preservatives** - Wood preservatives shall conform to the requirements of the American Wood Protection Association (AWPA) U1 Standards. The AWPA designates the different wood exposure conditions in the following "Use Category System":

UC4A: Above ground, ground contact, fresh water contact or other conditions favorable to wood deterioration. (For Example: sign posts, fence posts and gates).

UC4B: Ground contact in severe environments, critically important components and salt water splash zones (For Example: bridge timbers, bridge decking, guardrail posts and offset blocks).

UC4C: Ground contact in very severe environments, or climates with an extremely high potential for deterioration of critical structural components. (For Example: foundation pilings).

UC5B: Wood exposed to salt and brackish water (For Example: piles, bracing and bulk-heads).

Wood preservatives for Highway Construction and Hand-Contact Surfaces, listed in Tables1 and 2 below shall be used according to their suitability for the wood exposure condition and shall not be used interchangeably.

1. Wood used for **Highway Construction** (including but not limited to - bicycle trails, pedestrian overlooks, maintenance applications for posts (sign, fence, guardrail), bridge decking, gates, stair treads, and offset blocks, piles, timbers, and composites) shall be treated with the following preservative per **Table 1** below:

   Chromated Copper Arsenate (CCA)

   Creosote

   Pentachlorophenol (PCP)

   Dichloro Octyl Isothiazolin (DCOI)

Table 1 – Southern Yellow Pine Treatments & Retentions for Highway Construction per AWPA

Commodity Specifications		Use Category	Preservative Retentions			
			Waterborne (pcf)	Oil borne (pcf)		
Desig	Wood Usage		CCA	Creosote	PCP	DCOI
A	**Sawn Products:** Boards, lumber and timber	UC4A	0.40	10.0	0.50	0.15
	Lumber and Timber products for bridge structures, bridge decking, gates, and stair treds	UC4C	0.60	12.0 *	0.50	0.2
B	**Posts:** Round, 1/2 and 1/4 round, building, fence and sign posts, poles < 16 feet in length.	UC4A	0.40	N/A	N/A	0.13
	Guardrail Posts and offset blocks	UC4B	0.50	N/A	N/A	0.17
E	**Round Timber Pilings:** Pilings and foundations for land and fresh water use	UC4C	0.80	12.0	0.60	0.2
F	**Wood Composites:** Plywood	UC4A	0.40	10.0	0.50	0.2
	**Glue laminated members (glue then treat)	UC4A	N/A	10.0	0.60	0.2
	**Glue laminated members (treat then glue)	UC4A	0.40	10.0	0.60	0.2
	Laminated veneer lumber	UC4A	N/A	10.0	N/A	N/A
G	**Marine Applications** (in or above salt water, brackish water, or tidal water) Plywood & Solid Sawn	UC5B	2.5	25.0	N/A	N/A
	Piles (outer zone/inner zone)	UC5B	2.5/1.5	20.0	N/A	N/A
	Sawn - Dual treatment: CCA with CR	UC5B	1.5	20.0	N/A	N/A
	Piles - Dual treatment: CCA with CR	UC5B	1.0	20.0	N/A	N/A

***Creosote (CR) preservative is not allowed for bridge decks.**

****For Glue laminated members Contractor must certify glue is compatible with treatment**

2. Wood used for **Hand-Contact Surfaces** (including but not limited to handrails, playground equipment, and picnic tables shall be treated with the following non-arsenical, water-borne preserviatives per **Table 2** below:

   Alkaline Copper Quat (ACQ)
   Copper Azole (CA)
   Micronized Copper Azole (MCA)

Table 2 – Southern Yellow Pine Treatments & Retentions for Hand-Contact Surfaces per AWPA

Commodity Specifications		Use Category	Preservative Retentions		
			Waterborne (pcf)		
Designation	Wood Usage		ACQ-A,B,C,D **	CA-B CA-C **	MCA, MCA-C **
A	**Sawn Products:** Boards, lumber and timber for picnic tables, handrails, playground equipment	UC4B	0.60	0.31	0.31
F	**Wood Composites:** Plywood for picnic tables, handrails, playground equipment	UC4B	0.60	0.31	0.31

** **Note – ACQ, CA, MCA - Many wood treatments can be highly corrosive to metal under some conditions.** Fasteners or connectors that will be in contact with wood using ACQ, CA, MCA wood preservative treatments shall be either 304 or 316 stainless steel or hot-dipped galvanized steel that conforms to ASTM A153 or ASTM A653, Class G185. The Engineer will not permit the use of mechanically galvanized steel hardware or fasteners with ACQ, CA, MCA treated wood. Wood treated with ACQ, CA, MCA shall be separated from steel or aluminum beams or posts using a non-metallic, rubber flashing.

Treatment shall conform to these additional requirements:

1. Waterborne preservatives shall be used for timber where a clean surface is desirable. The moisture content of wood material shall be not more than 19 percent at the time of treatment.
2. Oilborne preservatives (Pentachlorophenol, Creosote, Copper Naphthenate) may be used for timber that is not to be painted. Timbers treated with Pentachlorophenol, Creosote, or Copper Naphthenate shall be free of excess preservative on the wood surface. VDOT allows oilborne preservatives for special projects.

3. Field Cuts to Treated Wood - All cuts, pile cutoffs, bolt holes, field cuts and damage which penetrates the treated zone shall be protected in accordance with AWPA Standard M4. In cases in which the originally used preservative is not available for field use, copper naphthenate with minimum 2% copper metal shall be used. In all cases 3 heavy brushed applications of any preservative shall be used, with adequate penetration time between applications.

4. For any product not listed, refer to the latest AWPA, U1 Standard.

5. Treated timber shall be supplied only from facitities on Approved List # 45.

SS246-002020-02 May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 246 – PAVEMENT MARKING

SECTION 246 – PAVEMENT MARKING of the Specifications is amended as follows:

Section 246.02 – Detail Requirements is amended to replace the fifth through seventh paragraphs with the following:

Pavement marking materials shall produce a retroreflective line, message, legend or symbol of specified thickness, width or design in accordance with the MUTCD and Contract requirements.

Pavement marking material shall have the pigment, glass beads, retroreflective optics, and filler well dispersed in the resin, and shall be free from skins, dirt, and foreign objects.

Glass beads and retroreflective optics shall conform to Section 234.

Section 246.02(a) – Approval of Pavement Markings is amended to replace the second paragraph of the second bullet with the following:

When pavement markings are installed on the NTPEP test deck or the VDOT facility, the material's thickness, beads/retroreflective optics, and formulation shall be documented to ensure the equivalent thickness, beads/retroreflective optics and formulation are installed on VDOT roadways following approval.

Section 246.02(b) – Certifications is replaced with the following:

The pavement marking material manufacturer shall certify each batch or lot of material supplied and installed is the same product (thickness, retroreflective optics package and formulation) that was tested and approved on the AASHTO/NTPEP or VDOT test facility in accordance with the Materials Division, Manual of Instructions for Certification I and II Materials. The certification shall include the NTPEP test number from the Materials Division's Approved Products List. The Contractor shall retain the manufacturer's certifications.

Section 246.02(c) – Warranty Requirements is amended to replace the first paragraph with the following:

Pavement marking products shall carry the warranties as supplied by the manufacturer of the individual marking types (classes) for the specific timeframes per type and class and the material requirements for retroreflectivity, durability, color, luminance (Y%), and adhesion as referenced herein. Warranties shall be those commercially supplied or those unique to the Commonwealth in the case of certain products, such as Type B, Class VI preformed pavement marking tape as detailed herein. Manufacturers' warranties shall be obtained by the Contractor and assigned to the Department in writing prior to final acceptance. Warranty periods shall begin on the date of receipt at the project as verified by delivery tickets signed by the Engineer.

Section 246.03(a) – Paint Pavement Marking Materials (Type A) is renamed **Section 246.03(a) – Conventional or Cold Weather Paint Marking Materials (Type A, Class I) and** amended to replace the first paragraph with the following:

Type A, Class I paint material shall be a fast-drying, waterborne, nonleaded, acrylic or modified acrylic resin paint suitable for use on both asphalt and hydraulic cement concrete pavement surfaces and shall be selected from the Materials Division's Approved Products List No. 20. Type A, Class I material shall be designed to be applied at approximately 15 mils wet film thickness in conjunction with AASHTO M 247 Type I beads as per Section 234 of the Specifications.

Type A, Class I cold weather paint shall be capable of being both applied and remaining fully adhered to the surface at temperatures below 40 °F.

Section 246.03(a)1e – IR Scan from NTPEP is replaced with the following:

e. **IR Scan from NTPEP**.

Section 246.03(b) – High Build Paint Marking Materials (Type A, Class II) is added as follows:

Type A, Class II Paint material shall be a fast-drying, waterborne, nonleaded, acrylic or modified acrylic resin paint suitable for use on both asphalt and hydraulic cement concrete pavement surfaces and shall be selected from the Materials Division's Approved Products List No. 20. Type A, Class II material shall be designed to be applied at approximately 27 mils wet film thickness.

1. **Initial Approval** - Maintained retroreflectivity, color (including luminance), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

   a. **Maintained Retroreflectivity:** The photometric quantity to be measured is the coefficient of retroreflected luminance (R_L) in accordance with ASTM E1710 for 30-meter geometry. R_L shall be expressed in millicandelas per square foot per foot-candle when measured in the skipline or centerline areas:

Coefficient of Retroreflected Luminance (R_L) (mcd/ft^2/fc) Paint

Color	Initial	1 Year In-Service
White	300	125
Yellow	225	100

   b. **Day and Nighttime Color and Luminance (Y%):** Measured according to ASTM D6628.

   c. **Durability:** Paint shall have a durability rating of at least 8 when determined in the wheel path area when tested in accordance with the NTPEP Work Plan.

   d. **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.

   e. **IR Scan from NTPEP**.

2. **Batch Testing**

Paint batch testing shall be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. The test results shall be compared against NTPEP lab test results and the Specifications. Testing shall be performed to determine the following physical requirements and properties:

a. **Solids, (% weight)** according to ASTM D2369: Acceptable range from NTPEP results (+/- 2%).

b. **Pigment (% weight)** according to ASTM D3723: Acceptable range from NTPEP results (+/- 2%).

c. **Density (wt/gal.)** according to ASTM D1475: Acceptable range from NTPEP results (+/-0.3 lbs/gal).

d. **Viscosity (KU)** according to ASTM D562: Acceptable range from NTPEP results (+/-5KU).

e. **Contrast Ratio** according to ASTM D2805 (2°,D 65): Paint shall show a dry hiding quality that will give a contrast ratio of at least 0.96 at (15 mil) wet film thickness.

f. **Day Color, Luminance (Y%) - (without Drop-on Beads):**

Color testing results shall conform to the chromaticity coordinate limits that follow. Color determination for paint materials will be made without drop-on beads at least 24 hours after application in accordance with ASTM D6628.

Day Color, Chromaticity Coordinates (Without Drop-on Beads), High Build Paint

	x	y	x	y	x	y	x	y	Y%
White	0.355	0.355	0.305	0.305	0.285	0.325	0.335	0.375	80.0 Min
Yellow	0.493	0.473	0.518	0.464	0.486	0.428	0.469	0.452	50.0-60.0

g. **Settling properties:** Settling shall be no less than a rating of 8 when tested in accordance with the NTPEP Work Plan.

h. **Freeze-thaw and heat stability:** Paint shall show no coagulation or change in viscosity greater than +/- 5 KU when tested in accordance with the NTPEP Work Plan.

i. **Water resistance:** Paint shall show no blistering, peeling, wrinkling, softening, or loss of adhesion when tested in accordance with the NTPEP Work Plan.

j. **VOC:** The VOC content shall be no greater than 150 grams/liter when tested in accordance with EPA Method 24.

k. **Flash point:** Paint shall have a flash point of at least 201 degrees F when tested in accordance with ASTM D93, Pensky-Martens Closed Cup.

l. **Infrared (IR) Scan:** Shall match IR scan from NTPEP.

Section 246.03(b) – Thermoplastic Marking Materials (Type B, Class I) is renumbered as 246.03(c) and replaced as follows:

Thermoplastic material shall be suitable for use on asphalt and hydraulic cement concrete pavement surfaces and shall be selected from the Materials Division's Approved Products List No. 43.

The binder shall be either alkyd or hydrocarbon based. If an alkyd thermoplastic is used, the binder shall consist of synthetic resins, at least one of which is solid at room temperature, and high-boiling plasticizers. At least one-half of the binder composition shall be a maleic-modified glycerol ester of resin and shall be at least 10 percent by weight of the entire material formulation.

Thermoplastic marking materials shall be capable of application at pavement surface temperatures of 50 degrees Fahrenheit and above on all asphalt and hydraulic cement concrete pavement surfaces. Thermoplastic material shall be capable of successfully fusing to itself and previously applied thermoplastic pavement markings.

1. **Initial Approval** - Maintained retroreflectivity, color, luminance (Y%), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

    a. **Maintained Retroreflectivity:** The photometric quantity to be measured is the coefficient of retroreflected luminance (R_L) in accordance with ASTM E1710 for 30-meter geometry when measured in the skip line area.

Coefficient of Retroreflected Luminance (R_L) (mcd/ft^2/fc) Thermoplastic

Color	Initial	1 Year In-Service
White	300	250
Yellow	250	200

    b. **Day and Nighttime Color and Luminance (Y%):** According to ASTM D6628

    c. **Durability:** Thermoplastic shall have a durability rating of at least 8 as determined in the wheel path area when tested in accordance with the NTPEP Work Plan.

    d. **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested per ASTM E303, if available.

2. **Batch Testing:**

    Thermoplastic batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. The tests results will be compared against the following specifications and requirements:

    a. **Pigment and Glass Bead (% Weight)** according to ASTM D4451 82.0% Max

    b. **Intermix Glass Bead Content (% Weight)** according to AASHTO T 250 and ASTM D4797 30.0% Min

    c. **TiO2 (%) for white thermoplastic** according to ASTM D1394 or equivalent method 10.0% Min

    d. **Binder (%)** according to AASHTO T 250/ASTM D4451 18.0% Min

    e. **Calcium Carbonate and Inert Fillers** 42.0 % Max

    f. **Day Color, Luminance (Y%) (Without Drop-on Beads):** Color testing results shall conform to the chromaticity coordinate limits that follow. Color determination for thermoplastic materials will be made without drop-on beads after cooling in accordance with AASHTO T 250 and ASTM D6628.

Day Color, Chromaticity Coordinates (Without Drop-on Beads), Thermoplastic									
	x	y	x	y	x	y	x	y	Y%
White	0.355	0.355	0.305	0.305	0.285	0.325	0.335	0.375	80.0 Min
Yellow	0.499	0.466	0.545	0.455	0.518	0.432	0.485	0.454	40.0-60.0

g. **Nighttime Yellow Color (with Drop-on Beads):** The initial nighttime color of yellow thermoplastic pavement marking material shall conform to the following CIE chromaticity coordinate requirements when tested in accordance with ASTM D6628 and VTM-111:.

Night Time Color, Chromaticity Coordinates (with Drop-on Beads) Thermoplastic								
	1		2		3		4	
Color	x	y	x	y	x	y	x	y
Yellow	0.486	0.439	0.520	0.480	0.560	0.440	0.498	0.426

h. **Water absorption:** Materials shall not have more than 0.5 percent retained water by weight when tested in accordance with ASTM D570, Procedure A.

i. **Softening point:** Materials shall have a softening point of at least 194 degrees F as determined in accordance with ASTM E28.

j. **Specific gravity:** The specific gravity of the thermoplastic compound at 77 degrees F shall be from 1.7 to 2.2.

k. **Impact resistance:** The impact resistance shall be at least 10 inch-pounds at 77 degrees F after the material has been heated for 4 hours at 400 degrees F and cast into bars of 1-inch cross-sectional area, 3 inches long, and placed with 1 inch extending above the vise in a cantilever beam, Izod-type tester conforming to ASTM D256 using the 25 inch-pound scale.

l. **No-Track Time:** Material shall set to bear traffic in not more than 2 minutes when the road temperature is 50 degrees F or above.

m. **Intermixed Glass beads:** Glass beads shall conform to Section 234.

n. **Flashpoint:** The material flashpoint shall be no less than 500 degrees F when tested in accordance with ASTM D92.

Section 246.03(c) Preformed Thermoplastic Pavement Marking Material (Type B, Class II) is renumbered as 246.03(d).

Section 246.03(d)1 Initial approval is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

Section 246.03(d) Epoxy-Resin Pavement Marking Material (Type B, Class III) is renumbered as 246.03(e).

Section 246.03(e)1 Initial approval is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

Section 246.03(e) Polyurea Pavement Marking Material (Type B, Class VII) is renumbered as 246.03(f).

Section 246.03(f)1 Initial approval is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%)), and durability shall conform to the following requirements after the material has been installed on the test deck for 1 year:

Section 246.03(f) Permanent, Plastic-Backed, Preformed Tapes (Type B, Class IV and Type B, Class VI) is renumbered as 246.03(g).

Section 246.03(g)1 Initial approval is amended to replace the first paragraph with the following:

Maintained retroreflectivity, color, luminance (Y%), durability, and adhesion shall conform to the following requirements after the material has been installed on the test deck for 1 year:

Section 246.03(g) – Temporary Pavement Marking Materials is renumbered as 246.03(h) and replaced with the following:

Temporary Pavement Marking Materials other than paint shall consist of Type D, Class III, removable, wet reflective tape and Type E removable black, non-reflective tape. Determination of conformance will include, but not be limited to, the evaluation of test data from AASHTO's NTPEP or other VDOT Test Facilities.

1. **Wet Reflective, Removable Tape (Type D, Class III):**

   Wet reflective, removable tape shall be a durable, retro-reflective pliant material consisting of a mixture of polymeric materials, pigments, and glass beads (reflective optics) evenly distributed throughout its cross-sectional area and embedded into the surface. This tape shall be suitable for use on both asphalt and hydraulic cement concrete surfaces and shall be selected from the Department's Approved List 17.

   a. **Initial Approval** - Maintained retroreflectivity (dry and wet), color, luminance (Y%), and adhesive bond rating shall conform to the following requirements after the material has been installed on the test deck for 90 days:

      (1) **Maintained Dry Retroreflectivity:** The dry photometric quantity to be measured is the coefficient of retroreflected luminance (R_L) in accordance with ASTM E1710 for 30-meter geometry when measured in the skip line or centerline areas.

Coefficient of Retroreflected Luminance (R_L) (mcd/ft^2/fc) Dry Retro Removable Tape-Type D, Class III

Color	Initial	90 Days In-Service
White	250	150
Yellow	200	100

(2) **Maintained Wet Retroreflectivity:** The wet photometric quantity to be measured is the coefficient of retroreflected luminance (R_L) in accordance with VTM 124 (Visual Evaluation or ASTM E2177, Recovery Method) when measured in the skip line or centerline areas.

Coefficient of Retroreflected Luminance (R_L) (mcd/ft^2/fc) Wet Retro Removable Tape-Type D, Class III

Color	Initial	90 Days In-Service
White	150	100
Yellow	125	75

(3) **Day and Nighttime Color and Luminance (Y%):** According to ASTM D6628.

(4) **Adhesive Bond Rating:** The average adhesive bond rating (from transverse and longitudinal lines) shall be 3 or higher according the NTPEP Work Plan.

(5) **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.

(6) **Thickness:** Per the manufacturer's recommendation.

(7) **Adhesion:** No line shall be displaced, torn or missing.

b. **Batch Testing**:

Wet reflective, removable tape batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. Test results shall be compared against the following specifications and requirements:

(1) **Retroreflectivity:** Refer to initial requirements

(2) **Day and Night Color and Luminance:** Refer to initial requirements

(3) **Thickness:** Refer to initial requirements

(4) **Width:** The width shall be no less than the nominal width and no greater than 1/8" of the nominal width.

(5) **Length:** The length shall be no less than the length stated on the manufacturer's packaging.

(6) **Skid Resistance:** Refer to initial requirements.

2. **Removable Black, Non-Reflective Tape (Type E):**

Removable black, non-reflective tape shall be a durable, pliant material consisting of a mixture of polymeric materials, pigments and a friction material evenly distributed throughout its cross-sectional area and embedded into the surface. Removable black, non-reflective tape shall be suitable for use on asphalt concrete pavement surfaces, and shall be selected from the Department's Approved List 17.

a. **Initial Approval** - Maintained adhesive bond rating shall conform to the following requirements after the material has been installed on the test deck for 90 days:

(1) **Adhesive Bond Rating:** The average adhesive bond rating (from transverse and longitudinal lines) shall be 3 or higher according to the NTPEP Work Plan.

(2) **Skid Resistance:** The initial skid resistance shall be at least 45 BPN when tested according to ASTM E303, if available.

(3) **Thickness:** Per the manufacturer's recommendation.

(4) **Adhesion:** No line shall be displaced, be torn or missing.

b. **Batch Testing**

Black removable, non-reflective tape batch testing will be performed by the Department on samples obtained from the point of manufacture or from the field in accordance with the Materials Division's Manual of Instructions. Test results shall be compared against the following specifications:

(1) **Skid Resistance:** Refer to initial requirements

(2) **Thickness:** Refer to initial requirements

(3) **Width:** The width shall be no less than the nominal width and no greater than 1/8" of the nominal width.

(4) **Length:** The length shall be no less than the length stated on the manufacturer's packaging.

SS248-002020-01 **May 26, 2023**

VIRGINIA DEPARTEMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 248 – STONE MATRIX ASPHALT CONCRETE

SECTION 248 – STONE MATRIX ASPHALT CONCRETE of the Specifications is amended as follows:

248.02 – Materials (f) is amended by replacing the first paragraph with the following:

Antistripping Additive: An antistripping additive shall be used in all stone matrix asphalt mixes. It may be hydrated lime or a chemical additive from the Materials Division's Approved List No. 7, or a combination of both. When an approved chemical additive is used, it shall be added at a rate of not less than 0.30 percent by weight of the total asphalt content of the mixture unless otherwise indicated on the Department's Approved List No. 7.

Section 248.04 Acceptance is amended by replacing the third, fourth, fifth, sixth paragraphs with the following:

The Contractor shall check and report the percentage of flat and elongated particles (F&E) in the coarse aggregates of the mix design during production. Two of eight sub-lots from the first lot of material shall be selected for F&E verification when the Contractor samples the SMA material for acceptance (gradation and AC content). F&E testing shall be performed in accordance with VTM-121, after the gradation is performed. If passing results are obtained on each sample in the first lot, then F&E testing shall be performed on a frequency of every second lot of material produced (i.e., Lots 3, 5, 7, etc.) by randomly selecting two sub-lots. If the F&E of the mix exceeds the specified limits, the Contractor shall stop production and notify the Engineer. Production shall not resume until the Contractor has taken corrective action and the Engineer has accepted the Contractor's means of correction. Once production has resumed, the Contractor shall determine the F&E of the mix for two consecutive lots by randomly selecting two sub-lots per lot. If passing results are obtained for these two lots, then the F&E testing frequency shall return to every second lot of material produced.

The Contractor shall check and report the VCA of the mix during production for each gyratory sample. If the VCA of the mix equals the VCA of the DRC, the Contractor shall immediately notify the Engineer, document the JMF changes in the Producer Lab Analysis and Information Details (PLAID) website, and provide corrective action. If the VCA of the mix exceeds the VCA of the DRC, the Contractor shall stop production, notify the Engineer, and remove and replace that day's production at no cost to the Department. Production shall not resume until the Contractor has taken corrective action and the Engineer has accepted the Contractor's means of correction.

If the Department determines that the mixture being produced does not conform to the approved job-mix formula or the volumetric properties in Table II-25, based on the Department or the Contractor's test results, the Contractor shall immediately make corrections to bring the mixture into conformance with the approved job-mix formula and Table II-25 or cease paving with that mixture. The Engineer will investigate and determine the acceptability of the mix placed since the previous passing sample.

The finished pavement shall be uniform, free of irregularities and smooth. If irregularities including segregation, rutting, raveling, flushing, fat spots, mat slippage, irregular color, irregular texture, roller marks, tears, gouges, streaks, uncoated aggregate particles, or broken aggregate particles are detected, the Contractor shall immediately notify the Engineer and address the determined irregularities with corrective action. When irregularities are noted, the acceptability of the finished mat shall be determined by the Engineer.
The Engineer will limit subsequent paving operations using either a revised or another job-mix formula, which has not been verified as described herein, to a test run of 300 tons maximum if such material is to be placed in Department project work. The Engineer will not allow any further paving for the Department using that revised mixture until the acceptability of that mixture has received the Engineer's approval based on the 300-ton constraint.

SS315-002020-04 June 16, 2023

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 315 – ASPHALT CONCRETE PLACEMENT

SECTION 315 – ASPHALT CONCRETE PLACEMENT of the Specifications is replaced with the following:

315.01 – Description

This work shall consist of constructing one or more courses of asphalt concrete on a prepared foundation in accordance with these Specifications and within the specified tolerances for the lines, grades, thicknesses, and cross sections shown on the plans or established by the Engineer. At the Contractor's option, the asphalt concrete mix may be produced using a warm-mix additive or warm-mix process approved by the Department. When used, the temperature placement limitations for Warm Mix Asphalt (WMA) shall apply.

This work shall also consist of constructing asphalt concrete curb and rumble strips in accordance with these Specifications, plan details, and the Standard Drawings.

315.02 – Materials

(a) **Asphalt concrete** shall conform to Section 211. The Contractor shall alter the design if SUPERPAVE design densities begin to exceed 98 percent of the Theoretical Maximum Density (TMD) during construction.

(b) **Asphalt for Tack Coat** shall conform to Section 210 and shall be applied according to Section 310.

(c) **Asphalt for prime coat** shall conform to Section 210 and shall be applied according to Section 311.

(d) **Curb backup material** shall be asphalt concrete conforming to any surface or intermediate mixture listed in Table II-13 and Table II-14.

(e) **Liquid asphalt coating (emulsion) for rumble strips** shall conform to Section 210. The Contractor shall use CSS-1h or CQS-1h asphalt emulsions for centerline rumble strips. The CSS-1h or CQS-1h liquid asphalt may be diluted by up to 30 percent at the emulsion manufacturer's facility.

315.03 – Equipment

(a) **Hauling Equipment:** Trucks used for hauling asphalt mixtures shall have structurally sound, tight, clean, smooth metal or other non-absorptive, inert material bodies equipped with a positive locking metal tailgate. Surfaces in contact with asphalt mixtures shall be given a thin coat of aliphatic hydrocarbon invert emulsion release agent (nonpuddling), a lime solution, or other release agent materials on the Materials Division's Approved List No. 8. The beds of dump trucks shall be raised to remove excess release agent prior to loading except when a nonpuddling release agent is used. Only a nonpuddling agent shall be used in truck beds that do not dump. Each Contractor truck used for hauling asphalt shall be equipped with a tarpaulin or other type of cover acceptable to the Engineer that shall protect the mixture from moisture and foreign matter and prevent the rapid loss of heat during transportation.

(b) **Asphalt Pavers:** The asphalt paver shall be designed and recommended by the Manufacturer for the type of asphalt to be placed and shall be operated in accordance with the Manufacturer's recommendations. The Contractor shall readily have and maintain on the project site any written recommendations from the Manufacturer of the mix relative to handling and placing of the mixture. In the absence of the Manufacturer's recommendations, the recommendations of the National Asphalt Pavement Association shall be followed. The paver shall be capable of producing a smooth uniform texture, dense joints, and a smooth riding surface even when screed extensions are used.

(c) **Rollers:** Rollers shall be steel wheel, static or vibratory, or pneumatic tire rollers and shall be capable of reversing without backlash. The Contractor shall operate rollers at speeds slow enough to avoid displacement of the mixture. The number and weight of rollers shall be sufficient to compact the mixture to the required density while it is still in a workable condition. The Engineer will not allow the use of equipment that results in excessive crushing of aggregate or marring of the pavement surface. If the Contractor's equipment mars the surface of the pavement during construction to the extent that imperfections cannot satisfactorily be corrected or produces permanent blemishes, the Engineer will require the Contractor to discontinue the use of that particular equipment and replace that equipment with satisfactory units.

(d) **Rotary Saw:** The Contractor shall supply a gasoline-powered rotary saw with a carbide blade for cutting test samples from the pavement. The Contractor shall provide gasoline, oil, additional carbide blades, and maintenance for the rotary saw. The Contractor shall cool the pavement prior to sawing the sample. As an alternative, the Contractor may furnish the necessary equipment for coring and testing 4-inch core samples in accordance with VTM-22.

(e) **Material Transfer Vehicle (MTV):** When required in the Contract, the Contractor shall furnish a self-propelled MTV storage unit capable of receiving material from trucks, storing the material, and transferring the material from the unit to a paver hopper insert via a conveyor system. The paver hopper insert and unit shall have a combined minimum storage capacity of 15 tons. The storage unit or paver hopper insert must be able to remix the material in order to produce a uniform, non-segregated mix having a uniform temperature prior to placing the asphalt material on the roadway surface.

315.04 – Placement Limitations

The Contractor shall not place asphalt concrete mixtures when weather or surface conditions are such that the material cannot be properly handled, finished, or compacted. The surface upon which asphalt mixtures is to be placed shall be free of standing water, dirt, and mud and the base temperature shall conform to the following:

(a) Asphalt Concrete Produced with Warm Mix Asphalt Additives or Processes:

The Contractor shall note on the delivery ticket that the load is Warm Mix Asphalt.

1. **When the base temperature is 40 degrees F and above:** The Engineer will permit lay-down at any temperature below the maximum limits given in Section 211.08.

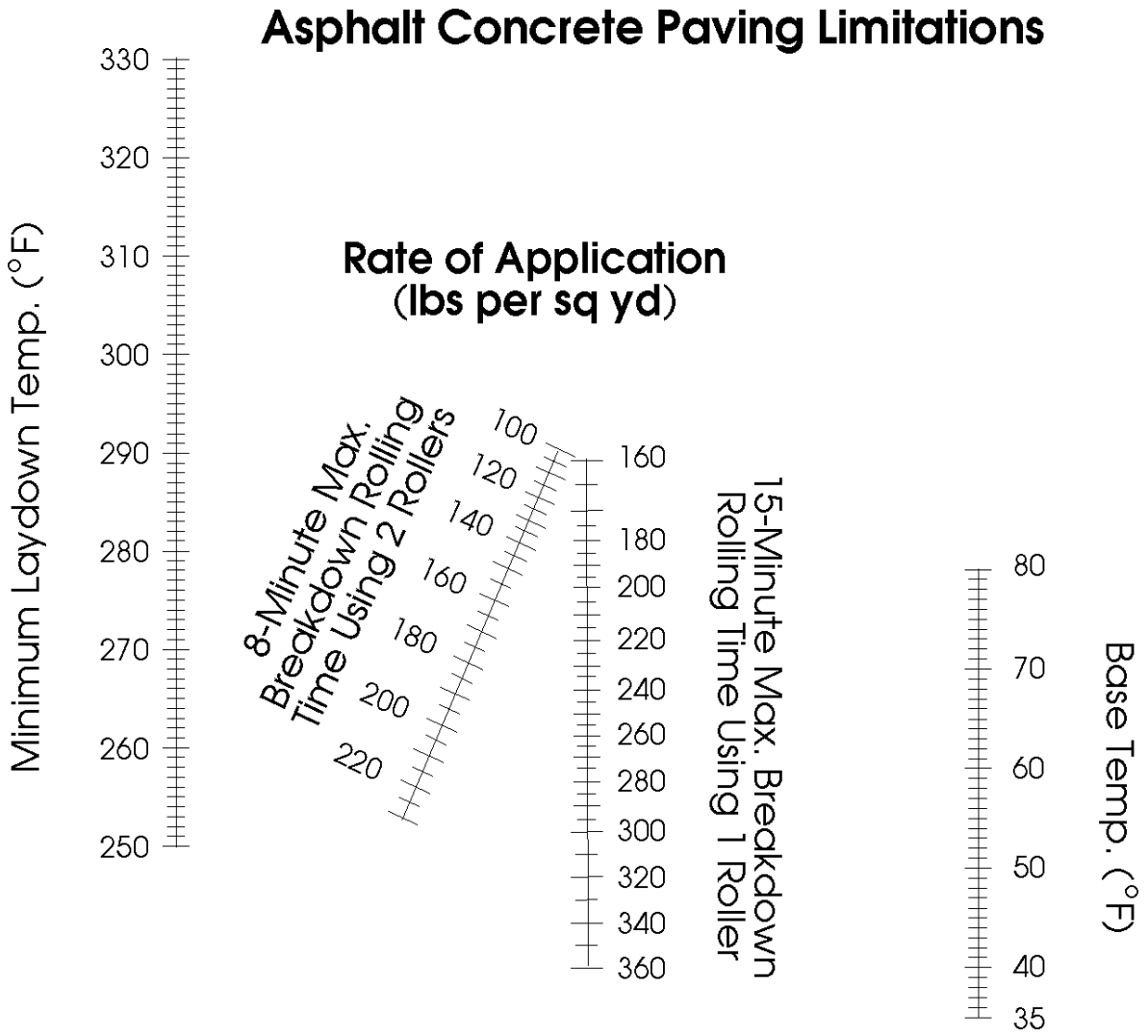
2. **When the mixture temperature is below 200 degrees F:** The Contractor will not be allowed to place the material.

(b) **Asphalt Concrete Produced without Warm Mix Asphalt Additives or Processes:**

1. **When the base temperature is above 80 degrees F:** The Engineer will allow laydown of the mixture at any temperature conforming to the limits specified in Section 211.

2. **When the base temperature is between 40°F and 80°F** the Contractor shall use Table III-2 to determine the minimum laydown temperature of the asphalt concrete mixes. At no time shall the base temperature for base (BM) and intermediate (IM) mixes be less than 40°F. At no time shallthe laydown temperature for BM and IM mixes be less than 250°F.

TABLE III-2
Cold Weather Paving Limitations



The minimum base and laydown temperatures for surface mixes (SM) shall never be less than the following:

PG Binder/Mix Designation	Percentage of Reclaimed Asphalt Pavement (RAP) Added to Mix	Minimum Base Temperature	Minimum Placement Temperature
PG 64S-22 (A)	<=25%	40°F	250°F
PG 64S-22 (A)	>25%	50°F[2]	270°F[2]
PG 64H-22 (D)	<=30%	50°F[2]	270°F[2]
PG 64E-22 (E)	<=15%	50°F[2]	290°F[2]
PG 64S-22 (S)	<=30%	50°F[2]	290°F[2]

3. **When the laydown temperature is between 301 degrees F and 325 degrees F:** The number of compaction rollers shall be the same number as those required for 300 degrees F.

   Intermediate and base courses that are placed at rates of application that exceed the application rates shown in Table III-2 shall conform to the requirements for the maximum application rate shown for 8-minute and 15-minute compaction rolling as per number of rollers used.

   If the Contractor is unable to complete the compaction rolling within the applicable 8-minute or 15-minute period, the Engineer will either require the placing of the asphalt mixture to cease until sufficient rollers are used or other corrective action be taken to complete the compaction rolling within the specified time period.

   The Contractor shall complete compaction rolling prior to the mat cooling down to 175 degrees F. Finish rolling may be performed at a lower mat temperature.

   The Contractor shall not place the final asphalt pavement finish course until temporary pavement markings will no longer be required.

(c) **SM-4.75 Mixtures Placement**:

1. The minimum placement temperature shall be 290°F regardless of WMA use.
2. The minimum ambient and base temperature shall be 50°F. The Contractor shall employ a MTV during the placement of SM-4.75 mixtures when either the ambient or base temperature is between 50°F and 60°F.

315.05 – Procedures

(a) **Base Course:** The Contractor shall prepare the subgrade or subbase as specified in Section 305. The Contractor shall grade and compact the course to the required profile upon which the pavement is to be placed, including the area that will support the paving equipment.

(b) **Conditioning Existing Surface:** The surface on which the asphalt concrete is to be placed shall be prepared in accordance with the applicable specifications and shall be graded and compacted to the required profile and cross section.

When specified in the Contract, before placement of asphalt concrete, the Contractor shall seal longitudinal and transverse joints and cracks by the application of an approved crack sealing material in accordance with Section 322.

1. **Priming and Tacking:** The Contractor shall paint contact surfaces of curbing, gutters, manholes, and other structures projecting into or abutting the pavement and cold joints of asphalt with a thick, uniform coating of asphalt prior to placing the asphalt mixture.

The Contractor shall apply a tack or prime coat of asphalt conforming to the applicable requirements of Section 311 or Section 310 and as specified below. Liquid asphalt classified as cutbacks or emulsions shall be applied ahead of the paving operations, and the time interval between applying and placing the paving mixture shall be sufficient to ensure a tacky residue has formed to provide maximum adhesion of the paving mixture to the base. The Contractor shall not place the mixture on tack or prime coats that have been damaged by traffic or contaminated by foreign material. Traffic shall be excluded from such sections.

a. **Priming aggregate base or subbase:** The Engineer will not require priming with asphalt material on aggregate subbase or base material prior to the placement of asphalt base, intermediate or surface layers unless otherwise specified in the Contract.

b. **Tacking:** Tack at joints, adjacent to curbs, gutters, or other appurtenances shall be applied with a hand wand or with spray bar at the rate of 0.2 gallon per square yard. At joints, the tack applied by the hand wand or a spray bar shall be 2 feet in width with 4 to 6 inches protruding beyond the joint for the first pass. Tack for the adjacent pass shall completely cover the vertical face of the pavement mat edge so that slight puddling of asphalt occurs at the joint, and extend a minimum of 1 foot into the lane to be paved. Milled faces that are to remain in place shall be tacked in the same way for the adjacent pass. Use of tack at the vertical faces of longitudinal joints will not be required when paving is performed in echelon.

   The tack coat shall be eliminated on asphalt saturated (rich) sections or those that have been repaired by the extensive use of asphalt patching mixtures when directed by the Engineer.

   Tack shall not be required atop asphalt stabilized open-graded material drainage layers.

   Tack shall be applied between the existing asphalt surface and each asphalt course placed thereafter.

2. **Removing depressions and elevating curves:** Where irregularities in the existing surface will result in a course more than 3 inches in thickness after compaction, the Contractor shall bring the surface to a uniform profile by patching with asphalt concrete and thoroughly tamping or rolling the patched area until it conforms with the surrounding surface. The mixture used shall be the same as that specified for the course to be placed.

   When the Contractor elects to conduct operations to eliminate depressions, elevate curves, and place the surface course simultaneously, the Contractor shall furnish such additional spreading and compacting equipment as required to maintain the proper interval between the operations.

(c) **Placing and Finishing:** The Contractor shall not place asphalt concrete until the Engineer approves the surface upon which it is to be placed.

The Contractor’s equipment and placement operations shall properly control the pavement width and horizontal alignment. The Contractor shall use an asphalt paver sized to distribute asphalt concrete over the widest pavement width practicable. Wherever practicable, and when the capacity of sustained production and delivery is such that more than one paver can be successfully and continuously operated, pavers shall be used in echelon to place the wearing course in adjacent lanes. Crossovers, as well as areas containing manholes or other obstacles that prohibit the practical use of mechanical spreading and finishing equipment may be constructed using hand tools. However, the Contractor shall exercise care to obtain the required thickness, jointing, compaction, and surface smoothness in such areas.

The longitudinal joint in one layer shall offset that in the layer immediately below by approximately 6 inches or more. The joint in the wearing surface shall be offset 6 inches to 12 inches from the centerline of the pavement if the roadway comprises two traffic lanes. The joint shall be offset approximately 6 inches from the lane lines if the roadway is more than two lanes in width. The longitudinal joint shall be uniform in appearance. If the offset for the longitudinal joint varies from a straight line more than 2 inches in 50 feet on tangent alignment, or from a true arc more than 2 inches in 50 feet on curved alignment, the Contractor shall seal the joint using a water-proof sealer at no cost to the Department. The Contractor shall recommend a sealant and installation procedure to the Engineer for approval before proceeding. If the offset for the longitudinal joint varies from a straight line more than 3 inches in 50 feet on tangent alignment, or from a true arc more than 3 inches in 50 feet on curved alignment, the Engineer may reject the paving. The Engineer will not require offsetting layers when adjoining lanes are paved in echelon and the rolling of both lanes occurs within 15 minutes after laydown.
The Contractor shall have a certified Asphalt Field Level II Technician present during all paving operations. Immediately after placement and screeding, the surface and edges of each layer shall be inspected by the Asphalt Field Level II Technician to ensure compliance with the asphalt placement requirements and be straightedged to verify uniformity and smoothness. The Asphalt Field Level II Technician shall make any corrections to the placement operations, if necessary, prior to compaction.. The finished pavement shall be uniform and free of irregularities. If irregularities, including but not limited to segregation or flushing, are identified during the paving operation, the Contractor shall immediately notify the Engineer and address the irregularities with corrective action. If the irregularities continue, the Contractor shall cease the paving operation and not resume until corrective measures have been approved by the Department. When irregularities are noted, the limits of the finished mat shall be determined by the Engineer. The limits of the deficient area of the finished mat shall be removed and replaced at no cost to the Department.
The Contractor's Asphalt Field Level II Technician shall be present during all density testing.

