

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

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

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
BID PROPOSAL AND CONTRACT**

ROUTE NUMBER: 60

FHWA NUMBER: PM05537

PROJECT NUMBER: PM5Z-047-F24,P401

COUNTY: JAMES CITY

DISTRICT: HAMPTON ROADS



DESCRIPTION: CONCRETE OVERLAY

FROM: 0.44 MI. E. OF RTE. 30

TO: 0.375 MI. W. OF COUNTY LINE

DATE BID SUBMITTED: 10:00 A.M. WEDNESDAY, MARCH 27, 2024

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

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.virginia-dot.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.

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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: PM5Z-047-F24, P401

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*)
By: _____
(Officer, Partner or Owner) (Seal)

(Surety Company)
By: _____
(Attorney-in-Fact**) (Seal)

(Principal*)
By: _____
(Officer, Partner or Owner) (Seal)

(Address)
By: _____
(Surety Company)

(Principal*)
By: _____
(Officer, Partner or Owner) (Seal)

(Attorney-in-Fact**) (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.: K92
CONTRACT ID. NO.: CM524PMZ123767

Form C-7
Rev. 1-19-12

TERMS OF THE PROPOSAL\CONTRACT
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
SUBMITTED: 10:00 A.M. WEDNESDAY, MARCH 27, 2024

PROJECT NUMBER: PM5Z-047-F24, P401
ROUTE NUMBER: 60
FHWA NUMBER: PM05537

DESCRIPTION: CONCRETE OVERLAY
FROM: 0.44 MI. E. OF RTE. 30
TO: 0.375 MI. W. OF COUNTY LINE

DISTRICT: HAMPTON ROADS COUNTY: JAMES CITY

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: MAY 29, 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

Virginia Department of Transportation

Date Printed: 01/09/2024

Schedule of Items

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Proposal ID: CM524PMZ123767 Oversight/State Project No.: PM5Z-047-F24, P401
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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
0010	ATTD	108SP20-0001 BASELINE PROGRESS SCHEDULE	LUMP SUM	LUMP SUM			
0020	ATTD	108SP20-0002 PROGRESS SCHEDULE UPDATES	24.000 EA				
0030	302	302SD20-0023 15" PIPE	1,451.000 LF				
0040	302	302SD20-0237 DROP INLET DI-1	2.000 EA				
0050	302	302SD20-0447 DROP INLET DI-7	2.000 EA				
0060	302	302SD20-0662 MANHOLE MH-1 OR 2	10.000 LF				
0070	302	302SD20-0663 FRAME & COVER MH-1	3.000 EA				
0080	303	303SD20-0001 REGULAR EXCAVATION	225.000 CY				
0090	303	303SD20-0007 BORROW EXCAVATION	500.000 CY				
0100	303	303SD20-0022 CHECK DAM ROCK TY. I	119.000 EA				
0110	303	303SD20-0028 DEWATERING BASIN EC-8	5.000 EA				
0120	303	303SD20-0029 SILTATION CONTROL EXCAVATION	1,670.000 CY				
0130	303	303SD20-0030 INLET PROTECTION TYPE A	40.000 EA				
0140	303	303SD20-0034 TEMP. SILT FENCE TYPE A	27,825.000 LF				

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SECTION: 0001 REGULAR BID ITEMS

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Proposal Line Number	Spec No.	Item ID Description	Approximate Quantity and Units	Unit Price		Bid Amount	
				Dollars	Cents	Dollars	Cents
0150	ATTD	305SP20-0003 AGR. BASE MAT. TY.I OR II NO. 21A OR 21B	832.000 TON	_____	_____	_____	_____
0160	ATTD	305SP20-0005 MACHINING SHOULDERS	106,234.000 LF	_____	_____	_____	_____
0170	308	308SD20-0007 AGGR. MATL. NO. 21B	146.000 TON	_____	_____	_____	_____
0180	308	308SD20-0008 AGGR. MATL. NO. 25 OR 26	32,525.000 TON	_____	_____	_____	_____
0190	313	313SD20-0001 ASPH-STAB. OPEN-GRADED MATERIAL	2,480.000 TON	_____	_____	_____	_____
0200	315	315SD20-0029 ASPH. CONC. TY. SM-9.5D MAINT	792.000 TON	_____	_____	_____	_____
0210	315	315SD20-0034 ASPH. CONC. TY. SM-12.5D MAINT	980.000 TON	_____	_____	_____	_____
0220	315	315SD20-0100 ASPHALT CONCRETE BASE COURSE BM-25.0A	1,584.000 TON	_____	_____	_____	_____
0230	315	315SD20-0104 SAW-CUT ASPHALT CONCRETE	500.000 LF	_____	_____	_____	_____
0240	ATTD	316SX20-0004 PAVEMENT HYD. CEMENT CONC. PAVE. 7 INCH UNBONDED	146,595.000 SY	_____	_____	_____	_____
0250	316	316SX20-0004 PAVEMENT PLAIN HYDR. CEM. CONC. PAVE. 11"	3,613.000 SY	_____	_____	_____	_____

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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
0260	ATTD	316SX20-0010 SAW-CUT HYDR.CEM.CONC.PAVE. CONTRACTION JOINTS 1/3 RD DEPTH	391,776.000 LF	_____	_____	_____	_____
0270	318	318SD20-0001 PAVING FABRIC (TYPE I)	24,270.000 SY	_____	_____	_____	_____
0280	323	323SD20-0030 TRAVEL LANE PATCHING (PATCH MIX TYPE) (IM-19.0A)	930.000 TON	_____	_____	_____	_____
0290	ATTD	404SX20-0004 CONCRETE HYDR CEMENT CONC. PAVEMENT	32,102.000 CY	_____	_____	_____	_____
0300	414	414SD20-0003 EROSION CTRL. STONE CL. I, EC-1	100.000 TON	_____	_____	_____	_____
0310	414	414SD20-0008 DRY RIPRAP CL. AI	60.000 TON	_____	_____	_____	_____
0320	502	502SD20-0003 PAVED DITCH PG-2A	300.000 SY	_____	_____	_____	_____
0330	502	502SD20-0004 PAVED DITCH PG-5	300.000 SY	_____	_____	_____	_____
0340	502	502SD20-0022 COMB. CURB & GUTTER, STD. CG-6	312.000 LF	_____	_____	_____	_____
0350	505	505SD20-0009 REMOVE EX. GUARDRAIL TERMINAL	15.000 EA	_____	_____	_____	_____
0360	505	505SD20-0011 GUARDRAIL GR-MGS1	13,425.000 LF	_____	_____	_____	_____
0370	505	505SD20-0017 GUARDRAIL TERMINAL GR- MGS2	40.000 EA	_____	_____	_____	_____

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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
0380	505	505SD20-0018 GUARDRAIL END ANCHORAGE GR-MGS3	12.000 EA	_____	_____	_____	_____
0390	505	505SD20-0019 GUARDRAIL HEIGHT TRANSITION GR-MGS4	12.000 EA	_____	_____	_____	_____
0400	505	505SD20-0040 GUARDRAIL GR-10	25.000 LF	_____	_____	_____	_____
0410	505	505SD20-0047 FIXED OBJECT ATTACH. GR-FOA-3 TY. I	4.000 EA	_____	_____	_____	_____
0420	505	505SD20-0053 FIXED OBJECT ATTACH. GR-FOA-2 TY. I	4.000 EA	_____	_____	_____	_____
0430	505	505SD20-0073 REMOVE EXISTING GUARDRAIL	5,463.000 LF	_____	_____	_____	_____
0440	ATTD	505SX20-0001 HAND DIG GUARDRAIL POST HAND DIG	1,215.000 EA	_____	_____	_____	_____
0450	ATTD	505SX20-0058 GUARDRAIL MGS2 END TERMINAL SITE PREP., 4' MODERATE	5.000 EA	_____	_____	_____	_____
0460	ATTD	505SX20-0058 GUARDRAIL MGS2 END TERMINAL SITE PREP., 6' MODERATE	19.000 EA	_____	_____	_____	_____
0470	ATTD	505SX20-0058 GUARDRAIL TERMINAL SITE PREP. MINOR	16.000 EA	_____	_____	_____	_____
0480	508	508SD20-0003 DEMO. OF PAVEMENT RIGID	2,550.000 SY	_____	_____	_____	_____

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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
0490	508	508SD20-0004 DEMO. OF PAVEMENT FLEXIBLE	15,000.000 SY	_____	_____	_____	_____
0500	ATTD	510SX20-0002 REMOVE COMB. CURB AND GUTTER	312.000 LF	_____	_____	_____	_____
0510	510	510SX20-0015 REM. EXIST. PAVED DITCH -	300.000 SY	_____	_____	_____	_____
0520	510	510SX20-0026 REMOVE EXIST. DROP INLET -	1.000 EA	_____	_____	_____	_____
0530	510	510SX20-0027 REMOVE EXIST. MANHOLE -	3.000 EA	_____	_____	_____	_____
0540	510	510SX20-0031 MODIFY EXIST. DROP INLET	4.000 EA	_____	_____	_____	_____
0550	521	510SX20-0031 MODIFY EXIST. EXISTING MAILBOX	110.000 EA	_____	_____	_____	_____
0560	510	510SX20-0039 REMOVE EXIST. PIPE	2,000.000 LF	_____	_____	_____	_____
0570	512	512SD20-0013 TYPE 3 BARRICADE 8'	96.000 EA	_____	_____	_____	_____
0580	512	512SD20-0014 TEMPORARY SIGN	6,880.000 SF	_____	_____	_____	_____
0590	512	512SD20-0023 TRUCK MOUNTED ATTENUATOR	8,060.000 HR	_____	_____	_____	_____
0600	512	512SD20-0024 GROUP 2 CHANNELIZING DEVICES	14,400.000 DAY	_____	_____	_____	_____
0610	512	512SD20-0025 PORT.CHANGEABLE MESS. SIGN	10,000.000 HR	_____	_____	_____	_____

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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
0620	512	512SD20-0026 ELECTRONIC ARROW BOARD	11,760.000 HR	_____	_____	_____	_____
0630	512	512SD20-0027 FLAGGER SERVICE	250.000 HR	_____	_____	_____	_____
0640	512	512SD20-0037 TEMP. DIVERSION GS-10 TY. A	200.000 LF	_____	_____	_____	_____
0650	512	512SD20-0042 ERADICATE LINEAR PVMT MRKG	173,000.000 LF	_____	_____	_____	_____
0660	512	512SD20-0043 ERADICATE NONLINEAR PVMT MRKG	250.000 SF	_____	_____	_____	_____
0670	512	512SD20-0044 TEMP. PAVE. MARKER 1 WAY	200.000 EA	_____	_____	_____	_____
0680	512	512SD20-0045 TEMP. PAVE. MARKER 2 WAY	660.000 EA	_____	_____	_____	_____
0690	512	512SD20-0046 TEMP. PVMT MRKG TY. A, 4"	108,664.000 LF	_____	_____	_____	_____
0700	512	512SD20-0049 TEMP. PVMT MRKG TY. A, 12"	200.000 LF	_____	_____	_____	_____
0710	512	512SD20-0061 TEMP. PVMT MRKG TY. D, CL. III, 4"	138,536.000 LF	_____	_____	_____	_____
0720	512	512SD20-0066 TRAFFIC BARRIER SERVICE CONC.	240.000 LF	_____	_____	_____	_____
0730	513	513SD20-0001 MOBILIZATION	LUMP SUM	LUMP SUM	_____	_____	_____
0740	515	515SD20-0004 FLEXIBLE PAVE.PLANING 0"-2"	24,550.000 SY	_____	_____	_____	_____