Asphalt concrete placement shall be as continuous as possible and shall be scheduled such that the interruption occurring at the completion of each day's work shall not detrimentally affect the partially completed work. Material that cannot be spread and finished in daylight shall not be dispatched from the plant unless the Engineer approves the use of artificial lighting. When paving is performed at night, the Contractor shall provide sufficient light to properly perform and thoroughly inspect every phase of the operation. Such phases include cleaning planed surfaces, applying tack, paving, compacting, and testing. Lighting shall be provided and positioned so as to not create a blinding hazard to the traveling public.

The Contractor shall ensure that the roller does not pass over the end of freshly placed material during the compaction of asphalt concrete except when a transverse construction joint is to be formed. Edges of pavement shall be finished true and uniform.

Asphalt concrete SUPERPAVE pavement courses shall be placed in layers not exceeding five times the Nominal Maximum Aggregate Size (NMAS) in the asphalt concrete. The maximum thickness may be reduced if the mixture cannot be adequately placed in a single lift and compacted to the required uniform density and smoothness. The minimum thickness for a pavement course shall be no less than 2.5 times the NMAS of the asphalt concrete. The NMAS for each mix shall be defined as one sieve size larger than the first sieve to retain more than 10 percent aggregate as shown in the design range specified in Section 211.03, Table II-13. The Contractor may place base courses in irregularly shaped areas of pavement such as transitions, turn lanes, crossovers, and entrances in a single lift.

The Contractor shall square up overlays in excess of 220 pounds per square yard or lanes with a milled depth greater than 2 inches prior to opening to traffic.

The Contractor shall cut drainage outlets through the shoulder at locations the Engineer designates, excluding curb and gutter sections, on the milled roadway areas that are to be opened to traffic. Plan and prosecute the milling operation to avoid trapping water on the roadway and restore drainage outlets to original grade once paving operations are completed, unless otherwise directed by the Engineer. The cost for cutting and restoring the drainage slots in the roadway shoulder shall be included in the price bid for other items of work.

The Contractor shall plan and prosecute a schedule of operations so that milled roadways shall be overlaid with asphalt concrete as soon as possible. In no instance shall the time lapse exceed 14 days after the milling operations, unless otherwise specified in Section 515 or other provisions in the contract. The Contractor shall keep milled areas of the roadway free of irregularities and obstructions that may create a hazard or annoyance to traffic in accordance with Section 104.

The Contractor shall use a short ski or shoe to match the grade of the newly overlaid adjacent travel lane on primary, interstate, and designated secondary routes. Unless otherwise directed by the Engineer, a 24-foot minimum automatic grade control ski shall be used on asphalt mixtures on divided highways, with the exception of overlays that are less than full width and the first course of asphalt base mixtures over aggregate subbases. Care shall be exercised when working along curb and gutter sections to provide a uniform grade and joint.

The Contractor shall construct the final riding surface to tie into the existing surface by an approved method, which shall include the cutting of a notch into the existing pavement. In addition to notching, the Contractor may use an asphalt mix design containing a fine-graded mix to achieve a smooth transition from the new asphalt concrete overlay to the existing pavement, with the approval of the Engineer. The material shall be of a type to ensure that raveling will not occur. The cost for constructing tie-ins in the asphalt concrete overlay shall be included in the asphalt concrete contract unit price.

Prior to application of tack coat and commencement of paving operations if, in the opinion of the Engineer, the existing pavement surface condition may detrimentally affect or prevent the bond of the new overlay, the Contractor shall clean the existing pavement surface of all accumulated dust, mud, or other debris. At no point shall soil, aggregate, or other potential bond breaker material be stored on the pavement surface, unless otherwise approved by the Engineer. If the Contractor wishes to stockpile materials on the pavement surface, the Contractor shall provide documentation to the Engineer for approval on the means and methods that will be used to ensure it will not detrimentally affect or prevent the bond of the next pavement layer. This includes all base, intermediate and surface asphalt layers.

The Contractor shall ensure the surface remains clean until commencement of, and during, paving operations. The cost for cleaning and surface preparation shall be included in the asphalt concrete contract unit price.

The Contractor shall employ a Material Transfer Vehicle (MTV) during the placement of surface mixes (SM) on all Interstate routes. If equipment within the paving train breaks down, paving shall be discontinued once the material on-site has been placed and no more material shall be shipped from the asphalt plant.

When required in the Contract, a MTV shall be used during the placement of designated asphalt mixes on full lane width applications.

(d) **Compacting:** Immediately after the asphalt mixture is placed, struck off, and surface irregularities are corrected, the mixture shall be thoroughly and uniformly compacted by rolling. Rolling shall be a continuous process, insofar as practicable, and all parts of the pavement shall receive uniform compaction.

The asphalt surface shall be rolled when the mixture is in the proper condition. Rolling shall not cause undue displacement, cracking, or shoving of the placed mixture.

The Contractor shall use the number, weight, and type of rollers sufficient to obtain the required compaction while the mixture is in a workable condition. The sequence of rolling operations and the selection of roller types shall provide the specified pavement density.

Rolling shall begin at the sides of the placement and proceed longitudinally parallel with the center of the pavement, each pass overlapping at least 6 inches, gradually progressing to the crown of the pavement. When abutting a previously placed lane, rolling shall begin at the outside unconfined side and proceed toward the previously placed lane. On superelevated curves, rolling shall begin at the low side and proceed to the high side by overlapping longitudinal passes parallel with the centerline.

The Contractor shall correct displacements occurring as a result of reversing the direction of a roller or other causes at once by the use of rakes or lutes and the addition of fresh mixture when required. Care shall be taken in rolling not to displace or distort the line and grade of the edges of the asphalt mixture. Edges of finished asphalt pavement surfaces shall be true curves or tangents. The Contractor shall correct irregularities in such areas.

The Contractor shall keep the wheels/drums of the rollers properly moistened with water, water mixed with a very small quantity of detergent or other Engineer approved material to prevent adhesion of the mixture to the rollers. The Engineer will not allow the use or presence of excess liquid on the rollers.

The Contractor shall thoroughly compact the mixture along forms, curbs, headers, walls, and other places not accessible to rollers with hot hand tampers, smoothing irons, or mechanical tampers,. On depressed areas, a trench roller or cleated compression strips may be used under the roller to ensure proper compression.

For SM-4.75 mixes, breakdown rolling shall be accomplished with steel wheel rollers with a minimum weight of 10 tons. SM-4.75 mixes shall receive at least three breakdown roller passes before intermediate and finish rolling.

The Contractor shall protect the surface of the compacted course until the material has cooled sufficiently to support normal traffic without marring.

(e) **Density** will be determined in accordance with Method A for all interstate and limited access routes, and for primary and secondary routes with an ADT of at least 2,000 and at least 20 feet in width. Method B will be used for all other routes. Control Strips will not use Method A or B, but will use the methods described in Section 315.05(e)1a.

1. The Contractor shall perform roller pattern and control strip density testing on surface, intermediate, and base courses in accordance with VTM-76. The Contractor shall have a certified Asphalt Field Technician II perform all density testing.

   Density shall be determined with a thin-lift nuclear gauge conforming VTM-81 or from the testing of plugs/cores taken from the roadway where the mixture was placed. Density test locations shall be marked and labeled in accordance with VTM-76. When acceptance testing is performed with a nuclear gauge, the Contractor shall have had the gauge calibrated within the previous 12 months by an approved calibration service. In addition, the Contractor shall maintain documentation of such calibration service for the 12-month period from the date of the calibration service. The required density of the compacted course shall not be less than 98.0 percent or more than 102.0 percent of the target control strip density.

   Nuclear density roller pattern and control strip density testing shall be performed on asphalt concrete overlays placed directly on surface treatment roadways and when overlays are placed at an application rate less than 125 pounds per square yard, based on 110 pounds per square yard per inch, on any surface. In these situations, the Engineer will not require sawed plugs or core samples and the minimum control strip density of 92.5 of TMD will not be required. The required density of the compacted course shall not be less than 98.0 percent or more than 102.0 percent of the target control strip.

The Engineer will divide the project into “control strips” and “test sections” for the purpose of defining areas represented by each series of tests.

a. **Control Strip:** Control strips shall be constructed in accordance with these specifications and VTM-76.

The term *control strip density* is defined as the average of 10 determinations selected at stratified random locations within the control strip.

The Contractor shall construct one control strip at the beginning of work on each roadway and shoulder course and on each lift of each course. The Engineer will require the Contractor to construct an additional control strip whenever a change is made in the type or source of materials; whenever a significant change occurs in the composition of the material being placed from the same source; or when there is a failing test strip. During the evaluation of the initial control strip, the Contractor may continue paving operations, however, paving and production shall be discontinued during construction and evaluation of any additional control strips. If two consecutive control strips fail, subsequent paving operations shall not begin or shall cease until the Contractor recommends correctives actions to the Engineer and the Engineer approves the Contractor proceeding with the corrective action(s). If the Contractor and the Engineer mutually agree that the required density cannot be obtained because of the condition of the existing pavement structure, the target control strip density shall be determined from the roller pattern that achieves the optimum density and this target control strip density shall be used on the remainder of the roadway that exhibits similar pavement conditions.

Either the Engineer or the Contractor may initiate the construction of an additional control strip at any time.

The length of the control strip shall be approximately 300 feet and the width shall not be less than 6 feet. On the first day of construction or beginning of a new course, the control strip shall be started between 500 and 1,000 feet from the beginning of the paving operation. The Contractor shall construct the control strip using the same paving, rolling equipment, procedures, and thickness as shall be used for the remainder of the course being placed.

The Contractor’s Asphalt Field Level II Technician shall take one reading at each of 10 stratified random locations. No determination shall be made within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes. The average of these 10 determinations shall be the control strip density recorded to the nearest 0.1 pound per cubic foot. The minimum control strip density shall be determined in accordance with VTM-76.

The control strip shall be considered a lot. If the control strip density conforms to the requirements of 92.5% of TMD for surface, intermediate and base mix, the Engineer will consider the control strip to be acceptable and the control strip density shall become the target control strip density.

If the Engineer determines that the control strip requirements of 92.5% of TMD for surface, intermediate and base mix cannot be met due to in-situ pavement conditions, Method ‘B’ will be used for acceptance and payment and density adjustments will be waived.

Otherwise, if the density does not conform to the requirements specified of 92.5% of TMD for surface, intermediate and base mix, the tonnage placed in the control strip and any subsequent paving prior to construction of another control strip will be paid for in accordance with Table III-3. If the control strip density is below 88% TMD, then that tonnage shall be removed from the roadway at no cost to the Department. At the discretion of the Engineer, the material may be accepted at 75% of the contract unit price. The Contractor shall take corrective action(s) to comply with the density requirement of a minimum of 92.5% of TMD.

TABLE III-3
Control Strip Requirement and Payment Schedule for SM, IM and BM mixes

% TMD	% of Payment
Greater than 96.5[1]	95
92.5– 96.5[1]	**100**
90.0-92.4	90
88.0-89.9	80
Less than 88.0	Removal

[1] For Base Mix only, the range for 100% pay shall be 92.5-97.0% of TMD.

b. **Test section (lot):** For the purposes of both Contractor quality control and determining acceptance, the Engineer will consider each day's production as a lot unless the paving length is less than 3,000 linear feet or more than 7,500 linear feet, regardless of the method of acceptance (Method A or B). When paving is less than 3,000 feet, that day's production will be combined with the previous day's production or added to the next day's production to create a lot as described below.

The standard size of a lot will be 5,000 linear feet (five 1,000 foot sublots) of any pass 6 feet or greater made by the paving train for the thickness of the course. If the Engineer approves, the lot size may be increased to 7,500 linear foot lots with five 1,500 foot sublots when the Contractor's normal daily production exceeds 7,000 feet. Pavers traveling in echelon will be considered as two passes. When a partial lot occurs at the end of a day's production or upon completion of the project, the lot size will be redefined as follows:

- If the partial lot contains one or two sublots, the sublots will be added to the previous lot.
- If the partial lot contains three or four sublots, the partial lot will be redefined to be an entire lot.

The Contractor shall test each lot for density by taking a nuclear density gauge reading from two random test sites selected by the Engineer within each sublot. When saw plugs or cores are used to determine acceptance, a single test site will be selected by the Engineer. Test sites will not be located within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes.

The Engineer will compare the average of the sublot density measurements to the target nuclear density, or for plugs and cores, to the target percent of theoretical maximum density achieved on the control strip to determine the acceptability of the lot. The Contractor shall immediately notify the Engineer and institute corrective action if two consecutive sublots produce density results less than 98% or more than 102% of the target control strip density.

Density testing for acceptance will not be performed on areas too thin or irregular to test accurately, such as open-graded friction courses, and wedge-and-leveling courses. Areas that are difficult to compact due to subgrade support or space limitations, including but not limited to crossovers and gore areas, will be placed in accordance with Section 315.05(e)2.

For purposes of density determination, acceptance, and payment, Main Pavement is defined to include travel lanes, shoulders 6 feet or greater, turn lanes, ramps, and acceleration and deceleration lanes.

(1) Method 'A' (plugs or cores)

Any pay adjustment will only be applied to Main Pavement.

The Contractor shall perform acceptance testing for density for each sublot by obtaining one plug, defined as a sawed 4-inch by 4-inch specimen, or one 4-inch-diameter core, at a single random test site selected by the Engineer. More than one plug or core can be taken if the original sample is damaged.

The sub-lot site shall be marked as described in VTM-76. The bulk specific gravity of the plugs or cores shall be determined in accordance with VTM-6. The density of the plugs or cores shall be determined in accordance with VTM-22, except that the daily Rice values obtained by the contractor for the mix will be used for calculating percent density (instead of using the 5-day running average as noted in VTM-22).

Plugs or cores shall be taken from the pavement during the paving shift and bulked in the presence of the Engineer unless otherwise approved. The Department reserves the right to have the plugs or cores bulked on the project site. In the event of any uncertainty around the bulking procedures or results, the Department further reserves the right to re-bulk the samples. The Contractor will have the right to witness the re-bulking. The Contractor will be responsible for maintaining the cores until approved for disposal by the Department.

The Contractor shall number sublot test sites sequentially per lot, mark these on the pavement, fill them with the paving mixture, and compact them prior to the completion of each day of production.

The Contractor shall clean and straighten any irregular edges before filling and compacting. Liquid tack material shall be applied so it visibly covers all plug or core hole surfaces (sides, bottom, etc.). Asphalt concrete mixture available on the same day of paving, or other permanent patching material as approved by the Engineer, shall be placed into the plug or core hole and compacted with a 10-pound weighted hand tool or greater compactive effort with rollers or other equipment available on-site and approved by the Engineer.

The tonnage of each lot for the pay adjustment will be based on the lot's width and length and the mixture application rate as designated in the Contract or as revised by the Engineer. Payment will be made in accordance with Table III-4A.

TABLE III-4A
Payment Schedule for Method A Lot Densities for SM, IM and BM mixes

% TMD	% of Payment
Greater than 96.5[1]	95
92.5 – 96.5[1]	100
90.0–92.4	90
88.0 – 89.9	80
Less than 88.0	Removal

[1] For Base Mix only, the range for 100% pay shall be 92.5-97.0% TMD.

If a minimum of 80% of each test section lot's core/plug samples is no lower than 92.5% of TMD and the lot average results in 100% payment, then the Engineer will increase the unit bid price for AC mixture by 5%. BM-25.0D+0.4 and BM-25.0D+0.8 shall not be eligible for five percent pay increase. No increase will be applied if core/plug samples are cut outside of the paving shift unless otherwise approved by the Engineer; any applicable density pay reduction from Table III-4A may still apply.

If any sublot(s) are lower than 88.0% of TMD then those sublots shall be removed from the roadway at no cost to the Department. If the lot average is below 88.0% of TMD then that test section shall be removed from the roadway at no cost to the Department.

Longitudinal joints shall also be tested for density using a nuclear density gauge at each test site in the sublot. For surface and intermediate mixes, the edge of the gauge shall be placed within 4 inches of the joint. For base mixes, the edge of the gauge shall be placed within 6 inches of the joint. The Contractor shall not place the gauge over top of the joint. The joint density value shall be recorded. The Contractor shall report to the Engineer and institute corrective action if a single longitudinal joint density reading is less than 95% of the target control strip density. The Engineer will not use the values obtained from the joint readings in payment calculation. The Contractor shall furnish the test data developed during the day's paving to the Engineer by the end of the day's operations.

(2) **Method 'B' (nuclear gauge)**

Any pay adjustment will only be applied to Main Pavement.

The Contractor shall test each lot for density by taking a nuclear density gauge reading from two random test sites selected by the Engineer within each sublot. Test sites will not be located within 12 inches of the edge of any application width for surface and intermediate mixes or within 18 inches of the edge of any application width for base mixes.

The Engineer will compare the average of the sublot density measurements to the target nuclear density, or for cores, to the target percent of theoretical maximum density achieved on the control strip to determine the acceptability of the lot. Once the average density of the lot has been determined, the Engineer will not allow the Contractor to provide additional compaction to raise the average. The Contractor shall immediately institute corrective action if two consecutive sublots produce density results less than 98% or more than 102% of the target control strip density.

Longitudinal joints shall also be tested for density using a nuclear density gauge at each test site in the sublot. For surface and intermediate mixes, the edge of the gauge shall be placed within 4 inches of the joint. For base mixes, the edge of the gauge shall be placed within 6 inches of the joint. The Contractor shall not place the gauge over top of the joint. The joint density value shall be recorded. The Contractor shall report to the Engineer and institute corrective action if a single longitudinal joint density reading is less than 95 percent of the target control strip density. The Engineer will not use the values obtained from the joint readings in payment calculation. The Contractor shall furnish the test data developed during the day's paving to the Engineer by the end of the day's operations.

The tonnage of each lot for the pay adjustment will be based on the lot's width and length and the mixture application rate as designated in the Contract or as revised by the Engineer. Payment will be made in accordance with the requirements of Table III-4B.

TABLE III-4B
Payment Schedule for Method B Lot Densities

% of Target Control Strip Density	% of Payment
Greater than 102.0	95
98.0 to 102.0	100
97.0 to less than 98.0	95
96.0 to less than 97.0	90
Less than 96.0, but (% of Target Control Strip Density x %TMD control strip cores) > 88%	75
Less than 96.0, and (% of Target Control Strip Density x %TMD control strip cores) ≤ 88%	Removal[1]

1. If any lot produces density results less than 96.0% of Target, and (%of Target Control Strip Density x % TMD control strip cores) ≤ 88%, then that lot shall be removed from the roadway at no cost to the Department.

(3) **Verification, Sampling, and Testing (VST)**

The Engineer at any time on any project may perform lot density verification testing regardless of whether Method A or B is being used for density acceptance. Lot density verification is performed by testing plugs or cores. The Contractor shall be responsible for taking plugs or cores for testing. The Engineer will perform verification testing of the plugs or cores.

On surface, intermediate, and base mixes, the Contractor shall take two plugs or cores per VST lot at locations selected by the Engineer. If the Engineer determines the density of the plugs or cores does not conform to the requirements for the lot in question or the same payment percentage determined by the Contractor's testing for that lot, then the Contractor may request additional sampling to be invoked. The Contractor shall take one additional plug or core from the remaining sublots. Payment for that lot, based on the results of the initial two plugs or cores or referee procedure, will be in accordance with the Table III-4A for Method A on the basis of the percentage of the theoretical maximum density or Table III-4B for Method B on the basis of the percentage of the control strip bulk density achieved.

2. **Surface, intermediate, and base courses** not having a sufficient quantity of material to run a roller pattern and control strip, and unique sections defined on the Plans or within the Contract that are 3500 feet or less and at least 6 feet in width shall be compacted to a minimum density of 92.5 percent as determined in accordance with VTM-22. The Contractor shall be responsible for cutting cores or sawing plugs for testing by the Department. One plug or core shall be obtained within the first 500 feet of small quantity paving and every 1000 feet thereafter for testing by the Department. Plug or core locations shall be randomly selected by the Engineer. If the density is determined to be less than the minimum, the Engineer will make payment in accordance with Table III-5.

TABLE III-5
Payment Schedule for Surface, Intermediate and Base Courses (Not sufficient quantity to perform density roller pattern and control strip)

% TMD	% of Payment
Greater than or equal to 92.5	100
90.0-92.4	90
88.0-89.9	80
Less than 88.0	Removal[1]

1. Removal shall be at no cost to the Department.

Any section in which a mixture (e.g., SM-9.0) is being placed at an application rate of less than 125 pounds per square yard (based on 110 pounds per square yard per inch) that does not have a sufficient quantity of material for a roller pattern and control strip shall be compacted by rolling a minimum of three passes with a minimum 8-ton roller. The Engineer will not require density testing.

For asphalt patching or paving widths narrower than 6 feet in width, the minimum density of 91.5 percent of the maximum theoretical density will be determined in accordance with VTM-22. The Contractor is responsible for cutting cores or sawing plugs. One set of cores or plugs shall be obtained within the first 20 tons of material and every 100 tons thereafter for testing by the Contractor or the Department. The Engineer will randomly select plug or core locations. If the density is less than the 91.5 percent, payment will be made on the tonnage within the 20 or 100 ton lot in accordance with Table III-6.

TABLE III-6
Payment Schedule for Surface, Intermediate and Base Courses (Asphalt Patching)

% TMD	% of Payment
Greater than or equal to 91.5	100
90.0-91.4	95
88. 1-89.9	90
Less than or equal to 88.0	Removal[1]

1. Removal shall be at no cost to the Department.

(f) **Joints:** Transverse joints shall be formed by cutting back on the previous run to expose the full depth of the course. A coat of asphalt shall be applied to contact surfaces of transverse joints just before additional mixture is placed against the previously rolled material.

Joints adjacent to curbs, gutters, or adjoining pavement shall be formed by hand placing sufficient mixture to fill any space left uncovered by the paver. The joint shall then be set up with rakes or lutes to a height sufficient to receive full compression under the rollers.

(g) **Rumble Strips:** This work shall consist of constructing rumble strips or rumble stripes on mainline shoulders or centerlines of highways by cutting concave depressions into existing asphalt concrete surfaces as shown on the Standards Drawings and as directed by the Engineer. Rumble stripes are defined as edgeline or centerline rumble strips with permanent longitudinal pavement markings subsequently installed within the rumble strip grooves.

Rumble strips and rumble stripes shall be installed in accordance with the RS-Series Standard Drawings. The Contractor shall demonstrate to the Engineer the ability to achieve the desired surface regarding alignment, consistency, and conformity with these Specifications and the Standard Drawings before beginning production work on mainline shoulders or centerlines. The test site shall be approximately 25 feet longitudinally at a location mutually agreed upon by the Contractor and Engineer.

Pavement markings for rumble stripes shall be applied after the grooves have been cut. The grooves shall be thoroughly cleaned and the surface prepared before pavement marking application, in accordance with the Standard Drawings and Section 704. Overspray of pavement marking materials shall not extend more than one inch beyond the lateral position of the pavement marking line shown in the RS-Series Standard Drawings.

Rumble strips shall not be installed on shoulders of bridge decks, in acceleration or deceleration lanes, on surface drainage structures, or in other areas identified by the Engineer.

Waste material resulting from the operation shall be removed from the paved surface and shall be disposed of in accordance with Section 106.04.

(h) **Saw-Cut Asphalt Pavement:** This work shall consist of saw-cutting the existing asphalt pavement to a depth as shown on the plans or as directed by the Engineer.

(i) **Coating designed surface cuts:** Designed Surface Cuts are roadway features installed by cutting or grinding into a road surface, for example, Rumble strips, rumble stripes, and plastic inlaid marker grooves.

Designed Surface Cuts shall be coated with liquid asphalt coating (emulsion) when the Designed Surface Cuts are being cut into an existing asphalt surface (i.e. more than one year since placement); when new Designed Surface Cuts are being cut into the pavement surface in conjunction with a surface treatment, latex emulsion, or slurry seal pavement operation; or when the proposed plant mix surface is less than one inch deep.

Liquid asphalt coating (emulsion) shall not be used when Designed Surface Cuts are being cut into new pavement, or being cut in conjunction with plant mix paving operations where the proposed plant mix surface is one inch or greater in depth.

When liquid asphalt coating (emulsion) is required, the Contractor shall coat the entire rumble strip area with the liquid asphalt coating (emulsion) using a pressure distributor following the cutting and cleaning of the depressions of waste material. For rumble strips installed on the shoulder, the approximate application rate shall be 0.1 gallons per square yard. For centerline rumble stripes and plastic inlaid marker grooves, the approximate application rate shall be 0.05 gallons per square yard. The application temperature shall be between 160 degrees F and 180 degrees F. For shoulder rumble strips and plastic inlaid marker grooves, overspray shall not extend more than 2 inches beyond the width of the cut depressions and shall not come in contact with pavement markings.

If liquid asphalt coating (emulsion) is applied before installation of the plastic inlaid marker, then the bottom of the plunge cut shall be protected during liquid asphalt coating (emulsion) application so as to avoid inhibiting the ability of the marker epoxy to bond to the bottom of the plunge cut. If the liquid asphalt coating (emulsion) is applied after the plastic inlaid marker has been installed, then the retroreflector shall be protected during the liquid asphalt coating (emulsion) application to prevent the coating material from dirtying or damaging the retroreflector, with the protection removed after the coating has been completed.

315.06 – Pavement Samples

The Contractor shall cut samples from the compacted pavement for depth and density testing. Samples shall be taken for the full depth of the course at the locations selected by the Engineer. The removed pavement shall be replaced with new mixture and refinished. No additional compensation will be allowed for furnishing test samples and reconstructing areas from which they were taken.

315.07—Pavement Tolerances

(a) **Surface Tolerance:** The Engineer will test the pavement surface by using a 10-foot straight-edge. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall not be more than 1/4 inch. The Contractor shall correct humps and depressions exceeding the specified tolerance or the defective work shall be removed and replaced with new material.

(b) **Finished Grade Tolerance:** Finished grade elevations shall be within +/–0.04 foot of the elevations indicated in the plans after placement of the final pavement layer unless otherwise specified, provided the actual cross slope does not vary more than 0.20 percent from the design cross slope indicated in the plans, and the plan depth thickness conforms to the thickness tolerances specified herein.

If the Engineer determines either the finished grade elevations or cross slope exceed the specified tolerances, the Contractor shall submit a corrective action plan to the Engineer for approval.

(c) **Thickness Tolerance:** The thickness of the base course will be determined by the measurement of cores as described in VTM-32.

Acceptance of asphalt concrete base course for depth will be based on the mean result of measurements of samples taken from each lot of material placed. A lot of material is defined as the quantity being tested for acceptance except that the maximum lot size will be 1 mile of 24-foot-width base course.

A lot will be considered acceptable for depth if the mean result of the tests is within the following tolerance of the plan depth for the number of tests taken:

Plan Depth	1 test	2 tests	3 tests	4 tests
≤4”	0.6”	0.5”	0.4”	0.3”
>4” ≤8”	0.9”	0.7”	0.5”	0.4”
>8”≤12”	1”	0.9”	0.7”	0.5”
>12”	1.2”	1”	0.8”	0.6”

If an individual depth test exceeds the one test tolerance for the specified plan depth, the Engineer will exclude that portion of the lot represented by the test from the lot. If an individual test result indicates that the depth of material represented by the test is more than the tolerance for one test, the Contractor will not be paid for that material in excess of the tolerance throughout the length and width represented by the test. If an individual test result indicates that the depth of the material represented by the test is deficient by more than the one test tolerance for the plan depth, the Contractor shall correct the base course represented by the test as specified hereinafter.

If the mean depth, based on two or more tests, of a lot of material is excessive (more than the plan depth specified in the contract), the Engineer will not pay the Contractor for any material in excess of the tolerance throughout the length and width of the lots represented by the tests.

If the mean depth, based on two or more tests, of a lot of material is deficient (less than the plan depth specified in the contract) by more than the allowable tolerance, the Contractor will be paid for the quantity of material that has been placed in the lot. Any required corrective action will be determined by the Engineer.

For excessive depth base courses, the rate of deduction from the tonnage allowed for payment as base course will be calculated at a weight of 115 pounds per square yard per inch of depth in excess of the tolerance. For sections of base course that are deficient in depth by more than the one test tolerance and less than two and half times the one test tolerance, the Contractor shall furnish and place material specified for the subsequent course to bring the base course depth within the tolerance. This material

will be measured on the basis of tonnage actually placed, determined from weigh tickets, and will be paid for at the contract unit price for the base course material. Such material shall be placed in a separate course. If the deficiency is more than two and half times the one test tolerance, the Contractor shall furnish and place base course material to bring the base course thickness within the tolerance. Corrections for deficient base course depth shall be made in a manner to provide a finished pavement that is smooth and uniform. Sections requiring significant grade adjustments which have been previously identified and documented by the Engineer as being outside of the control of the Contractor will be exempt from deduction or corrective action.

When the Contract provides for the construction or reconstruction of the entire pavement structure, the surface and intermediate courses shall be placed at the rate of application shown on the plans within an allowable tolerance of ±5 percent of the specified application rate for application rates of 100 pounds per square yard or greater and within 5 pounds per square yard for application rates of less than 100 pounds per square yard. The Engineer will deduct the amount of material exceeding the allowable tolerance from the quantities eligible for payment.

When the Contract provides for the placement of surface or intermediate courses over existing pavement, over pavements constructed between combination curb and gutter, or in the construction or reconstruction of shoulders, such courses shall be placed at the approximate rate of application as shown on the plans. However, the specified rate of application shall be altered where necessary to produce the required riding quality.

315.08 – Measurement and Payment

Asphalt concrete base will be measured in tons and will be paid for at the contract unit price per ton. This price shall include preparing and shaping the subgrade or subbase, constructing and finishing shoulders and ditches, and removing and replacing unstable subgrade or subbase.

Asphalt concrete will be measured in tons and will be paid for at the contract unit price per ton. Net weight information shall be furnished with each load of material delivered in accordance with Section 211. Batch weights will not be permitted as a method of measurement unless the Contractor's plant is equipped in accordance with Section 211, in which case the cumulative weight of the batches will be used for payment.

Asphalt used in the mixtures, when a pay item, will be measured in tons in accordance with Section 109.01 except that transporting vehicles shall be tare weighed prior to each load. The weight will be adjusted in accordance with the percentage of asphalt indicated by laboratory extractions.

Tack coat, when a pay item, will be measured and paid for in accordance with Section 310 of the Specifications. When not a pay item, it shall be included in the price for other appropriate pay items.

Asphalt curb backup material will be measured in tons and will be paid for at the contract unit price per ton. This price shall include placing, tamping, and compacting.

Liquid Asphalt Cement, when a pay item, will be measured in tons in accordance with Section 109.01 except that transporting vehicles shall be tare weighed before each load. When used in the mixture, the weight will be adjusted in accordance with the percentage of asphalt indicated by laboratory extractions.

Warm Mix Asphalt (WMA) additive or process will not be measured for separate payment, the cost of which, shall be included in the contract unit prices of other appropriate items.

Rumble strips will be measured in linear feet and will be paid for at the contract unit price per linear foot of mainline pavement or shoulder where the rumble strips are actually placed and accepted, excluding the test site. This distance will be measured longitudinally along the center line of pavement (mainline) or edge of pavement (shoulders) with deductions for bridge decks, acceleration/deceleration lanes, surface drainage structures, and other sections where the rumble strips were not installed. This price shall include

installing, cleaning up debris and disposing of waste material. The test site will not be measured for payment but shall be included in the unit price for rumble strip.

Liquid asphalt coating will be measured in square yards and will be paid for at the Contract square yard price. This price shall include cleaning Designed Surface Cuts before application of the coating, furnishing and applying coating, and protection of all retroreflectors.

Saw-cut asphalt concrete pavement will be measured in linear feet for the depth specified and will be paid for at the contract unit price per linear foot, which price shall be full compensation for saw-cutting the asphalt pavement to the depth specified, cleaning up debris and disposal of waste material.

These prices for asphalt shall also include heat stabilization additive(s), furnishing samples, and maintaining traffic.

Patching will be paid for at the contract unit price for the various items used unless a reconditioning item is included in the Contract.

Payment will be made under:

Pay Item	Pay Unit
Asphalt concrete base course (Type)	Ton
Asphalt concrete (Type)	Ton
Asphalt concrete curb backup material	Ton
Liquid asphalt cement	Ton
Liquid asphalt coating	Square yard
Rumble Strip Standard)	Linear foot
Saw-cut asphalt concrete (depth)	Linear foot

SS321-002020-02 **May 4, 2023**

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 321 – **TRENCH WIDENING**

SECTION 321 – **TRENCH WIDENING** of the Specifications is amended as follows:

321.01 – **Description**
This work shall consist of installing asphalt concrete mixtures into a constructed trench to widen shoulders and travel lanes up to but not including the surface mix in accordance with the Plans and Specifications and as directed by the Engineer.

321.02 – Material
(f) **Materials** shall conform to Section 211.02 and 315.02.

(g) **Trench widening material** IM-19.0A shall be used for IM-19.0A(T) and IM-19.0D shall be used for IM-19.0D(T). Where BM-25.0(T) is designated, either BM-25.0A or BM-25.0D shall be used by the Contractor.

321.03 – Placement Limitations
The Contractor shall not place asphalt concrete mixtures when weather or surface conditions are such that the material cannot be properly handled, finished, or compacted. The surface upon which asphalt concrete mixtures is to be placed shall be free of standing water, dirt, and mud and the base temperature shall conform to Section 315.04.

321.04 – Procedure

(a) **Trench Widening Route Types:** The minimum lift density as determined according to VTM-22 is based on the type of trench widening as defined below and specified in the Contract. Where trench widening is 2 feet in width, compaction may be performed with small single drum walk-behind rollers or other mechanical means acceptable to the Engineer.

1. **Type 1: Paved Shoulder Only** shall be installed on routes where the widening will serve as a paved shoulder and will not be subjected to constant traffic. The painted edge line will not be on the trench widening. The minimum density requirement will not be enforced and plugs/cores are not required for this type of trench widening. Steel double drum rollers weighing at least 8 tons shall perform compaction of the asphalt concrete. At least five passes shall be completed.

2. **Type 2: Widened Travel Lane and Paved Shoulder** shall be installed on routes where the widening will serve as a wider travel lane and paved shoulder that will be subjected to traffic. The widening will not include removal of existing travel lane pavement, i.e., inside the edge line marking. The painted edge line will be on the trench widening. The minimum density applies to this type of trench widening.

3. **Type 3: Repaired Travel Lane and Paved Shoulder** shall be used on routes where the widening will include a portion of the existing travel lane, serve as a paved shoulder and will be subjected to traffic as a part of the travel lane. The widening will include removal of existing pavement, i.e., inside the edge line marking. The painted edge line will be on the trench widening. The minimum density applies to this type of trench widening.

(b) Trench widening routes shall be widened by trenching on one or both sides of the existing roadway and placing Trench Widening Material in accordance with the width and depth specified for that route.

The depth of the base course will be determined by the measurement of cores as described in VTM-32 and 315.07(c), unless otherwise approved by the Engineer.Any remaining material, after final grading, shall be classified as excess material, and will be disposed of according to Section 106.04 of the Specifications or as directed by the Engineer.

The trench shall be shaped to have vertical sides with the width, depth and type specified in the Contract (2-foot minimum to 6-foot maximum width); be free of excess material; and shall be tacked against the existing pavement side before Trench Widening Material is placed.
The Contractor shall ensure that disruption to driveways, entrances, mailboxes, and intersections are minimized and that precautions are taken to ensure that roadway drainage does not pond on the roadway surface.

321.05 - Acceptance
Where density requirements apply, the Contractor is responsible for cutting cores or sawing plugs for density testing. One plug or core per course of material shall be obtained within the first 500 feet and every 2,500 feet thereafter of the trench widening route for testing by the Contractor or the Department. Core and plug locations shall be randomly selected within each section. If the density achieved is less than 91.5% of the maximum theoretical density for the Type 2 or 3 trench widening routes, payment adjustment will be made on the actual tonnage within the 500- or 2,500-foot lot according to Table III-6 in Section 315.

321.06- Measurement and Payment
Asphalt Concrete Type BM-25.0(T), IM-19.0A(T) or IM-19.0D(T) will be measured in tons and will be paid for at the Contract ton price. This price shall include furnishing and placing the Trench Widening Material, trenching, tack, grading and disposing of excess material.

Payment will be made under:

Pay Item	Pay Unit
Asphalt Concrete Type BM-25.0(T)	Ton
Asphalt Concrete Type IM-19.0A(T)	Ton
Asphalt Concrete Type IM-19.0D(T)	Ton

SS407-002020-02 November 1, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 407 – STEEL AND OTHER METAL STRUCTURES

SECTION 407 – STEEL AND OTHER METAL STRUCTURES of the Specifications is amended as follows:

Section 407.04 – Fabrication Procedures is amended by replacing the seventh, eighth, and ninth paragraphs with the following:

The Contractor shall furnish a complete mill analysis showing chemical and physical results from each heat of steel for all units prior to fabrication. Before cutting, pieces of steel other than steel conforming to ASTM A709, Grade 36, that are to be cut to smaller-sized pieces shall be legibly marked with the ASTM A6 specification identification color code or the material specification designation. The identification color code of the latest system adopted under ASTM A6 shall be used to identify material. Any markings that indicate direction of roll shall be transferred to each new piece before cutting the new piece from the larger plate.
If requested by the Engineer, the Contractor shall furnish an affidavit from the fabricator certifying that the fabricator has marked and maintained the identification of steel in accordance with these specifications throughout the fabrication operation.

Section 407.06(c) – Assembly of Structural Connections Using High-Strength Bolts is amended by replacing the first paragraph with the following:

Assembly of Structural Connections Using High-Strength Bolts: Field connections shall be made with high-strength bolts 7/8-inch in diameter fabricated in accordance with ASTM F3125, Grade A325 unless otherwise specified. The Engineer will give consideration to the substitution of adequately designed welded connections if requested in writing by the Contractor.

Section 407.06(c)1 – Bolts, nuts, and washers is replaced with the following:

Bolts, nuts, and washers: Bolts, nuts, and washers shall conform to Section 226 and shall each be from one manufacturer on any one structure unless otherwise approved by the Engineer. In addition, each bolt, nut, and washer combination, when installed, shall be from the same rotational-capacity lot. Prior to installation, the Contractor shall perform a field rotational-capacity test on two nut, bolt, and washer assemblies for each diameter and length in accordance with VTM 135. Bolts fabricated in accordance with ASTM F3125, Grade A490 and galvanized bolts fabricated in accordance with ASTM F3125, Grade A325 shall not be reused. Retightening previously tightened bolts, which may have been loosened by the tightening of adjacent bolts, shall not be considered a reuse. Other bolts may be reused only if approved by the Engineer. Threads of plain (uncoated) bolts shall be oily to the touch when installed. Galvanized nuts shall be lubricated by lubricant containing a visible dye. Threads of weathered or rusted bolts shall be cleaned of loose rust, scale, and debris and relubricated. Lubricant shall be as recommended by the fastener manufacturer.

Section 407.06(c)3 – Installation is amended by replacing the second paragraph with the following:

When bolts fabricated in accordance with ASTM F3125, Grade A490 are used with steel having yield points less than 40 kips per square inch, hardened washers shall be installed under the nut and bolt head.

Section 407.06(c)3 – Installation is amended by replacing the eighth paragraph with the following:

The required minimum bolt tension is equal to 70% of specified minimum tensile strengths of bolts rounded to the nearest kip as specified in ASTM F3125 for Grades A325 and A490. *Snug tight* is defined as the tightness attained when a power wrench begins to impact solidly or when the bolts are firmly hand tightened with a spud wrench such that the complete area of the connecting surfaces are brought into firm contact with each other. Snug tightening shall progress systematically from the most rigid part of the connection to the free edges, and then the bolts of the connection shall be retightened in a similar systematic manner as necessary until all bolts are simultaneously snug tight and the connection is fully compacted.

Section 407.06(c)3b – Direct Tension Indicators (DTI) is amended by replacing the first paragraph with the following:

Direct Tension Indicators (DTI): Direct tension indicator washers shall be used for all high strength bolts, and installation shall be in accordance with Section 407.06(c)3; however, the indicator washer shall not be considered a substitute for the required hardened washer under the turned element. The indicator washer may be considered a substitute for the hardened washer required under the unturned element when bolts conforming to ASTM F3125, Grade A490 are used with steel conforming to ASTM A709, Grade 36. Direct tension-indicator washers shall not be painted or coated with any epoxy or similar material prior to installation. The normal installation shall consist of the load indicator washer being placed under the unturned bolt head or unturned nut. However, if conditions require installation under the turned bolt portion, a hardened flat washer or nut face washer shall be fitted against the tension-indicating protrusions. Tension-indicating washers shall not be substituted for the hardened washers required with short-slotted or oversized holes but may be used in conjunction with them.

Table IV-3 – Bolt Tension is replaced with the following:

TABLE IV-3
Bolt Tension

	Required Min. Bolt Tension (lb.)	
Bolt Size	Grade A325 Bolts	Grade A490 Bolts
1/2	12,000	15,000
5/8	19,000	24,000
3/4	28,000	35,000
7/8	39,000	49,000
1	51,000	64,000
1 1/8	56,000	80,000
1 1/4	71,000	102,000
1 3/8	85,000	121,000
1 1/2	103,000	148,000

Section 407.06(i) – Finishing is amended by replacing the third paragraph with the following:

Areas of weathering steel that are designated to be painted shall be cleaned and coated in accordance with Section 411.

SS411-002020-01 November 1, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 411 – PROTECTIVE COATING OF METAL IN STRUCTURES

SECTION 411 – PROTECTIVE COATING OF METAL IN STRUCTURES of the Specifications is amended as follows:

Section 411.06(a) – Shop Coating is amended by inserting the following after the fourth paragraph:

Areas of weathering steel that are designated to be painted shall be thoroughly cleaned to no less than 6 inches outside the designated area and coated with an approved System B, Group I coating system.

SS512-002020-03 July 1, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 512 – MAINTAINING TRAFFIC

SECTION 512 – MAINTAINING TRAFFIC of the Specifications is amended as follows:

Section 512.02(f) – Temporary (Construction) signs is replaced with the following:

Temporary (Construction) signs shall have retroreflective sign sheeting in accordance with Sections 247 and 701.

Sign substrates for rigid temporary signs and temporary overlay panels shall be fabricated of either aluminum at least 0.080-inches thick, conforming to Section 229.02(a); 0.4-inch-thick corrugated polypropylene; 0.4-inch-thick corrugated polyethylene plastic; or 0.079-inch-thick aluminum/plastic laminate as approved by the Engineer. Sign substrates shall be smooth, flat, and free of metal burrs or splinters.

Sign substrate materials for signs mounted on drums, Type 3 barricades, and portable sign stands shall be as specified below and shall be the same material that was used when the device was approved in accordance with National Cooperative Highway Research Program (NCHRP) Report 350 or MASH.

Sign Substrates for Type 3 Barricades and Portable Sign Stands
Rollup sign
0.4 inch thick corrugated polypropylene or polyethylene plastic
0.079 inch thick aluminum/plastic laminate

Sign Substrates for Drums
0.4 inch thick corrugated polypropylene or polyethylene plastic

Section 512.03 – Procedures is amended by replacing the sixth and seventh paragraphs with the following:

The Contractor shall correct ineffective or unacceptable work zone traffic control devices immediately unless allowed otherwise by the Contract.

The color of Automated Flagger Assistance Device trailers, arrow board trailers, portable traffic control signal trailers, ITS trailer equipment, and portable changeable message sign trailers and sign frames shall be either Virginia highway orange (DuPont Color No. LF74279 AT or color equivalent) or federal yellow. The back traffic facing trailer frame, where the signal and brake lights are located, shall be fully covered with 2 inch high retroreflective sheeting conforming to Section 247.02(c). The sheeting shall have alternating 11 inch wide vertical red stripes and 7 inch wide vertical white stripes.

The Contractor shall locate, remove, and dispose of all existing asphalt-embedded Snowplowable Raised Pavement Marker (SRPM) castings which lie within a travel lane that has been shifted during construction for three months or longer. The cavity left by the removal of the existing marker shall be cleaned of debris, filled with an approved mix design for resurfacing or material found on the Department’s Approved List 78, and compacted before shifting traffic.

Section 512.03(a) – Temporary Signs is replaced with the following:

Temporary Signs: The Contractor shall furnish, install, remove, relocate, and maintain temporary signs and sign panels necessary for prosecution of the work which shall include but not be limited to, maintenance of traffic, off project detour signs, and begin and end of road work signs for construction, maintenance, permit, utility, and incident management activities. Installation shall be in accordance with Section 701. The Contractor shall also furnish and install those signs not listed in the *VWAPM,* the MUTCD, or the Contract (such as "Turn Lane Open with arrow" and "Grooved Pavement Ahead") that may be required by the Engineer.

Signs shall be fabricated in accordance with the MUTCD, VWAPM, the FHWA Standard Highway Signs and Markings book (including its Supplement), and the Virginia Standard Highway Signs book. If the Contractor proposes a sign message not included in the Plans, VWAPM, or MUTCD, then the Contractor shall submit a sign fabrication detail to the Engineer for approval before fabrication. The sign fabrication detail shall include sign size, legend, font, legend dimensions, radius, border, margins, sheeting type, and colors.

The Contractor shall relocate, cover, uncover, remove, and reinstall existing signs that conflict with the signs needed for maintenance of traffic. Covering of existing signs shall be accomplished in accordance with Section 701.03(d).

The Contractor shall ensure an unrestricted view of sign messages. The Contractor shall furnish and install flags for temporary signs, as directed by the Engineer; however flags will not be required for use on portable sign supports.

Sign location, lateral placement, and mounting height shall conform to the *VWAPM,* the *MUTCD,* the Contract, and as directed by the Engineer. The Contractor shall furnish all sign supports and hardware for use with temporary signs.

When the sign sequence is not provided in the plans, either by illustration or reference to a typical traffic control figure in the VWAPM, the Contractor shall submit a sketch of his proposed sign sequencing and positioning to the Engineer for approval before installation.

Temporary signs shall be mounted using wooden post supports, square tube sign post supports, or portable sign stands, except where noted otherwise on the Plans. Portable sign stands shall not be used longer than three consecutive days (72 continuous hours). Wooden and square tube post installations shall be in accordance with Standard Drawing WSP-1.

Portable sign stands manufactured on or before December 31, 2019 may be used if they are in good working condition, conform to NCHRP Report 350 Test Level 3 or MASH, and are a product shown on the Traffic Control Device Pre-Approval list. Portable sign stands manufactured after December 31, 2019 shall conform to MASH and shall be a product shown on the Department's Approved List for MASH Approved Products. The Contractor shall submit a certification letter stating the brands and models of portable sign stands to be used along with a copy of the certification letters indicating compliance with NCHRP Report 350 Test Level 3 or MASH. Portable sign stands shall support a 20 square foot sign in sustained winds of 50 mph or wind gusts of passing vehicles without tipping over, walking, or rotating more than ±5 degrees about its vertical axis.

Portable sign stands shall include decals, stenciling, or some other durable marking system that indicates the manufacturer and model number of the stands. Such marking shall be of sufficient size so it is clearly legible to a person in a standing position.

The Contractor shall erect, maintain, move, and be responsible for the security of sign panels and shall ensure an unrestricted view of sign messages for the safety of traffic.

Section 512.03(g)2b(1) – **Drums** is replaced with the following:

Drums shall be round or partially round; made from plastic; have a minimum height of 36 inches; have a cross-sectional width no less than 18 inches in any direction; have a closed top; and shall conform to the VWAPM. Drums shall be designed to allow for separation of ballast and drum upon vehicular impact but not from wind and vacuum created by passing vehicles. The base of the unit height shall not exceed 5 inches. Two-piece drums may have a flared drum foundation, a collar not exceeding 5 inches in height and be of suitable shape and weight to provide stable support. One-piece drums that comply with these requirements may be used.

The Contrctor shall furnish and install signs (Stop, Chevron, keep Right, etc.) for drums when directed by Engineer. Signs used on drums shall be tested for conformance with NCHRP 350, Test Level 3, and/or MASH requirements and shall be made of the same material used in the test. The Contractor may use other materilas allowed by the FHWA acceptance letter when approved by the Engineer.

Section 512.03(g)2b(3) – Direction indicator barricades is deleted.

Section 512.03(h) –Traffic Barrier Service is replaced with the following:

Traffic Barrier Service shall be of sufficient length to provide anchorage and protection of traffic and personnel in work areas.

The Contractor shall begin continuous progressive prosecution of the work protected by the barrier once the barrier is in place until its completion. If the Contractor ceases to continuously prosecute such work, the Engineer may cause the Contractor to discontinue operations in other areas on the project and concentrate work efforts behind the traffic barrier service until that work is completed. The Contractor shall remove the traffic barrier service when the Engineer determines work is completed to the extent that traffic barrier service is no longer required.

While performing work activities, workers and equipment shall remain behind the protection of the traffic barrier service except as approved by the Engineer. Work outside traffic barrier service protection shall only proceed under the protection and direction of approved traffic control devices or flagger service to safeguard workers and traffic in advance of and at the point the traffic barrier service is opened for ingress or egress adjacent to the travel lane. The Engineer will not permit any equipment extending into an open travel lane.

Barrier openings for access to the work area may be provided only along tangent sections or along curved sections on the inside of traffic and shall be limited to the minimum length required for equipment access. The Contractor shall delineate and maintain normal pavement alignment at the barrier opening with Type D pavement marking.

At ingress openings, the exposed end of the barrier service shall be provided with a temporary impact attenuator approved by the Engineer. At egress openings, the exposed end shall be transitioned at a rate that complies with the VWAPM. For speeds below 30 mph, the transition flare rate shall be the same as that indicated for 30 mph. An impact attenuator will not be required at the exposed end of egress openings in barrier service provided the deflection angle between the pavement edge and the ends of the barrier service openings is 20 degrees or more.

Repairs to traffic barrier service shall match existing barrier so that positive connections can be maintained.

Delineators and barrier panels shall have reflectorized sheeting conforming to Section 247, shall be from the Department's Approved List 23, and shall be installed on traffic barrier service in accordance with the VWAPM.

The Contractor shall maintain the structural integrity of the barrier and its alignment while it is in use and shall maintain any associated warning lights, barrier delineators, barrier panels, and other devices in functional, clean and visible conditions at all times.

1. **Guardrail barrier service and terminal treatments** shall be installed in accordance with Section 505 except that the offset distance shall be as specified by the Engineer. The Contractor may be permitted to reuse guardrail or its hardware used for traffic barrier service guardrail for permanent installation provided the guardrail material is acceptable to the Engineer and conforms to Section 505 and the Standard Drawings for such guardrail. Marred galvanized surfaces shall be repaired in accordance with Section 233. Terminal treatments shall be permanently identified with a device specific Manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.

2. **Traffic barrier service** (concrete or longitudinal steel) shall be installed in accordance with the Plans and Standard Drawings or as directed by the Engineer, who will design according to Appendix A of the VWAPM. When traffic barrier ends at guardrail, fixed object attachment methods for construction zone shall be used to connect the barrier to the guardrail. Installation shall include additional guardrail posts and attachments as required. The traffic barrier, at a minimum, shall be tapered with the end of the barrier located behind the adjacent guardrail post in accordance with the VWAPM. Barrier connections shall be snug to prevent motion between sections.

   Traffic barrier service used as a parapet shall be anchored as shown on the Plans or Section 500 of the Standard Drawings. Anchor holes in bridge decks shall be drilled with a rotary impact drill or other approved equipment that will limit damage to the deck. Anchor holes shall be located to avoid cutting reinforcing steel. Upon removal of the parapet, anchor holes shall be cleaned and filled with Type EP-4 or EP-5 epoxy mortar conforming to Section 243.

   The Department will not permit the use of concrete traffic barrier service for permanent installations on bridge structures.

   Traffic barrier service sections manufactured on or before December 31, 2019 and successfully tested to NCHRP 350 or MASH 2009 may be used until December 31, 2029, if they are in good working condition, and are a product shown on the Department's Approved Lists for NCHRP-350 or MASH Approved Products. Traffic barrier service sections manufactured after December 31, 2019, and all products in use after December 31, 2029, shall conform to MASH 2016 or its successor, and shall be from the Department's Approved List for Provisionally Approved MASH Products. All traffic barrier service runs shall be interlocking barrier of the same design or type.
   The Contractor shall visually inspect all traffic barrier service shipped to a project before placing it in use. Concrete barrier sections shall be structurally sound with no concrete missing along the top, bottom, sides, or end sections of the barrier; no through cracks; and no exposed rebar. The Contractor shall promptly remove any traffic barrier service found by the Contractor or Engineer to be unacceptable due to inadequate structural integrity or functionality and replace the concrete barrier service at no cost to the Department.

   Concrete barrier service shall be cleaned or coated sufficiently to afford good visibility and uniformity of appearance.

The Engineer will review and must approve the layout and anchorage method for job specific applications before the barrier is authorized for installation.

With the approval of the Engineer, the Contractor may use additional traffic barriers for his convenience but at his own expense.

Section 512.03(i) – Impact Attenuator Service is replaced with the following:

Impact Attenuator Service: The Contractor shall install impact attenuator service at locations shown on the Plans or designated by the Engineer. An object marker for temporary impact attenuator shall be installed on the attenuator according to the details shown in the Standard Drawings. The object marker for impact attenuator service shall have reflective sheeting conforming to Section 247 featuring alternating diagonal black and orange 3 inch stripes sloping downward at an angle of 45 degrees in the direction vehicular traffic is to pass. Impact attenuators shall be permanently identified with a device specific Manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.

Impact Attenuator Service not shown on the Plans may be used at the request of the Contractor for the Contractor's convenience at the Contractor's expense.

All impact attenuator service shall be reviewed and approved by the State Location and Design Engineer before installation.

Impact Attenuators manufactured on or before December 31, 2019 and successfully tested to NCHRP 350 or the MASH 2009 may continue to be used until December 31, 2029. Impact Attenuators manufactured after December 31, 2019 shall meet MASH 2016 and shall be from the Department's Approved List for Provisionally Approved MASH Products.

Section 512.03(j)2c – Equipment is replaced with the following:

12 inch aluminum or polycarbonate traffic signal head sections with backplates mounted in the vertical display arrangement. Signal head sections may be mounted in the horizontal display arrangement when approved by the Engineer. Signal head sections and backplates shall conform to Section 238.

Section 512.03(k) – Temporary (Construction) Pavement Markings is replaced with the following:

Temporary (Construction) Pavement Markings shall be installed at locations shown on the Plans, the *VWAPM,* and as directed by the Engineer. Temporary pavement markings shall conform to Section 704 and be selected from the Department's Approved List 17. Temporary pavement markings are classified as Type A or B (temporary markings), Type D, Class III (removable tape), Type E (non-reflective black removable tape), and Flexible Temporary Pavement Markers (FTPMs).

The Contractor shall install temporary pavement markings in accordance with the manufacturer's recommendations, except that if the manufacturer's recommendation for material thickness and quantity of beads is less than that used when the material was tested by the NTPEP, the minimum product application rates shall conform to the NTPEP approved test rates for the specific marking. The Contractor shall furnish a copy of the manufacturer's installation recommendations, including the NTPEP data for product thickness and glass bead quantities to the Engineer.

The Contractor shall maintain the temporary pavement markings and shall correct any deficient markings by reapplying markings as directed or needed. The Department considers deficient any temporary pavement markings that provide inadequate guidance to motorists due to inadequate retroreflectivity, color qualities, or adherence to the pavement.The Engineer will make a visual nighttime inspection of all temporary pavement markings to identify areas where markings have inadequate retroreflectivity. Other deficient qualities may be identified by visual inspection at any time.

Markings that no longer adhere to the pavement, and may cause guidance problems for motorists, or are inadequately retroreflective as determined by the Engineer shall be replaced by the Contractor, with the following exceptions:

- Reapplication of skip line temporary pavement markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for at least two consecutive skip lines.

- Reapplication of centerline (except skip lines) or edge line temporary pavement markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for a continuous section of at least 70 feet.

- Reapplication of transverse markings is not required unless the pavement marking does not adhere or inadequate retroreflectivity qualities are present for a continuous section of at least 3 feet.

The Contractor may take retroreflectivity readings to counter visual observations by the Engineer as the basis for replacement of temporary pavement markings. These measurements shall be taken within 48 hours after the Contractor has been notified of the visual determination by the Engineer of deficient markings. The Engineer will grant additional time to the Contractor when inclement weather prevents accurate measurement of the temporary pavement markings.

The Contractor shall brush any form of debris from the marking before taking the retroflectivity readings. Retroflectivity measurements shall be taken in the presence of the Engineer using Contractor furnished equipment conforming to ASTM E1710. A copy of the operating instructions for the reflectometer shall be furnished to the Engineer before taking the measurements. The Contractor shall calibrate and operate the equipment in accordance with the manufacturer's instructions. The photometric quantity to be measured is the coefficient of retroreflected luminance (R_L), which shall be expressed as millicandelas per square foot per footcandle (mcd/sf/fc). Measurements shall be taken at three random locations within each area of markings that are suspected of being inadequately retroreflective. When the length of the questionable visually inspected area is greater than 1 mile, the Contractor shall take measurements at three locations per mile segment or portion thereof. Measurements for all lines shall be taken in the middle of the line horizontally. Measurements for skip lines shall be taken in the middle of their length. Measurements for transverse lines shall be taken outside of the wheel path locations. The Engineer will designate the locations along the line segments where the measurements shall be taken. The Contractor shall make a log of the measurements and their locations and provide a copy to the Engineer. When the average of the three readings for an area is below 100 mcd/sf/fc, the Contractor shall reapply the markings as indicated.

Temporary (construction) pavement markings found in need of reapplication in accordance with these requirements shall be reapplied by the Contractor at no additional cost to the Department, with the following exceptions:

- Type D markings that have been under traffic for more than 180 days and requires reapplication will be paid for at the contract unit price when reapplied, unless the manufacturer's warranty coverage is still applicable.
- Markings damaged by the Department's snow removal or other maintenance and construction operations will be paid for at the contract unit price.

Deficient temporary pavement markings shall be replaced in the time specified in Section 704 for the maximum duration of unmarked roads.

Eradication for reapplication of Type A or B pavement markings is not required if allowed by the marking manufacturer, if the existing marking is well adhered and the total thickness of the existing and reapplied marking combined will not exceed 40 mils. If not well adhered, 90 percent of the existing markings shall be eradicated before reinstallation of the markings.

Existing Type D markings that are deficient (no longer retaining sufficient retroreflectivity) shall be removed before reapplication of new Type D, Class III markings.

1. **Temporary Type A or B pavement markings** shall be used where the roadway is to be resurfaced before changes in the traffic pattern or where pavement is to be demolished and traffic patterns will not change before demolition.

2. **Type D, Class III pavement markings** shall be used on final roadway surfaces or in areas where traffic patterns are subject to change before pavement is resurfaced, unless otherwise specified in the Contract.

   On non-final pavement surfaces, the Contractor may install Type A or B pavement markings when the surface temperature of the pavement is below the manufacturer's minimum application temperature for a Type D pavement marking. In such cases, the Contractor shall select a Type A or B product known to perform the best under those temperature conditions. When a Type A or B pavement marking is used instead of a Type D pavement marking due to the surface temperature being below the manufacturer's minimum application temperature, the Contractor will be paid at the contract unit price for Type D pavement marking. This shall include the Type A or B marking and any necessary eradication of the Type A or B pavement marking.

3. **Type D, Class III contrast pavement markings** shall be used for all longitudinal temporary pavement markings on bridge decks and hydraulic cement concrete riding surfaces if all of the following are met:

   - The road has a speed limit of 45 MPH or greater.
   - The hydraulic cement concrete riding surface in question is at least 200 feet in length.
   - The temporary markings are planned for at least 30 days of use.

   Type D, Class III contrast markings are not required for any markings that are parallel to and within one foot of existing guardrail or other longitudinal barrier.

4. **Type E pavement markings** shall be used to cover existing markings in accordance with paragraph (I) herein.

5. **Flexible Temporary Pavement Markers (FTPMs)** may be used to simulate a temporary pavement marking line on the final surface, as an interim measure until the permanent pavement marking can be installed. FTPMs shall not be used in substitution for lines slated to be in place for more than 30 days.

   FTPMs shall conform to Section 235 and shall consist of products from the Department's Approved List 22. All FTPM's shall be new product. FTPMs are suitable for use up to one year after the date of manufacture when stored in accordance with the manufacturer's recommendations.

   FTPMs shall include a removable material covering the reflective lens to protect the lens from being obscured or damaged during the paving operation.

   FTPM spacing shall be as follows:
   - When simulating solid lines, the FTPMs shall be placed every 20 feet.
   - When simulating double lines, pairs of side-by-side FTPMs shall be placed every 20 feet.
   - When simulating broken lines with a 10-foot-skip/30-foot-gap pattern, 3 FTPMs shall be used per skip (5 feet between each FTPM), with a 30-foot gap between simulated skips.
   - When simulating dotted lines with a 3-foot skip/9-foot-gap pattern, 2 FTPMs shall be used per skip (3 feet between the two FTPMs), with a 9-foot gap between simulated skips.

FTPMs shall not be used to simulate transverse lines, symbol/message markings, or dotted lines with 2-foot dot/6-foot-gap pattern.

The color of FTPM units and their reflective surfaces shall be the same color (white or yellow) as the temporary pavement markings they are being used in substitution for.
FTPMs shall be installed at the same locations that permanent pavement markings will be installed.

For surface treatment, slurry seal or latex emulsion treatment operations, the appropriate FTPMs with protective covering shall be installed before placing the new treatment. The lens protective covering shall be kept in place during the final surface placement to protect the lens from being obscured or damaged by the paving operation. Upon completion of surface treatment, slurry seal or latex emulsion treatment placement, the Contractor shall remove the protective covering from the reflective lens of the FTPMs before leaving the work site. Failure to remove such covering shall result in the non-payment for that portion type (skip or solid) of temporary pavement marking.

For plant mix operations, the appropriate FTPMs shall be installed on the newly-placed pavement after the pavement is thoroughly compacted and has cooled to the FTPM manufacturer's recommended temperature for installation.

The Contractor shall maintain the FTPMs until the permanent pavement markings are installed. Damaged or missing FTPMs shall be replaced within 24 hours of discovery at the Contractor's expense with new FTPMs of the same manufacturing type, color and model. No more than one FTPM may be damaged or missing out of every skip line or dotted line simulated segment. No two consecutive FTPMs may be damaged or missing on a simulated solid line or double line application, and no more than 30% of the FTPMs may be damaged or missing on any measured 100-foot segment of simulated solid line.

Once applied, FTPMs will be considered for a single use. If a FTPM requires replacement before installation of permanent pavement markings, it shall be properly disposed of and replaced with a new FTPM at no additional cost to the Department.

FTPMs shall be removed and properly disposed of when permanent pavement markings are installed. Used FTPMs removed from the pavement, including all containers, packaging, damaged FTPM's and all other miscellaneous items of waste, shall be appropriately disposed of in accordance with Section 106.04.

Section 512.03(l) – **Eradicating Pavement Markings** is replaced with the following:

Eradicating Pavement Markings: Markings that may conflict with desired traffic movement, as determined by the Engineer, shall be eradicated as soon as practicable: either immediately before the shifting of traffic or immediately thereafter and before the conclusion of the workday during which the traffic shift is made. Work shall be done in accordance with Section 704 except as noted herein.

The Contractor shall perform eradication by grinding, blasting, or a combination thereof. Blasting may be performed using water blasting, sand blasting, hydroblasting (combination of sand and water), or shot blasting. Water blasting and hydroblasting shall be done with equipment that includes a vacuum recovery system and capability to adjust the water pressure.

The Contractor may submit other methods for eradication for the Engineer's approval; however, the Department will not permit obscuring existing pavement markings with black paint or asphalt as a substitute for removal or obliteration. The Contractor shall minimize roadway surface damage when performing the eradication. The Contractor shall repair the pavement if eradication of pavement markings results in damage to or deterioration of the roadway presenting unsafe conditions for motorcyclists, bicyclists, or other road users. Pavement repair, when required, shall be performed using a method approved by the Engineer.

The Contractor shall ensure workers are protected in accordance with Section 107.17 when eradicating pavement markings.

The Contractor shall vacuum or collect the eradication residue (removed markings, debris, and water) during and immediately after the eradication operation. Dust shall be collected during the entire operation. The Contractor shall ensure that no debris enters inlets or waterways.

Eradication residue from the removal of any pavement markings is considered to be a nonhazardous waste material and shall be disposed of in a properly permitted waste disposal facility in accordance with applicable state and federal laws and regulations. The Department does not require Contractor testing of the eradication residue for the eight Resource Conservation Recovery Act metals.

When markings are removed for lane shifts, transitions, or other areas or conditions required in the VWAPM, 100% of the pavement marking shall be removed.

Type E pavement markings may be used to cover existing markings instead of eradication on asphalt concrete surfaces. The Contractor shall use this material to cover markings as indicated in the Plans or as directed by the Engineer. Type E pavement marking shall be applied in accordance with the manufacturer's recommendations. Type E markings shall not be adhered to the pavement for more than 120 days. Type E markings shall not be used on HCC surfaces or bridge decks.

When eradicating symbols and messages, the entire theoretical box bounding the outermost limits of the markings shall be uniformly eradicated.

Eradication of 24" lines shall be considered nonlinear marking eradication.

Section 512.03(m) – Temporary Pavement Markers is renamed **Temporary Raised Pavement Markers** replaced with the following:

Temporary Raised Pavement Markers shall be installed with temporary pavement markings where required by the VWAPM and where directed by the Engineer. Temporary raised pavement markers shall not be used with Type E markings.

Temporary raised pavement markers shall be installed at the spacing required by the VWAPM, and as shown on Standard Drawing PM-8. . The Contractor may install two one-way markers instead of each two-way marker at no additional cost to the Department.

Temporary raised pavement markers shall be installed with a hot applied bitumen adhesive, except epoxy may be used on hydraulic cement concrete roadways and non-final surfaces of asphalt concrete roadways. Pavement damage caused by removing markers shall be repaired in kind by the Contractor at no additional cost to the Department.

The Contractor shall replace damaged, ineffective, or missing temporary raised pavement markers upon notification by the Engineer at no additional cost to the Department. Markers damaged by the Department's snow removal operations or other maintenance and construction operations, however, will be paid for at the contract unit price.

Section 512.03(p) –Temporary Pavement Message and Symbol Markings is replaced with the following:

Temporary Pavement Message and Symbol Markings shall be the color, shape, and size required by the MUTCD, Standard Drawing PM-10, and the Plans. The Contractor shall install message and symbol markings in accordance with MUTCD, Section 704, the VWAPM, and the Standard Drawings.

Temporary pavement message and symbol markings shall be installed and maintained using the material specified on the Plans in accordance with Section 512.03(k).

Pavement message/symbol markings shall be installed at locations shown on the Plans and at locations designated by the Engineer.

Temporary pavement message markings shall be maintained in accordance with Section 512.03(k). Retroreflective measurements conforming to Section 512.03(k) shall be taken out of the wheel path locations. The pavement message/symbol marking shall be replaced when the average of the three readings for the symbol/message is below 100 mcd/sf/fc.

Section 512.03(q) – Type 3 Barricades is replaced as follows:

Type 3 Barricades: Type 3 barricades shall conform to NCHRP Report 350, Test Level 3, or MASH. Type 3 barricades shall be selected from those shown on the Department's Traffic Control Device Pre-Approval List. The Contractor shall provide a certification letter stating the brands and models of Type 3 barricades from the list proposed for the project. Instead of using Type 3 barricades on the listing, the Contractor may use other brands and models, if he submits a copy of the FHWA acceptance letter indicating the proposed substitutes complies with Test Level 3 of NCHRP Report 350 or MASH before use.

Type 3 Barricades shall be installed and ballasted in accordance with the VWAPM.

Section 512.03(r) – Truck-mounted or trailer mounted attenuators is replaced as follows:

Truck-mounted or trailer-mounted attenuators (TMAs): Truck-mounted and trailer-mounted attenuators manufactured on or prior to December 31, 2019 may be used if they are in good working condition, conform to Test Level 3 of NCHRP Report 350 or MASH, and are a product shown on the Department's Approved Lists for NCHRP-350 or MASH Approved Products. TMAs manufactured after December 31, 2019 shall conform to MASH Test Level 3 and shall be a product shown on the Department's Approved List for MASH Approved Products.

The Contractor shall submit catalog cuts/brochures of the TMA and a copy of the certification letter documenting NCHRP 350/MASH compliance of the specific TMA before their use on the project. TMAs shall be permanently identified with a device-specific manufacturers' identification number by stamping or marking with a durable weather resistant material in accordance with § 33.2-274.1 of the Code of Virginia.

The weight of the support vehicle shall be as recommended by the manufacturer of the Truck/ Trailer-mounted attenuator. The Contractor shall provide a copy of the manufacturer's recommendations to the Engineer, a copy of the original weigh ticket for the support vehicle, and a self-certification letter stating the support vehicle has not been altered since the original weight ticket was issued. The weigh ticket shall contain adequate information to identify the ticket with the applicable support vehicle. A copy of the self-certification and weigh ticket shall be available in the support vehicle at all times and upon request.

Additional weight may be added to the support vehicle to achieve the range recommended by the manufacturer of the Truck/Trailer-mounted attenuator provided the total weight is properly balanced without overloading any one axle, and is within the Gross Vehicle Weight Recommendation of the support vehicle. The added weight shall be securely attached to the support vehicle to prevent movement during an impact or movement of the vehicle. The additional weight and attachment method shall be self-certified by the Contractor and a copy of the self-certification letter shall be with the support vehicle at all times or a final stage manufacturer's certification sticker may be placed on the inside door of the altered vehicle.

The Truck/Trailer-mounted attenuator shall be no less than 72 inches wide and no more than 96 inches wide. There shall be no additional devices such as signs, lights, and flag holders attached to the Truck/Trailer-mounted attenuator except those that were tested on the Truck/Trailer-mounted attenuator and provided by the manufacturer of the Truck/Trailer-mounted attenuator.

The support vehicle shall have at least one vehicle warning light functioning while in operation in accordance with the VWAPM. When allowed by the VWAPM, an electronic arrow operated in the caution mode may be used with the vehicle warning light. When installing and removing lane closures on a multilane roadway as well as when performing mobile operations, the support vehicle shall be equipped with both vehicle warning lights and an arrow board.

The support vehicle shall be operated and parked in accordance with the manufacturer's recommendations.

Limitations: Traffic control devices shall not be installed from or removed to the Truck/Trailer-mounted attenuator support vehicle. When the Truck/Trailer-mounted attenuator is deployed there shall be no unsecured material in the bed of the support vehicle except the additional secured weight or truck-mounted devices such as an arrow board, a changeable message sign, or truck mounted signs. There shall also be no additional devices such as signs, lights, and flag holders attached to the Truck/Trailer-mounted attenuator except those that were tested on the Truck/Trailer-mounted attenuator and provided by the manufacturer of the Truck/Trailer-mounted attenuator.

If the Truck/Trailer-mounted attenuator is impacted, resulting in damage that causes the unit to be ineffective, all work requiring the use of the Truck/Trailer-mounted attenuator shall cease until such time that repairs can be made or the Contractor provides another acceptable unit.

Section 512.03(s) – Portable Changeable Message Signs is amended to replace the second and third paragraphs with the following:

The sign shall be capable of sequentially displaying at least 2 phases of 3 lines of text each with appropriate controls for selection of messages and variable off-on times. Trailer-mounted PCMS shall be capable of displaying 3 lines of 8-character 18-inch text in a single phase, and vehicle-mounted PCMS shall be capable of displaying 3 lines of 8-character 10-inch text in a single phase. Each character module shall at a minimum use a five wide by seven high pixel matrix. The message shall be composed from keyboard entries.

Access to PCMS control mechanisms shall be physically locked at all times when deployed to deter message tampering.

The message shall be legible in any lighting condition. Motorists should be able to read the entire PCMS message twice while traveling at the posted speed.

The sign panel support shall provide for an acceptable roadway viewing height that shall be at least 7 feet from bottom of sign to crown of road.

Section 512.03(w) – Portable Temporary Rumble Strips (PTRS) is replaced as follows:

Portable Temporary Rumble Strip (PTRS):

A PTRS may be made of rubber or recycled rubber. It shall have a recessed, raised or grooved design to prevent movement and hydroplaning. PTRS color shall be in accordance with the VWAPM.

A PTRS shall consist of interlocking or hinged segments of equal length that prevent separation when in use. The combined overall usable length of the PTRS shall be between 10 feet 9 inches and 11 feet. The width of the PTRS shall be 12 to 13 inches. PTRS shall be between 5/8 inch and 1.0 inch in height. The weight of each roadway strip shall be between 100 and 120 pounds. The leading and departing edge taper shall be between 12 and 15 degrees.

Each roadway length of the PTRS shall have either a minimum of one cutout handle in the end of the rumble strip, or an interlocking segment which can be used as a handle for easy deployment or removal.

The manufacturer of the PTRS shall provide a signed affidavit that states the PTRS is able to withstand being run over by an 80,000 pound vehicle and retain its original placement with minor

incidental movement of 6 inches or less during an 8 hour deployment. Incidental movement of the PTRS shall be parallel with other rumble strips in an array but shall not move so that its placement compromises the performance and safety of the other rumble strips, workers or the traveling public.

The PTRS shall be installed in accordance with manufacturers installation instructions, without the use of adhesives or fasteners.

PTRS Placement shall be in accordance with the VWAPM.

Section 512.04 – Measurement and Payment is amended to replace the 13th paragraph with the following:

Impact attenuator service will be measured in units of each and will be paid for at the Contract each price for the type specified. This price shall include installing, maintaining, and removing impact attenuator and object marker. Impact attenuators used with barrier openings for equipment access will not be measured for separate payment but the cost thereof shall be included with other appropriate items. When impact attenuator service is moved to a new location, as directed or approved by the Engineer, the relocated terminal will be measured for separate payment. Payment for impact attenuator service will not be made until the work behind the corresponding barrier service is actively pursued.

Section 512.04 – Measurement and Payment is amended to replace the 16th paragraph with the following:

Temporary pavement markings will be measured in linear feet and will be paid for at the contract linear foot price for the type, class and width specified. This price shall include marking materials, glass beads, adhesive, preparing the surface, maintaining, removing removable markings when no longer required, inspections, and testing.

If the Contractor uses FTPMs to simulate the temporary pavement marking, they will be measured in linear feet and paid for at the linear foot price for the temporary marking material being simulated. That measurement shall represent all FTPMs required for that simulated line marking. No additional payment will be made if the Contractor elects to remove FTPMs and install other temporary pavement markings. This cost shall include furnishing, installing and maintaining the FTPMs, removable covers, surface preparation, quality control tests, daily log, guarding devices, removal, and disposal.

Section 512.04 – Measurement and Payment is amended to replace the 21st paragraph with the following:

Eradication of existing nonlinear pavement markings will be measured in square feet based on a theoretical box defined by the outermost limits of the nonlinear pavement markings as defined in Standard Drawing PM-10. Nonlinear pavement markings shall include but not be limited to, arrows, images, symbols, and messages. Eradication of existing nonlinear pavement markings will be paid for at the contract unit price per square foot. This price shall include removing nonlinear pavement markings, cleanup, and disposing of residue.

Section 512.04 – Measurement and Payment is amended to replace the 30th paragraph with the following:

Portable Temporary Rumble Strip (PTRS) Array will be measured in Days per array and will be paid for at the Contract Day price. An Array shall consist of three rumble strips. This price shall include installing, maintaining, removing devices when no longer required, and relocating throughout the day.

Section 512.04 – Measurement and Payment is amended by revising the Pay Item Table as follows:

The following pay items are removed:

Pay Item	Pay Unit
Portable temporary rumble strip	Each

The following pay items are inserted:

Pay Item	Pay Unit
Portable temporary rumble strip array	Day

SS704-002020-02 May 6, 2022

VIRGINIA DEPARTMENT OF TRANSPORTATION
2020 ROAD AND BRIDGE SUPPLEMENTAL SPECIFICATIONS
SECTION 704 – PAVEMENT MARKINGS AND MARKERS

SECTION 704 – PAVEMENT MARKINGS AND MARKERS of the Specifications is amended as follows:

Section 704.02 – Materials is amended to replace the first paragraph with the following:

For Type B, Class VI pavement marking materials that are to be applied to latex emulsion or slurry seal surfaces, the selected Type B, Class VI manufacturer shall be a manufacturer that approves and warranties their product for application on that type of surface.

Section 704.03 – Procedures is amended to replace the second paragraph with the following:

The Contractor shall have a certified Pavement Marking Technician present during all temporary pavement marking, permanent pavement marking, and pavement marker operations, except Flexible Temporary Pavement Marker (FTPM) installation.

Section 704.03 – Procedures is amended to replace the fourth through tenth paragraph with the following:

If the Contractor cannot have permanent pavement markings installed within the time limits specified, the Contractor shall install and maintain temporary pavement markings within the same time limits at no additional cost to the Department until the permanent pavement markings can be installed. Installation, maintenance, and removal or eradication of temporary pavement markings shall be according to Section 512.

The Contractor may mark the locations of proposed permanent markings on the roadway by installing premarking materials. Premarkings may be accomplished by installing removable tape, chalk, or lumber crayons, except pavement markings such as stop lines, crosswalks, messages, hatching, etc., shall be premarked using chalk or lumber crayons. Premarkings for yellow markings may be white or yellow. Premarkings for other colors shall be white.

When tape is used as a premarking material, premarking shall consist of 4- inch by 4-inch-maximum squares or 4-inch-maximum diameter circles spaced at 100-foot minimum intervals in tangent sections and 50-foot minimum intervals in curved sections. At locations where the pavement marking will switch colors (e.g., gore marking) the ends of the markings may be premarked regardless of the spacing.

When the Contractor uses chalk or lumber crayon as a premarking, the entire length of the proposed pavement marking may be premarked.

Premarkings shall be installed so their installation will not affect the adhesion of the permanent pavement markings. When removable tape is used as the premarking material and the lateral location of such premarkings to location of the final pavement markings exceeds 6 inches, the tape shall be removed at no additional cost to the Department.

The Contractor shall exercise caution and protect the public from damage while performing pavement marking operations. The Contractor shall be responsible for the complete preparation of the pavement surface, including, but not limited to, removing dust, dirt, loose particles, oily residues, curing compounds, concrete laitance, residues from eradication, and other foreign matter immediately before installing pavement markings. The pavement surface shall be clean and dry at the time of pavement marking installation and shall be tested in accordance with VTM 94 before permanent installation, with the VTM 94 test results noted on Form C-85. The Contractor shall provide the equipment indicated in VTM 94 that are needed to perform the moisture test before application.

Section 704.03 – Procedures is amended by replacing the thirteenth paragraph with the following:

Non-truck mounted equipment shall be regulated to allow for calibration of the amount and type of material applied.

Section 704.03 – Procedures is amended to replace the eighteenth paragraph with the following:

Glass beads and retroreflective optics shall be applied at the rate specified herein or as specified in the Department's Approved List for the specific pavement marking product. Beads and optics shall be evenly distributed over the entire lateral and longitudinal surface of the marking. The Contractor shall apply beads to the surface of liquid markings with a bead dispenser attached to the applicator that shall uniformly dispense beads simultaneously on and into the just-applied marking. The bead dispenser shall be equipped with a cut-off control synchronized with the applied marking material cut off control so that the beads are applied totally on the marking. Beads shall be applied while the liquid marking is still fluid, resulting in approximately 60% embedment in the marking's surface. Beads installed on crosswalks and stop lines on roadways with curbs only (no gutter) may be hand applied for two feet at the end of each line next to the curb with 100 percent of the beads embedded 50% to 60% into the marking's surface.

Section 704.03(a)1 – Type A markings is replaced with the following:

Type A markings shall be applied in accordance with the manufacturer's installation instructions. When applying atop existing pavement markings, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Glass beads for Type A, Class I markings shall be AASHTO M 247 Type 1 Beads applied at a minimum rate of 6 pounds per gallon of paint

Retroreflective optics for Type A, Class II markings shall be applied as noted in the Department's Approved List 20 for the selected pavement marking product.

The Contractor may substitute Type A, Class I cold weather paint (traffic paint designed for application at temperatures below 40 °F) for Type A, Class I conventional paint at no additional cost to the Department. Cold weather paint shall be from the Department's Approved List 20.

Section 704.03(a)2 – Type B markings is amended to replace the third paragraph with the following:

Non–truck mounted equipment for application of thermoplastic material shall include an extrude die with a burner, temperature controller, agitator, and mechanical bead applicator to allow for the correct amount of material to be applied.

Section 704.03(a)2a – Thermoplastic (Class I) is amended to replace the fourth through sixth paragraphs with the following:

Thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent percent worn away or eradicated. When applying thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure that the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Thermoplastic marking material shall be applied at thickness of 90 mils (± 5 mils) above the riding surface, whether dense or open graded surface.

Glass beads and retroreflective optics shall be surface applied at the rate of 10 pounds per 100 square feet unless specified otherwise on the Materials Division's Approved Products List 43 for the specific thermoplastic product.

Section 704.03(a)2b – Preformed thermoplastic (Class II) is amended to replace the first and second paragraphs with the following:

Preformed thermoplastic (Class II) material shall be installed in accordance with the manufacturer's installation instructions. A primer or sealer manufactured by or recommended by the preformed thermoplastic manufacturer shall be applied to all hydraulic cement concrete surfaces and to asphalt concrete surfaces in accordance with the manufacturer's installation instructions.