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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
0750	515	515SD20-0005 FLEXIBLE PAVE. PLANING ABOVE 2"-4"	45,455.000 SY	_____	_____	_____	_____
0760	517	517SD20-0002 CONSTRUCTION SURVEYING MIN. PLAN	LUMP SUM	LUMP SUM	_____	_____	_____
0770	601	601SD20-0001 SEL TREE REMOVAL TRIM AND CLEAN	0.400 ACRE	_____	_____	_____	_____
0780	602	602SD20-0002 TOPSOIL CLASS A	17,600.000 CY	_____	_____	_____	_____
0790	603	603SD20-0002 TEMPORARY SEED	2,953.000 LB	_____	_____	_____	_____
0800	603	603SD20-0003 REGULAR SEED	4,725.000 LB	_____	_____	_____	_____
0810	603	603SD20-0004 OVERSEEDING	3,780.000 LB	_____	_____	_____	_____
0820	603	603SD20-0007 HYDRAULIC EROSION CONTROL PRODUCT TYPE 1	72,600.000 SY	_____	_____	_____	_____
0830	603	603SD20-0009 HYDRAULIC EROSION CONTROL PRODUCT TYPE 3	23,232.000 SY	_____	_____	_____	_____
0840	603	603SD20-0014 FERTILIZER NITROGEN - N	5,131.000 LB	_____	_____	_____	_____
0850	603	603SD20-0015 FERTILIZER PHOSPHOROUS - P	6,751.000 LB	_____	_____	_____	_____
0860	603	603SD20-0016 FERTILIZER POTASSIUM - K	1,876.000 LB	_____	_____	_____	_____
0870	603	603SD20-0017 LIME	122.000 TON	_____	_____	_____	_____

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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
0880	606	606SD20-0004 ROLLED EROSION CTRL PRODUCT EC-2 TYPE 4	500.000 SY	_____	_____	_____	_____
0890	606	606SD20-0007 ROLLED EROSION CTRL PRODUCT EC-3 TYPE 3	180.000 SY	_____	_____	_____	_____
0900	700	700SD20-0003 REMOVE EXISTING 1 POST SIGN STRUCTURE	69.000 EA	_____	_____	_____	_____
0910	700	700SD20-0004 REMOVE EXISTING 2 POST SIGN STRUCTURE	2.000 EA	_____	_____	_____	_____
0920	700	700SD20-0034 SIGN POST STP-1, 2", 14 GAUGE	290.000 LF	_____	_____	_____	_____
0930	700	700SD20-0035 SIGN POST STP-1, 2 3/16", 10 GAUGE	100.000 LF	_____	_____	_____	_____
0940	700	700SD20-0036 SIGN POST STP-1, 2 1/2", 10 GAUGE	170.000 LF	_____	_____	_____	_____
0950	700	700SD20-0037 SIGN POST STP-1, 2 1/2", 12 GAUGE	150.000 LF	_____	_____	_____	_____
0960	700	700SD20-0038 CONC. FOUND. STP-1, TY. A	71.000 EA	_____	_____	_____	_____
0970	700	700SD20-0118 14/1 CONDUCTOR CABLE ENCLOSED	514.000 LF	_____	_____	_____	_____
0980	700	700SD20-0182 CONDUIT PVC 1"	25.000 LF	_____	_____	_____	_____
0990	ATTD	700SX20-0008 TRAFFIC SIGNALIZATION TEMP TRAFFIC SIGNALS	LUMP SUM	LUMP SUM	_____	_____	_____

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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		Bid Amount	
				Dollars	Cents	Dollars	Cents
1000	701	701SD20-0001 SIGN PANEL	507.000 SF	_____	_____	_____	_____
1010	703	703SD20-0042 LOOP SAW CUT 3/8"	180.000 LF	_____	_____	_____	_____
1020	703	703SD20-0043 LOOP SAW CUT 5/8"	25.000 LF	_____	_____	_____	_____
1030	704	704SD20-0006 TYPE B CLASS I PVMT LINE MRKG 4"	10,270.000 LF	_____	_____	_____	_____
1040	704	704SD20-0007 TYPE B CLASS I PVMT LINE MRKG 6"	12,837.000 LF	_____	_____	_____	_____
1050	704	704SD20-0030 TYPE B CLASS VI CONTRAST PVMT LINE MRKG 4"	69,970.000 LF	_____	_____	_____	_____
1060	704	704SD20-0031 TYPE B CLASS VI CONTRAST PVMT LINE MRKG 6"	55,970.000 LF	_____	_____	_____	_____
1070	ATTD	704SD20-0032 INLAID PAVEMENT MARKER ASPHALT	24.000 EA	_____	_____	_____	_____
1080	ATTD	704SD20-0033 INLAID PAVEMENT MARKER CONCRETE	660.000 EA	_____	_____	_____	_____
1090	704	704SD20-0047 PVMT SYMB MRKG SGL TURN ARR. TY B CL I	8.000 EA	_____	_____	_____	_____
1100	510	704SP20-0001 REMOVAL OF SRPM	710.000 EA	_____	_____	_____	_____

Section: 0001

Total: _____

Total Bid: _____

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FORM C-21B

Order No.: K92

Rev 12-21-05

Page 1

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	_____
303SD20-0007	BORROW EXCAVATION	0.290	_____
303SD20-0029	SILTATION CONTROL EXCAVATION	0.290	_____
305SP20-0003	AGR. BASE MAT. TY.I OR II NO. 21A OR 21B	0.600	_____
308SD20-0007	AGGR. MATL. NO. 21B	0.600	_____
308SD20-0008	AGGR. MATL. NO. 25 OR 26	0.600	_____
313SD20-0001	ASPH-STAB. OPEN-GRADED MATERIAL	3.000	_____
315SD20-0029	ASPH. CONC. TY. SM-9.5D MAINT	3.500	_____
315SD20-0034	ASPH. CONC. TY. SM-12.5D MAINT	3.500	_____
414SD20-0003	EROSION CTRL. STONE CL. I, EC-1	0.600	_____
414SD20-0008	DRY RIPRAP CL. AI	0.400	_____
508SD20-0003	DEMO. OF PAVEMENT RIGID	0.200	_____
508SD20-0004	DEMO. OF PAVEMENT FLEXIBLE	0.200	_____
515SD20-0004	FLEXIBLE PAVE.PLANING 0"-2"	0.071	_____
515SD20-0005	FLEXIBLE PAVE. PLANING ABOVE 2"-4"	0.160	_____

Date: _____

Signature: _____

(Firm or Corporation)

(Vendor No.)

Virginia Department of Transportation

Date Printed: 01/09/2024

Contract ID: CM524PMZ123767

FORM C-21C

Order No.: K92

Rev 12-21-08

Page 1

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
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	_____
700SD20-0034	SIGN POST STP-1, 2", 14 GAUGE	_____
700SD20-0035	SIGN POST STP-1, 2 3/16", 10 GAUGE	_____
700SD20-0036	SIGN POST STP-1, 2 1/2", 10 GAUGE	_____
700SD20-0037	SIGN POST STP-1, 2 1/2", 12 GAUGE	_____

Date: _____

Signature: _____

(Firm or Corporation)

(Vendor No.)

Virginia Department of Transportation

Date Printed: 01/09/2024

Contract ID: CM524PMZ123767

Order No.: K92

Page 1

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
315SD20-0029	ASPH. CONC. TY. SM-9.5D MAINT
315SD20-0034	ASPH. CONC. TY. SM-12.5D MAINT
315SD20-0100	ASPHALT CONCRETE BASE COURSE BM-25.0A
323SD20-0030	TRAVEL LANE PATCHING (PATCH MIX TYPE) (IM-19.0A)

**ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767**

Form C-111
Rev. 2-15-11

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
MINIMUM DBE REQUIREMENTS**

PROJECT NO: PM5Z-047-F24, P401

FHWA NO: PM05537

***** INSTRUCTIONS *****

THIS FORM CAN BE USED BY THE CONTRACTOR TO SUBMIT THE NAMES OF DBE 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 DBE 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 DBE SUPPLIER IS 60% OF THE TOTAL COST OF THE MATERIALS OR SUPPLIES OBTAINED AND 100% FOR A DBE MANUFACTURER OF THE MATERIALS AND SUPPLIES OBTAINED. A CONTRACTOR MAY COUNT 100% OF THE FEES PAID TO A DBE HAULER FOR THE DELIVERY OF MATERIALS AND SUPPLIES TO THE PROJECT SITE, BUT NOT FOR THE COST OF THE MATERIALS AND SUPPLIES THEMSELVES.

SECTION I:

DBE REQUIREMENT 10.00%

SECTION II:

PERCENT ATTAINED BY BIDDER %

NAME(s) AND CERTIFICATION NO. OF DBE(s) TO BE USED	USED AS SUBCONTR. (S) MFG. (M) SUPPLIER (SP) HAULER (H)	TYPE OF WORK & ITEM NO(s)	AMT. OF ALLOWABLE CREDIT PER ITEM

TOTAL: \$ _____

Total Contract Value \$ _____ X Required DBE _____ % = \$ _____

I/WE CERTIFY THAT THE PROPOSED DBE (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

**ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767**

Form C-112
Rev. 3-1-11

**COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION
CERTIFICATION OF BINDING AGREEMENT WITH
DISADVANTAGED BUSINESS ENTERPRISE FIRMS**

Project No.: PM5Z-047-F24, P401

FHWA NO: PM05537

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) working 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 two 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 DBE subcontractor, regardless of tier, in which they are claiming DBE 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).

**TO BE SIGNED BY THE SUBCONTRACTOR TO THE PRIME CONTRACTOR, AND ANY LOWER TIER
SUBCONTRACTORS HAVING A CONTRACT WITH THE BELOW NAMED DBE FIRM**

Prime Contractor: _____

By: _____
Signature Title

Date: _____

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

First Tier
Subcontractor
If Applicable:

By: _____
Signature Title
Date: _____

Second Tier
Subcontractor
If Applicable:

By: _____
Signature Title
Date: _____

Third Tier
Subcontractor
If Applicable

By: _____
Signature Title
Date: _____

DBE Contractor

By: _____
Signature Title
Date: _____

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

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ORDER NO.: K92
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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)

[cn102-000410-00](#)

SEC.102.04(a)—EVIDENCE OF EXAMINATION OF SITE OF WORK AND PROPOSAL — Section 102.04(a) of the Specifications is amended to include the following:

Prospective Bidders are hereby advised that attendance of the Proj. Showing is a prerequisite for submitting a bid proposal for this project. The "Notice of Advertisement for Bids" will designate the date, time and location for showing the work for interested parties. Prospective Bidders shall register in writing with the Engineer at the Project Showing and all attending parties will be noted in the Project Showing letter. Failure on the part of the Prospective Bidder to attend the Project Showing for this project and to register with the Engineer will be cause for rejection of the Bidder's proposal.