Preformed thermoplastic shall not be applied over existing pavement markings of materials other than paint or thermoplastic, unless the existing marking is 90 percent worn away or eradicated. When applying preformed thermoplastic over existing paint or thermoplastic, the existing marking shall first be swept or eradicated to the extent necessary to ensure the surface of the existing marking is clean, chalk free (not powdery), and well adhered.

Permanent transverse rumble strips shall be applied using two strips of white Type B, Class II material. The bottom strip shall be 250 mils thick and 4 inches wide, and the top strip shall be 125 mils thick and 2 inches wide (centered atop the bottom strip), unless noted otherwise in the plans. Transverse rumble strips shall be installed in arrays as per the Standard Drawings and the plans.

Section 704.03(b) – Pavement messages and symbols markings is amended to replace the second paragraph with the following:

Surface temperature at time of application shall be in accordance with manufacturer's installation instructions. If the installation instructions do not specify minimum surface temperature, then the markings shall not be installed unless the surface temperature at time of application is 50°F or higher.Surface temperature requirements shall not be considered met if the temperature is forecasted to drop below the minimum within two hours of application. The Contractor may heat the pavement for a short duration to dry the pavement surface and bring the surface temperature to within the allowable temperatures for pavement marking installation, at no extra cost to the Department. Heat torch temperatures shall not exceed 300°F. The Contractor shall monitor pavement temperature to ensure it does not rise above 120°F at any time. Any damage to the pavement shall be promptly repaired at no extra cost to the Department.

Message and symbol markings include, but shall not be limited to, those detailed in Standard Drawing PM-10.

The sizes and shapes of symbols and characters shall match the size and shape specified in Standard Drawing PM-10 or elsewhere in the Contract. Hand-drawn or "stick" symbols or characters will not be allowed.

Table VII-3 is replaced with the following:

TABLE VII-3
Pavement Markings

Type	Class	Name	Film Thickness (mils)	Pavement Surface	Application Limitations	Appr. List No.
A	I	Conventional or Cold-Weather Traffic Paint	15 ± 1 when wet	AC HCC	May be applied directly after paving operations	20
A	II	High Build Traffic Paint	25 ± 2 when wet	AC HCC	May be applied directly after paving operations	20
B	I	Thermoplastic Alkyd	90 ± 5	AC HCC	May be applied directly after paving operations	43
	I	Thermoplastic Hydrocarbon	90 ± 5 when dry	AC HCC	Do not apply less than 30 days after paving operations	43
	II	Preformed Thermoplastic	120-130	AC HCC	Manufacturers installation instructions	73
	III	Epoxy resin	20 ± 1 when wet	AC HCC	Manufacturers installation instructions	75
	IV	Plastic-backed preformed Tape	60 - 120	AC HCC	Manufacturer's installation instructions	17
	VI	Patterned preformed Tape	20 min[1] 65 min[2]	AC HCC	(Note 4)	17
	VII	Polyurea	20 ± 1	AC HCC	Manufacturer's installation instructions	74
D	III	Wet Reflective Removable tape	(Note 3)	AC HCC	Temporary pavement marking	17
E		Removable black tape (Non-Reflective)	(Note 3)	AC	Temporary pavement marking for covering existing markings	17

[1]Thinnest portion of the tape's cross section.
[2]Thickest portion of the tape's cross section.

[3]In accordance with manufacturer's installation instructions.
[4]In accordance with the manufacturer's installation instructions, except that Type B, Class VI markings on new plant mix asphalt surfaces shall be inlaid into the freshly installed asphalt surface and not surface-applied.

Section 704.03(d)1 – Snowplowable raised pavement markers is renamed **Section 704.03(d)1 – Inlaid Pavement Markers** and replaced as follows:

Inlaid Pavement Markers shall be installed with retroreflectors with front-side and back-side colors as per Standard Drawing PM-8.

The Contractor shall not install markers on existing bridge decks. Inlaid Pavement Markers shall be installed on new bridge decks where required by the Plans.

Inlaid Pavement Markers shall be placed in relation to pavement joints and cracks as follows:

- In existing Asphalt Concrete pavement, new or existing Hydraulic Cement Concrete pavement, and bridge decks, the edge of the groove shall be at least 2 inches from pavement joints and cracks, ensuring that the finished line of markers is straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Offset from the longitudinal joint shall take precedence over straightness of the line of markers.

- In new Hydraulic Cement Concrete pavement or when installed in conjunction with new latex modified microsurfacing or slurry seal treatments, the edge of the groove shall be at least 2 inches from all longitudinal and transverse surface course pavement joints and 1 inch maximum off alignment from the corresponding pavement marking line. The finished line of markers shall be straight in accordance with the tolerance for pavement markings specified in Section 704.03 of the Specifications. Straightness of the line of markers and alignment with the corresponding pavement marking line takes precedence over offset from the surface course joint.

Retroreflectors shall be affixed to holders, using an adhesive from the Department's Approved List 22 (Inlaid Pavement Markers) prior to installation.

Inlaid Pavement Markers shall be installed as per Standard Drawing PM-8.

Tapered grooves and plunge cuts shall be cut using diamond blades that can accurately control the groove dimensions, resulting in smooth uniform tapers and smooth groove bottoms and ensuring the pavement does not tear or ravel. The Contractor shall remove all dirt, grease, oil, loose or unsound layers, and any other material from the groove which would reduce the bond of the adhesive. Pavement surfaces shall be maintained in a clean and dry condition until the marker is placed.

Holders shall be installed in the same shift as grooving.

The epoxy adhesive shall be thoroughly mixed until it is uniform in color, and applied in accordance with the manufacturer's installation instructions. The Contractor shall partially fill the plunge cut with sufficient epoxy adhesive such that the epoxy adhesive bed area is equal to the bottom area of the holder. The Contractor shall then set the holder in the epoxy adhesive such that the breakaway tabs are resting on the road surface, the holder is centered in the cut, and then fill in additional epoxy adhesive if necessary so the entire perimeter of the holder is completely surrounded in epoxy, with the epoxy level with the edge of the holder in accordance with the manufacturer instructions.

The Contractor shall remove all adhesive and foreign matter from the face of the retroreflector or replace the retroreflector if adhesive and foreign matter cannot be removed. The marker shall be replaced if it is not properly positioned and adhered in the plunge cut.

Section 704.03(d)2 – Raised Pavement Markers is renamed **Nonplowable Raised Pavement Markers** and is replaced with the following:

Nonplowable raised pavement markers shall be bonded to the surface in accordance with the manufacturer's installation instructions. The bonding material shall be from the Deparment's Approved List 22 for the specific marker.

Section 704.04 – Measurement and Payment is amended to replace the fifth paragraph with the following:

Pavement markers will be measured in units of each for the type specified and will be paid for at the contract unit price per each. This price shall include surface preparation, furnishing, installing, prismatic retroreflectors, pavement cutting, adhesive, holders, quality control tests, and daily log.

Section 704.04—Measurement and Payment is amended by revising the Pay Item Table as follows:

The following pay items are removed:

Pay Item	Pay Unit
Pavement message marking (Message)	Each or Linear Foot

The following pay items are inserted:

Pay Item	Pay Unit
Pavement message marking (Message, Type or class material)	Each or Linear Foot

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SUBSTANTIAL COMPLETION INCENTIVE/DISINCENTIVE

September 8, 2023
0058-133-459,B616,C501

V. **Description**

This Special Provision covers the Incentives and Disincentives for achievement of Substantial Completion on or before the specified date.

VI. **Definitions**

1. **Final Stabilization.** Consistent with 9 VAC 25-880-1, all soil disturbing activities at the site have been completed and a permanent vegetative cover has been established on denuded areas not otherwise permanently stabilized.

2. **Substantial Completion.** the completion of all work as detailed in the plans and specifications to the Department's satisfaction, including, but not limited to, installation of all structures, drainage, asphalt pavement (BM, IM & SM), pavement markings, signs, signals, sidewalk, lighting – with required testing, final grading - including grading shoulders to final elevations adjacent to asphalt pavement so as not to leave any drop-off at the pavement edges, guardrail, testing of lighting, permanent seeding, storm water management facilities, **initial stabilization**, and the removal of temporary maintenance of traffic items.

   Maintaining, repairing, and removing erosion and sediment controls, over seeding as directed by the Engineer and the traffic signal burn-in period are not required for satisfying the Substantial Completion Date.

   Work to be completed between the Substantial Completion Date and the Fixed Completion Date shall be limited to those activities required to achieve permanent stabilization, establishment of plantings and vegetative covering, mowing and other activities as directed by the engineer to achieve closeout of all contract requirements and environmental permits.

3. **Substantial Completion Date. July 31, 2026**

VII. **Incentive**

The Department will pay an incentive of **$6,250** per calendar day the project meets the Substantial Completion requirements on or before the Substantial Completion Date. The incentive is capped at **$500,000**. Delays resulting from weather, the Contractor's actions, or actions of others within the Contractors' control or influence will not be considered grounds to extend this date.

If the Contractor does not achieve Substantial Completion on or before the Substantial Completion Date, the Department will assess a disincentive in the amount of **$6,250** for each calendar day, including Sundays and Holidays, that the project does not meet the requirements of substantial completion as defined herein. The disincentive is capped at **$1,000,000**. The incentive amount will be applied on the Semi-Final Estimate. Disincentives shall be applied on monthly progress estimates until which time Substantial Completion is achieved.

The Contractor waives any defense as to the validity of any disincentives stated in the Contract, the Specifications, or this Special Provision, and assessed by the Department against the Contractor on the grounds that such disincentives are void as penalties or are not reasonably related to actual damages.

These incentives/disincentives are established in order to minimize the impact of construction operations on roadway users.

Liquidated damages will be assessed in accordance with section 108.06 and the contract documents after the Completion Date. If Substantial completion is not achieved before the Fixed Completion Date, liquidated damages shall be assessed concurrently with the Substantial Completion Disincentive.

VIII. **Establishment and Burn-In**

Substantial Completion does not satisfy Final Acceptance, as defined in Section 108.09 of the Specifications. Before Final Acceptance the Contractor remains responsible for maintaining the temporary and permanent erosion and sediment control measures, performing periodic inspections as required by the Construction General Permit, maintaining the SWPPP, providing the approved SWM/BMP Construction Record Documents documents, and other work not Accepted by the Engineer, in accordance with the Specifications. Final stabilization, establishment, SWM/BMP acceptance, and removal of temporary erosion and sediment controls must be completed by the Completion Date. Additional over seeding may be required between the Substantial Completion date and Completion Date as directed by the Engineer.

Permanent vegetation shall not be considered established until a ground cover is achieved that is uniform (e.g., evenly distributed, without large bare areas), mature enough to survive, and will inhibit erosion. Permanent vegetative cover shall be considered established where mature, perennial vegetation exists at a density of not less than 70 percent on any 25 square foot area. Once the Engineer has determined that the permanent vegetation establishment requirement has been achieved and no erodible areas exist within the project limits, the Contractor will be notified to remove the remaining erosion control devices that are no longer needed. The Contractor shall be responsible for, and shall correct any areas disturbed by operations performed in permanent vegetation establishment and the removal of temporary erosion control measures, whether occurring before or after placing traffic on the project.

Before Final Acceptance, the contractor shall be responsible for monitoring and maintaining traffic control devices that require testing periods in accordance with the contract. Before Final Acceptance all traffic control devices shall meet the requirements set forth in the contract.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
LIMITATIONS OF OPERATIONS

October 23, 2023
0058-133-459,B616,C501

SECTION 108.02 – LIMITATIONS OF OPERATIONS of the Specifications is amended to include the following:

All work areas (and the limits thereof) and lane closures shall be in accordance with the latest version of *Virginia Work Area Protection Manual* and shall be approved by the Engineer.

Traffic control devices shall be kept clean, legible, and in proper working order at all times. The Contractor shall provide a person whose responsibility shall be to inspect and maintain signs, barricades, other channelizing devices, and lights while traffic is restricted due to the Contractor's operations.

The Contractor shall not conduct operations requiring lane closures when the weather causes unsafe conditions for the traveling public as determined by the Engineer.

The Contractor shall submit lane and shoulder closure requests to the Engineer for approval seven (7) days in advance, stating the location, purpose, date, time, and duration of the closure. Confirmation shall be made twenty-four (24) hours before any scheduled lane closure and shall include a written reiteration of the proposed tasks and a list of materials, labor, and equipment to be used.

No lane closure signing or other traffic disruptive work may be initiated outside the times specified. All signs, equipment, and materials shall be removed before the ending closure time indicated. No lane closures will be permitted outside the times detailed herein without the written authorization from the Engineer.

Extension of a lane closure time is not acceptable. Any changes to the allowable time periods above will require approval of the Engineer in writing. If the Contractor does not restore traffic lanes within the allowable time limits, the Contractor will not be allowed further lane closures until the reasons for the failure are evaluated and the Contractor can provide assurance that the causes have been corrected.

Restoration of traffic is defined as opening all travel lanes to traffic including the completion of all construction work, removing, or relocating all work zone traffic control devices and signs to their approved site as determined by the Engineer, and removing all workers, materials and equipment from the roadway allowing all lanes to be safely opened to public traffic.

Failure to restore all lanes of traffic by the time limits defined herein will be handled as follows:

- The Contractor will not be allowed further lane closures until the reasons for the previous failure are evaluated.

- A formal submission as to the reasons for the failure to restore traffic lanes within the contract lane closure restrictions and the proposed corrective measures is to be provided to the Engineer within two (2) days of the occurrence. A meeting with the District Construction Engineer or designee shall be required prior to the next scheduled lane closure at which the Contractor must be able to provide assurances to the Engineer that adjustments have been made to eliminate the operational causes of failure to restore all lanes of traffic within the time limits herein. No modifications to the Contract Time(s) will be granted or considered for these days.

- When applicable, non-compliance lane user fees will be assessed, as described herein.

The Engineer may change any or all of the work hours stated in the *Allowable Lane Closure Hours for the State Highway System in Hampton Roads District* and/or as stated in the contract plans and documents, when such changes are in the best interest of the traveling public. The Engineer may monitor traffic conditions impacted by the work and make additional restrictions as necessary; i.e., terminate a lane closure early when excessive traffic backups occur or emergency situations dictate. Additional restrictions for other holidays or special local events may be necessary. In these situations, the Engineer will endeavor to inform the Contractor at the earliest opportunity and in no case less than 48 hours before the event.

Complete road and ramp closures are not permitted. The Contractor is responsible for providing adequate advance notification via variable message and required static signing for all shoulder, and lane closures in accordance with Section 512 of the 2020 Virginia Road and Bridge Specifications, 2011 Edition of the Virginia Work Area Protection Manual (WAPM), Revision 2 (September 1, 2019) and as amended by contract provisions. Once a closure is in place, work shall commence immediately and shall progress on a continuous basis to completion or to a designated time. See Temporary Traffic Control Plan for allowable lane closure hours.

Extension of a ramp or lane closure time, except as approved by the Engineer, is not acceptable and bears a Non-Compliance Lane User Fee charge. The Lane User Fee charges for occupying lane(s) outside of the allowable hours listed in the Temporary Traffic Control Plan will be assessed at the rates reflected in the below table for every 15 minute interval starting from the end of the allowable hours until such time as all lanes are restored to traffic. If assessed, such Lane User Fee will be deducted from the next monthly progress estimate(s):

Project: 0058-133-459 : Non-Compliance Lane User Fees		
Rte. 58		
MONDAY TO FRIDAY	**East Bound**	
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE DOUBLE LANE CLOSURE
5:01 AM TO 6:00 AM	$ 4,000	$ 25,000
After 6:01 AM and continues until all lanes are restored to traffic	$ 25,000	$ 25,000

Rte. 58		
SATURDAY	**East Bound**	
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE DOUBLE LANE CLOSURE
5:01 AM TO 6:00 AM	$ 4,000	$ 25,000
After 6:01 AM and continues until 1:00 PM	$ 25,000	$ 25,000

Rte. 58		
MONDAY TO FRIDAY	**West Bound**	
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE DOUBLE LANE CLOSURE
5:01 AM TO 6:00 AM	$ 100	$ 1,250
6:01 AM TO 7:00 AM	$ 500	$ 25,000
After 7:01 AM and continues until all lanes are restored to traffic	$ 9,000	$ 25,000

Rte. 58		
SATURDAY	**West Bound**	
HOURS	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE SINGLE LANE CLOSURE	ACCUMULATIVE RATE PER 15 MINUTE INTERVAL FOR FAILURE TO REMOVE DOUBLE LANE CLOSURE
5:01 AM TO 6:00 AM	$ 100	$ 1,250
6:01 AM TO 7:00 AM	$ 500	$ 25,000
After 7:01 AM and continues until 1:00 PM	$ 9,000	$ 25,000

The table above is to set the maximum cap for the non-compliance lane user fees.

The Lane User Fee will begin at the point in time at which the violation occurs unless otherwise directed by the Engineer. These Lane User Fees are imposed, not as a penalty, but in order to minimize the impact of lane closures and construction operations on roadway users. The Lane User Fee amount is based on daily road user costs which are defined as representing the average daily cost of interference and inconvenience to the road user and scheduled recreational activities.

The Contractor waives any defense as to the validity of any Lane User Fees stated in the Contract, the Contract Documents, or these Specifications and assessed by the Department against the Contractor on the grounds that such Lane User Fees are void as penalties or are not reasonably related to actual damages.

Any liquidated damages assessed in accordance with Section 108.06 of the Specifications will be in addition to the Lane User Fee as shown herein.

Night Work

In areas where work will be performed during the hours of dusk or darkness, the Contractor shall furnish, place, and maintain lighting facilities capable of providing a minimum of 50 foot-candles of light for an area of approximately 15 feet by 15 feet with minimum of 5 foot-candles in the corners. The lights shall be arranged so as not to interfere with or impede traffic approaching the work sites from either direction or produce undue glare to property owners.

Lighting of work sites may be accomplished by using of any combination of portable floodlights or standard equipment lights, etc. that will provide the sufficient illumination for prosecution and inspection of the work, including, but not limited to, laying out and installing pavement markings and traffic loops. Unsupplemented lighting integral to or attached to working mobile equipment such as rollers, pavers, etc. will not be considered sufficient to meet the requirements of this specification.

The cost of providing lighting of the work site will be considered incidental and shall be included in the contract item unit prices of other work.

The Contractor shall provide sufficient fuel, spare lamps, generator, etc. to maintain the lighting of the work site. The Contractor shall use padding and shielding or locate mechanical and electrical equipment to minimize noise generated by lighting operations as directed by the Engineer. Noise

generated by portable generators shall comply with all applicable Federal, State and Local environmental regulations.

The Contractor shall have a superintendent present during nighttime operations who will control all operations involved. The superintendent shall maintain contact with the Engineer and shall ensure that all actions required to correct any noted problems are taken promptly.

All private vehicles shall be parked outside the clear zone.

The Contractor shall review traffic control devices to ensure proper installation and working order, including monitoring of lights. The individual responsible for this review shall be qualified in accordance with Section 105.14(a) of the Specifications.

Sound levels resulting from the Contractor's operations shall conform to Section 107.16(b)3. of the Specifications The Contractor shall obtain all noise permits from the locality where the work is being performed as applicable.

Construction in Residential Subdivisions

Road work within residential subdivisions and/or cul-de-sac streets shall not be performed at night unless circumstances require night work and the Contractor obtains advance approval from the Engineer and conducts outreach to the residents that may be impacted to avoid noise issues.

Holidays

Section 108.02 (b) **Holidays** will be applicable and will be enforced as is.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
GEOTECHNICAL INSTRUMENTATION

October 25, 2023
0058-133-459,B616,C501

I. GENERAL

A. SCOPE

This work shall consist of furnishing, installing, and maintaining geotechnical instrumentation; and protecting instrumentation from damage. This work shall also include recording the results and providing the results to the Engineer as required by this Special Provision and the Specifications.

B. REFERENCES

The publications listed below are incorporated by reference.

ASTM INTERNATIONAL (ASTM)

ASTM A 53 – (2007) Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless

ASTM C 778 – (2006) Standard Specification for Standard Sand

C. QUALIFICATIONS OF CONTRACTOR'S INSTRUMENTATION PERSONNEL

The Contractor's instrumentation personnel who are responsible for furnishing, installing, recording, and maintaining instrumentation shall have the qualifications specified herein. These personnel may be on the staff of the Contractor or may be on the staff of a specialist instrumentation subcontractor.

1. The Contractor's instrumentation personnel shall include a qualified Geotechnical Instrumentation Engineer who is a Professional Engineer holding a valid license to practice engineering in the Commonwealth of Virginia. The Geotechnical Instrumentation Engineer shall:

    a. Prepare detailed step-by-step procedures for all instruments specified herein. These procedures shall include detailed drawings of all instrumentation shown on the plans.
    b. Be on site and supervise at least the first two installations of each type of instrument.
    c. Conduct the pre-installation and post-installation acceptance tests for at least the first two of each type of instrument specified herein.
    d. Be on-site until the completion and acceptance tests for at least the first two of each type of instrument specified herein.
    e. Supervise interpretations of initial geotechnical instrumentation data.

2. The Contractor's instrumentation personnel shall include a Superintendent who will be in responsible charge full-time on-site during the geotechnical instrumentation program. The Superintendent shall be on-site and supervise all instrument installations, and pre-installation and post-installation acceptance tests, after the Geotechnical Instrumentation Engineer has performed these three tasks for the first two of each instrument type, as specified in Section I. C. 1. b., c., and d.

3. The Contractor's instrumentation personnel including the Geotechnical Instrumentation

Engineer, the Superintendent, Registered Land Surveyor, field party chief, and all other field office personnel shall have qualifications acceptable to the Engineer. If requested by the Engineer, the Contractor shall replace any person in the position of Geotechnical Instrumentation Engineer, Instrumentation Superintendent, or Registered Land Surveyor who fails to properly perform their required tasks as defined herein.

D. RESPONSIBILITIES OF CONTRACTOR

The Contractor shall:

1. Furnish all components of geotechnical instrumentation.
2. Furnish portable readout units for the Department's use.
3. Install instruments specified herein.
4. Protect from damage and maintain instruments. Repair or replace damaged or inoperative instruments throughout the Contract duration.
5. Provide safe access to authorized representatives of the Engineer for inspection of the data collection system and instrumentation.
6. Record and provide results to the Engineer.

E. SUBMITTALS

The following shall be submitted for the Engineer's approval:

Preconstruction Submittals

Contractor Personnel resumes

Within 30 calendar days after Notice to Proceed, submit to the Engineer for review:

1. Resumes of Geotechnical Instrumentation Engineer, Superintendent, and Registered Land Surveyor sufficient to define details of relevant site experience.
2. Resumes of other field and office geotechnical instrumentation personnel to be assigned to the project, other than clerical staff.
3. Proposed equipment and products for all instrumentation. Name, make, product name and details of installation.
4. Detailed drawings of the proposed instrumentation

Product Data

Factory/Manufacturer Information

Within 5 work days of receipt of each instrument at the site, submit a copy of factory calibration, manufacturer's calibration, and test equipment certification, completed copy of quality assurance checklist, and warranty for each portable readout unit to the Engineer.

Design Data

Contractor Installation Plan

At least 30 calendar days prior to commencing installation of the first of each type of instrument, submit to the Engineer for review the following items pertaining to that instrument type:

Detailed step-by-step installation procedures, together with a sample installation record sheet. The procedures shall be bound and indexed. The installation procedures shall include:

1. The method to be used for cleaning the inside of casing or augers.

2. Specifications for proposed grout mixes, including commercial names, proportions of admixtures and water, mixing sequence, mixing methods and duration, pumping methods, and tremie pipe type, size and quantity.
3. Drill casing or auger type and size.
4. Depth increments for backfilling boreholes with sand and granular bentonite.
5. Method for overcoming buoyancy of instrumentation components during grouting.
6. Method of sealing joints in pipes to prevent ingress of grout.
7. Method for conducting pre-installation and post-installation acceptance tests.
8. Method for protecting instruments from damage.
9. A bar chart indicating the proposed time sequence of instrument installation.
10. Sample of the quality assurance checklist, pre-installation acceptance test record, and installation record for each instrument type to be used to check instruments on receipt from the manufacturer.

Test Reports

Instrumentation Testing

Within 1 week of receipt of each instrument at the site, submit to the Engineer completed pre-installation acceptance test record form for that instrument.

Within 5 work days of installing each instrument, submit the installation record sheet for that instrument to the Engineer, including as-built instrument location as specified and post-installation acceptance testing.

Within 5 work days of installation, submit the material test report for the sand to be used in the placement of the instrumentation to the Engineer.

Certificates

Instrumentation Calibration

A factory calibration shall be conducted on all instruments before shipment to the Project. Certification shall be provided to indicate that the test equipment used for this purpose is calibrated and maintained in accordance with the test equipment manufacturer's calibration requirements and that, where applicable, calibrations are traceable to the National Institute of Standards and Technology.

Closeout Submittals

As-Built Plans

The Contractor shall submit updated as-built instrument location plans to the Engineer within one week of the completion of installation of each instrument.

F. SCHEDULING WORK

Install instruments and agree on formal initial readings in accordance with the following schedule:

1. Vibrating wire piezometers shall be installed, and formal initial readings taken.
2. Settlement Plates shall be installed, and formal initial readings taken.
3. Variations in this schedule require the prior review and acceptance by the Engineer.

G. SHIPMENT AND STORAGE

After receipt at the site and before installation, all instrumentation materials shall be stored in an indoor, clean, dry, and secure storage space. Instruments shall not be exposed to temperatures outside the manufacturer's stated working temperature range, nor should they be allowed to freeze.

II. PRODUCTS

A. MATERIALS

1. All materials shall be new.
2. Whenever any product is specified by brand name and model number, such specifications shall be deemed to be used for the purpose of establishing a standard of quality and facilitating the description of the product desired. The term "acceptable equivalent" shall be understood to indicate that the "acceptable equivalent" product is the same or better than the product named in the specifications in function, performance, reliability, quality, and general configuration. This procedure is not to be construed as eliminating from competition other suitable products of equal quality by other manufacturers. The Contractor may, in such cases, submit complete comparative data to the Engineer for consideration of another product. Substitute products shall not be ordered, delivered to the site, or used in the Work unless accepted by the Engineer in writing. The Engineer will be the sole judge of the suitability and equivalency of the proposed substitution.
3. Any request from the Contractor for consideration of a substitution shall clearly state the proposed alternative, the nature of the deviation from the product specified and the reason for the deviation requested. The Contractor also provide documentation supporting the claim of “acceptable equivalence.”
4. Specified readout units, together with associated calibration devices and software, shall be furnished to the Engineer no later than one week before commencing installation of the first of each type of instrument. In addition to specified readout units for the Engineer’s use when collecting data, the Contractor shall provide Contractor's own readout units as needed for making pre-installation and post-installation acceptance tests, for taking any required readings during installation, and for taking additional readings required by the Contractor during the course of the Work. Such readout units shall be identical to the specified readout units.
5. The Contractor shall provide surface protection for each instrument to protect the instrument from damage by the elements, vandals, and work activities. The Contractor shall submit proposed protection methods and measures for review and acceptance by the Engineer at least 10 days before starting installation. The Contractor shall maintain and repair all surface protection measures for the duration of the Contract.
6. For each instrument type, provide an instruction manual which shall include the following:
   a. A description of the purpose of the instrument.
   b. Theory of operation.
   c. Step-by-step procedures for:
      1) Pre-installation acceptance test when instruments are received on site, to confirm the instruments are functioning correctly before installation.
      2) Calibration of readout units.
   d. A list of calibration equipment required, and recommended frequency of calibration.
   e. Step-by-step instrument installation procedure including materials, tools, spare parts, and any borehole requirements, and post-installation acceptance tests.
   f. Maintenance procedure.
   g. Step-by-step data collection procedure.
   h. Data reduction, processing, and plotting procedures.
7. All measurements, dimensions, and units shall be in U.S. Customary Units, for example, feet, inches, pounds.

B. VIBRATING WIRE PIEZOMETERS

1. Provide vibrating wire piezometers, Model 4500S, as manufactured by Geokon Inc., Lebanon, NH; model PWS as supplied by Roctest Inc., Plattsburgh, NY, 50 psi model supplied by Slope Indicator; or model M-610 as supplied by Geonor Inc., Milford, PA, or acceptable equivalent. Piezometers shall have a range of 50 psi, an over-range rating of twice the rated pressure, ± 0.2 percent full scale accuracy, and 0.025 percent full scale resolution, and shall be fitted with a low air entry filter. Piezometers shall include a temperature sensor.
2. Provide cable. Cable shall be from the same commercial source as the piezometers, and shall either be 4-conductor, 22-gage, with two shielded twisted pairs, a common drain wire, and a sheath of 0.065-inch-thick pressure-extruded vinyl with an outside diameter of 0.25 inch, or shall be Geonor model P-540. Cable shall be attached to the piezometers through an integral bulkhead seal, consisting of an interior waterstop seal and a cable entry seal. Seals shall be either 0-rings or hermetic seals. The seals shall have been tested and certified for water tightness over the specified pressure range of piezometers. Provide twice the length of cable required by distance from instrument to terminal box. Cable shall be snaked to terminal box to allow for settlement.
3. Provide readout and other terminal units, from the same commercial source as the piezometers. The readout unit shall be capable of reading both the vibrating wire and temperature sensor, shall have a minimum of 64k RAM memory, and shall display readings in engineering units.
4. Filter sand shall be Standard sand conforming to ASTM C-778 or No. 20-40 sand.
5. Granular bentonite shall be Enviroplug Medium, as manufactured by Wyo-Ben, Inc., Billings, MT; Holeplug, as manufactured by Baroid Divison, Petroleum Services, Inc., Houston, TX; or acceptable equivalent.
6. Special grout Type A shall consist of uniform sized fine ground or powdered non-drilling mud grade bentonite, for use in sealing and grouting well casings. A polymer-based thixotropic additive may also be added to the mix if recommended by the manufacturer. Special grout Type A shall have a mixed specific gravity between 1.03 and 1.20 prior to placement within the instrument borehole.
7. Cylindrical sounding hammer shall be a steel cylinder with outside diameter 0.3 to 0.5 inch less than the inside diameter of the casing or augers, an inside diameter 0.15 to 0.25 inch larger than the outside diameter of the cable, a length of not less than 2 feet, and a weight of 10 to 20 pounds.

C. **SURVEYING INSTRUMENTS AND BENCHMARKS FOR SETTLEMENT PLATE, SURFACE SETTLEMENT POINT, AND SURVEY TARGET MONITORING**

1. Instruments used for vertical deformation monitoring shall have a minimum accuracy of ± 1.5 mm (standard deviation for one kilometer of double run leveling) and a minimum setting accuracy of ± 1.0 arc seconds. Leveling staffs shall be non-telescopic in design (i.e., “Chicago” style leveling staff). A bull's eye bubble shall be used to plumb the leveling rod.
2. The Contractor shall establish benchmarks that are approved by the Engineer.

D. **SETTLEMENT PLATES**

The Contractor shall provide settlement plates in accordance with the VDOT Standard Settlement Plate (SP-1).

E. **SURFACE SETTLEMENT POINTS**

1. Provide Surface Settlement Points that consist of a heavy material, approved by the Engineer, that will remain stable in all weather events during the monitoring period.

F. **SURVEY TARGETS**

1. Provide survey targets that are approved by the Engineer.

G. FACTORY CALIBRATION

1. A factory calibration shall be conducted on all instruments at the place of manufacture before shipment. Each factory calibration shall include a calibration curve with data points clearly indicated, and a tabulation of the data. Each instrument shall be marked with a unique identification number. Quality assurance procedures during factory calibration shall be in accordance with Section I E.
2. Factory calibrations of vibrating wire piezometers shall be made against a pressure gage traceable to the National Institute of Standards and Technology. The accuracy of the pressure gage shall not be less than twice the specified accuracy of the piezometers. Calibrations shall be made to full scale in two complete cycles, recording the reading in 10 equal increments during two loading and two unloading cycles. The thermal factor of each piezometer shall be determined in a precision test chamber, at 0-, 10-, 20-, and 30-degrees C. The calibration record shall include gage factor, thermal factor, and zero reading with corresponding temperature and barometric pressure.

III. EXECUTION

A. PREINSTALLATION ACCEPTANCE TESTS

1. When instruments are received at the site, the Contractor's instrumentation personnel shall perform pre-installation acceptance tests to ensure that the instruments and readout units are functioning correctly prior to installation. Pre-installation acceptance tests shall include relevant items from the following list:
    a. Examine factory calibration curve and tabulated data, to verify completeness.
    b. Examine manufacturer's final quality assurance inspection checklist, to verify completeness.
    c. Check cable length.
    d. Check tag numbers on instrument and cable.
    e. Check, by comparing with procurement document, that model, dimensions, and materials are correct.
    f. Bend cable back and forth, at point of connection to instrument, while reading the instrument, to verify connection integrity.
    g. Perform resistance and insulation testing, in accordance with criteria provided by the instrument manufacturer, using a gage insulation or circuit tester that applies 2 volts or less for resistance testing and 15 volts or less for insulation testing.
    h. Verify that all components fit together in the correct configuration.
    i. Check all components for signs of damage in transit.
    j. Check that quantities received correspond to quantities ordered.
2. During pre-installation acceptance testing of each instrument, the Contractor's instrumentation personnel shall complete a pre-installation acceptance test record form.
3. An instrument that fails the specified pre-installation acceptance test shall be repaired such that it passes a subsequent pre-installation acceptance test or shall be replaced by an identical instrument at no additional cost to the Department.

B. INSTALLATION – GENERAL

1. The Contractor's instrumentation personnel shall install instruments in accordance with the Contractor's detailed step-by-step procedures that were submitted as specified in Section I. E. and reviewed by the Engineer.
2. Installation procedures for instruments in boreholes shall be such that all steps in the procedure can be verified. Granular bentonite shall be placed in depth increments not exceeding 2 feet. Volumes of each increment of backfilling with sand shall be small enough that no bridging of bentonite occurs. The depth to the top of each instrument with sand or granular bentonite shall be checked after placement.

3. Grout shall be placed using a tremie method with side discharge ports on the tremie pipe.
4. All material adhering to the inside of the casing or augers and all cuttings shall be removed before installing any instrument through drill casing or augers.
5. Whenever withdrawing drill casing or augers during instrument installation in a borehole, care shall be taken to minimize the length of unsupported borehole and the rate of casing or auger withdrawal. Collapse of the borehole shall not be allowed to occur. Backfill material shall not be allowed to build up inside the casing or auger such that the instrument is lifted as the casing or auger is withdrawn. The casing or auger shall be withdrawn without rotation. The casing or auger may be omitted, if allowed by the Engineer, only where it can be shown that instrument installation without the casing or auger will not cause collapse of the borehole or in any way adversely affect instrument installation. If casing or augers are omitted, or the Engineer allows withdrawal of casing or augers prior to instrument installation, the following requirements shall apply. The instrument shall be installed in the borehole in a continuous operation, starting when instrumentation materials are first placed in the borehole, and shall not be interrupted prior to complete backfilling of the borehole to the ground surface. Partially completed instrument installations shall not be left in unsupported boreholes overnight or longer without the prior written concurrence of the Engineer.
6. The Contractor shall notify the Engineer at least 72 hours before installing each instrument.
7. The Contractor shall install instrumentation in addition to that specified herein that the Contractor deems necessary to ensure the safety of personnel and the Work at no additional cost to the Department. The Contractor shall notify the Engineer at least 24 hours before installing any such additional instrumentation. Data resulting from such instrumentation are referred to herein as Contractor's data, together with data specified in Section III. B. 9. k. Such Contractor's data will be accepted by the Engineer only if the data are obtained from instrumentation furnished, calibrated, tested, installed, and maintained as specified herein, if the data are collected and plotted as specified herein, and if submitted to the Engineer within one month of data collection.
8. The Contractor shall extend installed instrumentation and reinstall protection measures as necessary as grade changes occur and revise instrument reference elevations as necessary.
9. An installation record sheet shall be prepared, including appropriate items from the following list as each instrument is installed:
    a. Project name.
    b. Contract name and number.
    c. Instrument type and number, including readout unit.
    d. Planned location in horizontal position and elevation.
    e. Planned orientation.
    f. Planned lengths and volumes of backfill.
    g. Personnel responsible for installation.
    h. Plant and equipment used, including diameter and depth of any drill casing or augers used.
    i. Date and time of start and completion.
    j. Spaces on record sheet for necessary measurements or readings required at hold points during installation to ensure that all previous steps have been followed correctly, including instrument readings made during installation.
    k. A log of subsurface data indicating the elevations of strata changes encountered in the borehole. Strata soil nomenclature shall be based on profiles and boring logs contained in the Geotechnical Engineering Report.
    l. Type of backfill used.
    m. As-built location in horizontal position and elevation including:
        1) Elevation referenced to the Project Elevation Datum, together with the location of the point used for the elevation measurement.
        2) Horizontal position referenced both to Virginia State Plane, South Zone Grid Coordinates, as referenced to the North American Datum of 1983 (NAD 83), and to project Baseline Station and Offset, together with the location of the point used for horizontal position measurement.
        3) A location sketch showing the instrument number, taped horizontal ± 1 foot from permanent physical features in the field. A sufficient number of taped measurements

shall be included on the sketch to establish a unique horizontal position for the instrument. If such features are to be removed, the Contractor shall provide a new sketch, before removing, with taped measurements to other features.

n. As-built orientation.
o. As-built lengths and volumes of backfill.
p. Result of post-installation acceptance test.
q. Weather conditions at the time of installation.
r. A space on record sheet for notes, including problems encountered, delays, unusual features of the installation, and details of any events that may have a bearing on instrument behavior.

10. Any instrument that fails the specified post-installation acceptance test shall be replaced by an identical instrument at no additional cost to the Department.
11. The Contractor shall submit updated as-built instrument location plans to the Engineer. The location plans shall be reproducible composite plans of all installed instruments plotted on 11 inch x 17 inch or 24 inch by 36 inch sheets at a scale of 1 inch = 100 feet. The first plans shall be submitted within two weeks after completion of the first instrument installation, regardless of instrument type. Updated plans shall be submitted every subsequent week. Updated plans need not be submitted for periods during which no instruments have been installed.

C. INSTALLATION OF VIBRATING WIRE PIEZOMETERS AND TERMINAL BOXES

1. Vibrating wire piezometers shall be installed, either one or two per borehole, at the locations and depths shown on the Plans or as directed by the Engineer.
2. Maintain an open hole with casing or hollow-stem augers. Bentonitic drilling mud shall not be used.
3. The Contractor shall sample continuously with split spoon samples for each piezometer installed. Prior to insertion of the piezometer in the borehole, the piezometer and cavity between filter and diaphragm shall be saturated with clean water and a reading shall be taken of the vibrating wire transducer, thermistor, and corresponding barometric pressure. Saturation shall be maintained throughout the installation.
4. After insertion of the piezometer a check shall be made to ensure that the piezometer reading agrees with the water head, and the elevation of the diaphragm shall be recorded.
5. Depth to the top of each increment of granular bentonite shall be checked using a cylindrical sounding hammer. The granular bentonite shall not be tamped.
6. After completion of installation a post-installation acceptance test shall be performed to verify that the piezometer functions correctly.

7. After completion of installation, the as-built location in the horizontal position shall be determined to an accuracy of ± 1 foot, and the elevation of the top of the roadway box to an accuracy of ± 0.01 foot. The elevation of the piezometer diaphragm shall also be determined, to an accuracy of ± 0.1 foot.
8. Terminal boxes to match the piezometer shall be installed so that all piezometers extend to a terminal box. Conductor cable shall be snaked along the length to the terminal box. Terminal boxes shall have lightning protection.

D. INSTALLATION OF SETTLEMENT PLATES

1. Settlement platforms shall be installed at the locations shown on the plans or as directed by the Engineer.
2. After completion of installation, determine as-built location in horizontal position to an accuracy of ± 1 foot and the elevation of the top of the riser pipe to an accuracy of ± 0.01 foot.
3. As height of embankment increases, extend riser pipe upward in 5-foot increments, to maintain top of pipe between 1 and 6 feet above embankment surface. When extending pipe, do not rotate pipe already in place. Record extension length to an accuracy of ± 0.005 foot. Survey the elevation of the inner pipe just before and immediately after adding the inner pipe extension so a new reference can be established.

E. INSTALLATION OF SURFACE SETTLEMENT POINTS

1. Surface settlement points shall be installed at the locations shown on the plans or as directed by the Engineer.
2. After completion of installation, determine as-built location in horizontal position to an accuracy of ± 1 foot and the elevation to an accuracy of ± 0.01 foot.

F. INSTALLATION OF SURVEY TARGETS

Survey targets shall be installed at the locations shown on the plans or as directed by the Engineer.

G. FIELD CALIBRATION AND MAINTENANCE

The Contractor's instrumentation personnel shall conduct regular maintenance of field terminals and accessible instrument components.

H. DAMAGE TO INSTRUMENTATION

1. The Contractor shall protect all instruments and appurtenant fixtures, leads, connections, and other components of instrumentation systems from damage due to construction operations, weather, traffic, use, and vandalism.
2. If an instrument is damaged or inoperative, the Contractor's instrumentation personnel shall repair or replace the damaged or inoperative instrument within 72 hours at no additional cost to the Department. The Contractor shall notify the Engineer at least 24 hours before repairing or replacing a damaged or inoperative instrument. The Engineer will be the sole judge of whether repair or replacement is required.

I. DISCLOSURE OF DATA

The Contractor shall not disclose any instrumentation data to third parties and shall not publish data without prior written consent of the Engineer.

J. DISPOSITION OF INSTRUMENTS

Portable readout units furnished to the Engineer for data collection shall become the property of

the Department.

IV. MEASUREMENT AND PAYMENT

Vibrating wire piezometers will be measured in units of each per instrument and will be paid for at the Contract each price. This price shall include furnishing and installing instrument protective exterior casing, and readout unit; factory calibrations, pre- and post- installation acceptance testing, instruction manuals, and delivering output. The price shall also include the terminal box(es), as well as furnishing and installing twice the length of cable required by distance from instrument to terminal box. Cable shall be snaked to terminal box to allow for settlement.

Settlement plate will be measured and paid for in accordance with Section 303 of the Specifications and shall include all lengths of pipe added to final grade.

The Surface Settlement Points and Survey Targets on the EPS Fill and Tilt-Up Walls shall be considered incidental to the cost of the EPS fill and the Tilt-Up Walls, respectively.

The cost of furnishing and installing all materials left in place, including, but not limited to, cable bentonite, grout, and sand; drilling, sampling, installing surface and other protection, obtaining formal initial reading and determining as-built location; providing safe access to instruments for inspection and data collection; collecting the data and providing data to the Engineer; accepting validity of formal initial readings and signing acceptance as specified; protecting and maintaining; repairing or replacing damaged instruments; storing and disposing of instruments; furnishing specified submittals and providing the Department portable readout units and instruction manuals shall be incidental to the contract prices of the Vibrating Wire Piezometers.

Payment will be made under:

Pay Item	Pay Unit
Vibrating wire piezometers	Each

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
EXPANDED POLYSTYRENE (EPS) GEOFOAM BLOCK FILL
(EPS FILL)

October 25, 2023
0058-133-459,B616,C501

1. DESCRIPTION

1.01 GENERAL

This work shall consist of designing the size and layout of the expanded polystyrene (EPS) geofoam block fill, hereafter referred to as "EPS Fill," and furnishing all labor, material, and equipment for placement of EPS fill and its protective and load distribution materials and capping layer, to the lines and grades shown on the Plans for the purpose of reducing settlement of the embankment. When shown on the plans, the EPS fill shall be placed on a sand bedding (leveling) layer and shall be protected by an impervious, fuel resistant geomembrane as described herein and as shown in the Plans. Unless a Load Distribution Slab is shown, a capping layer of Select Material Type I shall be placed over the geomembrane to distribute the load over the EPS Fill to the lines and grades shown on the Plans.

1.02 DEFINITIONS

For the purposes of this Special Provision, the following definitions pertain to the parties indicated below:

1.02.1 Molder: The Company that manufactures the EPS Fill used for the proposed embankments.

1.02.2 Supplier: The Company having the contractual relationship with the Contractor for the supply of the EPS Fill. The supplier may also be the Molder or an intermediary company (typically a distributor of construction and/or geosynthetic products manufactured by others). Where appropriate, the Supplier may delegate certain tasks of this Special Provision to the Molder.

1.02.3 EPS-block grade: One of the AASHTO material designation types indicated in Table 1 of this Special Provision.

1.03 CONSTRUCTION SURVEYING

The Contractor is responsible for setting, maintaining, and resetting all alignment stakes, slope stakes, and grade stakes necessary for the construction of the EPS Fill and capping layer. This includes, but is not limited to, subgrade preparation and all appurtenances between proposed retaining walls.

1.04 DESIGN REQUIREMENTS

A. The EPS Fill layout shall be designed by a Professional Engineer licensed in the Commonwealth of Virginia. The block layout shall be designed in conformance with the lines and grades shown on the Plans and in accordance with the following general design requirements:

1. The plane on which a given layer of blocks is placed shall be flat and level.
2. A minimum of two layers of blocks shall be used at all locations.
3. Within a given layer of blocks, the longitudinal axes of all blocks shall be parallel to each other.
4. Within a given layer of blocks, the vertical joints between adjacent ends of blocks within a given row of blocks shall be offset to the greatest extent practical relative to blocks in adjacent rows.
5. The longitudinal axes of blocks for layers above and/or below a given layer must be perpendicular to the longitudinal axes of blocks of that layer.

6. The longitudinal axes of the uppermost layer of blocks must be perpendicular to the longitudinal axis of the road alignment.
7. Blocks shall be laid out such that blocks of adjacent layers are overlapped and no seams or coincident joints more than one block in height are present. The minimum overlap of blocks in adjacent layers shall be at least 3 feet, or the thickness of the blocks, whichever is greater.
8. Blocks shall be placed with their smallest dimension oriented vertically.
9. All blocks shall butt tightly against adjacent blocks on all sides.
10. A minimum of two inter-block connectors shall be provided on every EPS block. Inter-block connectors shall be placed at approximately equal distances from opposite ends of the block and shall be approximately centered transversely on the block. The Contractor's design shall determine if additional inter-block connectors are required.

B. Design of the EPS block composition and block layout of the embankment fill shall be performed in accordance with the latest version of the publications listed below that form a part of this specification to the extent referenced. The publications are referred by basic designations only.

1. American Society for Testing and Materials (ASTM).
2. NCHRP Web Document 65 (Project 24-11) "Geofoam Applications in the Design and Construction of Highway Embankments."

C. A step-by-step description of the installation procedures and construction sequencing proposed for each EPS fill stage on this project shall be provided. Descriptions of the installation procedures and construction sequence shall be supplemented by drawings and calculation as necessary. EPS block sizes and laying pattern as well as methods of temporarily ballasting and stabilizing EPS blocks to prevent movement during construction shall be provided.

D. All additional details to those depicted on the Plans required in support of the construction procedures for the EPS Fill shall be designed by the Contractor. All Contractor-designed items shall be stamped by a Professional Engineer licensed in the Commonwealth of Virginia. All such details shall be submitted to the Engineer for review at least 30 days prior to construction.

1.05. PRODUCT MANUFACTURING QUALITY ASSURANCE (MQA) REQUIREMENTS.

A. Manufacturing Quality Assurance:

Manufacturing Quality Assurance (MQA) of the EPS-Block product will be conducted to verify the molder's Manufacturing Quality Control (MQC) procedures. The Engineer will have primary responsibility for all MQA unless the Department notifies the Contractor otherwise. The Engineer will communicate directly only with the Contractor in matters and questions of MQA unless all parties agree otherwise.

MQA of the EPS geofoam block product will consist of two phases:

1. **Phase I MQA – Molder/Supplier Pre-Construction Certification**, which consists of certification of the Molder and/or Supplier and shall be conducted prior to shipment of any EPS blocks to the project construction site.
2. **Phase II MQA – Construction Site Block Verification,** which is conducted as the EPS blocks are delivered to the project construction site.

B. Phase I MQA –Molder/Supplier Pre-Construction Certification.

No EPS blocks shall be shipped to the project site until such time as all parts of the Molder/Supplier pre-construction quality assurance certification have been completed as specified in this section and in the order listed below.

1. If the Molder has an independent third-party certification program in force, the Contractor shall submit to the Engineer a copy of the certification with documentation that identifies the business or agency that is providing the third-party certification and describes in detail the steps taken by this business or agency to verify the Molder's compliance with the specific requirements of this Special Provision, including all previous laboratory test results performed on specimens sampled from block produced within the past 12 months. The Engineer may waive the need for pre-construction product submittal and testing as described below upon review of the certification. If multiple Molders are used, third-party certification must be acceptable for each individual Molder.

2. If the Molder does not have an independent third-party certification or the certification is deemed by the Department to be unacceptable, the Contractor shall deliver a minimum of three full-size EPS blocks for each EPS grade specified on the Plans, to a location specified by the Engineer for sampling and testing to evaluate the ability of the Molder to provide EPS blocks of the quality specified herein. These blocks shall in all respects be the same as the blocks to be supplied for this project, as described in the specification. If multiple Molders are used, three blocks shall be submitted from each Molder.
   The Contractor shall supply a scale with sufficient capacity and precision for weighing of the EPS blocks. This scale shall be delivered to the specified location. This scale shall have been calibrated within the last 6 months and certification of such calibration shall be provided.

   The Contractor shall weigh and measure each of the three blocks of each EPS grade.

   The Contractor shall collect sample specimens for laboratory testing from at least one of the three blocks of each EPS grade using the same protocol required in Phase II MQA – Construction Site Block Verification, discussed below. Specimens shall be sent to a materials testing laboratory approved by the Department.

   EPS blocks not used for testing may be utilized for construction provided they satisfy all the requirements outlined in this Special Provision. Acceptable blocks remaining from the certification/testing may be used in construction of the project, subject to approval.

3. Prior to delivery of any EPS blocks to the project site, the Contractor shall submit a request for a meeting to be held between, at a minimum, the Engineer, Contractor, the Contractor's superintendent for installation of the EPS fill, and the Supplier and/or Molder of the EPS blocks. The purpose of this meeting shall be to review the certification results and discuss all aspects of construction to ensure that all parties are familiar with the requirements of this Special Provisions. At the satisfactory conclusion of this meeting, the Contractor shall be allowed to begin on-site receipt, storage (if desired) and placement of the EPS blocks in accordance with this Special Provision.

4. Complete material documentation, including laboratory test results, of all EPS to be used on the Project must be disclosed as part of the pre-construction certification process described in this Special Provision. This documentation must state the source (nation of origin) and specifications (including, but not limited to, bead size, flame retardant, chemical additive(s) for insect control, and relative content of pentane blowing agent) of all EPS. This documentation must also indicate complete quality and safety compliance of the EPS as would normally be required for its use in producing EPS for construction in the United States. Should any changes in the source and/or specifications of EPS occur during construction, updated information must be supplied for approval prior to the implementations of any change.

5. The nature and safety issues associated with all additives used in the production of the EPS blocks must be stated clearly by the Molder or Supplier as part of the pre-construction

certification process prior to molding any blocks for the Project. In addition, the Molder or Supplier must demonstrate that the proposed additive(s) will not compromise the ability of the finished EPS blocks to meet the minimum flammability requirements specified in this Special Provision and pose no environmental hazard either in the short- or long-term. The molder or Supplier shall provide written documentation that will indemnify and hold harmless the Department against all environmental risks associated with the additive(s) that may exist at present or might develop in the future. Should any changes relative to optional chemical additive usage occur during construction, updated information must be supplied and approved prior to implementing any change.

6. All EPS blocks shall be manufactured using a vacuum-assisted mold. Written documentation and technical information concerning the mold to be used shall be submitted as part of the pre-construction certification process. Should any changes in mold use occur during the course of the Project, updated information must be approved prior to any change. Note that any change in mold may require a completely new pre-certification process as described in this Special Provision.

7. The use of accelerators or mineral oil in the production and/or curing process of the EPS will not be allowed.

C. Phase II MQA – Construction Site Block Verification.

Construction site block verification quality assurance shall be conducted as the EPS blocks are delivered to the Project construction site and at the sampling and testing frequency specified herein. Phase II MQA – Construction Site Block Verification will consist of 4 sub-phases (IIa through IId). All requirements of Phase II shall apply separately to every EPS grade of block.

The Engineer shall assume the primary responsibility for conducting this phase of the work. Contractor shall cooperate with and assist the Engineer in implementing Phase II MQA - Block Verification.

No EPS blocks shall be placed in any fill of this project until such time as all activities of construction site block verification quality assurance, as specified in this section, have been completed successfully in the order listed below.

1. **Phase IIa MQA** shall consist of on-site visual inspection of each block delivered on any truck to the construction site to check for damage as well as for verification of the labeled information included on each block. Any blocks with damage not meeting the requirements of this Special Provision will be rejected on the spot, marked “unacceptable”, be placed in an area separate from those blocks that are accepted, and eventually returned to the Molder or Supplier at no cost the owner.

2. **Phase IIb MQA** shall consist of on-site verification that the minimum block dry unit weight (density) specified in Table 1 under the Materials section of this Special Provision, as well as the physical tolerances requirements specified in this Special Provision. Weighing of blocks shall be conducted onsite using a scale supplied by the Contractor in conformance with the requirements of Phase I MQA. Blocks shall be selected at random by the Engineer.

    a. **When third-party certification is approved:** Test at least one block from the first truckload delivered to the construction site, and as directed by the Engineer thereafter.

b. **When third-party certification is not approved:** Test one block from the first truckload and at least one from every truckload delivered to the construction site thereafter, or as directed by the Engineer.

If the selected block meets specifications, no further checking of the truckload is required.

If the selected block does not meet specifications, at least 3 additional blocks delivered from the same truckload shall be individually checked. The entire shipment of the grade of EPS in question shall be rejected should any one of the 3 additional blocks fail to meet the requirements outlined above.

3. **Phase IIc MQA** shall consist of on-site sampling of the EPS blocks and laboratory testing of specimens prepared from these samples to confirm the EPS design parameters related to stiffness and strength.

   a. **When third-party certification is approved:** Confirm the EPS block design parameters for each grade specified on the Plans from a block selected from the first truckload delivered to the site of each EPS grade, and at least on one additional block of each grade for every 500 cubic yards of EPS delivered when requested by the Engineer.

   b. **When third-party certification is not approved:** Confirm the EPS design parameters for each grade specified on the Plans from a block selected from the first truckload delivered to the site of each EPS grade, and for every 500 cubic yards of EPS delivered to the site.

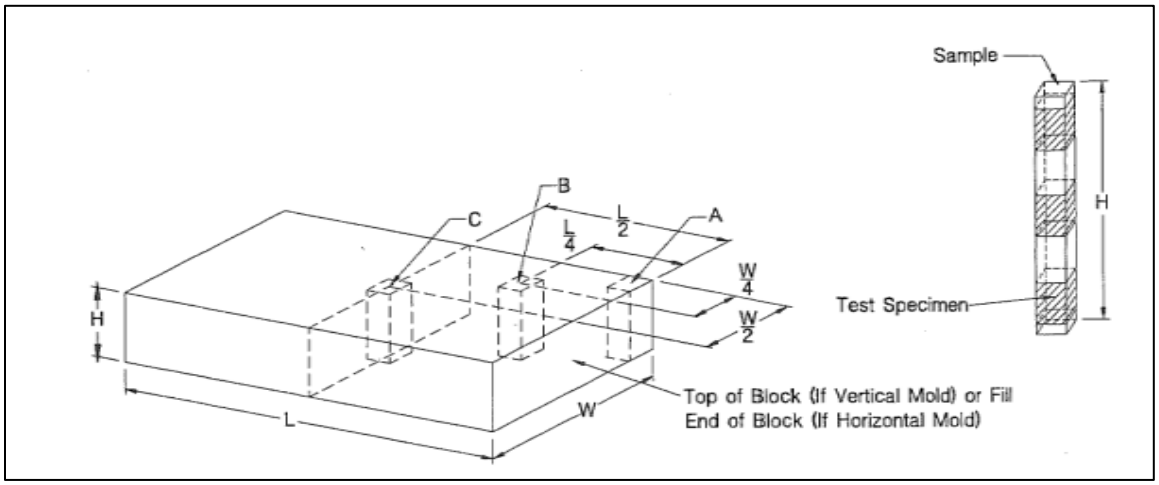
   Sampling shall be at locations A, B, and C shown in Figure 1. The samples shall be approximately square in cross-section and of sufficient width to enable preparing the test specimen required by this Special Provision.

   Laboratory tests shall be performed to check for compliance with the material properties shown on Table 2 in the Materials section of this Special Provision.

   If unsatisfactory results are obtained, the Contractor shall remove potentially defective EPS blocks and replace them with blocks of acceptable quality at no additional expense to the Department.

Portions of sampled blocks that are damaged by sampling or used for testing are not acceptable for construction. Portions of sampled blocks that are not damaged or otherwise compromised by the sampling can be used by the Contractor, with the approval of the Engineer, provided they comply with all other requirements of this Special Provision.

Figure 1: Locations of require EPS block sampling for an individual block.



The Contractor shall allow for prompt delivery of the EPS blocks to the construction site for conducting laboratory testing of the blocks. For those truckloads where EPS blocks will be selected for sampling and testing, as described above, a minimum of 3 business days, or longer time if required to complete laboratory testing, are required prior to their scheduled installation to allow for samples to be taken and laboratory testing conducted. Any shipment of EPS blocks for which the representative samples fail to meet the parameters outlined in this Special Provision are considered defective and shall be replaced by the Contractor with non-defective EPS block at no additional cost or time to the Department.

4. **Phase IId MQA** shall consist of preparation of as-built drawings as well as additional record keeping documenting the location of all EPS blocks placed for the project.

1.06 PRODUCT MANUFACTURING QUALITY CONTROL (MQC) REQUIREMENTS

A. Manufacturing Quality Control (MQC) of the EPS-block geofoam product defines the parameters for use by a molder in developing an MQC plan. MQC is the primary responsibility of the molder. The MQC parameters will also be those measured for the Phase I – MQA (Manufacturing Quality Assurance) pre-construction certification process.

B. All EPS block fill shall entirely consist of expanded polystyrene of the grades specified in the Plans and herein. EPS shall be fabricated using virgin feedstock manufactured into blocks having no more than five percent regrind content. Previously used EPS blocks are not allowed in part or in full on this project, except as specified herein.

C. All EPS blocks shall be adequately cured for a minimum of 72 hours, unless otherwise specified by specific testing requirements, prior to shipment to the project site. For the purposes of the Special Provision, curing is defined as storage in an area suitable for the intended purpose as subsequently defined herein for a minimum number of hours after an EPS block is released from the mold. Curing shall be done within a building or other structure that protects the EPS blocks from moisture as well as UV radiation. The area in which EPS blocks are stored for curing

shall also be such that adequate space is allowed between blocks, and positive air circulation and venting of the structure provided so as to foster the out-gassing of blowing agent and trapped condensate from within the blocks. The Engineer shall be allowed to inspect the structure to be used for curing upon request and during normal business days and hours. The supplier may request a shortened curing period if the EPS blocks are cured within an appropriate heated storage space and the Molder demonstrates that the alternative curing treatment produces blocks that equal or exceed the quality of blocks subjected to the normal curing period, and that outgassing is complete so that transport of the seasoned blocks is safe.

D. The Standards listed below form a part of this specification section to the extent indicated. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

1. ASTM has the following three standards pertaining to EPS geofoam:

a. D6817 Standard Specification for Rigid Cellular Polystyrene Geofoam provides information on the physical properties and dimensions of expanded polystyrene intended for use as geofoam.

b. D7180 Standard Guide for use of Expanded Polystyrene (EPS) Geofoam in Geotechnical Projects covers design considerations for the use of EPS in geotechnical applications.

c. D7557 Standard Practice for Sampling of EPS Geofoam Specimens can be used for quality assurance.

2. ASTM has the following test methods pertaining to EPS geofoam:

a. C303 Standard Test Method for Dimensions and Density of Preformed Block and Board–Type Thermal Insulation

b. D1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics

c. D1622 Standard Test Method for Apparent Density of Rigid Cellular Plastics

d. D3345-74 Standard Test Method for Laboratory Evaluation of Wood and Other Cellulosic Materials for Resistance to Termites

e. D2863 Test Method for Measuring the Minimum Oxygen Concentration to Support Candle-Like Combustion of Plastics (Oxygen Index)

1.07 SUBMITTALS

At least 30 calendar days before the planned start of installation, the Contractor shall submit the following to the owner's agent for approval. Upon receipt of complete submittal, the Engineer shall have 15 calendar days to approve or reject the submittal.

A. **Product Pre-construction QA/QC Submittal:** The Contractor shall submit all relevant documents related to the MQA Phase I and MQC defined in Sections 1.05 and 1.06, which include:

1. Molder's pre-construction certification.

2. Molder's/Supplier's standard warranty document executed by an authorized company official. Molder's /Supplier's warranty is in addition to, and not a limitation of, other rights the owner may have under Contract Documents.

3. Molder's Quality Control Plan, which shall include details of EPS block production, curing room and processes at manufacturing plant.

B. **EPS Embankment Fill Design Documents Submittal:** The Contractor shall submit complete design drawings, complemented by a design report to the Engineer for review and approval.

1. Design Drawings prepared by the Contractor that include, but are not be limited to, the following items:

    a. A plan view of the fill(s) showing:

        1. Use of project centerline and elevations for reference baseline and elevation datum.

        2. The offset from the construction centerline or baseline to the face of the fill at its base at all changes in horizontal alignment.

        3. Stations for beginning and end of EPS fill.

        4. Right-of-way and permanent or temporary construction easement limits, location of all known active and abandoned existing utilities, adjacent structures or other potential interferences, and centerline of any drainage structure or drainage pipe behind, passing through, or passing under the EPS fill.

    b. Elevation view of the fill(s) identifying:

        1. The elevation at the top of the EPS fill at all horizontal and vertical break points, and at least every 25 feet along the EPS fill.

        2. Elevations at the EPS fill base.

        3. The distance along the face of the EPS fill to all steps in the EPS-Block Fill base.

        4. Existing and finish grade profiles both behind and in front of the EPS fill.

        5. Details showing how the EPS fill will be stepped to transition from the EPS fill to the earth embankment at either end of the EPS fill.

    c. Cross Sections showing:

        1. Means, methods, and dimensions showing interlocking or keying of the EPS fill into the existing embankments.

        2. Interface and interaction of the EPS fill with proposed structures, such as the abutments of the adjacent bridge.

        3. These cross sections shall be provided at a maximum spacing of 25 feet for the length of the EPS fills from beginning to end.

        4. A listing of the summary of quantities on each cross section showing estimated square feet and the cubic yards of EPS fill between adjacent cross sections.

    d. EPS fill material properties, block dimensions, applicable codes, and any other parameters used in the block composition and layout design.

    e. Notes and drawings shall define the subgrade preparation, materials upon which the EPS blocks are to be placed, and number and placement of inter-block connectors.

    f. General notes for constructing the fill including construction sequence or other special construction requirements such as temporary protection measures from impact, wind, including natural gusts or gusts produced by traffic in adjacent lanes, elements or chemical exposure (fuels, solvents, etc.) shall be included in the drawings. The

Contractor shall be responsible for safety at the site relative to all aspects of the EPS fill construction.

g. Detailed construction staging and sequencing description, including, but not limited to block placement and interaction with other staging requirements of the project.

h. Description of temporary protection measures for exposed portions of the EPS fill between layers of block and stages of fill construction, and for possible interruption or delay of construction during the fill placement.

2. The design report shall summarize the EPS fill design and block layout shown on the drawings. This report shall include all calculations necessary to develop the specific layout, positions, orientation and interaction of the blocks. The report shall also include the following items:

a. Applicable code requirements and design references.

b. Drainage design, including temporary drainage to prevent run off water from flowing onto or collecting or ponding on partially completed EPS fills or temporarily exposed surfaces, and eroding soil material under EPS fill or exposed surfaces.

c. Descriptions of the means and methods for site preparation, including placement of a levelling sand layer (if shown on the plans) at the exposed subgrade prior to placing EPS fill.

d. Description of remedial measures to implement when assembly of blocks becomes uneven or where rocking of the blocks is observed.

e. Descriptions of means and methods of placing the geomembrane over the surface of the EPS fill, and how the geomembrane will be placed to make a continuous layer, including overlaps and splices.

f. Descriptions of the means and methods of placing the soil or aggregate (if shown on the plans) over the geomembrane and EPS fill, with particular attention to avoiding displacement or damage to the geomembrane and the EPS Blocks.

g. Design notes including an explanation of symbols and computer programs used in the design.

h. Support calculations showing that the sacrificial layer of EPS fill, when considered, is of sufficient thickness and strength to support the loads without damaging underlying permanent EPS blocks.

C. **Shipping, Delivery, Storage, and Handling (SDSH) Plan:** The Contractor shall submit their proposed plan for meeting the requirements of paragraph A. SHIPPING, DELIVERY, STORAGE and HANDLING in Section III. If the Contractor desires to make changes to the SDSH plan after it has been approved, a revised plan must be submitted and approved before changes in procedure are implemented.

II. MATERIALS

2.01 PRODUCTS

A. RCPS (rigid cellular polystyrene) block-molded geofoam shall be Material Type Designation EPS 50 and EPS 70 (expanded polystyrene) meeting the requirements of Section 1.06 PRODUCT MANUFACTURING QUALITY CONTROL (MQC) REQUIREMENTS, and the following material properties:

Table 1: Minimum Allowable Values for the Material Property Requirements for EPS grades

Material Properties	Type EPS 50	Type EPS 70	Unit	Test Method
Density	1.25	1.50	pcf	ASTM D1622
Compressive Resistance at 1%	17.5	22.5	psi	ASTM D1621
Oxygen index	24.0	24.0	volume %	ASTM D2863
Initial Secant Young's Modulus	725	1015	psi	ASTM D1621

Table 1 gives the minimum allowable values for the physical property requirements of each EPS grade. For the purposes of this specification, the minimum material property values specified in Table 1 shall be assumed to be independent of each other. The Molder/Supplier shall make its own independent assessment of block density required to meet or exceed all material property values specified in Table 1 for the given type of EPS. Achieving the minimum density of the EPS geofoam grade shall not be a guarantee that other physical property requirements have been met.

Each EPS block sampled and selected for laboratory testing shall be tested according to the following requirements:

1. Dimensions and Density: Test in accordance with ASTM C303 and ASTM D1622. The thickness, width and length dimensions of an EPS block as defined herein as the minimum, intermediate and maximum overall dimensions of the block, respectively, as measured along a block face and at three distinct locations. These dimensions of each block shall not deviate from the theoretical dimensions shown on the approved Contractor's drawings, by more than 0.5% but not to exceed 0.25 inches. The corner or edge formed by any two faces of an EPS block shall be perpendicular, i.e., form an angle of 90 degrees unless indicated to be otherwise on the Contractor's approved drawings. The deviation of any face of the block from a theoretical perpendicular plane or the indicated angle, if different, shall not exceed 0.5%.

2. Compressive Resistance at 1%: Test in accordance with ASTM D1621 using 2-inch cubes. The rate of crosshead movement shall be 0.2 in/min equivalent to 10% strain per minute. To control the amount of long-term deflection, or creep, resulting from permanent sustained loads, EPS geofoam design loads shall not exceed the compressive resistance at 1% strain, the limit of the linear elastic yield strength.

3. Combustibility: Test in accordance with ASTM D2863 for Oxygen Index. The geofoam shall contain sufficient flame retardants to meet the minimum requirements.

4. Termite Treatment: Test in accordance with ASTM D3345-74. Each EPS geofoam block shall be treated with a proven termite treatment for below-grade applications and for a 3-year minimum exposure. The termite treatment agent shall be an EPA registered material.

The Contractor shall have thorough knowledge and understanding of the MQA and MQC Plans.

The Molder/Supplier shall determine the relationship between the specific molding equipment being used to achieve the product density and its compressive resistance at 1% strain.

Each EPS block delivered to the site shall be identified on a vertical side with at least the following information:

1. Manufacturers Identification,
2. Date of Manufacture,
3. Weight, or Density,
4. EPS Grade.

B. Inter-Block Connectors: Inter-block mechanical connector ("gripper") plates shall be made of 20 gage (minimum) galvanized steel with two-sided multi-barbed design, or approved equal, capable of piercing the EPS up to 3/4 inch.

C. Sand: Sand blanket, drainage layer or levelling layer, if required, shall be natural sand meeting the requirements of Fine Aggregate in Section 202 of the Standard Specifications.

D. Gasoline Resistant Geomembrane (GRG): Gasoline Resistant Geomembrane shall be a textured, reinforced or unreinforced tri-polymer membrane manufactured from polyvinyl chloride (PVC), ethylene interpolymer alloy and polyurethane, or a comparable polymer combination, capable of confining spilled liquid hydrocarbons, including gasoline, diesel fuel, kerosene, hydraulic fluid, methanol, ethanol, mineral spirits, and naptha. The GRG shall meet the minimum physical properties listed in Table 2.

Table 2 Minimum Physical Properties for GRG

Physical Property	ASTM Designation	Acceptance Value[1]
Unleaded Gasoline Permeability	D814	0.4 oz./ft^2 max per 24 hours
Thickness	D751[2]	30 mils min
Grab Tensile Strength (1" grip, 4" x 8" sample)	D751[2]	600 lbf min in each direction
Tensile Strength	D1623	20 psi min
Elongation at break	D4632[2]	20 percent min
Toughness (Percent elongation x Grab Tensile Strength)	N/A	14,000 lbf min
Puncture Resistance (ball tip)	D751[3]	800 lbf min
Factory Produced Seams, Bonded Width	D751[4]	1.25" min
Factory Produced Seams, Shear Strength	D751[4]	350 lbf min
Field Produced Seams, Vapor Tight Seal	D5641	Pass
[1]Specified as Minimum or Maximum, not average roll properties. [2]Or ASTM test method appropriate for specific polymer. [3]Or FTMS 101C, Method 2065. [4]Modified per NSF Standard No. 54.		

A certificate of compliance shall be furnished stating that the selected geomembrane has been tested and it meets the above-mentioned requirements, it is free from pinholes, tears and other defects which would cause leakage of fluids through the geomembrane, and is acceptable for spill containment of the fluids listed herein.

E. Select Material: When shown on the plans, Select Material Type I shall meet the requirements of Section 207.

III. CONSTRUCTION

A. SHIPPING, DELIVERY, STORAGE, AND HANDLING

1. Prior to delivery of the EPS fill to the project site, the Contractor shall develop, review, plan and implement, with the assistance of the Supplier, a material shipping, delivery, storage and handling procedures plan. This plan shall include the following as a minimum:

    a. Type of vehicle to be used to transport the EPS blocks from the Molder to the project site, i.e., flatbed, closed body, etc.
    b. Measures to be exercised during shipping, handling, and storing EPS block on-site to prevent damage. Particular attention should be paid to avoid punctures or crushing the edges, sides and corners of the blocks during shipping from the Molder to the project site. All shipments shall conform to the approved shipping plan, as prepared and submitted by the Contractor.

2. At all stages of construction, the EPS blocks shall be handled in a manner that prevents physical damage to the blocks. The Contractor shall prevent damage to the EPS blocks during delivery, handling, storage, and construction. Blocks damaged during handling or storage on-site, even though they may have been previously accepted and verified during construction site quality assurance, will be rejected and must be replaced by the Contractor with undamaged equal EPS blocks at no additional cost. EPS blocks with cracks of any size are not acceptable and will be rejected. Holes shall not be created in the blocks at any stage of manufacturing, storage or construction to facilitate shipping or handling of the blocks.

3. Each EPS block shall be labeled with the name of the Molder (if there is more than one for a given EPS fill structure), the date the block was molded, the mass of the entire block in pounds as measured after a satisfactory period of seasoning as specified in the materials section of this Special Provision, the dimensions of the block in inches and the actual dry unit weight in pounds per cubic foot.

4. Additional identification markings using alphanumeric characters and/or symbols, applied as necessary by the Supplier, to indicate the location of placement of each block relative to the Contractor’s approved design drawings shall also be provided. Stripes of different color paint shall be used to identify blocks of their grade of EPS. The use of no marking shall be considered an acceptable only for the lower (lowest) grade EPS blocks supplied. All paint or other marking device used to mark EPS blocks shall be chemically compatible with EPS and not cause any dissolution of the EPS during, or subsequent to, application of the paint or marking device.

5. If the EPS blocks are to be stockpiled at the construction site until placement, a secure storage area shall be identified and designated by the Contractor for this purpose, subject to approval. The storage area shall be away from any heat source or construction activity that produces heat or flame or would expose the blocks to hydrocarbon fuels such as diesel, kerosene, or gasoline. In addition, smoking shall not be allowed in the storage area. EPS blocks in temporary on-site storage shall be secured with sandbags and similar “soft” weights to prevent their being dislodged by wind. The blocks shall not be covered in any manner that might allow the buildup of heat beneath the cover. The blocks shall not be trafficked on by any vehicle or equipment, unless approved by the Engineer or the blocks are designated as sacrificial. In addition, foot traffic by persons shall be kept to a minimum.

6. The amount of time during which EPS blocks can be stored at the Project construction site shall be limited to a maximum of 30 calendar days.

7. EPS fill shall not be exposed to sun light for more than 90 days. EPS shall be covered with an opaque material that prevents ultraviolet light degradation.

8. Any damage to the EPS resulting from the contractor's vehicles, equipment, or operations, shall be corrected as follows:

    a. Slight damage (less than 0.12 cubic feet with no linear dimension greater than 1 foot) may be left in place as is.
    b. Replace EPS blocks with damage exceeding the "slight" category with EPS blocks meeting the specifications. EPS blocks exceeding the slight damage criteria may be cut to eliminate the damage and the remaining undamaged portion of the block may be used within the fill, provided the undamaged portion of the block meets all other requirements.

B. SITE PREPARATION

1. Contractor shall be responsible for all construction quality control, including earthwork and related activities to site preparation.

2. The site for the EPS fill shall be prepared as follows:
    a. The subgrade surface to receive EPS fill shall be excavated to the grades indicated on the contract drawings and, when shown on the plans, a sand bedding course placed at the base of the excavation. The sand bedding course shall be densified by tamping by hand or with light equipment, such as plate vibrators, and shall provide the levelness and smoothness requirements.
    b. The ground surface or sand bedding surface upon which the EPS blocks will be placed shall be flat, level, and smooth prior to the placement of the first block layer. The required smoothness is defined as a vertical deviation of no more than 0.4 inches over a 10-foot horizontal distance.
    c. No debris of any kind shall be present on the exposed ground surface or sand bedding surface at the time EPS blocks are placed.
    d. Unless directed otherwise, no standing water or accumulated snow or ice shall be present on the existing ground or sand bedding surface within the area where EPS blocks are placed at the time of block placement. EPS blocks shall not be placed on a frozen subgrade.

C. EPS BLOCK PLACEMENT

1. The Contractor shall set, maintain, and reset all alignment stakes, slope stakes, and grade stakes necessary for the construction of the EPS fill. This includes, but is not limited to subgrade preparation, and all appurtenances within the limits of the EPS fill and load distribution layer.

2. The Contractor shall be responsible for safety during placement of the EPS fill. Plans for safety during placement shall consider the height and vertical face of the fill, under what weather conditions EPS block may not be placed, whether traffic will be maintained through the construction site, and all other conditions that could affect the safety of all persons on the site. Special attention shall be given to handling and placement of blocks in windy, wet or sub-freezing weather.

3. EPS blocks shall be placed at the locations and in configurations shown on the Contractor's approved design drawings. Field adjustment to the EPS block dimensions may be allowed by the Engineer only through use of a hot wire cutting apparatus.

4. Equipment may drive on sacrificial blocks of EPS if necessary to access or construct portions of the fill. Sacrificial blocks of EPS fill which shall include any EPS block upon which traffic as driven, shall be removed after access is no longer required, and shall be completely replaced with new EPS blocks meeting all the requirements of this Special Provision. Sacrificial EPS shall be thick enough to adequately protect underlying permanent EPS blocks. The Contractor shall remove all sacrificial EPS and any EPS upon request from the Department to inspect the integrity underlying EPS. Any EPS

beneath the sacrificial layer that is damaged by transmission of stresses through the sacrificial layer shall be removed and replaced at no expense to the Department.

5. There shall be no debris of any kind between adjacent surfaces of EPS blocks at the time adjacent EPS blocks are placed.

6. There shall be no standing water or accumulated snow, ice or frost on the previously placed EPS block layer within the area where subsequent EPS blocks are to be placed at the time of block placement.

7. EPS blocks shall be placed so that all vertical and horizontal joints between blocks are tight. Where EPS block is placed against a cut in soil for benching or keying into the existing ground or new embankment, if there are gaps between EPS blocks and adjacent soil cut surface, the space shall be filled with sand.

8. While placing successive layers of EPS blocks, the Contractor should exercise care to ensure all placed blocks are supported over their entire bearing area. In the event the top constructed surface of an assembly of blocks becomes uneven or where rocking of the blocks is observed, Contractor shall notify the Engineer and propose a remedial procedure for corrective action. Such procedure shall be submitted for review and approval prior to resuming construction.

9. Blocks placed next to exterior vertical surfaces shall be placed such that the resulting exterior surfaces on the sides of the EPS fill structures are vertical and planar within a tolerance of plus or minus one-eight (1/8) inch between blocks. Block faces not satisfying this criterion shall be field trimmed using a hot wire cutting apparatus to achieve the desired evenness within the above tolerance.

10. Inter-block connectors shall be used to restrain EPS blocks from moving laterally in layer over layer applications. The inter-block connectors shall be placed at the locations shown on the Contractor's approved design drawings and shall be set into the EPS block such that the inter-block connectors do not cause a gap to exist between adjacent layers of EPS blocks.

11. The final surface of the EPS blocks shall be covered as shown on the Contractor's approved design drawings. Care shall be exercised during placement of the cover material so as not to cause any damage to the EPS blocks or displacement or damage to the geomembrane that is to be placed over the EPS fill. The surfaces of the EPS blocks and the overlying geomembrane shall not be directly traversed by any vehicle or construction equipment during or after placement of blocks. If construction traffic is required before the load distribution slab is complete, a minimum thickness of one (1) foot of temporary sand protection shall be required before traffic or construction equipment will be allowed over the blocks.

12. With the exception of sandbags or similar "soft" weights used to temporarily restrain EPS blocks against wind, no construction material other than shown on the Contractor's approved drawings shall be placed or stockpiled on the EPS blocks. At no time shall heat or open flame be used near the EPS blocks so as to cause melting or combustion of the EPS.

13. Partial installations or temporary exposures and finished surfaces of EPS shall be protected from damage during construction. Surfaces or blocks of EPS damaged during construction and prior to completion and acceptance of the EPS block fill shall be removed and replaced at no cost to the Department.

14. The Contractor shall be responsible for disposal of EPS block material or portions of unused blocks resulting from testing or construction by returning it to the Supplier/Molder for recycling. Such processes shall be conducted on a regular basis or as directed.

D. GASOLINE RESISTANT GEOMEMBRANE (GRG) PLACEMENT

GRG shall be place continuously across the full width and length of the EPS fill as shown in the plans and in accordance with this Special Provision. The GRG shall be placed directly on the top layer of EPS fill, including the top and sides of the stepped outer sections of block, in a manner that allows any surface water to drain away, and shall be pulled taut and free of wrinkles before placement of fill over it. Joints between adjacent sheets or ends of sheets of GRG shall be spliced by approved methods or overlapped at least 3 feet. The result of the splices or methods of connecting adjacent sheets of GRG shall be that of a continuous sheet of the material having the specified minimum strength at all locations and in all directions over the entire area of the EPS fill.

E. LOAD DISTRIBUTION LAYER CONSTRUCTION

1. The load distribution layer is defined for the purposes of this Special Provision as all material placed above the geomembrane and EPS fill within the limits of the roadway and extending to the bottom of the pavement, including any shoulders and sidewalks. The load distribution layer shall be constructed above the geomembrane and EPS fill as shown on the Plans and approved design drawings prepared by the Contractor.

2. If the load distribution layer consists of reinforced concrete, it shall be constructed to the lines and grades shown on the contract plans and the approved shop drawings.

3. If the load distribution layer shown on the plans consists of soil or aggregate cover, Select Material Type I shall be installed over the geomembrane using appropriate labor and equipment that will not damage the EPS fill or the geomembrane. No vehicles or construction equipment shall traverse directly on the EPS blocks or on the geomembrane, unless riding surface is considered sacrificial, and it is approved by the Engineer. A minimum of 8 inches of Select Material Type I shall be placed over the geomembrane and only tire-based passenger vehicles shall be allowed to travel on the EPS fill, or as allowed by the Engineer. Materials for the load distribution layer shall not be pushed onto the geomembrane and EPS fill. Materials shall be placed using a method that does not displace or drag the geomembrane or the EPS blocks.

IV. MEASUREMENT AND PAYMENT

The item for EPS fill will be the cubic yards in place within the limits indicated in the plans. The Engineer will measure the quantity of EPS fill in cubic yards.

Expanded polystyrene (EPS) fill will be measured in cubic yards and will be paid for at the Contract cubic yard price. This price shall include developing all submittal documents, including revisions to the documents; furnishing, trimming, and placing the EPS fill, including behind retaining and abutment walls where specified and shown on the Plans; providing construction survey for EPS fill; pre-construction certification and construction site testing of the EPS material; inter-block connectors; items used for storage and protection of the EPS fill; sand bedding (drainage layer); sand for filling gaps between EPS blocks or between the EPS fill and sides of over excavation; and removal of all leftover materials, blocks, cuttings from blocks; and all labor, equipment, and incidentals needed to complete the work.