7-12-16 (SPCN) [formerly cn102-040100-00](#)

[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

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

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

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

SECTION 512—MAINTAINING TRAFFIC of the Specifications is amended as follows:

Section 512.04—Measurement and Payment is amended to replace the fourteenth paragraph with the following:

Temporary Traffic Control Signal will be paid for at the contract lump sum price for the locations specified in the Contract. This price shall include, but not be limited to, supports; span wire; tether wire; conduit; conductor cable; traffic signal heads; backplates; hanger assemblies; necessary control items; vehicle detection; uninterruptable power supply; and, when approved, portable traffic control signal equipment. The price shall also include installing, maintaining, adjusting, and aligning signal equipment for all phases; when required plan development, inclusive of signal layout, signal timing, phasing, and/or sequencing; providing electrical service; utility company costs; and removing temporary signal equipment when no longer required. The price shall also include temporary rumble strips required per Virginia Work Area Protection Manual TTC Figure 25.2.

Payment will be made under:

Pay Item	Pay Unit
Temporary Traffic Control Signal	Lump Sum

5-1-20 (SPCN) PM5Z-047-F24, P401

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 Contractor’s 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)

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

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)

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)

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

[SP0F0-000100-00](#)

Reissued July 12, 2016

PREDETERMINED MINIMUM WAGE RATES

"General Decision Number: VA20230195 01/06/2023

Superseded General Decision Number: VA20220195

State: Virginia

Construction Type: Highway

Counties: Chesapeake*, Gloucester, Hampton*, James*, Mathews, Newport News*, Norfolk*, Poquoson*, Portsmouth*, Suffolk*, Virginia Beach* and York Counties in Virginia.

*including the independent cities of Chesapeake, Hampton, Newport News, Norfolk, Portsmouth, Poquoson, Suffolk, Virginia Beach and Williamsburg

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(2)-(60).

If the contract is entered	. Executive Order 14026	
into on or after January 30,	generally applies to the	
2022, or the contract is	contract.	
renewed or extended (e.g., an	. The contractor must pay	
option is exercised) on or	all covered workers at	
after January 30, 2022:	least \$16.20 per hour (or	
	the applicable wage rate	
	listed on this wage	
	determination, if it is	
	higher) for all hours	

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

	spent performing on the contract in 2023.
If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract.
	. The contractor must pay all covered workers at least \$12.15 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2023.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/06/2023

ELEC0080-011 12/01/2021

	Rates	Fringes
ELECTRICIAN, Includes Traffic Signalization.....	\$ 30.55	11.51

 SUVA2016-080 07/02/2018

	Rates	Fringes
CARPENTER, Includes Form Work....	\$ 20.21	0.00
CEMENT MASON/CONCRETE FINISHER....	\$ 16.03 **	0.00
IRONWORKER, REINFORCING.....	\$ 24.03	0.00

ORDER NO.: K92
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IRONWORKER, STRUCTURAL.....	\$ 27.38	0.00
LABORER: Asphalt, Includes Raker, Shoveler, Spreader and Distributor.....	\$ 18.62	2.62
LABORER: Common or General.....	\$ 14.85 **	0.00
LABORER: Grade Checker.....	\$ 14.88 **	0.00
LABORER: Pipelayer.....	\$ 17.76	0.00
LABORER: Power Tool Operator....	\$ 15.69 **	0.00
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 20.74	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 19.16	4.45
OPERATOR: Broom/Sweeper.....	\$ 17.40	2.01
OPERATOR: Crane.....	\$ 24.42	4.69
OPERATOR: Drill.....	\$ 24.66	0.00
OPERATOR: Gradall.....	\$ 19.26	0.00
OPERATOR: Grader/Blade.....	\$ 23.21	0.00
OPERATOR: Hydroseeder.....	\$ 16.64	0.00
OPERATOR: Loader.....	\$ 17.86	0.00
OPERATOR: Mechanic.....	\$ 21.43	0.00
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	0.00
OPERATOR: Screed.....	\$ 22.13	4.89

ORDER NO.: K92
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OPERATOR: Asphalt Spreader and Distributor.....	\$ 19.09	1.81
OPERATOR: Bulldozer, Including Utility.....	\$ 19.43	0.00
TRAFFIC CONTROL: Flagger.....	\$ 12.89 **	0.00
TRUCK DRIVER : HEAVY 7CY & UNDER.....	\$ 15.53 **	0.00
TRUCK DRIVER: 1/Single Axle Truck.....	\$ 18.26	4.88
TRUCK DRIVER: Fuel and Lubricant Service.....	\$ 18.25	0.00
TRUCK DRIVER: HEAVY OVER 7 CY.....	\$ 16.98	0.00
TRUCK DRIVER: MULTI AXLE.....	\$ 18.77	4.63

WELDERS - Receive rate prescribed for craft performing operation to which welding is incidental.

=====

** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$16.20) or 13658 (\$12.15). Please see the Note at the top of the wage determination for more information.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (ii)).

The body of each wage determination lists the classification and wage rates that have been found to be prevailing for the cited type(s) of construction in the area covered by the wage determination. The classifications are listed in alphabetical order of ""identifiers"" that indicate whether the particular rate is a union rate (current union negotiated rate for local), a survey rate (weighted average rate) or a union average rate (weighted union average rate).

Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

Survey Rate Identifiers

Classifications listed under the ""SU"" identifier indicate that

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no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

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U.S. DEPARTMENT OF LABOR
OFFICE OF THE SECRETARY
WASHINGTON
DECISION OF THE SECRETARY

This case is before the Department of Labor pursuant to a request for a wage predetermination as required by law applicable to the work described.

A study has been made of wage conditions in the locality and based on information available to the Department of Labor the wage rates and fringe payments listed are hereby determined by the Secretary of Labor as prevailing for the described classes for labor in accordance with applicable law.

This wage determination decision and any modifications thereof during the period prior to the stated expiration date shall be made a part of every contract for performance of the described work as provided by applicable law and regulations of the Secretary of Labor, and the wage rates and fringe payments contained in this decision, including modifications, shall be the minimums to be paid under any such contract and subcontractors on the work.

The Contracting Officer shall require that any class of laborers and mechanics which is not listed in the wage determination and which is to be employed under the Contract, shall be classified or reclassified conformably to the wage determination, and a report of the action taken shall be sent by the Federal agency to the Secretary of Labor. In the event the interested parties cannot agree on the proper classification or reclassification of a particular class of laborers and mechanics to be used, the question accompanied by the recommendation of the Contracting Officer shall be referred to the Secretary for determination.

Before using apprentices on the job the contractor shall present to the Contracting Officer written evidence of registration of such employees in a program of a State apprenticeship and training agency approved and recognized by the U.S. Bureau of Apprenticeship and Training. In the absence of such a State agency, the Contractor shall submit evidence of approval and registration by the U.S. Bureau of Apprenticeship and Training.

The Contractor shall submit to the Contracting Officer written evidence of the established apprentice-journeyman ratios and wage in the project area, which will be the basis for establishing such ratios and rates for the project under the applicable contract provisions.

Fringe payments include medical and hospital care, compensation for injuries or illness resulting from occupational activity, unemployment benefits, life insurance, disability and sickness insurance, accident insurance (all designated as health and welfare), pensions, vacation and holiday pay, apprenticeship or other similar programs and other bona fide fringe benefits.

By direction of the Secretary of Labor



E. Irving Manger, Associate Administrator
Division of Wage Determinations
Wage and Labor Standards Administration

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[SP0F0-000130-02](#)

October 3, 2023
FHWA-1273 (Electronic Version)

The following Form **FHWA-1273** titled **REQUIRED CONTRACT PROVISIONS, FEDERAL-AID CONSTRUCTION CONTRACTS** shall apply to this contract:

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FHWA-1273 – Revised October 23, 2023

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

- I. General
- II. Nondiscrimination
- III. Non-segregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
- XI. Certification Regarding Use of Contract Funds for Lobbying
- XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form 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). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design- build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

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Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

ii. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504

of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60- 1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

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The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (see 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO

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Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all

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of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

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8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. 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 such other remedy as the recipient 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 as non- responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non- minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

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(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non- minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on [Form FHWA-1391](#). The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than \$10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA- 1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

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a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act ([29 CFR part 3](#))), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act ([40U.S.C. 3141\(2\)\(B\)](#)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH-1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

b. *Frequently recurring classifications.* (1) In addition to wage and fringe benefit rates that have been determined to be prevailing under the procedures set forth in [29 CFR part 1](#), a wage determination may contain, pursuant to § 1.3(f), wage and fringe benefit rates for classifications of laborers and mechanics for which conformance requests are regularly submitted pursuant to paragraph 1.c. of this section, provided that:

- (i) The work performed by the classification is not performed by a classification in the wage determination for which a prevailing wage rate has been determined;
- (ii) The classification is used in the area by the construction industry; and
- (iii) The wage rate for the classification bears a reasonable relationship to the prevailing wage rates contained in the wage determination.

(2) The Administrator will establish wage rates for such classifications in accordance with paragraph 1.c.(1)(iii) of this section. Work performed in such a classification must be paid at no less than the wage and fringe benefit rate listed on the wage determination for such classification.

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

- (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and

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(ii) The classification is used in the area by the construction industry; and

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.

(3) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the contracting officer by email to DBAconformance@dol.gov. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(4) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer will, by email to DBAconformance@dol.gov, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

d. *Fringe benefits not expressed as an hourly rate.* Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor may either pay the benefit as stated in the wage determination or may pay another bona fide fringe benefit or an hourly cash equivalent thereof.

e. *Unfunded plans.* If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, That the Secretary of Labor has found, upon the written request of the contractor, in accordance with the criteria set forth in § 5.28, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

f. *Interest.* In the event of a failure to pay all or part of the wages required by the contract, the contractor will be required to pay interest on any underpayment of wages.

2. Withholding (29 CFR 5.5)

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a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, [31U.S.C. 3901](#)–3907.

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements (1) Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

(2) *Information required.* Such records must contain the name; Social Security number; last known address, telephone number, and email address of each such worker; each worker's correct classification(s) of work actually performed; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in [40](#)

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[U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act); daily and weekly number of hours actually worked in total and on each covered contract; deductions made; and actual wages paid.

(3) *Additional records relating to fringe benefits.* Whenever the Secretary of Labor has found under paragraph 1.e. of this section that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in [40 U.S.C. 3141\(2\)\(B\)](#) of the Davis-Bacon Act, the contractor must maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits.

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements (1) Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts- covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (e.g., the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH-347 or in any other format desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division website at <https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347.pdf> or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

(3) *Statement of Compliance.* Each certified payroll submitted must be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor, or the contractor's or subcontractor's agent who pays or supervises the payment of the persons working on the contract, and must certify the following:

(i) That the certified payroll for the payroll period contains the information required to be provided under paragraph 3.b. of this section, the appropriate information and basic records are being maintained under paragraph 3.a. of this section, and such information and records are correct and complete;

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages

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earned, other than permissible deductions as set forth in [29 CFR part 3](#); and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification(s) of work actually performed, as specified in the applicable wage determination incorporated into the contract.