Gasoline resistant geomembrane will be measured in square yards and will be paid for at the Contract square yard price. This price shall include developing all submittal documents, including revisions to the documents; furnishing, trimming, and placing the geomembrane, including behind retaining and abutment

walls where specified and shown on the Plans; items used for storage and protection of the geomembrane; removal of all leftover materials and cuttings from the geomembrane; and all labor, equipment, and incidentals needed to complete the work.

Select Material Type I will be measured and paid for in accordance with Section 305 of the Specifications.

Payment will be made under:

Pay Item	Pay Unit
EPS Fill	Cubic yard
Gasoline resistant geomembrane	Square yard

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SECTION 105.08 COOPERATION WITH REGARD TO UTILITIES
Utility Facility Adjustments Respectively Owned by:
Dominion Energy Transmission, Electrical Transmission;
Dominion Energy, Electric;
Verizon Virginia, LLC, Telephone;
AT & T, Telephone;
MBC, Telephone;
Cox Communications, Cable;
and Columbia Gas Transmission, Gas Transmission

November 30, 2023
0058-133-459, C501

Section 105.08 Cooperation with Regard to Utilities of the Specifications is amended to include the following:

During the life of this project, the utility facilities owned and operated by Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission will be adjusted as necessary, either prior to project construction or in conjunction with project construction when necessary.

The Contractor shall not consider the description of the facilities contained herein or the description of the adjustments being made to these facilities as being inclusive of all facilities belonging to Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission on this project or all adjustments being made to these facilities.

The Bidder should consult Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission before submitting its' proposal to determine the location of their existing facilities and to determine the extent of their adjustments which will be performed or be caused to be performed by the companies in conjunction with project construction.

The Contractor shall take all precautions necessary to prevent damaging the facilities belonging to Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission. If the Contractor's operations damage said facilities, the Contractor shall immediately notify the owner of the damaged utility. Any cost that may be incurred by the Contractor or the utility owner to repair the damaged facility shall be the responsibility of the Contractor in accordance with Section 107.17 of the Specifications.

The Contractor shall notify Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission through "Miss Utility" at 811 (1-800-552-3120) a minimum of 48 hours before beginning any excavation or construction on this project so that they can locate and mark their existing facilities.

Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission will adjust their overhead and underground facilities in conjunction with the Contractor's operations. The existing overhead and underground facilities with appurtenances are located throughout the project.

The Contractor shall limit its construction of the proposed improvements as out lined below.

Most of the work on joint use facilities must be performed sequentially and independently.

It shall be the Contractors responsibility to coordinator with the utility owner(s) for any existing facilities (manhole frame & covers, hand holes, Pedestals, Power Supplies, etc.) that will need to be adjusted to final grade. The Contractor will need to contact the owner of the facility a minimum of fifteen (15) working days prior to needing these facilities adjusted.

The following is a brief description of the utility facilities belonging to the named companies and the adjustments being made to these facilities.

Company contact information:

Dominion Energy Transmission

The contact person for Dominion Energy Transmission on this project is Mrs. Fallon A. Madrid, 5000 Dominion Blvd., Glen Allan, VA. 23060. Telephone (804) 771-6187.

Dominion Energy

The contact person for Dominion Energy on this project is Mr. Lucian L. Gregory, 1707 W. Ehringhaus Street, Elizabeth City, NC. 27909. Telephone (252) 331-6111.

Verizon Virginia, LLC

The contact person for Verizon Virginia, LLC on this project is Mr. Jim Fulton, 2920 Elmhurst Lane, Portsmouth, VA 23701. Telephone (757) 663-6721.

AT &T

The contact person for AT & T on this project is Mr. Pat Sutton, 1100 3rd Avenue, Altoona, PA. 16602. Telephone (814) 321-6470.

MBC

The contact person for MBC on this project is Mr. Chris Coleman, 1100 Confroy Drive, Suite 4, South Boston, VA. 24592. Telephone (434) 570-1306.

Cox Communications

The contact person for Cox Communications on this project is Mr. Ray Palermo, 179 Louise Drive, Newport News, VA. 23601. Telephone (757) 369-4318.

Columbia Gas Transmission

The contact person for Columbia Gas Transmission on this project is Mr. Cedric Kline,1596 Baxter Road, Prince George, VA. 23875. Telephone (804) 733-2486.

The adjustment of the Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission facilities are scheduled to be completed on or before **August 6, 2024**. Any work that could impact these utilities prior their adjustments shall not proceed unless written approval is received from The Engineer.

Dominion Energy Transmission

Dominion Energy Transmission owns and operates overhead facilities and appurtenances within the project limits. The existing facilities are shown on the plan sheet 4.

Dominion Energy Transmission will not be relocating or adjusting their existing facilities as they are not in conflict.

The Contractor shall exercise all due care so not to disturb the existing facilities No additional payment will be considered for inspectors, shutdowns, or any other additional work or items needed expedite proposed roadway construction. Such costs, if needed, shall be the responsibility of the Contractor.

Dominion Energy

Dominion Energy owns and operates underground facilities and appurtenances within the project limits. The existing facilities are shown on the plan sheets.

Dominion Energy will be relocating and adjusting their existing facilities within the project limits.

Verizon Virginia, LLC

Verizon Virginia, LLC owns and operates underground facilities and appurtenances within the project limits. The existing facilities are shown on plan the sheets.

Verizon Virginia, LLC will be relocating and adjusting their existing facilities within the project limits.

AT &T

AT &T owns and operates underground facilities and appurtenances within the project limits. The existing facilities are shown on the plan sheets.

AT &T will be relocating and adjusting their existing facilities within the project limits.

MBC

MBC owns and operates underground facilities and appurtenances within the project limits. The existing facilities are shown on the plan sheets.

MBC will not be relocating or adjusting their existing facilities as they are not in conflict.

Cox Communications

Cox Communications owns and operates underground facilities and appurtenances within the project limits. The existing facilities are shown on the plan sheets.

Cox Communications will be relocating and adjusting their existing facilities within the project limits.

Columbia Gas Transmission

Columbia Gas Transmission owns and operates underground facilities and appurtenances within the project limits. The existing facilities are shown on the plan sheet 3.

Columbia Gas Transmission will not be relocating or adjusting their existing facilities as they are not in conflict.

The Contractor shall exercise all due care so not to disturb the new facilities once the new or relocated facilities are in place.

The Contractor shall allow Dominion Energy Transmission, Dominion Energy, Verizon Virginia, LLC, AT & T, MBC, Cox Communications, and Columbia Gas Transmission time to remove and relocate their existing facilities and to complete the adjustment of their existing facilities in designated Utility Phase.

The Contractor should contact the affected utility companies prior to submission of bids for this project to obtain more specific details of their existing and proposed facilities.

The Department is not responsible for any construction delays resulting from known utility adjustments and no modifications to the contract time limits will be considered for delays resulting from known utility adjustments.

ORDER NO.: K61
CONTRACT ID. NO.: C0000118375C01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
TREE REMOVAL TIME OF YEAR RESTRICTION FOR ROOSTING BAT HABITAT

December 5, 2023
0058-133-459,B616,C501

I. Background

This project is in an environmentally sensitive area for bat species protected under the Endangered Species Act (16 USC 1531 et seq., hereinafter "the Act") and the Virginia Endangered Species Act (29.1-563 et seq.). The removal of trees greater than or equal to 3 inches diameter at breast height (DBH) is restricted, as it may result in adverse impacts to bat species by removing roosting habitat during summer months, and is prohibited during the Time of Year Restriction period.

Tree removal activities associated with this project shall conform to Section 107.01 of the Specifications, the Act, and this Special Provision.

II. Requirements

1. **Time of Year Restriction.** No trees greater than or equal to 3 inches DBH shall be removed from December 15 to February 15 and April 15 to July 31 unless otherwise allowed by the Engineer as approved by the District Environmental Manager.

2. Unless other restrictions exist in the Contract prohibiting tree removal, the Contractor is allowed to proceed with tree removal operations outside of the Time of Year Restriction in accordance with Section 601 of the Specifications and within the established clearing limits as shown on the plans, and as directed by the Engineer.

3. **Notification and Cessation of Work**

   If the Contractor does not comply with this requirement, the work may be suspended and administered in accordance with Section 108 of the Specifications.

III. Measurement and Payment

The cost of complying with this Specification shall be included in the contract unit price of other items.

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482
www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

November 13th, 2023

John K. Arms
VDOT
7511 Burbage Drive
Suffolk, VA 23435

SENT VIA E-MAIL: john.arms@vdot.virginia.gov
RECEIPT CONFIRMATION REQUESTED

Re: Joint Permit Application No. 23-4011
Route 58 SPSA Flyover, City of Suffolk, Virginia
Final VWP Individual Permit

Dear Mr. Arms,

Pursuant to the VWP Permit Program Regulation 9VAC25-210 of the Virginia Administrative Code and § 401 of the Clean Water Act Amendments of 1977 (Public Law 95-217), the Virginia Department of Environmental Quality has enclosed the VWP individual permit for the above-referenced project.

This permit is valid for **7(seven) years** from the date of issuance. A permit extension may be necessary if any portion of the authorized activities or any permit requirement (including compensatory mitigation provisions) is not complete at the end of the permit term. The permit term, including any extensions, cannot exceed 15 years. An extension of the permit may be requested through written notification to the Department of Environmental Quality, Central Office.

As provided by Rule 2A:2 of the Supreme Court of Virginia, you have **30 calendar days** from the date of service (the date you actually received this decision or the date it was e-mailed to you, whichever occurred first) within which to file with the Director, Department of Environmental Quality, a notice of appeal in accordance with the Rules of the Supreme Court of Virginia. In the event that this decision is served on you by mail, three days are added to that period. Refer to Part 2A of the Rules of the Supreme Court of Virginia for additional requirements governing appeals from administrative agencies.

Alternatively, an owner may request a formal hearing for the formal taking of evidence upon relevant fact issues under Section 2.2-4020 of the Administrative Process Act. A petition for a formal hearing must meet the requirements set forth in Procedural Rule No.1 - Public and Formal Hearing Procedures (9VAC25-230 *et seq.*). In cases involving actions of the board, such petition must be filed within **30 calendar days** after notice of such decision is sent to such owner by certified mail.

Please contact Melinda Spence by email at melinda.spence@deq.virginia.gov or by phone at (804) 912-0851 if you have any questions.

Respectfully,

_____ November 13, 2023

David L. Davis, CPWD, PWS, VSWD Date
Environmental Manager II, Office of Wetlands & Stream Protection

Enclosures: Permit Cover Page, Part I - Special Conditions, Part II - General Conditions, Attachment 1-*VWP Permit Construction Status Update Form*, Attachment 2-*Monthly VWP Permit Inspection Checklist*

cc: Brian Denson, U.S. Army Corps of Engineers
Dan Redgate, Virginia Department of Transportation
Joshua Mace, HDR
Jeff Madden, Virginia Marine Resource Commission
Melissa Wolford, Virginia Department of Transportation

Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219
P.O. Box 1105, Richmond, Virginia 23218
(800) 592-5482
www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

VWP Individual Permit Number 23-4011
Effective Date: 11-13-2023
Expiration Date: 11-13-2030

VIRGINIA WATER PROTECTION PERMIT ISSUED PURSUANT TO THE STATE WATER CONTROL LAW AND SECTION 401 OF THE CLEAN WATER ACT

In compliance with § 401 of the Clean Water Act, as amended (33 USC § 1341; Public Law 95-217) and the State Water Control Law and regulations adopted pursuant thereto, the department has determined that there is a reasonable assurance that this VWP permit, if complied with, will protect instream beneficial uses, will not violate applicable water quality standards, and will not cause or contribute to a significant impairment of state waters or fish and wildlife resources. In issuing this VWP permit, the department has not taken into consideration the structural stability of any proposed activities.

Permittee: John K. Arms - VDOT

Address: 7511 Burbage Drive, Suffolk, VA 23435

Project Name: Route 58 SPSA Flyover

Project Location: City of Suffolk, Virginia. Latitude: 36°45'24" Longitude: 76°30'48"

Project Description: This project is located in the City of Suffolk. The purpose is to construct a flyover ramp to accommodate left turning eastbound traffic entering the landfill. Additional right-of-way will be required for approximately 5 parcels. Currently, Route 460 is a 6 through lane facility. Lane widening will occur on both sides to accommodate the exit for the flyover (eastbound) and a westbound exit ramp. No additional through lanes are being added. The loop of the ramp is located on new location and will tie back into Bob Foeller Drive. The flyover will be located approximately 3,000 feet from the existing intersection at Bob Foeller Drive/Welsh Parkway. The exiting traffic will maintain existing traffic patterns.

Authorized Surface Water Impacts:

1. This permit authorizes total surface water impacts as follows:
   - Permanent impacts are to 3.33 acres of palustrine forested (PFO) wetland, 0.18 acre of palustrine scrub-shrub (PSS) wetland, and 0.15 acre of palustrine emergent (PEM) wetland.
   - Temporary impacts are to 1.70 acres of palustrine forested (PFO) wetland, 0.26 acre of palustrine scrub-shrub wetland (PSS), and 0.08 acre of palustrine emergent (PEM) wetland.

- Conversion impacts are to 0.70 acre of palustrine scrub-shrub (PSS) wetland and 5.26 acres of palustrine forested (PFO) wetland.
- Shading impacts are to 325 square feet (s.f.) of palustrine forested (PFO) wetland, and 403 s.f. of palustrine scrub-shrub (PSS) wetland.
- There are no impacts proposed to streams.

2. DEQ authorizes surface water impacts as identified in Table 1 below.

Table 1.

Impact Type	Surface Water Type	Authorized Impact Amount	
		Acre(s)	Linear Feet
Permanent	Palustrine Forested Wetland (PFO)	3.33	N/A
	Palustrine Scrub-Shrub Wetland (PSS)	0.18	N/A
	Palustrine Emergent Wetland (PEM)	0.15	N/A
	Open Water (POW)	0.00	N/A
	Roadside Ditches (PUBx)	1.07	N/A
	Conversion from PFO to PEM	5.26	N/A
	Conversion from PSS to PEM	0.70	N/A
	Shading PFO	0.00*	N/A
	Shading PSS	0.01	N/A
	Stream Channel	0.00	0.00
	Subtotal	*10.70*	*0.00*
Temporary	PFO	1.70	N/A
	PSS	0.26	N/A
	PEM	0.08	N/A
	POW	0.00	N/A
	Roadside Ditches (PUBx)	1.23	N/A
	Stream Channel	0.00	0.00
	Subtotal	*3.27*	*0.00*
TOTAL		**13.97**	**0.00**

*325 s.f. PFO shading impact-rounded down.

3. Authorized surface water impacts shall be as depicted on the impacts map entitled *SPSA Final Permit Plates*, dated July 2023, received August 28th, 2023.

Approved Compensation:
The permittee shall compensate for the authorized surface water impacts through the following:

1. Compensation for permanent wetland impacts shall be provided through the purchase of the equivalent of 554,475 s.f. wetland credits from a DEQ approved mitigation bank, in-lieu fee fund, or a combination thereof that is authorized and approved by DEQ to sell credits in the area in which the impacts will occur and has credits available (as released by DEQ).

Table 2.

Wetland Class.	Mitigation Ratio	Impact area (s.f.)	Credits Required
PEM	1:1	6,514	6,514
PSS	1.5:1	7,851	11,777
PFO	2:1	145,243	290,486
Shading PFO	2:1	325	650
Shading PSS	1.5:1	403	605
Conversion impact, PFO to PEM	1:1	229,258	229,258
Conversion impact, PSS to PEM	0.5:1	30,370	15,185
TOTAL			**554,475 s.f.**

2. There are no impacts to streams. Therefore, no stream mitigation is required.

3. DEQ does not require mitigation for open water impacts (POW) or roadside ditches (PUBx).

4. To mitigate impacts to canebrake rattlesnake habitat, credits shall be purchased from a mitigation bank that is approved for canebrake rattlesnake habitat. These credits shall be provided in addition to the requisite wetland mitigation credits. Proof of credit purchase shall be provided prior to the commencement of construction. The area requiring canebrake rattlesnake mitigation includes the flyover/fill slope and area inside the flyover loop where suitable habitat was identified. This area is 258,692 square feet (approximately 5.95 acres) and will be mitigated at 1:1.

5. The credit sale(s) shall be in accordance with the approved Mitigation Banking Instrument for the mitigation bank or ILF Program Instrument. Purchase of required mitigation credits shall occur first through the purchase of available released credits followed by the purchase of advance credits. Multiple banks may be used to fulfill compensation requirements.

The permitted activity shall be in accordance with this Permit Cover Page, Part I - Special Conditions, and Part II - General Conditions.

November 13, 2023

David L. Davis, CPWD, PWS, VSWD — Date
Environmental Manager II, Office of Wetlands & Stream Protection

Part I – Special Conditions

A. Authorized Activities

1. This permit authorizes total surface water impacts as follows:

   - Permanent impacts are to 3.33 acre of palustrine forested (PFO) wetland, 0.18 acre of palustrine scrub-shrub wetland, and 0.15 acre of palustrine emergent (PEM) wetland.
   - Temporary impacts are to 1.70 acre of palustrine forested (PFO) wetland, 0.26 acre of palustrine scrub-shrub wetland, and 0.08 acre of palustrine emergent (PEM) wetland.
   - Conversion impacts are to 0.70 acre of palustrine scrub-shrub (PSS) wetland and 5.26 acres of palustrine forested (PFO) wetland.
   - Shading impacts are to 325 square feet (s.f.) of palustrine forested (PFO) wetland, and 403 s.f. of palustrine scrub-shrub (PSS) wetland.
   - There are no impacts proposed for streams.

2. DEQ authorizes surface water impacts as identified in Table 1 below.

Table 1.

Impact Type	Surface Water Type	Authorized Impact Amount	
		Acre(s)	Linear Feet
Permanent	Palustrine Forested Wetland (PFO)	3.33	N/A
	Palustrine Scrub-Shrub Wetland (PSS)	0.18	N/A
	Palustrine Emergent Wetland (PEM)	0.15	N/A
	Open Water (POW)	0.00	N/A
	Roadside Ditches (PUBx)	1.07	N/A
	Conversion from PFO to PEM	5.26	N/A
	Conversion from PSS to PEM	0.70	N/A
	Shading PFO	0.00*	N/A
	Shading PSS	0.01	N/A
	Stream Channel	0.00	0.00
	Subtotal	*10.70*	*0.00*
Temporary	PFO	1.70	N/A
	PSS	0.26	N/A
	PEM	0.08	N/A
	POW	0.00	N/A
	Roadside Ditches (PUBx)	1.23	N/A
	Stream Channel	0.00	0.00
	Subtotal	*3.27*	*0.00*
	TOTAL	**13.97**	**0.00**

*325 s.f. PFO shading impact-rounded down.

3. Authorized surface water impacts shall be as depicted on the impacts map entitled *SPSA Final Permit Plates*, dated July 2023, received August 28th, 2023.

4. Any changes to the authorized activities or impacts map that affect permitted areas shall be submitted to DEQ immediately upon determination that changes are necessary, and DEQ approval shall be required prior to implementing the changes.

5. Surface water impacts resulting from the compensation activities authorized by the approved final compensatory mitigation plan submitted in accordance with Part I.H are authorized under this permit. The permittee shall include a summary of the type and acreage/linear feet of impacts and proposed compensation for these impacts in the final compensation plan. Any additional impacts resulting from the proposed compensation site construction shall be approved by DEQ prior to construction. These additional impacts shall be compensated for, as required by DEQ.

6. The permittee shall notify the DEQ of any changes in authorized impacts to surface waters or any changes to the design or type of construction activities in surface waters authorized by this permit. DEQ approval shall be required prior to implementing the changes. Any additional impacts, modifications, or changes shall be subject to individual permit review and/or modification of this permit.

B. Permit Term

1. This permit is valid for **7 (seven) years** from the date of issuance. A permit extension may be necessary if any portion of the authorized activities or any permit requirement (including compensatory mitigation provisions) is not complete at the end of the permit term. The permit term, including any extensions, cannot exceed 15 years.

2. The permittee shall notify DEQ in writing at least 180 calendar days prior to the expiration of this permit if an extension or new issuance will be requested.

C. Standard Project Conditions

1. The activities authorized by this permit shall be executed in such a manner that any impacts to beneficial uses are minimized. As defined in § 62.1-44.3 of the Code, "beneficial use" means both instream and off stream uses. Instream beneficial uses include, but are not limited to, the protection of fish and wildlife habitat, maintenance of waste assimilation, recreation, navigation, and cultural and aesthetic values. The preservation of instream flows for purposes of the protection of navigation, maintenance of waste assimilation capacity, the protection of fish and wildlife resources and habitat, recreation, cultural and aesthetic values is an instream beneficial use of Virginia's waters. Off stream beneficial uses include, but are not limited to, domestic (including public water supply), agricultural uses, electric power generation, commercial, and industrial uses.

2. No activity shall substantially disrupt the movement of aquatic life indigenous to the water body, including those species which normally migrate through the area, unless the primary purpose of the activity is to impound water.

3. Flows downstream of the project area shall be maintained to protect all uses.

4. No activity shall cause more than minimal adverse effect on navigation, and no activity shall block more than half of the width, or 50% of flow, of the stream at any given time.

5. The activity shall not impede the passage of normal or expected high flows, and any associated structure shall withstand expected high flows.

6. Authorized stream channelization or relocation of roadside ditches shall be conducted done in the dry, unless specifically authorized by this permit, and all flows shall be diverted around the channelization or relocation area until the new channel is stabilized. The diversion shall be accomplished by leaving a plug at the inlet and outlet ends of the new channel during excavation. Once the new channel has been stabilized, flow shall be routed into the new channel by first removing the downstream plug and then the upstream plug. The new stream channel shall be constructed following the typical sections submitted with the application and should incorporate natural stream channel design principles to the greatest extent practicable. A low flow channel shall be constructed within the channelized or relocated area. The centerline of the channel shall meander, to the extent possible, to mimic natural stream morphology. The rerouted stream flow shall be fully established before construction activities in the old streambed can begin.

7. Continuous flow of perennial springs shall be maintained by the installation of spring boxes, French drains, or other similar structures.

8. This permit does not constitute, convey, or imply authority to any permittee to unlawfully or incidentally take any threatened or endangered species that is protected by Virginia laws or regulations, pursuant to § 3.2-1000 through -1011; § 29.1-563 through -570; and 4VAC15-20 *et seq*. In accordance with recommendations from the Virginia Department of Wildlife Resources (DWR) the permittee shall comply with the following Time-of-Year Restriction (TOYR) or the most recent TOYR recommended by USFWS for this project: USFWS requests a time of year restriction on tree clearing from Dec 15- Feb 15 and April 15- July 31 of any year. The permittee will continue to monitor the schedule and procurement of materials, and if the project schedule indicates that adherence to the TOYR is not practicable, permittee will move forward with requesting a modification of the TOYR.

9. All excavation, dredging, or filling in surface waters shall be accomplished in a manner that minimizes bottom disturbance and turbidity.

10. All in-stream activities shall be conducted during low-flow conditions whenever practicable.

11. Erosion and sedimentation controls shall be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992. These controls shall be placed prior to clearing and grading and maintained in good working order to minimize impacts to state waters. These controls shall remain in place until the area is stabilized and shall then be removed.

12. All construction, construction access, and demolition activities associated with this project shall be accomplished in a manner that minimizes construction materials or waste materials from entering surface waters, unless authorized by this permit. Wet, excess, or waste concrete shall be prohibited from entering surface waters.

13. All fill material placed in surface waters shall be clean and free of contaminants in toxic concentrations or amounts in accordance with all applicable laws and regulations.

14. Measures shall be employed at all times to prevent and contain spills of fuels, lubricants, or other pollutants into surface waters.

15. Machinery or heavy equipment in temporarily impacted wetlands shall be placed on mats or geotextile fabric, or other suitable means shall be implemented, to minimize soil disturbance to the maximum extent practical. Mats, fabrics, or other measures shall be removed as soon as the work is complete in the temporarily impacted wetland.

16. Stream channel restoration activities shall be conducted in the dry or during low flow conditions. When site conditions prohibit access from the streambank or upon prior authorization from the Department of Environmental Quality, heavy equipment may be authorized for use within the stream channel. The equipment shall be stationed on cobble bars or causeways.

17. Temporary disturbances to wetlands, stream channels, and/or stream banks during project construction activities shall be avoided and minimized to the maximum extent practicable.

18. All temporarily disturbed wetland areas shall be restored to preconstruction conditions within 30 calendar days of completing work in the areas, which shall include re-establishing pre-construction contours, and planting or seeding with appropriate wetland vegetation according to cover type (emergent, scrub/shrub, or forested), except for invasive species identified on the Department of Conservation and Recreation's (DCR's) Virginia Invasive Plant Species List.

19. All temporarily impacted streams and stream banks shall be restored to their original elevations and contours within 30 calendar days following the construction at that stream segment, and the banks shall be seeded or planted with the same vegetative cover type originally present along the banks, including supplemental erosion control grasses if necessary but not including invasive species identified on the Department of Conservation and Recreation's (DCR's) Virginia Invasive Plant Species List.

20. All materials (including fill, construction debris, excavated materials, and woody materials, that are temporarily placed in wetlands, in stream channels, or on stream banks) shall be placed on mats or geotextile fabric, shall be immediately stabilized to prevent the material or leachate from entering surface waters, and shall be entirely removed within 30 calendar days following completion of that construction activity. After removal, disturbed areas shall be returned to original contours, shall be stabilized, and shall be restored to the original vegetated state within 30 calendar days.

21. Temporary in-stream construction features such as cofferdams shall be made of non-erodible materials.

22. Virginia Water Quality Standards shall not be violated in any surface waters as a result of the project activities.

23. All non-impacted surface waters and any required buffers associated with compensation areas that are within the project or right-of-way limits, and that are within fifty feet of any project activities, shall be clearly flagged or demarcated for the life of the construction activity within that area. The permittee shall notify all contractors and subcontractors that *no activities are to occur in these marked areas*.

24. All required notifications and submittals shall include project name and permit number and be submitted electronically to melinda.spence@deq.virginia.gov or mailed to the DEQ office stated below, to the attention of the VWP project manager, unless directed in writing by DEQ subsequent to the issuance of this permit: Department of Environmental Quality-Central Office, 1111 East Main Street, Suite 1400, Richmond, Virginia 23219.

25. All reports required by this permit and other information requested by DEQ shall be signed by the permittee or a person acting in the permittee's behalf, with the authority to bind the permittee. A person is a duly authorized representative only if *both* criteria below are met. If a representative authorization is no longer valid because of a change in responsibility for the overall operation of the facility, a new authorization shall be immediately submitted to DEQ.

    a. The authorization is made in writing by the permittee.

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

26. All submittals shall contain the following signed certification statement:

    "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

27. Any fish kills or spills of fuels or oils shall be reported to DEQ immediately upon discovery at TROprep@deq.virginia.gov, (757) 681-8535. If DEQ cannot be reached, the spill or fish kill shall be reported to the Virginia Department of Emergency Management (VDEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802. Any spill of oil as defined in § 62.1-44.34:14 of the Code of Virginia that is less than 25 gallons and that reaches, or that is expected to reach, land only is not reportable, if recorded per § 62.1-44.34:19.2 of the Code of Virginia and if properly cleaned up.

28. DEQ shall be notified in writing within 24 hours or as soon as possible on the next business day when potential environmentally threatening conditions are encountered which require debris removal or involve potentially toxic substances. Measures to remove the obstruction, material, or toxic substance or to change the location of any structure are prohibited until approved by DEQ.

D. Stream Modifications, Including Intake/Outfall Structures

1. Redistribution of existing stream substrate for erosion control purposes is prohibited.

2. Material removed from the stream bottom shall not be deposited into surface waters unless otherwise authorized in this permit.

3. Riprap apron for all outfalls shall be designed in accordance with Virginia Erosion and Sediment Control Handbook, Third Edition, 1992, or the most recent version in effect at the time of construction.

4. For streambank protection activities, structures and backfill shall be placed as close to the streambank as practical, while still avoiding and minimizing impacts to surface waters to the maximum extent practical. No material shall be placed in excess of the minimum necessary for erosion protection.

5. Asphalt and materials containing asphalt or other toxic substances shall not be used in the construction of submerged sills, breakwaters, dams, or weirs.

6. Any outfall structure shall be constructed and maintained to prevent downstream sediment deposition, erosion, or scour that may be associated with normal flow and any expected storm flows. Construction shall include the use of an appropriately sized riprap outlet protection apron at the outfall site.

E. Road Crossings

1. Access roads authorized by this permit shall be constructed to minimize the adverse effects on surface waters to the maximum extent practicable and to follow as near as possible pre-construction contours and elevations.

2. Installation of pipes and road crossings shall occur in the dry via the implementation of cofferdams, sheetpiling, stream diversions or other similar structures.

3. All surface waters temporarily affected by a road crossing shall be restored to their original elevations immediately following the removal of that particular temporary crossing. Temporary access roads shall be removed entirely following activity completion.

4. At crossings of streams, pipes and culverts must be installed to maintain low flow conditions and shall be countersunk at both inlet and outlet ends of the pipe or culvert, unless otherwise specifically approved by the Department of Environmental Quality on a case-by-case basis, and as follows: The requirement to countersink does not apply to extensions or maintenance of existing pipes and culverts that are not countersunk, floodplain pipes and culverts being placed above ordinary high water, pipes and culverts being placed on bedrock, or pipes and culverts required to be placed on slopes 5.0% or greater. Bedrock encountered during construction must be identified and approved in advance of a design change where the countersunk condition cannot be met. Pipes and culverts 24 inches or less in diameter shall be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches shall be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity shall be determined based on the reduced capacity due to the countersunk position. In all stream crossings appropriate measures shall be implemented to minimize any disruption of aquatic life movement.

5. When countersinking culverts in streams, the permittee shall install the structure and any riprap or ancillary features in a manner to ensure reestablishment of the stream channel within 15 days post construction. When installing culverts in any surface water, the permittee shall install the culvert

and ancillary features in a manner that will maintain the pre-construction hydrologic regime. Surface water depth within the impact area shall be consistent with depths upstream and downstream of the impact area.

6. Stream bottom elevations at road crossings shall be measured at the inlet and outlet of the proposed structure and recorded prior to construction and within one week after the completion of construction to ensure that the design elevations were met. This information shall be recorded on the *Monthly VWP Permit Inspection Checklist* (Attachment 2) completed after crossings are installed.

F. Stormwater Management Structures

1. Any outfall and overflow structures shall be constructed and maintained to prevent downstream sediment deposition, erosion, or scour that may be associated with normal flow and any expected storm flows. Construction shall include the use of an appropriately sized riprap outlet protection apron at the outfall site.

2. Maintenance excavation shall follow the stormwater management plan approved by the Virginia Stormwater Management Program Authority, and shall not exceed the original contours or designated maintenance areas of the facility.

3. Draining of a stormwater management facility shall be performed by a method that prevents downstream sediment deposition, erosion, or scour.

G. Project Construction Monitoring and Submittals (Impact Sites)

1. The permittee shall submit written notification at least **ten (10) calendar days** prior to the initiation of land disturbance or construction activities in permitted areas. The notification shall include preconstruction photographs, projected schedule for initiating and completing work at each permitted impact area.

   a. Preconstruction photographs shall be taken at each impact area prior to initiation of activities within impact areas.
   b. Photographs shall depict the impact area and the nonimpacted surface waters immediately adjacent to and downgradient of each impact area.
   c. Each photograph shall be labeled to include the following information: permit number, impact area number, date and time of the photograph, name of the person taking the photograph, photograph orientation, and photograph subject description.

2. Site inspections shall be conducted **once every calendar month** and recorded on the *Monthly VWP Permit Inspection Checklist* (Attachment 2) by the permittee or the permittee's qualified designee during active construction within authorized surface water impact areas. Monthly inspections shall be conducted in the following areas: all authorized permanent and temporary impact areas; all avoided surface waters, including wetlands, stream channels, and open water; surface water areas within 50 feet of any land disturbing activity; and all on-site areas designated for permanent preservation. The *Monthly VWP Permit Inspection Checklist* (Attachment 2) shall be completed in its entirety for each monthly inspection and shall be kept on-site and made available for review by DEQ staff upon request during normal business hours.

3. The *VWP Permit Construction Status Update Form* (Attachment 1) enclosed with this permit shall be completed in June and December of every year for the duration of this permit. The *VWP Permit Construction Status Update Form* (Attachment 1) shall include reference to the VWP permit authorization number and one of the following statements for each authorized surface water impact location:

   a. Construction activities not yet started;

   b. Construction activities started;

   c. Construction activities started but are currently inactive, or;

   d. Construction activities complete.

4. The *VWP Permit Construction Status Update Form* (Attachment 1) shall be submitted and must be received by DEQ no later than January 10 and July 10 of every year.

5. The permittee shall notify DEQ within 24 hours of discovering impacts to surface waters including wetlands, stream channels, and open water that are not authorized by this permit. The notification shall include photographs, estimated acreage and/or linear footage of impacts, and a description of the impacts.

6. The permittee shall submit written notification of completion within 30 calendar days after the completion of all activities in all permitted impact areas authorized under this permit.

H. Compensatory Mitigation

1. As compensation for permanent wetland impacts, the permittee shall purchase the equivalent of 554,475 s.f. of wetland mitigation credits. There are no permanent stream impacts, therefore the permittee does not need to purchase stream mitigation credits. All compensatory mitigation credits shall be purchased from a DEQ approved mitigation bank, an approved in-lieu fee (ILF) program, or a combination thereof as specified below. The bank or program must be authorized and approved by DEQ to sell credits in the area in which the impacts will occur and have credits available (as released by DEQ). Any credit sale shall be in accordance with the approved Mitigation Banking Instrument or ILF Program Instrument. Purchase of required mitigation credits shall occur first through the purchase of available released credits followed by the purchase of advance credits. Multiple banks may be used to fulfill compensation requirements.

Table 2.

Wetland Class.	Mitigation Ratio	Impact area (s.f.)	Credits Required
PEM	1:1	6,514	6,514
PSS	1.5:1	7,851	11,777
PFO	2:1	145,243	290,486
Shading PFO	2:1	325	650
Shading PSS	1.5:1	403	605
Conversion impact, PFO to PEM	1:1	229,258	229,258
Conversion impact, PSS to PEM	0.5:1	30,370	15,185
TOTAL			**554,475 s.f.**

2. DEQ does not require mitigation for open water impacts (POW) or roadside ditches (PUBx).

3. To mitigate impacts to canebrake rattlesnake habitat, credits shall be purchased from a mitigation bank that is approved for canebrake rattlesnake habitat. These credits shall be provided in addition to the requisite wetland mitigation credits. Proof of credit purchase shall be provided prior to the commencement of construction. The area requiring canebrake rattlesnake mitigation includes the flyover/fill slope and area inside the flyover loop where suitable habitat was identified. This area is 258,692 square feet (approximately 5.95 acres) and will be mitigated at 1:1.

Part II – General Conditions

A. Duty to Comply

The permittee shall comply with all conditions and limitations of the VWP permit. Nothing in this chapter shall be construed to relieve the permittee of the duty to comply with all applicable federal and state statutes, regulations, toxic standards, and prohibitions. Any VWP permit violation or noncompliance is a violation of the Clean Water Act and State Water Control Law and is grounds for enforcement action, VWP permit termination, VWP permit revocation, VWP permit modification, or denial of an application for a VWP permit extension or reissuance.

Nothing in this VWP permit shall be construed to relieve the permittee from civil and criminal penalties for noncompliance.

B. Duty to Cease or Confine Activity

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the activity for which a VWP permit has been granted in order to maintain compliance with the conditions of the VWP permit.

C. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any impacts in violation of the VWP permit that may have a reasonable likelihood of adversely affecting human health or the environment.

D. VWP Permit Actions

A VWP permit may be modified in whole or in part, revoked and reissued, extended, transferred, or terminated in accordance with 9VAC25-210-180 of the Virginia Administrative Code.

1. During the drafting and authorization of a permit modification, only those conditions to be modified shall be addressed with preparing a draft modified permit. VWP permit terms and conditions of the existing permit shall remain in full force and effect during the modification of the permit.

2. This VWP permit may be modified upon the request of the permittee or upon board initiative when any of the following developments occur:

    a. When new information becomes available about the project or activity covered by the VWP permit, including project additions or alterations, that was not available at VWP permit issuance and would have justified the application of different VWP permit conditions at the time of VWP permit issuance;

b. When a change is made in the promulgated standards or regulations on which the VWP permit was based;

c. When changes occur that are subject to "reopener clauses" in the VWP permit; or

d. When developments applicable to surface water withdrawals occur as specified in 9VAC25-210-380 of the Virginia Administrative Code.

3. When this VWP permit authorizes surface water withdrawals, it may be modified when any of the following developments occur:

a. When the board determines that minimum instream flow levels resulting directly from the permittee's withdrawal of surface water are detrimental to the instream beneficial use, existing at the time of permit issuance, and the withdrawal of surface water should be subject to further net limitations or when an area is declared a surface water management area pursuant to §§ 62.1-242 through 62.1-253 of the Code of Virginia, during the term of the VWP permit.

b. Significant changes to the location of the surface water withdrawal system are proposed such that the Department of Environmental Quality determines a new review is warranted due to the potential effect of the surface water withdrawal to existing beneficial uses of the new location.

c. Changes to the permitted project or the surface water withdrawal, including increasing the storage capacity for the surface water withdrawal, that propose an increase in the maximum permitted withdrawal volumes or rate of withdrawal or that cause more than a minimal change to the instream flow requirements with potential to result in a detrimental effect to existing beneficial uses.

d. A revision to the purpose of the surface water withdrawal that proposes to include a new use or uses that were not identified in the permit application or a modification of the existing authorized use or uses such that the use description in the permit application and permit is no longer applicable. Examples of uses include, but are not limited to agricultural irrigation, golf course irrigation, public water supply, manufacturing, and electricity generation.

4. When the permittee has submitted a timely and complete application for reissuance of an existing VWP individual permit, but through no fault of the permittee, the board does not reissue or reissue with conditions a VWP individual permit or the board does not provide notice of its tentative decision to deny the application before an existing VWP individual permit expires, the conditions of the expiring VWP individual permit shall be administratively continued in full force and effect until the effective date of a reissued permit or the date on which the board denies the application. Timely application shall be a minimum of 180 days for an individual permit or a minimum of 270 days for an individual permit for a surface water withdrawal, unless otherwise specified in the existing permit.

5. Any permittee desiring to continue a previously permitted activity after the expiration date of this VWP permit shall apply for and obtain a new permit or, if applicable, shall request an extension in accordance with 9VAC25-210-180 of the Virginia Administrative Code. Any permittee with an effective VWP permit for an activity that is expected to continue after the expiration date of the VWP permit, without any change in the activity authorized by the VWP permit other than as may be allowed under 9VAC25-210-180, shall submit written notification requesting an extension. The permittee must file the request 90 days prior to the expiration date of the VWP permit. VWP permit modifications shall not be used to extend the term of a VWP permit beyond 15 years from the date of original issuance. When a permit term, other than that of an Emergency Virginia Water Protection Permit, is less than 15 years, an extension of the permit terms and conditions may be granted in accordance with 9VAC25-210-180. Emergency Virginia Water Protection Permits shall not exceed a duration of one year or shall expire upon the issuance of a regular Virginia Water Protection Permit, whichever comes first.

6. This VWP permit may be transferred to a new permittee only by modification to reflect the transfer, by revoking and reissuing the permit, or by automatic transfer. Automatic transfer to a new permittee shall occur if the current permittee: a) Notifies the board of the proposed transfer of the permit and provides a written agreement between the current and proposed permittees containing the date of transfer of VWP permit responsibility, authorization, and liability to the new permittee; and b) the board does not within 15 days notify the existing permittee of its intent to modify the VWP permit.

7. After notice and opportunity for a formal hearing pursuant to § 62.1-44.15:02 of the Code of Virginia, a VWP permit can be terminated for cause. Reasons for termination for cause are as follows:

   a. Noncompliance by the permittee with any condition of the VWP permit;

   b. The permittee's failure in the application or during the VWP permit process to disclose fully all relevant facts or the permittee's misrepresentation of any relevant facts at any time;

   c. The permittee's violation of a special or judicial order;

   d. A determination by the board that the permitted activity endangers human health or the environment and can be regulated to acceptable levels by VWP permit modification or termination;

   e. A change in any condition that requires either a temporary or permanent reduction or elimination of any activity controlled by the VWP permit; and

   f. A determination that the permitted activity has ceased and that the compensation for unavoidable adverse impacts has been successfully completed.