(4) *Use of Optional Form WH-347.* The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 will satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(3) of this section.

(5) *Signature.* The signature by the contractor, subcontractor, or the contractor's or subcontractor's agent must be an original handwritten signature or a legally valid electronic signature.

(6) *Falsification.* The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under [18 U.S.C. 1001](#) and [31 U.S.C. 3729](#).

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

c. *Contracts, subcontracts, and related documents.* The contractor or subcontractor must maintain this contract or subcontract and related documents including, without limitation, bids, proposals, amendments, modifications, and extensions. The contractor or subcontractor must preserve these contracts, subcontracts, and related documents during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under [29 CFR part 6](#) any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

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(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices (1) Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(2) *Fringe benefits.* Apprentices must be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringe benefits must be paid in accordance with that determination.

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

(4) *Reciprocity of ratios and wage rates.* Where a contractor is performing construction on a project in a locality other than the locality in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyworker's hourly rate) applicable within the locality in which the construction is being performed must be observed. If there is no applicable ratio or wage rate for the locality of the project, the ratio and wage rate specified in the contractor's registered program must be observed.

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and [29 CFR part 30](#).

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway

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construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. **Certification of eligibility.** a. By entering into this contract, the contractor certifies that neither it nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of [40 U.S.C. 3144\(b\)](#) or § 5.12(a).

c. The penalty for making false statements is prescribed in the U.S. Code, Title 18 Crimes and Criminal Procedure, [18 U.S.C. 1001](#).

11. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

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b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#);

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#); or

d. Informing any other person about their rights under the DBA, Related Acts, this part, or [29 CFR part 1](#) or [3](#).

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* \$31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

a. *Withholding process.* The FHWA or the contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for any unpaid wages; monetary relief, including interest; and liquidated damages required by the clauses set forth in this

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section on this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract subject to the Contract Work Hours and Safety Standards Act that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to the Contract Work Hours and Safety Standards Act and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

(1) A contractor's surety(ies), including without limitation performance bond sureties and payment bond sureties;

(2) A contracting agency for its reprocurement costs;

(3) A trustee(s) (either a court-appointed trustee or a U.S. trustee, or both) in bankruptcy of a contractor, or a contractor's bankruptcy estate;

(4) A contractor's assignee(s);

(5) A contractor's successor(s); or

(6) A claim asserted under the Prompt Payment Act, [31U.S.C. 3901](#)–3907.

4. Subcontracts. The contractor or subcontractor must insert in any subcontracts the clauses set forth in paragraphs 1. through 5. of this section and a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor is responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs 1. through 5. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower- tier subcontractors, and associated liquidated damages and may be subject to debarment, as appropriate.

5. Anti-retaliation. It is unlawful for any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, or to cause any person to discharge, demote, intimidate, threaten, restrain, coerce, blacklist, harass, or in any other manner discriminate against, any worker or job applicant for:

a. Notifying any contractor of any conduct which the worker reasonably believes constitutes a violation of the Contract Work Hours and Safety Standards Act (CWHSSA) or its implementing regulations in this part;

b. Filing any complaint, initiating or causing to be initiated any proceeding, or otherwise asserting or seeking to assert on behalf of themselves or others any right or protection under CWHSSA or this part;

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under

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CWHSSA or this part; or

- d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term "perform work with its own organization" in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
- (2) the prime contractor remains responsible for the quality of the work of the leased employees;
- (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
- (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish
(a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own

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organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long- standing interpretation of 23 CFR 635.116).
5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal- aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and

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similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of \$150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X.CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any

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other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1. Instructions for Certification – First Tier Participants:

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 180.300.

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h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all

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judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all

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solicitations for lower tier covered transactions exceeding the \$25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (<https://www.sam.gov/>), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

**4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--
Lower Tier Participants:**

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

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

* * * * *

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XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent

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such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B) This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

- a. To the extent that qualified persons regularly residing in the area are not available.
- b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.
- c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ

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persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

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[SP0F0-000150-01](#)

July 17, 2017

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE
EQUAL EMPLOYMENT OPPORTUNITY (EXECUTIVE ORDER 11246)**

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.
2. The goals for female and minority participation, expressed in percentage terms of the Contractor's aggregate work force in each trade on all construction works in the covered area, are as follows:

Females- 6.9%
Minorities - See Attachment "A"

The goals are applicable to all the Contractor's construction work performed in the covered area, whether or not it is Federal or federally assisted. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications, set forth in 41 CFR 60-4.3(a), and its efforts to meet the goals established herein. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the Contract, the Executives Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within 10 working days the award of any construction subcontract in excess of \$10,000 at any tier for construction works under this contract. The notification shall list the name, address and telephone number of the subcontractor, employer identification number, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontract and the geographical area in which the Contract is to be performed.

**STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY
CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)**

1. As, used in this provision:
 - a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
 - b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority;
 - c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U. S. Treasury Department Form 941;
 - d. "Minority" includes:

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- (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
 - (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
 - (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
 - (iv) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation.
 3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U. S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors and Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.
 4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7 a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction Contractors performing construction work in geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.
 5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.
 6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U. S. Department of Labor.
 7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

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- a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, shall assign two or more women to each construction project. The Contractor shall specifically ensure that all foreman, superintendents and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites in such facilities.
- b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.
- c. Maintain a current file of the names, addresses and telephone numbers of each minority and female off the street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.
- d. Provide immediate written notification to the Director when the union or unions which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or women sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.
- e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources complied under 7b above.
- f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper or annual report; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.
- g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents and General Foremen prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed and disposition of the subject matter.
- h. Disseminate the Contractor's EEO policy externally by including in any news media advertisement that the Contractor is "An Equal Opportunity Employer" for minority and female, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.
- i. Directs its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by recruitment source,

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the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures and tests to be used in the selection process.

- j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of Contractor's workforce.
 - k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.
 - l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for such opportunities through appropriate training or other means.
 - m. Ensure that seniority practices, job classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.
 - n. Ensure that all facilities and company activities are nonsegregated, except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.
 - o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.
 - p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.
8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.
9. Goals for women have been established. However, the Contractor IS required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner, that is even though the Contractor has achieved its goals for women, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized.
10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.
11. The Contractor shall not enter into any Subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.
12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as

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may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director will proceed in accordance with 41 CFR 60-4.8.
14. The Contractor shall designate and make known to the Department a responsible official as the EEO Officer to monitor all employment related activity, to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, Contractors will not be required to maintain separate records.
15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

ATTACHMENT A

<u>Economic Area</u>	<u>Goal (Percent)</u>
Virginia:	
021 Roanoke-Lynchburg, VA	
SMSA Counties:	
4640 Lynchburg, VA	19.3
VA Amherst; VA Appomattox; VA Campbell; VA Lynchburg	
6800 Roanoke, VA	10.2
VA Botetourt; VA Craig; VA Roanoke; VA Roanoke City; VA Salem	
Non-SMSA Counties	12.0
VA Alleghany; VA Augusta; VA Bath; VA Bedford; VA Bland; VA Carroll;	
VA Floyd; VA Franklin; VA Giles; VA Grayson; VA Henry; VA Highland;	
VA Montgomery; VA Nelson; VA Patrick; VA Pittsylvania; VA Pulaski;	
VA Rockbridge; VA Rockingham; VA Wythe; VA Bedford City; VA Buena	
Vista:	
VA Clifton Forge; VA Covington; VA Danville; VA Galax; VA Harrisonburg;	
VA Lexington; VA Martinsville; VA Radford; VA Staunton; VA Waynesboro;	
WV Pendleton.	
022 Richmond, VA	
SMSA Counties:	
6140 Petersburg - Colonial Heights - Hopewell, VA	30.6
VA Dinwiddie; VA Prince George; VA Colonial Heights; VA Hopewell;	
VA Petersburg.	
6760 Richmond, VA	24.9
VA Charles City; VA Chesterfield; VA Goochland, VA Hanover; VA	
Henrico; VA New Kent; VA Powhatan; VA Richmond.	

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[SP102-000120-00 \[formerly SP102-010100-00\]](#)

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.

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[SP102-000510-02](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
USE OF DOMESTIC MATERIAL

December 19, 2018

SECTION 102.05 PREPARATION OF BID of the Specifications is amended to include the following:

In accordance with the provisions of Section 635.410(b) of Title 23 CFR, hereinafter referred to as "Buy America", except as otherwise specified, all iron and steel (including miscellaneous items such as fasteners, nuts, bolts and washers) to be permanently incorporated for use on federal aid projects shall be produced in the United States of America. This applies to any iron or steel item brought onto the project, regardless of the percentage of iron or steel that exists in the pay item or in the final form they take; however, electrical components (i.e., combination products such as signal controllers and similar products which are only sold as a unit) are not subject to Buy America provisions if the product as purchased by the Contractor is less than 50% steel and iron. "Produced in the United States of America" means all manufacturing processes occur in one of the 50 United States, the District of Columbia, Puerto Rico or in the territories and possessions of the United States. "Manufacturing processes" are defined as any process which alters or modifies the chemical content, physical size or shape, or final finish of iron or steel material (such as rolling, extruding, bending, machining, fabrication, grinding, drilling, finishing, or coating). For the purposes of satisfying this requirement "coating" is defined as the application of epoxy, galvanizing, painting or any other such process that protects or enhances the value of the material to which the coating is applied. Non-iron and non-steel materials used in the coating process do not need to be produced in the United States as long as the application of the coating occurred in the United States. The manufacturing process is considered complete when the resultant product is ready for use as an item in the project (e.g. fencing, posts, girders, pipe, manhole covers, etc.) or is incorporated as a component of a more complex product by means of further manufacturing. Final assembly of a product may occur outside of the United States of America provided no further manufacturing processes take place.

For the purposes of this provision, all steel or iron material meeting the criteria as produced in the United States of America will be considered as "Domestic Material." All iron and steel items not meeting the criteria as produced in the United States of America will be considered "Non-Domestic Material."

A minimal amount of "Non-Domestic" steel or iron material may be incorporated in the permanent work on a federal-aid contract provided that the cost of such materials or products does not exceed one-tenth of one percent of the Contract amount or \$2500, whichever is greater. The cost of the "Non-Domestic Material" is defined as its monetary value delivered to the job site and supported by invoices or bill of sale to the Contractor. This delivered-to-site cost must include transportation, assembly, installation and testing.

Buy America provisions do not apply to iron or steel products used temporarily in the construction of a project such as temporary sheet piling, temporary bridges, steel scaffolding, falsework or such temporary material or product or material that remains in place for the Contractor's convenience.

Raw materials such as iron ore, pig iron, processed, pelletized and reduced iron ore, waste products (including scrap, that is, steel or iron no longer useful in its present form from old automobiles, machinery, pipe, railroad rail, or the like and steel trimmings from mills or product manufacturing) and other raw materials used in the production of steel and/or iron products may, however, be imported. Extracting, handling, or crushing the raw materials which are inherent to the transporting the materials for later use in the manufacturing process are exempt from Buy America.

Any items containing foreign source steel or iron billet shall be considered "Non-Domestic Materials." Additionally, iron or steel ingots or billets produced in the United States, but shipped outside the United

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States of America for any manufacturing process and returned for permanent use in a project shall be considered "Non-Domestic Materials."

Waivers:

The process for receiving a waiver for Buy America provisions is identified in 23 CFR 635.410(c). The Contractor shall not anticipate that any Buy America provisions will be waived.

Certification of Compliance:

The Contractor is required to submit a Certificate of Compliance prior to incorporating any items containing iron or steel items into the project. This shall be accomplished by the Contractor submitting the Form C-76 Certificate of Compliance to the Department when the items are delivered to the project site. The Certification of Compliance will certify whether the items are considered "Domestic Material" or "Non-Domestic Material" as referenced in this Special Provision. The certificate must be signed and dated by the Prime Contractor's Superintendent and include a Buy America Submittal Number. The Buy America Submittal Number is simply the Contractor's project specific sequential numbering system that will allow the Contractor and Department to track the total number of certificates provided and the individual items containing iron or steel associated with each certificate.

Supporting Documentation:

Supporting documentation to demonstrate compliance with Buy America provisions (such as mill test reports manufacturer/supplier certifications, etc.) shall be organized by Buy America Submittal Number and maintained by the Contractor from the date of delivery until three years after project acceptance. The Contractor may maintain this documentation electronically or in paper format.

The Department or FHWA may review the Contractor's supporting documentation to verify compliance with the Buy America provisions at any time. Supporting documentation shall be provided within five business days of the request. The burden of proof to meet the Buy America provisions rests with the Contractor. If the supporting documentation does not undeniably demonstrate to FHWA or the Department that the "Domestic Materials" identified in the Certificates of Compliance were produced in the United States of America, then the Department may deduct payment from moneys due the Contractor for the value of the iron and steel that did not meet the Buy America provisions.

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SP107-000120-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**ELECTRONIC SUBMISSION OF PAYROLLS AND
DBE SUBCONTRACTOR PAYMENT FOR FEDERALLY FUNDED PROJECTS**

January 21, 2020

I. GENERAL REQUIREMENTS

The Contractor and all Subcontractors shall submit all certified payrolls and subcontractor payments, including those made to Disadvantaged Business Enterprises (DBEs), using the AASHTOWare Project Civil Rights and Labor (CRL) system in accordance with this specification. The term “subcontractor” shall include all vendors subject to FHWA-1273.

The electronic payroll submission and subcontractor payments through the CRL system replaces the paper submission of the C-57 and C-63 forms otherwise required by Sections 107.14(m) and 107.15 of the Specifications.

II. SYSTEM REQUIREMENTS

The CRL system is web based. The Contractor shall ensure compatibility with the CRL system as necessary to successfully execute the Work. The CRL system works with Internet Explorer 11 or Google Chrome and requires the ability to read, create, and edit spreadsheets in the .xlsx file format.

The Contractor and Subcontractors will be granted access after submitting forms ITD-35 and ITD-36 for each individual user who requires an account. Only those firms with a required contract in the system should submit the Request Access form. The software is configured so that each firm will only be able see their specific contract information. There will only be one single sign-on process for multiple application access within the Department.

VDOT will provide access and link and a log-in identification (ID) for the CRL system to designated employees of the Contractor and approved subcontractors entered into the system for the contract. The log-in ID and password are unique to the designated employee and must not be shared with other employees. There are no fees associated with accessing the system or to receive a login ID.

The low bidders on Contract awards will be contacted by the State Civil Rights Manager after letting to begin the process for accessing the CRL system for them and their subcontractors. The State Civil Rights Manager will provide all training for entry of certified payrolls and DBE subcontractor payments in CRL.

The CRL website is located at:

https://www.virginiadot.org/business/aashtoware_project_civil_rights_and_labor%E2%84%A2_crl_management_system.asp.

III. PROCEDURES

1. CERTIFIED PAYROLL & SUBCONTRACTOR DATA SUBMISSION FOR FEDERALLY FUNDED PROJECTS

The Contractor and all subcontractors shall use the CRL system to provide VDOT electronic certified payrolls. The Contractor shall ensure that all subcontractors submit their certified payrolls into the system electronically.

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Electronic submittal of certified payrolls can be submitted using the following methods:

- Manually add, copy, or modify data into CRL;
- Import payroll data with the CRL payroll spreadsheet XML converter tool available at <https://xml.cloverleaf.net/spreadsheet/>
- Convert payroll system program data to Payroll XML and import it into the CRL system. Information on how to convert to payroll program data to an XML file can be located at <https://xml.cloverleaf.net/resourcekit/>;
- The Contractor may send, on behalf of a subcontractor, payroll payment information based on a signed, certified paper payroll through the Electronica Proxy Payroll Process. Import payroll data with the CRL payroll spreadsheet XML converter tool available at <https://xml.cloverleaf.net/spreadsheet/>.

The District Civil Rights Manager or Engineer may require at any time, in writing, certified paper copies of the payrolls conforming to FHWA 1273 from any or all contractors working on the project.

2. DBE PAYMENT SUBMISSION REQUIREMENTS FOR FEDERALLY FUNDED PROJECTS

The Contractor shall post payment to DBE firms listed on their C-111 towards meeting their contract DBE goal per Federal DBE regulations. The Contractor shall submit, and shall require each Subcontractor to provide, payment amounts relative to all DBE involvement on the project during the life of the Contract in which participation occurs, and verification is available. The Contractor shall post payments to DBEs in CRL within 7 days after receipt of payment from the Department. Subcontractors shall post payments to DBEs in CRL within 7 days after receipt of payment from the Contractor.

The District Civil Rights Manager may require at any time, in writing, proof of payments from any or all subcontractors working on the project related to contractor DBE payments. The Contractor shall enter all payments made to all subcontractors into the Payment area of CRL for each estimate.

DBE Payments shall be entered only for those business entities that are being utilized in conjunction with performing a Commercial Useful Function (CUF).

More information about the CRL system can be located at <https://www.aashtowareproject.org/index.php>.

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SP107-001510-02

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
DBE REQUIREMENTS

August 18, 2017

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

Section 107.15 – Use of Small, Women-Owned, and Minority-Owned Business is renamed **Use of Disadvantaged Business Enterprises (DBEs)** and replaced with the following:

(a) Disadvantaged Business Enterprise (DBE) Program Requirements

Any Contractor, subcontractor, supplier, DBE firm, and contract surety involved in the performance of work on a federal-aid contract shall comply with the terms and conditions of the United States Department of Transportation (USDOT) DBE Program as the terms appear in Part 26 of the Code of Federal Regulations (49 CFR as amended), the USDOT DBE Program regulations; and the Virginia Department of Transportation's (VDOT or the Department) Road and Bridge Specifications and DBE Program rules and regulations.

For the purposes of this provision, Contractor is defined as the Prime Contractor of the Contract; and sub-contractor is defined as any DBE supplier, manufacturer, or subcontractor performing work or furnishing material, supplies or services to the Contract. The Contractor shall physically include this same contract provision in every supply or work/service subcontract that it makes or executes with a subcontractor having work for which it intends to claim credit.

In accordance with 49 CFR Part 26 and VDOT's DBE Program requirements, the Contractor, for itself and for its subcontractors and suppliers, whether certified DBE firms or not, shall commit to complying fully with the auditing, record keeping, confidentiality, cooperation, and anti-intimidation or retaliation provisions contained in those federal and state DBE Program regulations. By bidding on this contract, and by accepting and executing this contract, the Contractor agrees to assume these contractual obligations and to bind the Contractor's subcontractors contractually to the same at the Contractor's expense.

The Contractor or subcontractor shall not discriminate on the basis of race, color, sex, sexual orientation, gender identity, or national origin in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR Part 26 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 will result in the termination of this contract or other such remedy, as VDOT deems appropriate.

All administrative remedies noted in this provision are automatic unless the Contractor exercises the right of appeal within the required timeframe(s) specified herein. Appeal requirements, processes, and procedures shall be in accordance with guidelines stated herein and current at the time of the proceedings. Where applicable, the Department will notify the Contractor of any changes to the appeal requirements, processes, and procedures after receiving notification of the Contractor's desire to appeal.

All time frames referenced in this provision are expressed in business days unless otherwise indicated. Should the expiration of any deadline fall on a weekend or holiday, such deadline will automatically be extended to the next normal business day.

(b) DBE Certification

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The only DBE firms eligible to perform work on a federal-aid contract for DBE contract goal credit are firms certified as Disadvantaged Business Enterprises by the Virginia Department of Small Business and Supplier Diversity (DSBSD) or the Metropolitan Washington Airports Authority (MWAA) in accordance with federal and VDOT guidelines. DBE firms must be certified in the specific work listed for DBE contract goal credit. A directory listing of certified DBE firms can be obtained from the Virginia Department of [Small Business and Supplier Diversity website: www.sbsd.virginia.gov](http://www.sbsd.virginia.gov).

(c) Bank Services

The Contractor and each subcontractor are encouraged to use the services of banks owned and controlled by socially and economically disadvantaged individuals. Such banking services and the fees charged for services typically will not be eligible for DBE Program contract goal credit. Such information is available from the VDOT's Internet Civil Rights Division website: http://www.virginiadot.org/business/resources/Civil_Rights/VDOT_DBE_Program_Plan.pdf

(d) DBE Program-Related Certifications Made by Bidders\Contractors

By submitting a bid and by entering into any contract on the basis of that bid, the bidder/Contractor certifies to each of the following DBE Program-related conditions and assurances:

1. That the management and bidding officers of its firm agree to comply with the bidding and project construction and administration obligations of the USDOT DBE Program requirements and regulations of 49 CFR Part 26 as amended, and VDOT's Road and Bridge Specifications and DBE Program requirements and regulations.
2. Under penalty of perjury and other applicable penal law that it has complied with the DBE Program requirements in submitting the bid, and shall comply fully with these requirements in the bidding, award, and execution of the Contract.
3. To ensure that DBE firms have been given full and fair opportunity to participate in the performance of the Contract. The bidder certifies that all reasonable steps were, and will be, taken to ensure that DBE firms had, and will have, an opportunity to compete for and perform work on the Contract. The bidder further certifies that the bidder shall not discriminate on the basis of race, color, age, sex, sexual orientation, gender identity, or national origin in the performance of the Contract or in the award of any subcontract. Any agreement between a bidder and a DBE whereby the DBE promises not to provide quotations for performance of work to other bidders is prohibited.
4. As a bidder, good faith efforts were made to obtain DBE participation in the proposed contract at or above the goal for DBE participation established by VDOT. 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 DBE participation. The bidder, by signing and submitting its bid, certifies the DBE participation information submitted within the stated time thereafter is true, correct, and complete, and that the information provided includes the names of all DBE firms that will participate in the Contract, the specific line item(s) that each listed DBE firm will perform, and the creditable dollar amounts of the participation of each listed DBE. The specific line item must reference the VDOT line number and item number contained in the proposal.
5. The bidder further certifies, by signing its bid, it has committed to use each DBE firm listed for the specific work item shown to meet the Contract goal for DBE participation. Award of the Contract will be conditioned upon meeting these and other listed requirements of 49 CFR Part 26.53 and the contract documents. 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 DBEs as potential subcontractors. The bidder shall contact DBEs to solicit their interest, capability, and prices in

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sufficient time to allow them to respond effectively, and shall retain on file proper documentation to substantiate its good faith efforts. Award of the Contract will be conditioned upon meeting these and other listed requirements of 49 CFR Part 26.53 and the contract documents.