8. The board may terminate this permit without cause when the permittee is no longer a legal entity due to death, dissolution, or when a company is no longer authorized to conduct business in the Commonwealth. The termination shall be effective 30 days after notice of the proposed termination is sent to the last known address of the permittee or registered agent, unless the permittee objects within that time. If the permittee does object during that period, the board shall follow the applicable procedures for termination under § 62.1-44.15:25 of the Code of Virginia and 9VAC25-230 of the Virginia Administrative Code.

9. This VWP permit may be terminated by consent, as initiated by the permittee. The permittee shall submit a request for termination by consent within 30 days of completing or canceling all permitted activities and all required compensatory mitigation requirements. When submitted for project completion, the request for termination by consent shall constitute a notice of project completion. The director may accept this termination on behalf of the board. The permittee shall submit the following information:

    a. Name, mailing address, and telephone number;

    b. Name and location of the activity;

    c. The VWP permit number; and

    d. One of the following certifications:

        i. For project completion: "I certify under penalty of law that all activities and any required compensatory mitigation authorized by a VWP permit have been completed. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit."

        ii. For project cancellation: "I certify under penalty of law that the activities and any required compensatory mitigation authorized by this VWP permit will not occur. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit, nor does it allow me to resume the permitted activities without reapplication and issuance of another permit."

        iii. For events beyond permittee control, the permittee shall provide a detailed explanation of the events, to be approved by DEQ, and the following certification statement: "I certify under penalty of law that the activities or the required compensatory mitigation authorized by this VWP permit have changed as the result of events beyond my control (see attached). I

understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit, nor does it allow me to resume the permitted activities without reapplication and issuance of another permit.

E. Inspection and Entry

Upon presentation of credentials, the permittee shall allow the board or any duly authorized agent of the board, at reasonable times and under reasonable circumstances, to conduct the actions listed in this section. For the purpose of this section, the time for inspection shall be deemed reasonable during regular business hours. Nothing contained herein shall make an inspection time unreasonable during an emergency.

1. Enter upon any permittee's property, public or private, and have access to, inspect and copy any records that must be kept as part of the VWP permit conditions;

2. Inspect any facilities, operations or practices (including monitoring and control equipment) regulated or required under the VWP permit; and

3. Sample or monitor any substance, parameter, or activity for the purpose of ensuring compliance with the conditions of the VWP permit or as otherwise authorized by law.

F. Duty to Provide Information

The board may request (i) such plans, specifications, and other pertinent information as may be necessary to determine the effect of an applicant's discharge on the quality of state waters or (ii) such other information as may be necessary to accomplish the purposes of this chapter. Any owner, permittee, or person applying for a VWP permit or general permit coverage shall provide the information requested by the board.

G. Monitoring and Records Requirements

1. Monitoring of parameters, other than pollutants, shall be conducted according to approved analytical methods as specified in the VWP permit. Analysis of pollutants will be conducted according to 40 CFR Part 136 (2017), Guidelines Establishing Test Procedures for the Analysis of Pollutants.

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart or electronic recordings for continuous monitoring

instrumentation, copies of all reports required by the VWP permit, and records of all data used to complete the application for the VWP permit, for a period of at least three years from the date of permit expiration. This period may be extended by request of the board at any time.

4. Records of monitoring information shall include:

   a. The date, exact place and time of sampling or measurements;

   b. The name of the individuals who performed the sampling or measurements;

   c. The date and time the analyses were performed;

   d. The name of the individuals who performed the analyses;

   e. The analytical techniques or methods supporting the information such as observations, readings, calculations and bench data used;

   f. The results of such analyses; and

   g. Chain of custody documentation.

H. Property rights

The issuance of a VWP permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize injury to private property or any invasion of personal rights or any infringement of federal, state or local laws or regulations.

I. Reopener

This VWP permit may be reopened for the purpose of modifying the conditions of the VWP permit to meet new regulatory standards duly adopted by the board. Cause for reopening VWP permits includes, but is not limited to when the circumstances on which the previous VWP permit was based have materially and substantially changed, or special studies conducted by the board or the permittee show material and substantial change, since the time the VWP permit was issued and thereby constitute cause for VWP permit modification or revocation and reissuance.

J. Compliance with State and Federal Law

As to the permitted activity(ies), compliance with a VWP permit constitutes compliance with the VWP permit requirements of the Law and regulations.

K. Severability

The provisions of this VWP permit are severable.

L. Oil and Hazardous Substance Liability

Nothing in this VWP permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under § 311 of the Clean Water Act or §§ 62.1-44.34:14 through 62.1-44.34:23 of the State Water Control Law.

M. Unauthorized Discharge of Pollutants

Except in compliance with a VWP permit, unless the activity is otherwise exempted or excluded, no person shall dredge, fill, or discharge any pollutant into, or adjacent to surface waters; withdraw surface water; otherwise alter the physical, chemical, or biological properties of state waters regulated under this chapter and make them detrimental to the public health, to animal or aquatic life, or to the uses of such waters for domestic or industrial consumption, for recreation, or for other uses; excavate in wetlands; or on or after October 1, 2001, conduct the following activities in a wetland:

1. New activities to cause draining that significantly alters or degrades existing wetland acreage or functions;

2. Filling or dumping;

3. Permanent flooding or impounding; or

4. New activities that cause significant alteration or degradation of existing wetland acreage or functions.

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Attachment 2: MONTHLY VWP PERMIT INSPECTION CHECKLIST

An inspection of all permitted impact areas, avoided waters and wetlands, and permanently preserved waters, wetlands and upland areas must be conducted at least once every month during active construction activities. Maintain this record on-site and available for inspection by DEQ staff.

Project Name	**VWP Individual Permit No.**	**Inspection Date**
Route 58 SPSA Flyover	23-4011	
Inspector Name & Affiliation	**Phone # & Email Address**	

Based on my inspection, this project (☐ is in compliance / ☐ is not in compliance) with the above-referenced VWP Permit and the authorized impact map entitled *SPSA Final Permit Plates*, received **August 28th, 2023.**

I certify that the information contained in this report is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Inspector _____ Date _____

	In Compliance?				
PERMIT REQUIREMENT	**Yes**	**No**	**Not Applicable**	**Location, Description, Notes & Corrective Action Taken (use additional note space below if needed)**	**Date Completed**
Surface water impacts are limited to the size and locations specified by the permit. No sedimentation impacts and no impacts to avoided surface waters or preservation areas have occurred[1].	☐	☐	☐		
Within 50 feet of authorized activities, all remaining surface waters and mitigation (preservation) areas that are inside the project area are clearly flagged or marked to prevent unpermitted impacts.	☐	☐	☐		
Authorized temporary impact areas have been restored to original contours, stabilized, and planted or seeded with original wetland vegetation type within 30 days of completing work in each area.	☐	☐	☐		
E&S controls consistent with the Virginia ESC Handbook are present and maintained in good working order.	☐	☐	☐		
Exposed slopes/stream banks have been stabilized immediately upon completion of work in each impact area, in accordance with the Virginia ESC Handbook.	☐	☐	☐		
Heavy equipment is placed on mats/ geotextile fabric when working in temporary wetland impact areas. Equipment and materials removed immediately upon completion of work.	☐	☐	☐		
Construction activities are not substantially disrupting the movement of aquatic life.	☐	☐	☐		
New instream pipes and culverts on <5% slope have been installed to maintain low flow conditions and are countersunk at both ends as follows: ≤ 24" diameter: countersunk 3" > 24" diameter: countersunk 6" or more. Any variations were approved in advance by DEQ.	☐	☐	☐		

[1] If unauthorized impacts have occurred, you **must** email or fax a copy of this report to DEQ within 24 hours of discovery.
Email: melinda.spence@deq.virginia.gov Phone: (804) 912-0851

Monthly VWP Permit Inspection Checklist – Individual Permit No.: 23-4011
Date: _____

	In Compliance?				
PERMIT REQUIREMENT	**Yes**	**No**	**Not Applicable**	**Location, Description, Notes & Corrective Action Taken (use additional note space below if needed)**	**Date Completed**
Time-of-year restrictions are being adhered to.	☐	☐	☐		
For stream channelization or relocation, work in surface waters is being performed in the dry, with all flows diverted until the new channel is stabilized.	☐	☐	☐		
Water quality monitoring is being conducted during permanent stream relocations.	☐	☐	☐		
Streams and wetlands are free from any sheen or discoloration that may indicate a spill of oil, lubricants, concrete or other pollutants.[2]	☐	☐	☐		

Inspection Notes

[2] Any fish kills or spills of fuels or oils shall be reported to DEQ immediately upon discovery at (757) 681-8535, TROprep@deq.virginia.gov. If DEQ cannot be reached, the spill or fish kill shall be reported to the Virginia Department of Emergency Management (VDEM) at 1-800-468-8892 or the National Response Center (NRC) at 1-800-424-8802. Any spill of oil as defined in § 62.1-44.34:14 of the Code of Virginia that is less than 25 gallons and that reaches, or that is expected to reach, land only is not reportable, if recorded per § 62.1-44.34:19.2 of the Code of Virginia and if properly cleaned up.

Attachment 1: VWP PERMIT CONSTRUCTION STATUS UPDATE FORM

Permit Issuance: November 13th, 2023

Send to: melinda.spence@deq.virginia.gov

This form shall be submitted and received by DEQ no later than January 10 and July 10 of every year for the duration of this VWP permit, *regardless of construction status*.

Date (check one):

☐ June____, _____

☐ December _____, _____

VWP Individual Permit No.: 23-4011

Project Name and Location: Route 58 SPSA Flyover, City of Suffolk

Status within each authorized surface water impact location, as identified on *SPSA Final Permit Plates*, received August 28th, 2023.

(check one of the following status options for each impact number/location.)

Authorized impact location	Construction activities not started	Construction activities started	Construction activities started but currently not active	Does this impact involve culvert(s)[1]?	Construction activities complete[2]

[1] Provide spot elevations of the stream bottom within the thalweg at the beginning and end of the pipe or culvert, extending to a minimum of 10 feet beyond the limits of the impact, with completion of all culvert installations.

[2] If all construction activities and compensatory mitigation requirements are complete, the permittee completes and signs the Termination Agreement section below within 30 days of last authorized activity and/or compensation completion. A completed and signed Agreement serves as Notice of Project Completion (9VAC25-210-130.F).

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violation.

Authorized Signature: _____ Date: _____

Print Name: _____ Title: _____

Phone: _____ Email: _____

Impact Construction Status Table Continued

Additional Page					
Authorized impact number	**Construction activities not started**	**Construction activities started**	**Construction activities started but currently not active**	**Does this impact involve culvert(s)[1]?**	**Construction activities complete[2]**

VWP Individual Permit No. 23-4011

TERMINATION AGREEMENT BY CONSENT – PROJECT COMPLETION

Permittee Legal Name: _____

Permittee Legal Address: _____

Permittee Email/Phone: _____

I hereby consent to the termination of VWP Individual Permit No. 23-4011.

"I certify under penalty of law that all activities and any required compensatory mitigation authorized by a VWP permit have been completed. I understand that by submitting this notice of termination that I am no longer authorized to perform activities in surface waters in accordance with the VWP permit, and that performing activities in surface waters is unlawful where the activity is not authorized by a VWP permit, unless otherwise excluded from obtaining a permit. I also understand that the submittal of this notice does not release me from liability for any violations of this VWP permit."

Signature of Permittee's Authorized Representative: _____ Date: _____

Print Name: _____ Title: _____

November 13th, 2023

FACT SHEET
Virginia Water Protection (VWP) Individual Permit No. 23-4011
Route 58 SPSA Flyover, City of Suffolk, Virginia

DEQ has reviewed the application for the VWP Individual Permit No. 23-4011 and has determined that the project qualifies for an individual permit.

The following details the application review process and summarizes relevant information for developing the Part I - Special Conditions for permit issuance.

1. Contact Information:

Permittee Legal Name and Address:

Virginia Department of Transportation
7511 Burbage Drive
Suffolk, VA 23435
John K Arms (VDOT Applicant)
john.arms@vdot.virginia.gov
(757) 995-5156

Agent Legal Name and Address:

Virginia Department of Transportation
7511 Burbage Drive
Suffolk, VA 23435
Melissa R Wolford
melissa.wolford@vdot.virginia.gov
(804) 327-5226

2. Processing Dates:

Received Application:	February 14, 2023
Received JPA No.:	February 14, 2023
Application Complete:	October 4th, 2023
Permit Fee Deposited by Accounting:	May 16, 2023
Additional Impacts Permit Fee Deposited by Accounting:	October 4th, 2023
Processing Deadline (120 days from Complete Application):	February 1st, 2024
1st Request for Additional Information Sent:	February 14, 2023
Additional Information Received:	March 29, 2023
2nd Request for Additional Information Sent:	March 29, 2023
Additional Information Received (Partial Response):	May 1, 2023
3rd Request for Additional Information Sent:	May 2, 2023
Additional Information Received (Partial Response)	May 18, 2023
Supplementary Additional Information Received (Partial Response):	June 1, 2023
Additional Information Received (Change in Impacts):	July 21, 2023
4th Request for Additional Information Sent:	July 21, 2023

Additional Information Received:	September 13, 2023
Notification of JPA sent to Local Government(s):	July 19, 2023
Request for comments sent to VDH, VDWR, VDCR, VMRC:	February 14, 2023
Letters sent to Riparian Land Owners:	July 19, 2023
Draft Permit Package Issued:	October 4th, 2023
Copy of Public Notice sent to DEQ Central Office:	October 5th, 2023
Public Notice Published:	October 6th, 2023
End of 30-Day Public Comment Period:	November 7th, 2023
Received Verification of Publication:	October 11th, 2023
Received Verification of Canebrake Mitigation	TBD, 2023
Permit Issued:	November 13th, 2023

3. Project Location and Site Description:

This project is located in the City of Suffolk, Virginia. The purpose is to construct a flyover ramp to accommodate the left turning eastbound traffic entering the landfill. Additional right-of-way will be required for approximately 5 parcels. Currently, Route 460 is a 6 through lane facility. Lane widening will occur on both sides to accommodate the flyover ramp (eastbound) and an exit ramp (westbound). The flyover will be located approximately 3,000 feet from the existing intersection at Bob Foeller Drive/Welsh Parkway. No additional through lanes are being added. The loop of the ramp is located on new location and will tie back into Bob Foeller Drive. US Route 13/58/460 has 3 general purpose lanes in each direction. The exiting traffic will maintain existing traffic patterns.

City/County: City of Suffolk
Waterbody: N/A
Basin: James River Basin
Subbasin: 2C. Lwr James River Sub-basin
Special Standards: N/A
HUC: 02080208
Latitude & Longitude: 36°45'24", 76°30'48"
U.S.G.S. Quadrangle: Bowers Hill, Chuckatuck
State Watershed No.: 020802080105 Nansemond River-Cedar Lake

The project area lies at a low elevation and is relatively flat. The Southeastern Public Service Authority (SPSA) landfill is located northwest of the project area. Immature, mixed deciduous forested wetlands, which are part of an SPSA wetland preservation area, are located within the northwest portion of the study area. A power line right-of-way containing emergent wetlands bisects the central portion of the project area and study area. Mature, mixed deciduous forested wetlands are located within the north-central to northwest portion of the project area and study area. Three (3) roadside ditches are located adjacent to U.S. 58 WB, U.S. 58 EB, and within the median, respectively. An access road containing emergent and scrub-shrub wetlands is located north of the U.S. 58 WB roadside ditch. A fringe of forested uplands is located adjacent to U.S. 58 WB and U.S. 58 EB. Bob Foeller Drive serves as an access road to the landfill, with private road (Welsh Parkway) providing access off U.S. 58 EB to a residential, agricultural, and commercial (car lot) area. A fringe of forested wetlands is located between the roadside ditch adjacent to U.S. 58 EB and a maintained historic railroad bed (southern limit of the study area), with an active CSX railroad and the Great Dismal Swamp National Wildlife Refuge to the south. Based upon review of federal databases including IPaC, federal T&E species habitat suitable habitat is present in the project area for northern long-eared bat

(Myotis septentrionalis) and eastern big-eared bat *(Corynorhinus rafinesquii),* and with Canebrake Rattlesnake *(Crotalus horridus).*

4. Application:

The application for this project consists of the Joint Permit Application (JPA), dated February 14, 2023, and received on February 14, 2023, with additional information submitted by the applicant on the following dates; March 29, 2023, July 21, 2023, and September 13, 2023 including all associated appendices, and all other information submitted by the applicant to DEQ by September 13, 2023. This information will be hereto referred to as the "application" or "JPA".

5. Project Purpose:

The purpose and need of the project is provided in Section VII of the JPA document, dated and received on February 14, 2023. The purpose of the project is to reduce traffic accidents and accommodate increased traffic volume into the SPSA landfill. This waste site is anticipated to open new cells by 2026 to accommodate the growing solid waste needs for the surrounding community. In preparation for that anticipated growth, SPSA has been required by the City of Suffolk to relocate the left turn access onto Bob Foeller Drive by constructing a new flyover ramp that would provide access to the site.

This new flyover would create a safer crossing for the heavy vehicles accessing the site and prevent the possibility for vehicle queues turning into the site from spilling onto US 460/58/13. The purpose is to construct a flyover ramp to accommodate the left-turning eastbound traffic entering the landfill. Currently, traffic accessing the SPSA landfill from U.S. 58 EB utilizes a median crossover, crossing U.S. WB to access Bob Foeller Drive (landfill access road). The crossover has a history of high accident rates and the current level of is unacceptable during peak conditions. Based on the adopted regions travel demand forecast model, peak hour volumes will increase by approximately 36% by 2040 (1.6% growth rate annually). Furthermore, the SPSA landfill is undergoing a 127-acre expansion. The closure of the Portsmouth Wheelabrator facility, which burns approximately 85% of the City of Portsmouth's trash to produce steam energy for the U.S. Navy, would also be anticipated affect traffic. This closure would be expected to substantially increase truck traffic to the SPSA landfill. Therefore, the proposed flyover would eliminate the suboptimal median crossover by providing a safer alternative that would accommodate future landfill access needs and address immediate safety issues.

6. Project Information (and if applicable) and History:

SPSA landfill is undergoing a 127-acre expansion, which is being permitted separately from this project. This project is funded by SPSA in connection with the landfill expansion. This project was presented at the Interagency Coordination Meeting (IACM) in February 2023. The project was previously presented as early coordination at IACM in September 2021 and April 2022.

7. Avoidance and Minimization Efforts:

In accordance with VWP Permit Program Regulation 9VAC25-210, this analysis is conducted in terms of surface water impacts. VDOT Hampton Roads District, with input from state and federal agencies at IACM meetings in 2021 & 2022, prepared an alternatives analysis in support of applications for

Individual Permits from the U.S. Army Corps of Engineers (USACE) and Virginia Department of Environmental Quality (DEQ).

The following alternatives were considered:
Alternative 1A- Flyover East: Construction of flyover east of Preferred Alternative.
Alternative 1B- 5 Pines Parcel Flyover (Preferred Alternative)- Construction of flyover on 5 Pines Parcel east of power line right-of-way.
Alternative 1C- Flyover West- Construction of flyover west of power line right-of-way.
Alternative 2- Structure on current alignment.
Alternative 2A- Extended structure with larger radius.
Alternative 3- Route 337 Access Road.
Alternative 4- No Build.

Each alternative is described below. Alternatives involving construction south of U.S .58 EB were rejected as unfeasible due to location of active railroad and historical rail line, as well as Great Dismal Swamp National Wildlife Refuge.

Alternative 1A- Flyover East
Cost: $36,000,000
Permanent Wetland Impacts: 3.462 ac
Temporary Wetland Impacts: 1.145 ac
Permanent Stream Impacts: 0 sf
Temporary Stream Impacts: 0 sf
Roadside Ditch (WUS): 2.005 ac
Right-of-Way Impacts (Partial): 2 parcels at 15.290 ac
Right-of-Way Impacts (Full): 0 parcels at 0 ac

This Alternative moves the location of the flyover ramp to the east, which will require SPSA traffic from the eastbound direction to merge into the westbound direction traffic prior to exiting at the entrance. This will increase the potential for sideswipe accidents. There is also merging conflict with traffic from heavy trucks exiting a truck weigh -5- station. Alternative 1A does address the safety issues of the existing intersection, removes the auxiliary weave lane, and its cost is within the budget. Wetland impacts are similar to the Preferred Alternative, with slightly greater permanent wetland impacts and less temporary impacts. Roadside ditch impacts would be nearly doubled. There is the potential to impact the weigh station that is near this location with this Alternative.

This alternative was rejected due safety issues with weaves and conflict with the weigh station.

Alternative 1B – Flyover 5 Pines Parcel (Preferred)
Cost: $39,000,000
Permanent Wetland Impacts: 3.332 ac
Temporary Wetland Impacts: 2.401 ac
Permanent Stream Impacts: 0 sf
Temporary Stream Impacts: 0 sf
Roadside Ditch (WUS): 1.135 ac
Right-of-Way Impacts (Partial): 3 parcels at 11.718 ac
Right-of-Way Impacts (Full): 0 parcels at 0 ac.

The Preferred Alternative would construct the flyover ramp on the privately owned 5 Pines Parcel, east of the power line right-of-way. Alternative 1B does not potentially cause any issues with current traffic alignment or merging. This Alternative addresses the safety issues of the existing intersection, extends the auxiliary weave lane, and the cost is within budget. This Alternative incurs similar wetland impacts as Alternatives 1A and 1C, with higher temporary wetland impacts. Hydrology within the loop would be maintained through installation of four (4) culverts.

Overall, this Alternative was selected as the Preferred Alternative due safety, constructability, and cost while maintaining similar wetland impacts. This alternative does not cause issues with the current highway alignment nor does it cause issues with the weigh station that is east of this location or the US 13 Business interchange to the west. This Alternative has limited ROW and wetland impacts and the cost is within budget.

Alternative 1C – Flyover West
Cost: $38,000,000
Permanent Wetland Impacts: 3.507 ac
Temporary Wetland Impacts: 1.343 ac
Permanent Stream Impacts: 0 sf
Temporary Stream Impacts: 0 sf
Roadside Ditch (WUS): 1.684 ac
Right-of-Way Impacts (Partial): 3 parcels at 11.190 ac
Right-of-Way Impacts (Full): 0 parcels at 0 ac

This Alternative moves the preferred location of the flyover ramp to the west, which will potentially impact the US 58 Business interchange to the west. This impact may occur due to traffic from the flyover ramp merging onto the highway as traffic on the highway are preparing to take the exit for the upcoming interchange. There would not be sufficient distance to meet the required merge/weave length per the AASHTO Green Book. Permanent wetland impacts are slightly higher than 1A and 1C, though lower than Alternative 2. This Alternative does address the safety issue of the current intersection and the cost is within budget. This Alternative would also reduce the weave on the west bound auxiliary lane and has wetland impacts.

This Alternative was rejected due to safety concerns associated with conflict with the US 58 Business interchange. Merge lanes from existing WB traffic continuing westbound or accessing US 58 Business would be in conflict with vehicles entering US 58 WB and attempting to merge onto US 58 WB. This Alternative would also result in impacts to the SPSA Wetland Enhancement Site.

Alternative 2 – Extended Structure Current Alignment
Cost: $62,100,000
Permanent Wetland Impacts: 1.832 ac
Temporary Wetland Impacts: 1.439 ac
Permanent Stream Impacts: 0 sf
Temporary Stream Impacts: 0 sf
Roadside Ditch (WUS): 1.757 ac
Right-of-Way Impacts (Partial): 3 parcels at 10.433 ac
Right-of-Way Impacts (Full): 0 parcels at 0 ac

This Alternative extends the structure of the flyover bridge to a sloped section for the rest of the loop, with only a third of the loop being a fill slope. The cost increase for this alternative is significant. The proposed bridge length would increase by approximately 800 feet. The increase in length would require open deck joints to accommodate bridge movements due to thermal loads. Open deck joints would create numerous long-term maintenance issues and result in a shorter life span for the bridge when compared to bridges with no open deck joints. Deck drainage would also be required, and design complexity will increase. Uplift would be anticipated to be a problem and the design would need to ensure the girders do not experience uplift during construction and under loads. Design complexity would be increased since a four (4) span and five (5) span continuous bridge unit would need to be designed. The increase in the bridge span length would significantly increase the construction timeline. Bridge construction duration would be approximately 2.5 times the length of Alternative 1B (Preferred). Due to the length of the structure and the radius there would also be constructability concerns when erecting the girders. Unwanted stresses and displacements could occur during erection.

This Alternative does address the safety issues of the current intersection and reduces wetland impacts than the previous alternatives.

This alternative would incur less wetland impacts than Alternatives 1A, 1B (Preferred), 1C, and 2A. Though the structure is shorter than Alternative 2A, necessary ground improvements and need for fill slope to taper to existing elevation would result in slightly higher wetland impacts. Project would incur shading/conversion impacts. Due to cost and logistics (constructability concerns), this alternative was rejected.

Alternative 2A – Extended Structure Larger Radius
Cost: $91,000,000
Permanent Wetland Impacts: 1.624 ac
Temporary Wetland Impacts: 2.957 ac
Permanent Stream Impacts: 0 sf
Temporary Stream Impacts: 0 sf
Roadside Ditch (WUS): 1.765 ac
Right-of-Way Impacts (Partial): 3 parcels at 37.928 ac
Right-of-Way Impacts (Full): 0 parcels at 0 ac

This Alternative extends the structure of the flyover bridge similar to the previous Alternative except with an extended radius. This extended radius would make the bridge easier to build than the previous Alternative. This Alternative has the highest cost of all the alternatives, more than 3 times the ROW impacts, and higher temporary wetland impacts than Alternative 2. The project delivery time would be increased with this Alternative and increased long-term maintenance on the bridge is expected. Design complexity will increase due to length of the bridge and the separate units that will need to be designed. Bridge length will increase by approximately 2,800 feet. The increase in length would require open deck joints to accommodate bridge movements due to thermal loads. Open deck joints create numerous long-term maintenance issues and result in a shorter life span for the bridge when compared to bridges with no open deck joints. Deck drainage would also be required. Uplift would be anticipated to be a problem and the design would need to ensure the girders do not experience uplift during construction and under loads. The increase in the bridge span length would significantly increase the construction timeline. Bridge construction duration would be approximately five (5) times the length of Alternative 1B (Preferred). There

are constructability concerns related to uplift and unwanted stresses and deflections during erection of the girders and deck pour.

This Alternative does address the safety issue of the current intersection and reduces wetland impacts from other alternatives. However, due to cost, duration, and logistics (e.g. constructability concerns), this alternative was rejected.

Alternative 3 – Route 337 Access Road
Cost: $24,500,000
Permanent Wetland Impacts: 2.245 ac
Temporary Wetland Impacts: 0.642 ac
Permanent Stream Impacts: 730 sf
Temporary Stream Impacts: 210 sf
Roadside Ditch (WUS): 0 ac
Right-of-Way Impacts (Partial): 12 parcels at 6.326 ac
Right-of-Way Impacts (Full): 1 parcels at 0.649 ac

This alternative adds an access road from Route 337 to SPSA rather than building a flyover ramp. This alternative would cause SPSA to reconstruct their internal functions and relocate their scales. This approach would also add commercial traffic to primarily residential local roads, which requires city approval and result in safety concerns with the significant spike in heavy truck traffic. The access route for the trucks would be indirect and inconvenient with this Alternative and would incur property impacts including a total take from a residential property.

This Alternative does address the safety issue of the current intersection by relocating the entrance. This Alternative also reduces the amount of environmental impacts, has not WUS impacts, and has a reduced construction cost. However, the ancillary costs of roadway improvements on Route 337 as well as internal costs for SPSA, would likely drive the full cost of this alternative significantly higher. Therefore, this alternative was rejected due to safety concerns associated with the increase truck traffic on local roads, ultimate need for improvements for local roads, and impacts to the SPSA facility (e.g. relocating scales and access.

Alternative 4 – No Build
Cost: $0
Permanent Wetland Impacts: 0 ac
Temporary Wetland Impacts: 0 ac
Permanent Stream Impacts: 0 sf
Temporary Stream Impacts: 0 sf
Roadside Ditch (WUS): 0 ac
Right-of-Way Impacts (Partial): 0 parcels at 0 ac
Right-of-Way Impacts (Full): 0 parcels at 0 ac

This Alternative does not take any action to better the current intersection. This does not satisfy the intersection level of service and does not address the safety issue of the current intersection. There would be increased delays for eastbound traffic entering SPSA and the unsafe left turn would still be utilized. There will be an increase in traffic that will further increase the safety risk. The No Build Alternative has no environmental impacts or ROW impacts.

For additional information, see Attachment G of the initial JPA received February 14, 2023.

Based upon staff review, the proposed plan represents the least environmentally damaging practicable alternative and all unavoidable permanent impacts will be adequately mitigated through the proposed compensation plan.

8. Project Impacts:

1. This permit authorizes total surface water impacts as follows:

    - Permanent impacts are to 3.33 acres of palustrine forested (PFO) wetland, 0.18 acre of palustrine scrub-shrub (PSS) wetland, and 0.15 acre of palustrine emergent (PEM) wetland.
    - Temporary impacts are to 1.70 acres of palustrine forested (PFO) wetland, 0.26 acre of palustrine scrub-shrub wetland (PSS), and 0.08 acre of palustrine emergent (PEM) wetland.
    - Conversion impacts are to 0.70 acre of palustrine scrub-shrub (PSS) wetland and 5.26 acres of palustrine forested (PFO) wetland.
    - Shading impacts are to 0.0002 acres of palustrine forested (PFO) wetland, and 0.009 acres of palustrine scrub-shrub (PSS) wetland.
    - There are no impacts proposed for streams.

2. DEQ authorizes surface water impacts as identified in Table 1 below.

Table 1.

Impact Type	Surface Water Type	Authorized Impact Amount	
		Acre(s)	Linear Feet
Permanent	Palustrine Forested Wetland (PFO)	3.33	N/A
	Palustrine Scrub-Shrub Wetland (PSS)	0.18	N/A
	Palustrine Emergent Wetland (PEM)	0.15	N/A
	Open Water (POW)	0.00	N/A
	Roadside Ditches (PUBx)	1.07	N/A
	Conversion from PFO to PEM	5.26	N/A
	Conversion from PSS to PEM	0.70	N/A
	Shading PFO	0.00*	N/A
	Shading PSS	0.01	N/A
	Stream Channel	0.00	0.00
	Subtotal	*10.70*	*0.00*
Temporary	PFO	1.70	N/A
	PSS	0.26	N/A
	PEM	0.08	N/A
	POW	0.00	N/A
	Roadside Ditches (PUBx)	1.23	N/A
	Stream Channel	0.00	0.00
	Subtotal	*3.27*	*0.00*
	TOTAL	**13.97**	**0.00**

*325 s.f. PFO shading impact-rounded down.

3. Authorized surface water impacts shall be as depicted on the impacts map entitled *SPSA Final Permit Plates*, dated July 2023, received August 28th, 2023.

9. Compensation for Unavoidable Impacts:

The permittee shall compensate for the authorized surface water impacts through the following:

1. Compensation for permanent wetland impacts shall be provided through the purchase of the equivalent of 554,475 s.f. of wetland credits from a DEQ approved mitigation bank, in-lieu fee fund, or a combination thereof that is authorized and approved by DEQ to sell credits in the area in which the impacts will occur and has credits available (as released by DEQ).

Table 2.

Wetland Class.	Mitigation Ratio	Impact area (s.f.)	Credits Required
PEM	1:1	6,514	6,514
PSS	1.5:1	7,851	11,777
PFO	2:1	145,243	290,486
Shading PFO	2:1	325	650
Shading PSS	1.5:1	403	605
Conversion impact, PFO to PEM	1:1	229,258	229,258
Conversion impact, PSS to PEM	0.5:1	30,370	15,185
TOTAL			**554,475 s.f.**

2. There are no impacts to streams. Therefore, no stream mitigation is required.

3. DEQ does not require mitigation for open water impacts (POW) or roadside ditches (PUBx).

4. The credit sale(s) shall be in accordance with the approved Mitigation Banking Instrument for the mitigation bank or ILF Program Instrument. Purchase of required mitigation credits shall occur first through the purchase of available released credits followed by the purchase of advance credits. Multiple banks may be used to fulfill compensation requirements.

10. Site Inspection:

A site visit was conducted in March of 2022 to review. The site visit confirmed the site description provided in the applications materials accurately characterized the surface waters on the site.

11. Relevant Regulatory Agency Comments:

As part of the application review process, DEQ contacted the appropriate state regulatory agencies and coordinated with various federal regulatory agencies, including the U.S. Army Corps of Engineers (USACE). Any relevant agency comments were addressed in the VWP individual permit Part I - Special

Conditions. Therefore, the staff anticipates no adverse effect on water quality and fish and wildlife resources provided the applicant adheres to the permit conditions.

Summary of State Agency Comments and Actions

On February 14th, 2023 the following state agencies attended VDOT Interagency Coordination Meeting (IACM) and provided final comments received on March 22nd, 2023: Virginia Department of Wildlife Resources (DWR), Virginia Department of Conservation and Recreation (DCR), Virginia Marine Resources Commission (VMRC). Staff send an e-mail to and Virginia Department of Health (VDH) to provide comment, no comment was received.

DCR

DCR provided the following comments through the February 2023 VDOT Interagency Coordination Meeting Final Comments, received on March 22nd, 2023:

- Great Dismal Swamp Conservation sites; Eastern Big Eared Bat, Canebrake Rattlesnake, Mabee Salamander - concur with habitat assessment for all; appreciate checking on roost trees and continue to check for bats as project progresses; Connection with Great Dismal Swamp Wildlife Refuge; recommend minimizing area of overall impact - as long as trees there, ecological core in landscape assessment due to concern about impacts at the edges of core. 02/14/2023.

This recommendation was passed along to the applicant for consideration.

- According to the information currently in our files, the Great Dismal Swamp Conservation Site is located within the project area and the Great Dismal Swamp: Northwest Section Conservation Site is located within the project site including a 100-foot buffer. Conservation sites are tools for representing key areas of the landscape that warrant further review for possible conservation action because of the natural heritage resources and habitat they support. Conservation sites are polygons built around one or more rare plant, animal, or natural community designed to include the element and, where possible, its associated habitat, and buffer or other adjacent land thought necessary for the element's conservation. Conservation sites are given a biodiversity significance ranking based on the rarity, quality, and number of element occurrences they contain; on a scale of 1-5, 1 being most significant. Great Dismal Swamp Conservation Site has been given a biodiversity significance ranking of B2, which represents a site of very high significance. The natural heritage resources of concern at this site are: (*Corynorhinus rafinesquii macrotis*) Eastern big-eared batG3G4T3/S2/NL/LE (*Crotalus horridus*) Canebrake rattlesnakeG4T4/S1/NL/L. The Eastern big-eared bat, named for its enormous ears twice the length of its head, is extremely rare in Virginia and is currently known only from the southeastern portion of the state. Although widespread throughout the southeast, they are never found in large numbers. These bats roost singly or in small groups in IACM - February 14, 2023 Final Comments March 22, 2023 hollow trees or abandoned buildings. They forage only after dark primarily in mature forests of both upland and lowland areas along permanent bodies of water (NatureServe, 2009). The details of this bat's feeding behavior and much of its natural history remain a mystery. Lack of information regarding the ecology of the Eastern bigeared bat, and their sensitivity to disturbance, make them particularly vulnerable to destruction of roost sites and feeding areas where their presence goes undetected (Handley and Schwab 1991, Harvey 1992). Threats to this species include forest destruction, particularly hollow tree removal, decreasing availability of abandoned buildings, and possibly, insecticides. Please note that this species is currently classified as endangered by the Virginia Department of Wildlife Resources.

Timber and canebrake rattlesnakes are two forms of the same species (Crotalus horridus). The species is widespread throughout eastern United States ranging from New England to Minnesota and south to Florida and Texas. The forms differ in appearance and habitat distribution but share enough genetic similarities that they are the same species (NatureServe, 2009). The timber rattlesnake is typically darker or yellow-ish (Gibbons and Dorcas, 2005). In Virginia, it is found in the piedmont and mountainous regions. The Canebrake rattlesnake is typically lighter in color, often pinkish, and is found in more coastal areas, including the northern limit of its range in the southeastern counties of the coastal plain of Virginia (Gibbons and Dorcas, 2005). Canebrake rattlesnakes in Virginia inhabit hardwood and mixed hardwood pine forests, cane thickets and the ridges and glades of swampy areas (Mitchell and Schwab, 1991). Canebrake rattlesnakes are generally terrestrial and feed on a variety of small animals including small mammals, birds, and amphibians (Mitchell & Schwab, 1991). The primary threats to the canebrake rattlesnake are the loss of habitat due to development activities and persecution by humans (Mitchell, 1994). Please note that the coastal plain populations of the canebrake rattlesnake are currently classified as endangered by the Virginia Department of Wildlife Resources (VDWR). The Great Dismal Swamp: Northwest Section Conservation Site has been given a biodiversity significance ranking of B5, which represents a site of general significance. The natural heritage resource of concern at this site is the canebrake rattlesnake. In addition, according to DCR's predictive suitable habitat model, potential may exist for the Eastern big-eared bat, canebrake rattlesnake, and Mabee's salamander (Ambystoma mabeei, G4/S1S2/NL/LT) within the project area. Due to the potential for this site to support populations of the Eastern big-eared bat, DCR recommends an assessment of possible roost trees within the project area. If there are large tree with possible roosts that need to be removed during construction, DCR recommends looking for signs of bat usage (guano) around the entrance of the possible roost. DCR concurs with the results of the habitat assessments for the canebrake rattlesnake and Mabee's salamander conducted by VDOT as summarized in the December 2022 report titled "Canebrake Rattlesnake Habitat Assessment SPSA Flyover Project" and the November 2022 memorandum titled "VDOT SPSA Flyover Mabee's Salamander Habitat Assessment". DCR supports DWR's recommendations regarding compensation for loss of canebrake rattlesnake habitat. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations. Due to the legal status of the Eastern big-eared bat and canebrake rattlesnake, DCR also recommends continued coordination with Virginia's regulatory authority for the management and protection of these species, the VDWR, to ensure compliance with the Virginia Endangered Species Act (VA ST §§ 29.1-563 – 570). If there are suitable roost trees in the project area or signs of bat use, DCR also recommends further coordination with this office. Furthermore, DCR recommends maintaining the hydrologic connection between the project area and the area on the south side of Route 58 which is part of the Great Dismal Swamp National Wildlife Refuge. In addition, the proposed project will impact an Ecological Core (C2) as identified in the Virginia Natural Landscape Assessment (https://www.dcr.virginia.gov/natural-heritage/vaconvisvnla). Mapped cores in the project area can be viewed via the Virginia Natural Heritage Data Explorer, available here: http://vanhde.org/content/map. (Additional information on cores in letter dated 03/15/2023). DCR recommends avoidance of impacts to cores. When avoidance cannot be achieved, DCR recommends minimizing the area of impacts overall and concentrating the impacted area at the edges of cores, so that the most interior remains intact. The proposed project will impact one or more cores with very high (C2) to outstanding (C1) ecological integrity. Further investigation of these impacts is recommended and DCR-DNH can conduct a formal impact analysis upon request. This analysis

would estimate impacts to cores and habitat fragments, providing an estimate of the total acreage of direct and indirect impacts of the project. For more information about the analysis and service charges, please contact Joe Weber, DCR Chief of Biodiversity Information and Conservation Tools at Joseph.Weber@dcr.virginia.gov. According to the information currently in Biotics, natural heritage resources have not been documented within the submitted project boundary including a 100-foot buffer. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources. In addition, the project boundary does not intersect any of the predictive models identifying potential habitat for natural heritage resources. DCR supports DWR's comments. 03/15/2023.

This recommendation was passed along to the applicant for consideration.

DWR

DWR provided the following comments through the February 2023 VDOT Interagency Coordination Meeting Final Comments, received on March 22nd, 2023:

- We have sent the habitat assessments for Canebrake Rattlesnake and Mabee's habitat assessments that Michael Mussomeli sent us in December, to JD Kleopfer for review. We will conduct further internal review of today's presentation materials prior to IACM formal comment due date and provide formal comments prior to that time. Until that time, DWR comments from 9.22.22 remain valid. 02/14/2023

This recommendation was passed along to the applicant for consideration.

- Our comments from 9/22/22 remain valid. We continue to request mitigation to for Canebrake Rattlesnakes in addition to the wetland mitigation. It appears from the information provided that VDOT has not yet planned for this Canebrake mitigation, only wetland mitigation. We recommend preservation of an equivalent amount of canebrake habitat (i.e., 1:1 ratio) in an area with a confirmed population of the species. However, we understand this can be difficult to achieve. If such habitat preservation is not possible, we recommend providing additional wetland compensation at a ratio of at least 1:1 to mitigate the loss of valuable canebrake rattlesnake habitat. This should be in addition to the standard compensatory mitigation ratio. All wetland mitigation credits should be obtained from a bank with a confirmed population of canebrake rattlesnakes. We recommend DWR design the road to exclude wildlife from the interior and in order to minimize the ability to access the road. TD, 03/15/2023.