6. Once awarded the Contract, the Contractor shall make good faith efforts to utilize DBE firms to perform work designated to be performed by DBEs at or above the amount or percentage of the dollar value specified in the bidding documents. Further, the Contractor understands it shall not unilaterally terminate, substitute for, or replace any DBE firm that was designated in the executed contract in whole or in part with another DBE, any non-DBE firm, or with the Contractor's own forces or those of an affiliate of the Contractor without the prior written consent of VDOT as set out within the requirements of this provision.
7. Once awarded the contract, 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 DBE program as required by 49 CFR Part 26 for DBEs. The designation and identity of this officer need be submitted only once by the Contractor during any twelve (12) month period at the preconstruction conference for the first contract the Contractor has been awarded during that reporting period. The Department will post such information for informational and administrative purposes at VDOT's Internet Civil Rights Division website.
8. Once awarded the Contract, the Contractor shall comply fully with all regulatory and contractual requirements of the USDOT DBE Program, and that each DBE firm participating in the Contract shall fully perform the designated work items with the DBE's own forces and equipment under the DBE's direct supervision, control, and management. Where a contract exists and where the Contractor, DBE firm, or any other firm retained by the Contractor has failed to comply with federal or VDOT DBE Program regulations and/or their requirements on that contract, VDOT has the authority and discretion to determine the extent to which the DBE contract regulations and/or 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.
9. In the event a bond surety assumes the completion of work, if for any reason VDOT has terminated the prime Contractor, the surety shall be obligated to meet the same DBE contract terms and requirements as were required of the original prime Contractor in accordance with the requirements of this specification.

(e) Disqualification of Bidder

Bidders may be disqualified from bidding for failure to comply with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge Specifications.

(f) Bidding Procedures

The following bidding procedures shall apply to the Contract for DBE Program compliance purposes:

1. **Contract Goal, Good Faith Efforts Specified:** All bidders evidencing the attainment of DBE goal commitment equal to or greater than the required DBE goal established for the project must submit completed Form C-111, Minimum DBE Requirements, and Form C-48, Subcontractor/Supplier Solicitation and Utilization, as a part of the bid documents.

Form C-111 may be submitted electronically or may be faxed to the Department, but in no case shall the bidder's Form C-111 be received later than 10:00 a.m. the next business day after the time stated in the bid proposal for the receipt of bids. Form C-48 must be received within ten (10) business days after the bid opening.

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If, at the time of submitting its bid, the bidder knowingly cannot meet or exceed the required DBE contract goal, it shall submit Form C-111 exhibiting the DBE participation it commits to attain as a part of its bid documents. The bidder shall then submit Form C-49, DBE Good Faith Efforts Documentation, within two (2) business days after the bid opening.

The lowest responsive and responsible bidder must submit its properly executed Form C-112, Certification of Binding Agreement, within three (3) business days after the bids are received. DBEs bidding as prime contractors are not required to submit Form C-112 unless they are utilizing other DBEs as subcontractors.

If, after review of the apparent lowest bid, VDOT determines the DBE requirements have not been met, the apparent lowest successful bidder must submit Form C-49, DBE Good Faith Efforts Documentation, which must be received by the Contract Engineer within two (2) business days after official notification of such failure to meet the aforementioned DBE requirements.

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

Instructions for submitting Form C-111 can be obtained from the VDOT website at:
http://www.virginiadot.org/business/resources/const/Exp_DBE_Commitments.pdf

2. **Bid Rejection:** The failure of a bidder to submit the required documentation within the timeframes specified in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision may be cause for rejection of that bidder's bid.

If the lowest bidder is rejected for failure to submit the required documentation in the specified time frames, the Department may award the work to the next lowest bidder, or re-advertise the proposed work at a later date or proceed otherwise as determined by the Commonwealth.

3. **Good Faith Efforts Described:** In order to award a contract to a bidder that has failed to meet DBE contract goal requirements, VDOT will determine if the bidder's efforts were adequate good faith efforts, and if given all relevant circumstances, those efforts were made actively and aggressively to meet the DBE requirements. Efforts to obtain DBE participation are not good faith efforts if they could not reasonably be expected to produce a level of DBE participation sufficient to meet the DBE Program and contract goal requirements.

Good faith efforts may be determined through use of the following list of the types of actions the bidder may make to obtain DBE 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 through reasonable and available means, such as but not limited to, attendance at pre-bid meetings, advertising, and written notices to DBEs who have the capability to perform the work of the Contract. Examples include: advertising in at least one daily/weekly/monthly newspaper of general circulation, as applicable; phone contact with a completely documented telephone log, including the date and time called, contact person, or voice mail status; and internet contacts with supporting documentation, including dates advertised. The bidder shall solicit this interest no less than five (5) business days before the bids are due so that the solicited DBEs have enough time to reasonably respond to the solicitation. The bidder shall determine with certainty if the DBEs are interested by taking reasonable steps to follow up initial solicitations as evidenced by documenting such efforts as requested on Form C-49, DBE Good Faith Efforts Documentation.
- b. Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved. This includes, where appropriate, breaking out

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contract work items into economically feasible units to facilitate DBE 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 DBEs with adequate information about the plans, specifications, and requirements of the Contract in a timely manner, which will assist the DBEs in responding to a solicitation;
- d. Negotiating for participation in good faith with interested DBEs;
 - (1) Evidence of such negotiation shall include the names, addresses, and telephone numbers of DBEs that were considered; dates DBEs 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 DBE participation seems likely, evidence as to why additional agreements could not be reached for DBEs to perform the work;
 - (2) A bidder using good business judgment should consider a number of factors in negotiating with subcontractors, including DBE 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 DBEs is not sufficient reason for a bidder's failure to meet the Contract goal for DBE 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 to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make diligent good faith efforts. Bidders are not, however, required to accept higher quotes from DBEs if the price difference can be shown by the bidder to be excessive, unreasonable, or greater than would normally be expected by industry standards;
- e. A bidder cannot reject a DBE as being unqualified without sound reasons based on a thorough investigation of the DBE's capabilities. The DBE's standing within its industry, membership in specific groups, organizations, associations, and political or social affiliations, and union vs. 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 DBE participation;
- f. Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by VDOT or by the bidder/Contractor;
- g. Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services subject to the restrictions contained in these provisions;
- h. Effectively using the services of appropriate personnel from VDOT and from DMBE; available minority/women community or minority organizations; contractors' groups; local, state, and Federal minority/ women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and utilization of qualified DBEs.

(g) Documentation and Administrative Reconsideration of Good Faith Efforts

During Bidding: As described in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision, the bidder must provide Form C-49, DBE Good Faith Efforts Documentation, of its efforts made to meet the DBE contract goal as proposed by VDOT within the time frame specified in this provision. The means of transmittal and the risk for timely receipt of this information shall be

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the responsibility of the bidder. The bidder shall attach additional pages to the certification, if necessary, in order to fully detail specific good faith efforts made to obtain the DBE firms participation in the proposed contract work.

However, regardless of the DBE contract goal participation level proposed by the bidder or the extent of good faith efforts shown, all bidders shall timely and separately file their completed and executed forms C-111, C-112, C-48, and C-49, as aforementioned, or face potential bid rejection.

If a bidder does not submit its completed and executed forms C-111, or C-112, when required by this Special Provision, the bidder's bid will be considered non-responsive and may be rejected.

Where the Department upon initial review of the bid results determines the apparent low bidder has failed or appears to have failed to meet the requirements of the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision and has failed to adequately document that it made a good faith effort to achieve sufficient DBE participation as specified in the bid proposal, that firm upon notification of the Department's initial determination will be offered the opportunity for administrative reconsideration before VDOT rejects that bid as non-responsive. The bidder shall address such request for reconsideration in writing to the Contract Engineer within five (5) business days of receipt of notification by the Department and shall be given the opportunity to discuss the issue and present its evidence in person to the Administrative Reconsideration Panel. The Administrative Reconsideration Panel will be made up of VDOT Division Administrators or their designees, none of who took part in the initial determination that the bidder failed to make the goal or make adequate good faith efforts to do so. After reconsideration, VDOT shall notify the bidder in writing of its decision and explain the basis for finding that the bidder did or did not meet the goal or make adequate good faith efforts to do so.

If, after reconsideration, the Department determines the bidder has failed to meet the requirements of the Contract goal and has failed to make adequate good faith efforts to achieve the level of DBE participation as specified in the bid proposal, the bidder's bid will be rejected.

If sufficient documented evidence is presented to demonstrate that the apparent low bidder made reasonable good faith efforts, the Department will award the Contract and reduce the DBE requirement to the actual commitment identified by the lowest successful bidder at the time of its bid. The Contractor is still encouraged to seek additional DBE participation during the life of the Contract.

However, such action will not relieve the Contractor of its responsibility for complying with the reduced DBE requirement during the life of the Contract or any administrative sanctions as may be appropriate.

During the Contract: If a DBE, through no fault of the Contractor, is unable or unwilling to fulfill his agreement with the Contractor, the Contractor shall immediately notify the Department and provide all relevant facts. If a Contractor relieves a DBE subcontractor of the responsibility to perform work under their subcontract, the Contractor is encouraged to take the appropriate steps to obtain a DBE to perform an equal dollar value of the remaining subcontracted work. In such instances, the Contractor is expected to seek DBE participation towards meeting the goal during the performance of the Contract.

If the Contractor fails to conform to the schedule of DBE participation 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 preceding actions, the Contractor and any aforementioned affiliates may be subject to disallowance of DBE credit until such time as conformance with the schedule of DBE participation is achieved.

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Project Completion: If the Contractor fails upon completion of the project to meet the required participation, the Contractor and any prime contractual affiliates, as in the case of a joint venture, may be enjoined from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects for a period of 90 days.

Prior to enjoinder from bidding or denial to participate as a subcontractor for failure to comply with participation requirements, as provided hereinbefore, the Contractor may submit documentation to the State Construction Engineer to substantiate that failure was due solely to quantitative underrun(s), elimination of items subcontracted to DBEs, or to circumstances beyond their control, and that all feasible means have been used to obtain the required participation. The State Construction Engineer upon verification of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract.

If it is determined that the aforementioned documentation is insufficient or the failure to meet required participation is due to other reasons, the Contractor may request an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. The decision of the Administrative Reconsideration Panel shall be administratively final. If the decision is made to enjoin the Contractor from bidding on other VDOT work as described herein, the enjoinder period will begin upon the Contractor's failure to request a hearing within the designated time frame or upon the Administrative Reconsideration Panel's decision to enjoin, as applicable.