This recommendation was passed along to the applicant for consideration. VDOT has provided coordination with DWR for mitigation to Canebrake Rattlesnakes.

VDH

VDH did not attend the February 2023 VDOT Interagency Coordination Meeting. Additional email was sent requesting comment, no response received from VDH.

VMRC

VMRC provided the following comments through the February 2023 VDOT Interagency Coordination Meeting Final Comments, received on March 22nd, 2023:

- No permit required. 02/13/2023

Additional DWR & VDOT email Coordination:

VDOT email June 6, 2023:
To mitigate impacts to canebrake rattlesnake habitat credits will be purchased from the VDOT owned Lewis Farm mitigation bank which is approved for canebrake rattlesnake. These credits will be in addition to the necessary wetland mitigation credits. The area to be mitigated is the roadway and inside the loop where suitable habitat was identified in the previously provided habitat assessment (see attached figure). This area is 258,692 square feet (approximately 5.95 acres) and will be mitigated at 1:1.

DWR email June 15, 2023:
We are in receipt of your updated plan for the SPSA flyover, and are agreeable with your mitigation plan for Canebrake Rattlesnakes as you have described below.

12. Riparian Landowner Notification:

Staff notified riparian landowners located adjacent to the impact area and within one-half mile downstream of each distinct impact area by letter dated July 19, 2023. Notifications of riparian and adjacent landowners were conducted in accordance with DEQ guidance.

13. Public Comment and Public Hearing:

The public notice was published on October 6th, 2023. The public comment period was open from October 7th, 2023 to November 6th, 2023. DEQ also concurrently posted the notice on the DEQ site, https://www.deq.virginia.gov/permits/public-notices/water/wetlands-streams-vwp . No comments were received.

14. Special Conditions:

The following conditions were developed to protect instream beneficial uses, to ensure compliance with applicable water quality standards, to prevent significant impairment of state waters or fish and wildlife resources, to provide for no net loss of wetland acreage, and to provide no net loss of functions in all surface waters through compensatory mitigation and monitoring and reporting.

Section A Authorized Activities

No. 1-3 addresses the activities authorized by this permit, including impact types and limits.
No. 4-6 addresses changes in authorized impacts and notification procedures for such changes.

Section B Permit Term

No. 1-2 addresses the permit term and re-issuance process to ensure that all permit conditions are completed.

Section C Standard Project Conditions

No. 1 addresses the requirement for the minimization of adverse impacts to instream beneficial uses.
No. 2 ensures that the project will be executed in a manner that limits the disruption of the movement of aquatic life.
No. 3 ensures that downstream flows will be maintained to protect both instream and off-stream beneficial uses.
No. 4 ensures the minimization of adverse effects on navigation.
No. 5 ensures the passage of high flows.
No. 6-7 requires maintenance of continuous flow of perennial springs for the protection of instream beneficial use.
No. 8 requires that the permittee adhere to time-of-year restrictions recommended by the Department of Wildlife Resources & USFWS for the protection of fish and wildlife resources.
No. 9 ensures that dredging and filling operations will minimizes stream bottom disturbances and turbidity.
No. 10 requires instream activities to be conducted during low-flow conditions to protect instream beneficial uses.
No. 11 requires erosion and sedimentation controls to be designed in accordance with the Virginia Erosion and Sediment Control Handbook, Third Edition, 1992.
Nos. 12 through 14 provide requirements and limitations on the entry of various materials (including concrete, fill, construction and waste material, fuels, lubricants, and untreated stormwater runoff) into state waters.
Nos. 15 and 16 limit the use of machinery and equipment in surface waters to protect beneficial uses
Nos. 17 through 21 require temporary disturbances to surface waters during construction to be avoided and minimized to the maximum extent practicable and the restoration of such temporary disturbances.
No. 22 prohibits the violation of Water Quality Standards in surface waters as a result of project activities
No. 23 requires the identification of all non-impacted surface waters in the vicinity of the proposed activity to prevent unpermitted impacts.
Nos. 24 through 28 set forth all reporting requirements concerning construction, monitoring, compensation, and restoration as required by current law and regulations.

Section D Stream Modifications, Including Intake/Outfall Structures

No. 1 prohibits the use of stream substrate for erosion control to avoid additional impacts to state waters.
No. 2 requires upland disposal of material removed from stream substrate to avoid unpermitted impacts to surface waters.
No. 3 ensures riprap placement conforms to current law and regulation.
Nos. 4 and 5 direct the placement and contents of materials for the construction of submerged structures, and on-bank storage and staging of materials, to protect water quality and fish and wildlife resources.
No. 6 ensures correct outfall structure construction methods to prevent erosion and sedimentation of surface waters.

Section E Road Crossings

No. 1 provides specifications for access road construction to minimize adverse effects to surface waters.
No. 2 ensures pipes and culvert construction is conducted in the dry to protect water quality and wildlife habitat.
No. 3 requires that temporary impacts be restored immediately following construction to minimize impacts to water quality and fish and wildlife resources.

No. 4 requires measurement of stream bottom elevations at road crossings to ensure for the re-establishment of a natural stream bottom and low flow channel to maintain instream beneficial uses. The intent of this condition is to maintain a hydrologic connection and enable the stream bottom to reestablish in the culvert. The stream crossing(s) to which this condition pertains is identified in the condition.
No. 5 summarizes requirements for pipe and culvert placement and countersinking to provide for the re-establishment of a natural stream bottom and low flow channel to maintain instream beneficial uses.
No. 6 dictates when and how stream bottom elevations at road crossings shall be measured.

Section F Stormwater Management Facilities

No. 1 defines the general requirements for stormwater management facility construction to minimize adverse effects to aquatic resources and provide for long-term aquatic resources protection and enhancement.
No. 2 provides limits and guidance for maintenance excavation to avoid unpermitted impacts to surface waters.
No. 3 requires correct draining methods to minimize sedimentation of surface waters.

Section G Project Construction Monitoring and Submittals (Impact Site)

Nos. 1 through 6 address monitoring and submittals required for pre-construction, during construction and post-construction for the impact areas on site.

Section H Compensatory Mitigation

No. 1 describes the compensatory mitigation required to mitigate for the permitted impacts.
Nos. 2 and 3 describe the phasing requirements associated with the required compensation.

- This includes DWR recommendation of purchase of credits for impacts to suitable canebrake rattlesnake habitat at a 1:1 ratio.

No. 4 describes the documentation requirement for the purchase of the required amount of credits.

15. General Conditions:

The general conditions specified in the effective VWP Permit Program Regulation 9VAC25-210 apply to all VWP individual permits.

16. General Criteria (9VAC25-260-20.A):

State waters, including wetlands, shall be free from substances attributable to sewage, industrial waste, or other waste in concentrations, amounts, or combinations which contravene established standards or interfere directly or indirectly with designated uses of such water or which are inimical or harmful to human, animal, plant, or aquatic life.

Specific substances to be controlled include, but are not limited to: floating debris, oil, scum, and other floating materials; toxic substances (including those which bioaccumulate); substances that produce color, tastes, turbidity, odors, or settle to form sludge deposits; and substances which nourish undesirable or nuisance aquatic plant life. Effluents which tend to raise the temperature of the receiving water will also

be controlled. Conditions within mixing zones established according to 9VAC25-260-20.B do not violate the provisions of this subsection.

17. Staff Findings and Recommendations:

- The proposed activity is consistent with the provisions of the Clean Water Act and State Water Control Law and will protect instream beneficial uses.
- The proposed permit addresses avoidance and minimization of wetland impacts to the maximum extent practicable.
- The effect of the impact, together with other existing or proposed impacts to wetlands, will not cause or contribute to significant impairment of state waters or fish and wildlife resources.
- The proposed permit conditions address no net loss of wetland acreage and no net loss of functions in all surface waters, through compensatory mitigation and adequately assess compensation implementation via success monitoring and reporting.
- The draft permit reflects the required consultation with and full consideration of the written recommendations of VMRC, VDH, DCR, and DWR. The staff invited, but did not receive, comments from VDH.

Staff issued VWP Individual Permit No. 23-4011 on November 13th, 2023

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

December 18, 2023

Special Projects Regulatory Section
NAO-2022-0448 (Burnetts Mill Creek)

Virginia Department of Transportation (VDOT)
Attn: John K. Arms, P.E.
7511 Burbage Drive
Suffolk, VA 23435

Dear Mr. Arms:

Enclosed is an electronic copy of a Department of the Army permit authorizing VDOT to perform certain work in waters of the United States as part of the project known as the SPSA Flyover. The permit must be signed by the applicant, Miranda S. Kidd (for VDOT), in the space provided for the permittee's signature and emailed to brian.c.denson@usace.army.mil, if returned electronically. Upon receipt, the district engineer or his authorized representative will sign the permit and return it to you. The permit is not valid **until signed by both parties**.

This letter contains an initial proffered permit for your proposed project. If you object to this decision, you may request an administrative appeal under Corps regulations at 33 CFR part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal this decision you must submit a completed RFA form to the Norfolk District Office at the following address:

United States Army Corps of Engineers
CENAO-WR-R
Andrew Beaudet, Acting Chief, Regulatory Branch
803 Front Street
Norfolk, VA 23510-1011

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR part 331.5, and that it has been received by the District Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address within **60 days** from the date of this letter. It is not necessary to submit an RFA form to the District office if you do not object to the decision in this letter.

Please take note of project specific special conditions and general conditions incorporated in this permit. Enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required

mitigation. Your signature on this form certifies that you have completed the work in accordance with the permit terms and conditions.

Please also take note the conditions in the 401 Water Quality Certification/Water Protection Permit are also conditions of your Department of Army Permit.

If any material change in the plan of the work is found necessary, revised plans must be submitted and approved before any work is begun.

If you have any questions, you may call Mr. Brian Denson at (757) 201-7792 or brian.c.denson@usace.army.mil.

Sincerely,

Kimberly A. Prisco-Baggett

Kimberly A. Prisco-Baggett, MBA
Chief, Special Projects Regulatory Section

Enclosure(s)

U.S. Army Corps
Of Engineers
Norfolk District

Fort Norfolk, 803 Front Street
Norfolk, Virginia 23510-1096

DEPARTMENT OF THE ARMY PERMIT

Permittee: Virginia Department of Transportation (VDOT), Attn: John K. Arms, P.E.
Permit No.: NAO-2022-0448 / VMRC# 23-4011
Issuing Office: U.S. Army Corps of Engineers Norfolk District Regulatory Branch (CENAO-WR-R)

Note: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below pursuant to:

- ☐ Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).
- ☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).
- ☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

Project Description: VDOT is hereby authorized to permanently impact 3.33 acres of forested wetlands (PFO), 0.18 acres of scrub shrub wetlands (PSS), 0.15 acres of emergent wetlands (PEM), and 1.07 acres of roadside ditches (PUB). VDOT is also authorized to temporarily impact 1.71 acres of PFO, 0.26 acres of PSS, 0.08 acres of PEM, and 1.23 acres of PUB to construct the SPSA Flyover Ramp to accommodate the left turning traffic entering the SPSA landfill from Route 58. Impacts to Waters of the US are depicted on drawings titled “SPSA Flyover, City of Suffolk, Virginia, Project No./UPC: 118375”, figures 1-7, dated March 2022.

Project Location: Project is north of the Great Dismal Swamp National Wildlife Refuge, South and East of the SPSA Landfill along and north of US Route 58 in Suffolk, VA.

Project Specific Special Conditions:

1. Prior to the commencement of any work authorized by this permit, you shall advise the project manager, Brian Denson, by email at brian.c.denson@usace.army.mil, at least two weeks in advance of starting work authorized by this permit. You should inform the project manager of the anticipated start date of the authorized activity and the name and telephone number of all contractors or other persons performing the work. A copy of this permit and drawings must be provided to the contractor and kept on site at all times, available to any regulatory representative during an inspection of the project site.

2. The time limit for completing the work authorized ends on December 15, 2028. Should you be unable to complete the authorized activity in the time limit provided, you must submit your request for a time extension to this office for consideration at least one month before the permit expiration date.

3. You must sign and return the enclosed "compliance certification" form within 30 days of completion of the project, including any required mitigation. Your signature on this form certifies that you have completed the work in accordance with the permit terms and conditions.

4. You are prohibited to destruct or alter waters of the U.S (including wetlands) other than those impacts authorized under this permit. The extent of authorized wetland/stream impacts are depicted on this drawing entitled "SPSA Flyover, City of Suffolk, Virginia, Project No./UPC: 118375", figures 1-7, dated March 2022.

5. Any waters of the U.S., including wetlands, that will not be impacted under this permit and that are located within existing or proposed right of way and within 50 feet of any proposed clearing, excavation, or other construction activities resulting in an impact must be clearly marked in the field with 4 foot high orange silt fencing, or 4 foot orange construction/barrier fencing, or high visibility barricade tape prior to commencing work onsite to ensure that additional wetland areas are not inadvertently impacted during clearing and construction activities.

6. You must follow a time of year restriction prohibiting the cutting of trees from December 15 to February 15 of any year when bats are less active or wintering in trees and the weather is typically too cold for bats to move around the landscape and from April 15 to July 30 of any year to reduce risk of injury to nursing and sensitive bats/bat pups.

7. You must loosen by ripping or chisel plowing the soil surface to the depth of 8-12" the soils of any temporary construction access areas located in wetlands that are cleared, grubbed, and/or filled, once each access is no longer needed. You must replant the resulting grade shall be replanted with bare root native woody plants at a rate of 400 plants per acre. Acceptable woody plants include but are not limited to 2-4 of the following native species: wax myrtle (*Morella cerifera*), red maple (*Acer rubrum*), sweet gum (*Liquidambar styraciflua*), black willow (*Salix nigra*), black gum (*Nyssa sylvatica*), spicebush (*Lindera benzoin*), and tag alder (*Alnus serrulate*). Substitution of other native woody species is subject to Corps review and approval. You must complete this restoration work within 30 days of the abandonment of the access area.

8. Compensatory mitigation is required: 8.79-acre credits (383,048.5 square feet) from the Lewis Farm Wetland Mitigation Bank (already bulk purchased by VDOT) are required. Construction may not impact jurisdictional areas associated with this project before the attached "Mitigation Bank Bulk Credit Use Statement of Acknowledgement" form is completed for and returned to the Norfolk District, Army Corps of Engineers, Regulatory Branch, Special Project Section.

9. If a project specific condition of this permit cannot be met, then you must apply for a permit modification. Any proposed permit modification will be coordinated with the Virginia Department of Environmental Quality, U.S. Fish and Wildlife Service, the City of Suffolk, and the Environmental Protection Agency Region III.

General Conditions:

1. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition **3** below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

2. If you discover any previously unknown historic or archaeological remains while accomplishing the activity authorized by this permit, you must immediately stop work and notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

3. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

4. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit.

5. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

6. No discharge of dredged or fill material may consist of unsuitable material (e.g.: trash, debris, car bodies, asphalt etc.) and material discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Any temporary fills must be removed in their entirety and the affected areas returned to their preexisting elevation.

8. Appropriate erosion and siltation controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date.

9. The construction or work authorized by this permit will be conducted in a manner so as to minimize any degradation of water quality and/or damage to aquatic life. Also, you will employ measures to prevent or control spills of fuels or lubricants from entering the waterway.

10. Any heavy equipment working in wetlands other than those permitted for permanent impact must be placed on mats or other measures must be taken to minimize soil disturbance.

11. Failure to comply with the terms and conditions of this permit can result in enforcement actions against the permittee and/or contractor.

12. In granting an authorization pursuant to this permit, the Norfolk District has relied on the information and data provided by the permittee. If, subsequent to notification by the Corps that a project qualifies for this permit, such information and data prove to be materially false or materially incomplete, the authorization may be suspended or revoked, in whole or in part, and/or the Government may institute appropriate legal proceedings.

13. All dredging and/or filling will be done so as to minimize disturbance of the bottom or turbidity increases in the water which tend to degrade water quality and damage aquatic life.

14. Your use of the permitted activity must not interfere with the public's right to reasonable navigation on all navigable waters of the United States.

Further Information:

1. Limits of this authorization:
   a. This permit does not obviate the need to obtain other Federal, state or local authorizations required by law.
   b. This permit does not grant any property rights or exclusive privileges.
   c. This permit does not authorize any injury to the property or rights of others.
   d. This permit does not authorize interference with any existing or proposed Federal projects.

2. Limits of Federal Liability: In issuing this permit, the Federal Government does not assume any liability for the following:
   a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
   b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
   c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
   d. Design or construction deficiencies associated with the permitted work.
   e. Damage claims associated with any future modification, suspension, or revocation of this permit.

3. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

4. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:
   a. You fail to comply with the terms and conditions of this permit.
   b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 3 above).
   c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

   Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of

legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

5. Extensions: Project Specific Condition #2 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit. Dredging authorization shall not exceed 10 years (33 CFR 325.6(e) and further authorization would require a new application.

Your signature below, as a permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Jacobs John fdc69178 Digitally signed by Jacobs John fdc69178
Date: 2023.12.18 10:28:10 -05'00'

(Permittee)

_____

(Date)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

_____

For Brian P. Hallberg, PMP
Colonel, U.S. Army
Commanding

December 18, 2023

(Date)

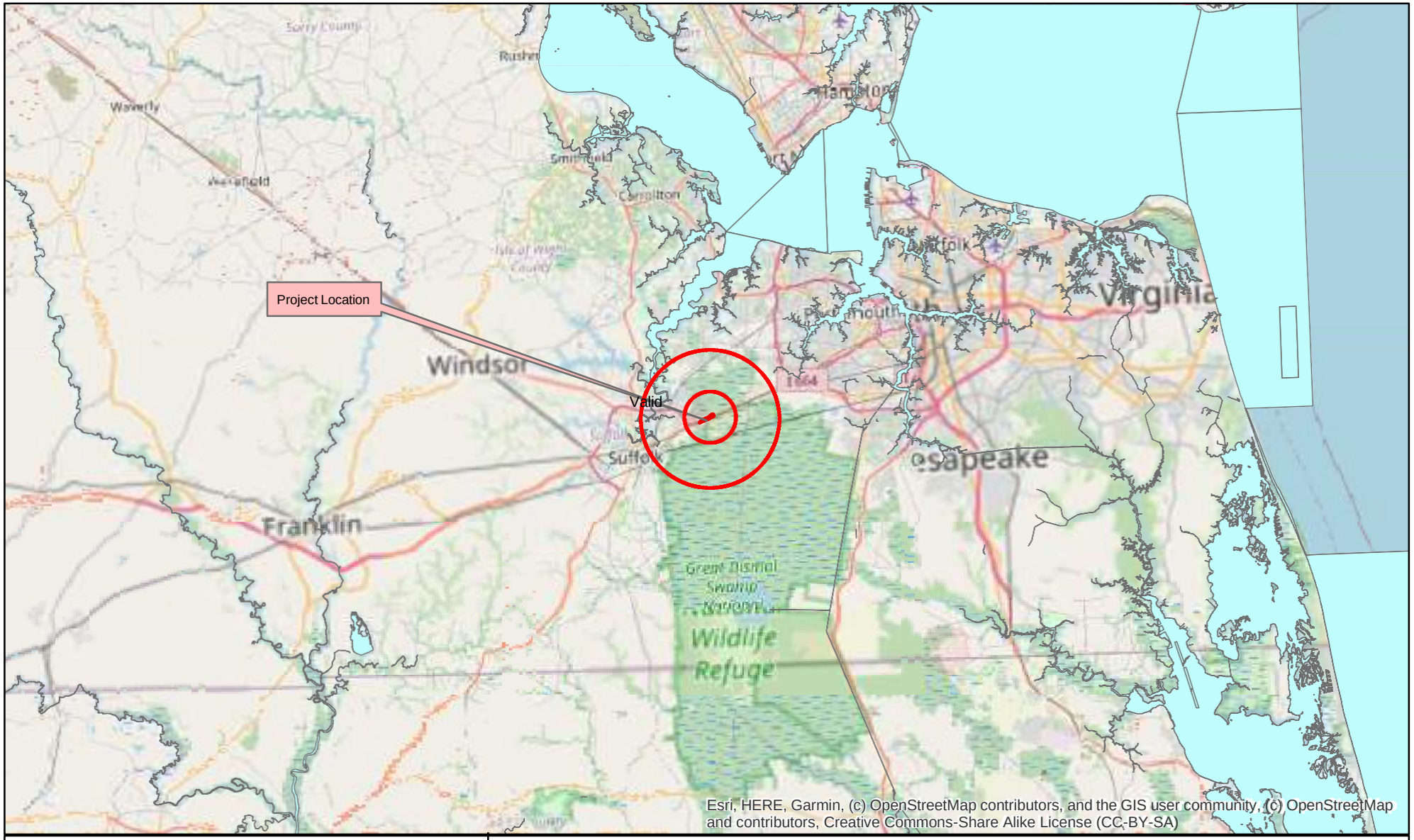
When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____

(Transferee)

_____

(Date)



0 4 8 16

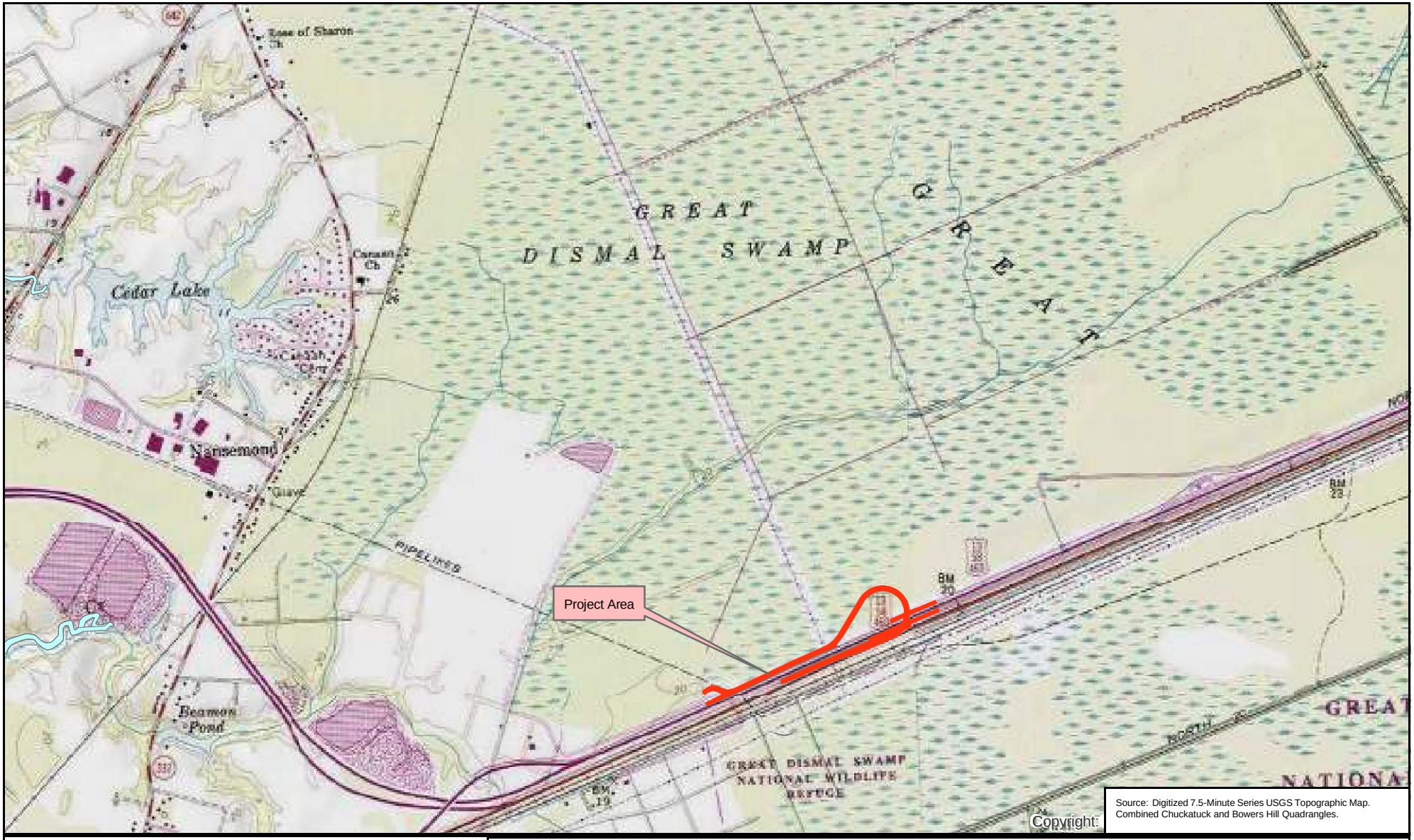
Miles

1:500,000
1 inch = 7.891 mi.

Figure 1- Site Location Map
SPSA Flyover
City of Suffolk, Virginia

Project No./UPC: 118375

March 2022



Source: Digitized 7.5-Minute Series USGS Topographic Map. Combined Chuckatuck and Bowers Hill Quadrangles.

0 1,000 2,000 4,000

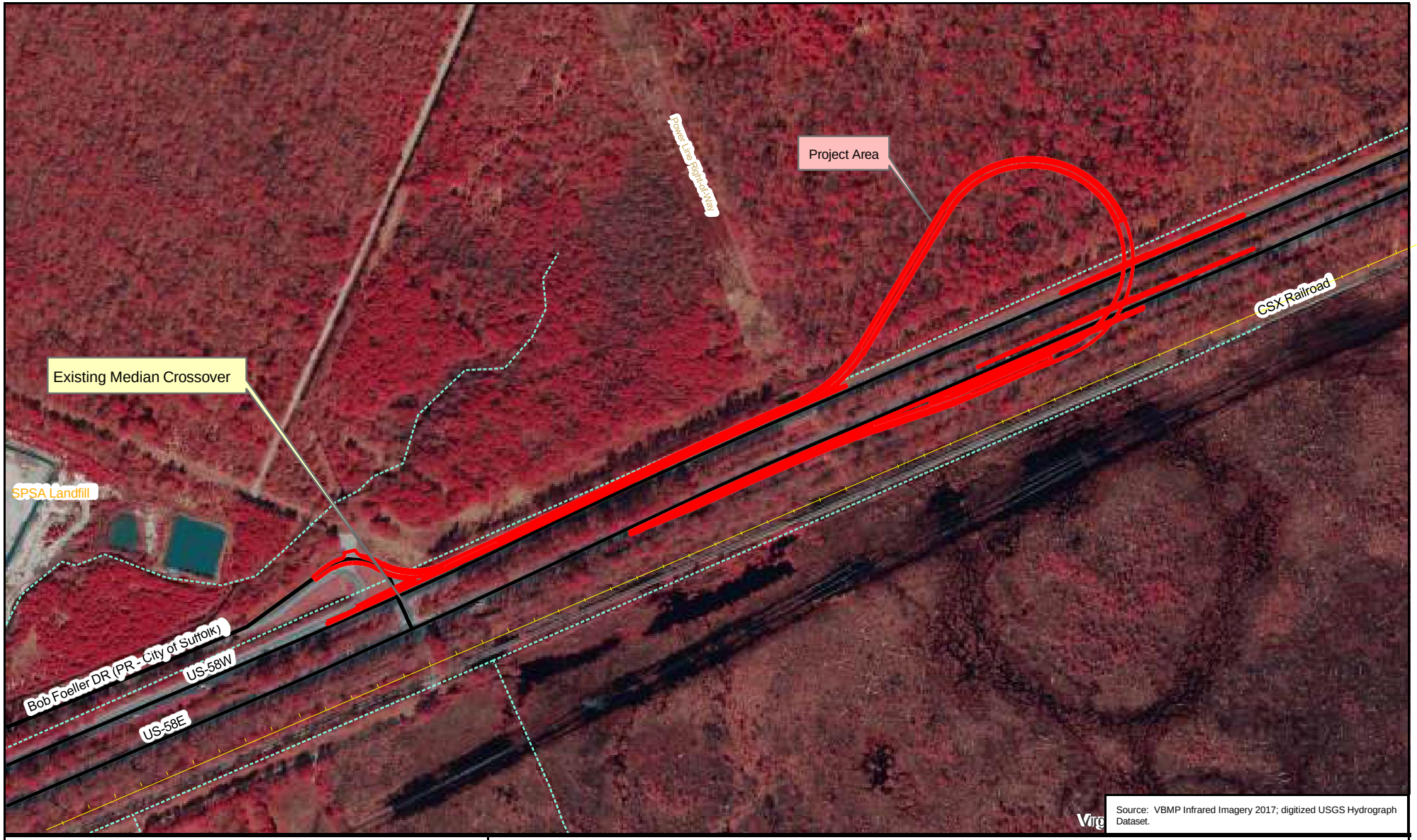
Feet

1:24,000
1 inch = 2,000 feet

Figure 2- USGS Topographic Map
SPSA Flyover
City of Suffolk, Virginia

Project No./UPC: 118375

March 2022



0 250 500 1,000

Feet

1:6,000
1 inch = 500 feet

Figure 3- Aerial Map
SPSA Flyover
City of Suffolk, Virginia

Project No./UPC: 118375

March 2022

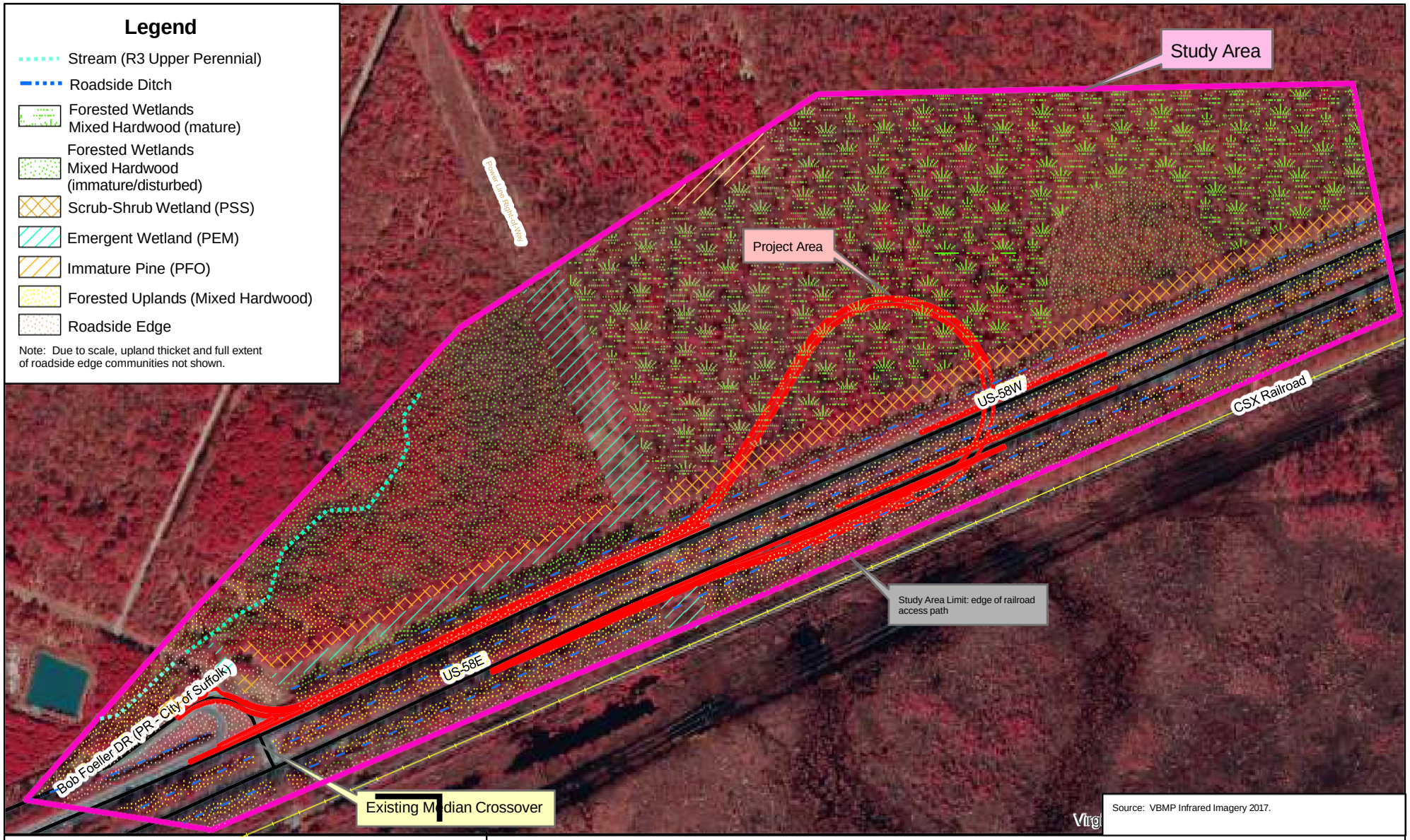
0 500 1,000 2,000
Feet

1:12,000
1 inch = 1,000 feet

Figure 4- NWI Map
SPSA Flyover
City of Suffolk, Virginia

Project No./UPC: 118375

March 2022



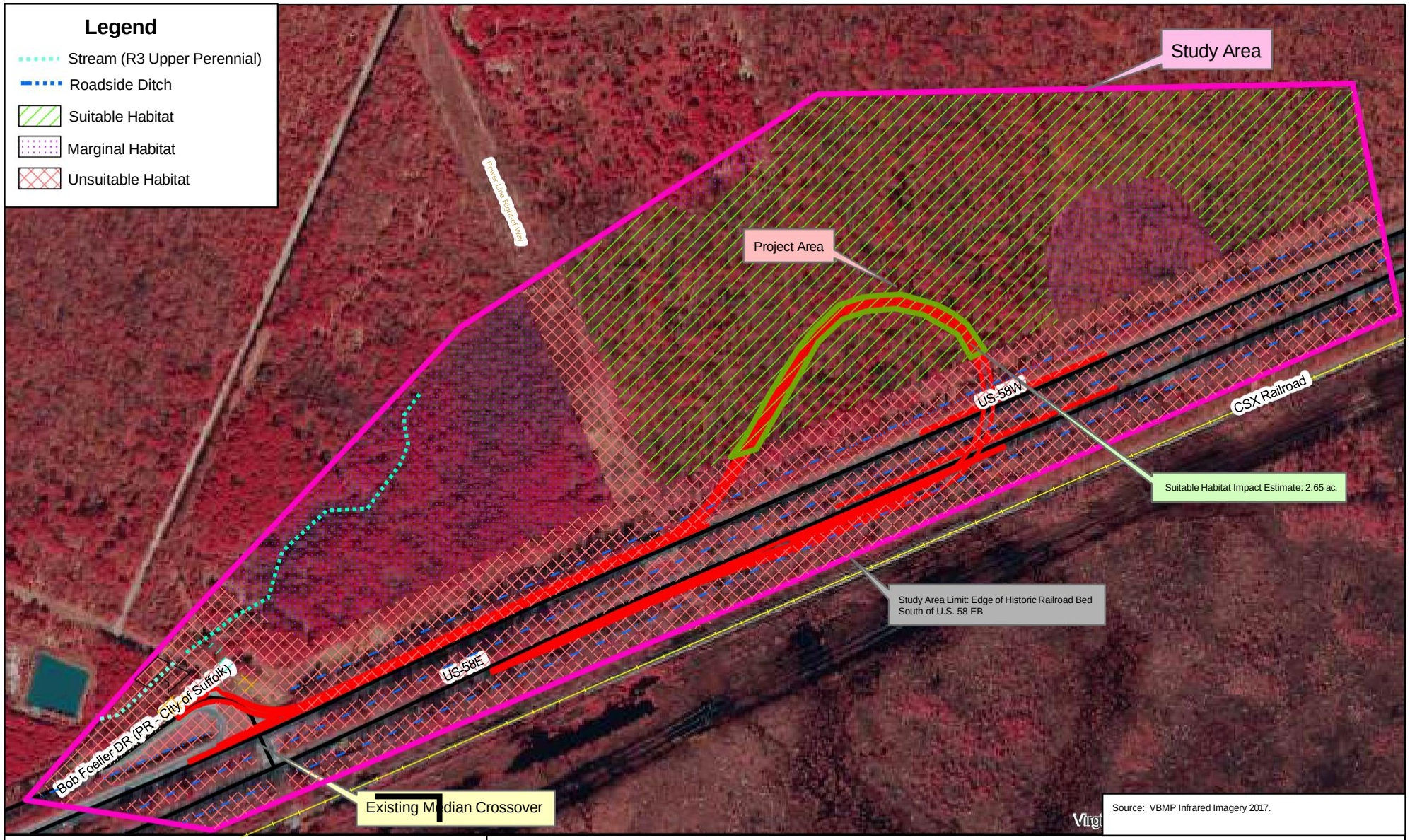
0 250 500 1,000
Feet

1:6,000
1 inch = 500 feet

Figure 5- Vegetational Communties
SPSA Flyover
City of Suffolk, Virginia

Project No./UPC: 118375

March 2022



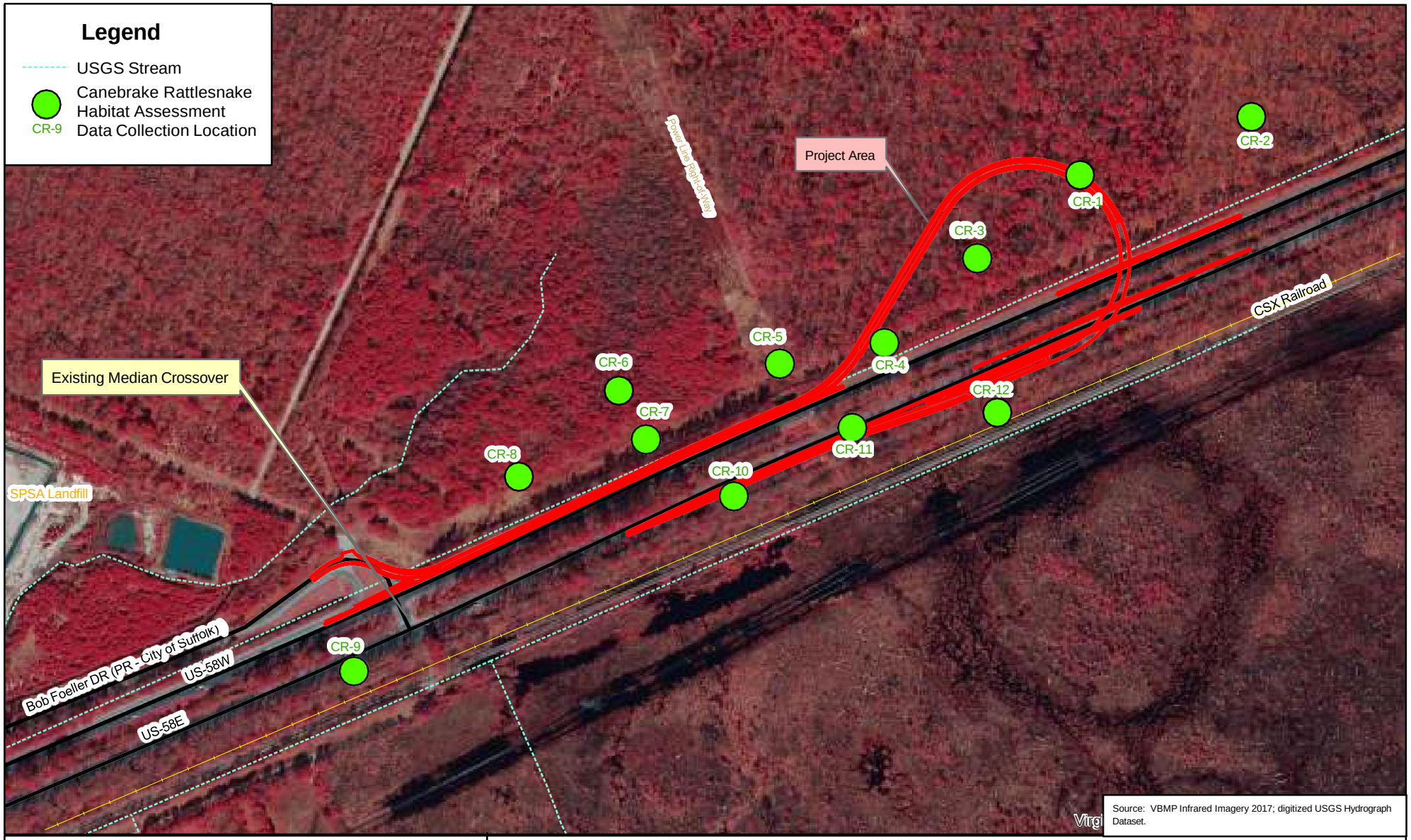
0 250 500 1,000
Feet

1:6,000
1 inch = 500 feet

Figure 6- Canebrake Rattlesnake Habitat Suitability
SPSA Flyover
City of Suffolk, Virginia

Project No./UPC: 118375

March 2022



0 250 500 1,000
Feet

1:6,000
1 inch = 500 feet

Figure 7- Canebrake Rattlesnake Habitat Data Points
SPSA Flyover
City of Suffolk, Virginia

Project No./UPC: 118375

April 2022