(h) DBE Participation for Contract Goal Credit

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 Contract or Subcontract awarded to the DBE will be counted toward meeting the Contract goal for DBE participation in accordance with the **DBE Program-Related Certifications Made by Bidders\Contractors** section of this Special Provision for the value of the work, goods, or services that are actually performed or provided by the DBE firm itself or subcontracted by the DBE to other DBE firms.
3. When a DBE performs work as a participant in a joint venture with a non-DBE firm, the Contractor may count toward the DBE goal only that portion of the total dollar value of the Contract equal to the distinctly defined portion of the Contract work that the DBE has performed with the DBE'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 DBE firm and a non-DBE firm to coordinate Department review and approval of the joint venture's organizational structure and proposed operation where the Contractor seeks to claim the DBE's credit toward the DBE contract goal.
4. When a DBE subcontracts part of the work of the Contract to another firm, the value of that subcontracted work may be counted toward the DBE contract goal only if the DBE's subcontractor at a lower tier is a certified DBE. Work that a DBE subcontracts to either a non-DBE firm or to a non-certified DBE firm will not count toward the DBE contract goal. The cost of supplies and equipment a DBE subcontractor purchases or leases from the prime Contractor or the prime's affiliated firms will not count toward the Contract goal for DBE participation.
5. The Contractor may count expenditures to a DBE subcontractor toward the DBE contract goal only if the DBE performs a Commercially Useful Function (CUF) on that contract.
6. A Contractor may not count the participation of a DBE subcontractor toward the Contractor's final compliance with the DBE contract goal obligations until the amount being counted has actually been paid to the DBE. A Contractor may count sixty (60) percent of its expenditures actually paid for materials and supplies obtained from a DBE certified as a regular dealer, and

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one hundred (100) percent of such expenditures actually paid for materials and supplies obtained from a certified DBE manufacturer.

- a. For the purposes of this Special Provision, a regular dealer is defined as a firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials, supplies, articles, or equipment required and used under the Contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business. To be a regular dealer, the DBE firm shall be an established business that regularly engages, as its principal business and under its own name, in the purchase and sale or lease of the products or equipment in question. Packagers, brokers, manufacturers' representatives, or other persons who arrange or expedite transactions will not be considered regular dealers.
- b. A DBE firm may be a regular dealer in such bulk items as petroleum products, steel, cement, gravel, stone, or asphalt without owning, operating, or maintaining a place of business where it keeps such items in stock if the DBE both owns and operates distribution equipment for the products it sells and provides for the Contract work. Any supplementation of a regular dealer's own distribution equipment shall be by a long-term lease agreement and not on an *ad hoc* or contract-by-contract basis to be eligible for credit to meet the DBE contract goal.
- c. If a DBE regular dealer is used for DBE contract goal credit, no additional credit will be given for hauling or delivery to the project site goods or materials sold by that DBE regular dealer. Those delivery costs shall be deemed included in the price charged for the goods or materials by the DBE regular dealer, who shall be responsible for their distribution.
- d. For the purposes of this Special Provision, a manufacturer will be defined as a firm that operates or maintains a factory or establishment that produces on the premises the materials, supplies, articles, or equipment required under the Contract and of the general character described by the project specifications. A manufacturer shall include firms that produce finished goods or products from raw or unfinished material, or purchase and substantially alter goods and materials to make them suitable for construction use before reselling them.
- e. A Contractor may count toward the DBE contract goal the following expenditures to DBE firms that are not regular dealers or manufacturers for DBE program purposes:
 - (1) The entire amount of fees or commissions charged by a DBE firm for providing a bona fide service, such as professional, technical, consultant or managerial services, or for providing bonds or insurance specifically required for the performance of the federal-aid contract, if the fee is reasonable and not excessive or greater than would normally be expected by industry standards for the same or similar services.
 - (2) The entire amount of that portion of the construction contract that is performed by the DBE's own forces and equipment under the DBE's supervision. This includes the cost of supplies and materials ordered and paid for by the DBE for contract work, including supplies purchased or equipment leased by the DBE, except supplies and equipment a DBE subcontractor purchases or leases from the prime Contractor or its affiliates.
- f. A Contractor may count toward the DBE contract goal one hundred (100) percent of the fees paid to a DBE trucker or hauler for the delivery of material and supplies required on the project job site, but not for the cost of those materials or supplies themselves, provided that the trucking or hauling fee is determined by VDOT to be reasonable, as compared with fees customarily charged by non-DBE firms for similar services. A Contractor shall not count costs for the removal or relocation of excess material from or on the job site when the DBE trucking company is not the manufacturer of or a regular dealer in those materials

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and supplies. The DBE trucking firm shall also perform a Commercially Useful Function (CUF) on the project and not operate merely as a pass through for the purposes of gaining credit toward the DBE contract goal. Prior to submitting a bid, the Contractor shall determine, or contact the VDOT Civil Rights Division or its district Offices for assistance in determining, whether a DBE trucking firm will meet the criteria for performing a CUF on the project. See section on **Miscellaneous DBE Program Requirements; Factors used to Determine if a DBE Trucking Firm is Performing a CUF.**

- g. The Contractor will receive DBE contract goal credit for the fees or commissions charged by and paid to a DBE broker who arranges or expedites sales, leases, or other project work or service arrangements provided that those fees are determined by VDOT to be reasonable and not excessive as compared with fees customarily charged by non-DBE firms for similar services. For the purposes of this Special Provision, a broker is defined as a person or firm that regularly engages in arranging for delivery of material, supplies, and equipment, or regularly arranges for the providing of project services as a course of routine business but does not own or operate the delivery equipment necessary to transport materials, supplies, or equipment to or from a job site.

(i) Performing a Commercially Useful Function (CUF)

No credit toward the DBE contract goal will be allowed for contract payments or expenditures to a DBE firm if that DBE firm does not perform a CUF on that contract. A DBE performs a CUF when the DBE is solely responsible for execution of a distinct element of the Contract work and the DBE actually performs, manages, and supervises the work involved with the firm's own forces or in accordance with the provisions of the **DBE Participation for Contract Goal Credit** section of this Special Provision. To perform a CUF the DBE 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 DBE's own forces and equipment, and paying for those materials and supplies. The amount the DBE firm is to be paid under the Contract shall be commensurate with the work the DBE actually performs and the DBE credit claimed for the DBE's performance.

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

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

DBEs Must Perform a Useful and Necessary Role in Contract Completion: A DBE does not perform a commercially useful function if the DBE'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 DBE participation.

DBEs Must Perform The Contract Work With Their Own Workforces: If a DBE does not perform and exercise responsibility for at least thirty (30) percent of the total cost of the DBE's contract with the DBE's own work force, or the DBE 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 involve, VDOT will

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presume that the DBE is not performing a CUF and such participation will not be counted toward the Contract goal.

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

(j) Verification of DBE Participation and Imposed Damages

Within fourteen days after contract execution, the Contractor shall submit to the Responsible Engineer, with a copy to the District Civil Rights Office (DCRO), a fully executed subcontract agreement for each DBE used to claim credit in accordance with the requirements stated on Form C-112. The subcontract agreement 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 DBE subcontractor. Because of the commercial damage that the Contractor and its DBE subcontractor could suffer if their subcontract pricing, terms, and conditions were known to competitors, the Department staff will treat subcontract agreements as proprietary Contractor trade secrets with regard to Freedom of Information Act requests. In lieu of subcontract agreements, purchase orders may be submitted for haulers, suppliers, and manufacturers. These too, will be treated confidentially and protected. Such purchase orders must contain, as a minimum, the following information: authorized signatures of both parties; description of the scope of work to include contract item numbers, quantities, and prices; and required federal contract provisions.

The Contractor shall also furnish, and shall require each subcontractor to furnish, information relative to all DBE involvement on the project for each quarter during the life of the Contract in which participation occurs and verification is available. The information shall be indicated on Form C-63, DBE and SWAM Payment Compliance Report. The department reserves the right to request proof of payment via copies of cancelled checks with appropriate identifying notations. Failure to provide Form C-63 to the District Civil Rights Office (DCRO) within five (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 DBE firms provided by the Contractor on the various forms indicated in this Special Provision shall be exactly as shown on the DMBE's or MWAA's latest list of certified DBEs. Signatures on all forms indicated herein shall be those of authorized representatives of the Contractor as shown on the Prequalification Application, Form C-32 or the Prequalification/Certification Renewal Application, Form C-32A, or authorized by letter from the Contractor. If DBE firms are used which have not been previously documented with the Contractor's bid and for which the Contractor now desires to claim credit toward the project goal, the Contractor shall be responsible for submitting necessary documentation in accordance with the procedures stipulated in this Special Provision to cover such work prior to the DBE beginning work.

Form C-63 can be obtained from the VDOT website at: <http://vdotforms.vdot.virginia.gov/>

The Contractor shall submit to the Responsible Engineer its progress schedule with a copy to the DCRO, as required by Section 108.03 of the Specifications 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 DBE activities relative to work activities of the Contractor's progress schedule, including the approximate start times and durations of all DBE participation to be claimed for credit that shall result in full achievement of the DBE goal required in the Contract.

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On contracts awarded on the basis of good faith efforts, narratives or other agreeable format of schedule information requirements and subsequent progress determination shall be based on the commitment information shown on the latest Form C-111 as compared with the appropriate Form C-63.

Prior to beginning any major component or quarter of the work, as applicable, in which DBE work is to be performed, the Contractor shall furnish a revised Form C-111 showing the name(s) and certification number(s) of any current DBEs not previously submitted who will perform the work during that major component or quarter for which the Contractor seeks to claim credit toward the Contract DBE goal. The Contractor shall obtain the prior approval of the Department for any assistance it may provide to the DBE beyond its existing resources in executing its commitment to the work in accordance with the requirements listed in the **Good Faith Efforts Described** section of this Special Provision. If the Contractor is aware of any assistance beyond a DBE'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.

If the Contractor fails to comply with correctly completing and submitting any of the required documentation requested 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 VDOT. Where such failures to provide required submittals or documentation are repeated the Department will move to enjoin 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.

(k) Documentation Required for Semi-final Payment

On those projects nearing completion, the Contractor must submit Form C-63 marked "Semi-Final" within twenty (20) days after the submission of the last regular monthly progress estimate to the DCRO. The form must include each DBE used on the Contract work and the work performed by each DBE. The form shall include the actual dollar amount paid to each DBE 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. VDOT will use this certification and other information available to determine applicable DBE credit allowed to date by VDOT and the extent to which the DBEs were fully paid for that work. The Contractor shall acknowledge by the act of filing the form that the information is supplied to obtain payment regarding a federal participation contract. A letter of certification, signed by both the prime Contractor and appropriate DBEs, will accompany the form, indicating the amount, including any retainage, if present, that remains to be paid to the DBE(s).

(l) Documentation Required for Final Payment

On those projects that are complete, the Contractor shall submit a final Form C-63 marked "Final" to the DCRO, within thirty (30) days of the final estimate. The form must include each DBE used on the Contract and the work performed by each DBE. The form shall include the actual dollar amount paid to each DBE for the creditable work on the Contract. VDOT will use this form and other information available to determine if the Contractor and DBEs have satisfied the DBE contract 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 payment regarding a federal participation contract.

(m) Prompt Payment Requirements

The Contractor shall make prompt and full payment to the subcontractor(s) of any retainage held by the prime Contractor after the subcontractor's work is satisfactorily completed.

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For purposes of this Special Provision, a subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished, documented, and accepted as required by the contract documents by VDOT. When VDOT has made partial acceptance of a portion of the prime contract, the Department will consider the work of any subcontractor covered by that partial acceptance to be satisfactorily completed. Payment will be made in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

Upon VDOT's payment of 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 that portion of the work satisfactorily completed and accepted by the Department. For the purposes of this Special Provision, payment of the subcontractor's portion of the work shall mean the Contractor has issued payment in full, less agreed upon retainage, if any, to the subcontractor for that portion of the subcontractor's work that VDOT paid to the Contractor on the monthly progress estimate.

The Contractor shall make payment of the subcontractor's portion of the work within seven (7) days of the receipt of payment from VDOT in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

If the Contractor fails to make payment for the subcontractor's portion of the work within the time frame specified herein, the subcontractor shall contact the Responsible Engineer and the Contractor's bonding company in writing. The bonding company and VDOT will investigate the cause for non-payment and, barring mitigating circumstances that would make the subcontractor ineligible for payment, ensure payment in accordance with the requirements of Section 107.01, Section 109.08, and Section 109.09 of the Specifications.

By bidding on this contract, and by accepting and executing this contract, the Contractor agrees to assume these contractual obligations, and to bind the Contractor's subcontractors contractually to those prompt payment requirements.

Nothing contained herein shall preclude the Contractor from withholding payment to the subcontractor in accordance with the terms of the subcontract in order to protect the Contractor from loss or cost of damage due to a breach of agreement by the subcontractor.

(n) Miscellaneous DBE Program Requirements

1. **Loss of DBE Eligibility:** When a DBE firm has been removed from eligibility as a certified DBE firm, the following actions will be taken:
 - a. When a Bidder/Contractor has made a commitment to use a DBE firm that is not currently certified, thereby making the Contractor ineligible to receive DBE participation credit for work performed, and a subcontract has not been executed, the ineligible DBE firm does not count toward either the Contract goal or overall goal. The Contractor shall meet the Contract goal with a DBE firm that is eligible to receive DBE credit for work performed, or must demonstrate to the Contract Engineer that it has made good faith efforts to do so.
 - b. When a Bidder/Contractor has executed a subcontract with a certified DBE firm prior to official notification of the DBE firm's loss of eligibility, the Contractor may continue to use the firm on the Contract and shall continue to receive DBE credit toward its DBE goal for the subcontractor's work.
 - c. When VDOT has executed a prime contract with a DBE firm that is certified at the time of contract execution but that is later ruled ineligible, the portion of the ineligible firm's performance on the Contract before VDOT has issued the notice of its ineligibility shall count toward the Contract goal.

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2. **Termination of DBE:** If a certified DBE subcontractor is terminated, or fails, refuses, or is unable to complete the work on the Contract for any reason, the Contractor must promptly request approval to substitute or replace that firm in accordance with this section of this Special Provision.

The Contractor, as aforementioned in **DBE Program-Related Certifications Made by Bidders/Contractors**, shall notify VDOT in writing before terminating and/or replacing the DBE that was committed as a condition of contract award or that is otherwise being used or represented to fulfill DBE contract obligations during the Contract performance period. Written consent from the Department for terminating the performance of any DBE shall be granted only when the Contractor can demonstrate that the DBE is unable, unwilling, or ineligible to perform its obligations for which the Contractor sought credit toward the Contract DBE goal. Such written consent by the Department to terminate any DBE shall concurrently constitute written consent to substitute or replace the terminated DBE with another DBE. Consent to terminate a DBE 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 DBE.

- a. All Contractor requests to terminate, substitute, or replace a certified DBE shall be in writing, and shall include the following information:
- (1) The date the Contractor determined the DBE to be unwilling, unable, or ineligible to perform.
 - (2) The projected date that the Contractor shall require a substitution or replacement DBE 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 DBE giving rise to the Contractor's assertion that the DBE is unwilling, unable, or ineligible to perform;
 - (4) A brief statement of the affected DBE'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 DBE to perform;
 - (6) The current percentage of work completed on each bid item by the DBE;
 - (7) The total dollar amount currently paid per bid item for work performed by the DBE;
 - (8) The total dollar amount per bid item remaining to be paid to the DBE for work completed, but for which the DBE 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 DBE for work completed, but for which the DBE has not received payment, and over which the Contractor and/or the DBE have a dispute.
- b. Contractor's Written Notice to DBE of Pending Request to Terminate and Substitute with another DBE.

The Contractor shall send a copy of the "request to terminate and substitute" letter to the affected committed DBE firm, in conjunction with submitting the request to the DCRO. The affected DBE firm may submit a response letter to the Department within two (2) business days of receiving the notice to terminate from the Contractor. The affected DBE firm shall

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explain its position concerning performance on the committed work. The Department will consider both the Contractor's request and the DBE'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 DBE firm, the Department will verify that the affected, committed DBE firm is unable or unwilling to continue the Contract. The Department will immediately approve the Contractor's request for a substitution.

c. **Proposed Substitution of Another Certified DBE**

Upon termination of a DBE, the Contractor shall use reasonable good faith efforts to replace the terminated DBE. The termination of such DBE shall not relieve the Contractor of its obligations pursuant to this section, and the unpaid portion of the terminated DBE's contract will not be counted toward the Contract goal.

When a DBE substitution is necessary, the Contractor shall submit an amended Form C-111 with the name of another DBE firm, the proposed work to be performed by that firm, and the dollar amount of the work to replace the unfulfilled portion of the work of the originally committed DBE firm. 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 DBE as described in this section of this Special Provision.

Should the Contractor be unable to commit the remaining required dollar value to the substitute DBE, the Contractor shall provide written evidence of good faith efforts made to obtain the substitute value requirement. 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 DBE participation. The Contractor must document the steps taken that demonstrated its good faith efforts to obtain participation as set forth in the **Good Faith Efforts Described** section of this Special Provision.

3. Factors Used to determine if a DBE Trucking Firm is performing a CUF:

The following factors will be used to determine whether a DBE trucking company is performing a CUF:

- a. To perform a CUF the DBE trucking firm shall be completely responsible for the management and supervision of the entire trucking operation for which the DBE 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 DBE contract goal;
- b. The DBE 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 DBE receives full contract goal credit for the total reasonable amount the DBE is paid for the transportation services provided on the Contract using trucks the DBE owns, insures, and operates using drivers that the DBE employs and manages;

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- d. The DBE may lease trucks from another certified DBE firm, including from an owner-operator who is certified as a DBE. The DBE firm that leases trucks from another DBE will receive credit for the total fair market value actually paid for transportation services the lessee DBE firm provides on the Contract;
- e. The DBE may also lease trucks from a non-DBE firm, including an owner-operator. The DBE who leases trucks from a non-DBE is entitled to credit for the total value of the transportation services provided by non-DBE lessees, *not to exceed the value of transportation services provided by DBE-owned trucks on the Contract*. For additional participation by non-DBE lessees, the DBE will only receive credit for the fee or commission it receives as a result of the lease arrangement.

EXAMPLE

DBE Firm X uses two (2) of its own trucks on a contract. The firm leases two (2) trucks from DBE Firm Y and six (6) trucks from non-DBE Firm Z.

<u>Firm X</u>		Value of Trans. Serv.
Truck 1	Owned by DBE	\$100 per day
Truck 2	Owned by DBE	\$100 per day
<u>Firm Y</u>		
Truck 1	Leased from DBE	\$110 per day
Truck 2	Leased from DBE	\$110 per day
<u>Firm Z</u>		
Truck 1	Leased from Non DBE	\$125 per day
Truck 2	Leased from Non DBE	\$125 per day
Truck 3	Leased from Non DBE	\$125 per day
Truck 4	Leased from Non DBE	\$125 per day
Truck 5	Leased from Non DBE*	\$125 per day
Truck 6	Leased from Non DBE*	\$125 per day

DBE credit would be awarded for the total transportation services provided by DBE Firm X and DBE 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-DBE Firm Z (not to exceed the value of transportation services provided by DBE-owned trucks).

Credit = 8 Trucks
Total Value of Transportation Services = \$820

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In all, full DBE credit would be allowed for the participation of eight (8) trucks (twice the number of DBE trucks owned and leased) and the dollar value attributable to the Value of Transportation Services provided by the 8 trucks.

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

- f. For purposes of this section, the lease must indicate that the DBE 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 DBE, provided the lease gives the DBE absolute priority for and control over the use of the leased truck. Leased trucks must display the name and identification number of the DBE firm that has leased the truck at all times during the life of the lease.
4. **Data Collection:** In accordance with 49CFR Section 26.11, all firms bidding on prime contracts and bidding or quoting subcontracts on federal-aid projects shall provide the following information to the Contract Engineer annually.
- Firm name
 - Firm address
 - Firm's status as a DBE or non-DBE
 - The age of the firm and
 - The annual gross receipts of the firm

The means of transmittal and the risk for timely receipt of this information shall be the responsibility of the bidder. However, the above information can be submitted by means of the Annual Gross Receipts Survey as required in the Prequalification/Certification application.

All bidders, including DBE prime Contractor bidders, shall complete and submit to the Contract Engineer the Subcontractor/Supplier Solicitation and Utilization Form C-48 for each bid submitted; to be received within ten (10) business days after the bid opening. Failure of bidders to submit this form in the time frame specified may be cause for disqualification of the bidder and rejection of their bid in accordance with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge specifications.

(o) Suspect Evidence of Criminal Behavior

Failure of a bidder, Contractor, or subcontractor to comply with the Virginia Department of Transportation Road and Bridge Specifications and these Special Provisions wherein there appears to be evidence of criminal conduct shall be referred to the Attorney General for the Commonwealth of Virginia and/or the FHWA Inspector General for criminal investigation and, if warranted, prosecution.

Suspected DBE Fraud

In appropriate cases, VDOT will bring to the attention of the U. S. Department of Transportation (USDOT) any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g., referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49CFR Part 31.

(p) Summary of Remedies for Non-Compliance with DBE Program Requirements

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Failure of any bidder\Contractor to comply with the requirements of this Special Provision for Section 107.15 of the Virginia Road and Bridge Specifications, which is deemed to be a condition of bidding, or where a contract exists, is deemed to constitute a breach of contract shall be remedied in accordance with the following:

1. Disadvantaged Business Enterprise (DBE) Program Requirements

The Contractor shall carry out applicable requirements of 49 CFR Part 26 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 will result in the termination of this contract or other such remedy, as VDOT deems appropriate.

All administrative remedies noted in this provision are automatic unless the Contractor exercises the right of appeal within the required timeframe(s) specified herein.

2. DBE Program-Related Certifications Made by Bidders\Contractors

Once awarded the contract, the Contractor shall comply fully with all regulatory and contractual requirements of the USDOT DBE Program, and that each certified DBE firm participating in the Contract shall fully perform the designated work items with the DBE's own forces and equipment under the DBE's direct supervision, control, and management. Where a contract exists and where the Contractor, DBE firm, or any other firm retained by the Contractor has failed to comply with federal or VDOT DBE Program regulations and/or their requirements on that contract, VDOT has the authority and discretion to determine the extent to which the DBE 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.

3. Disqualification of Bidder

Bidders may be disqualified from bidding for failure to comply with the requirements of this Special Provision, the Contract specifications, and VDOT Road and Bridge Specifications.

4. Bidding Procedures

The failure of a bidder to submit the required documentation within the timeframes specified in the **Contract Goal, Good Faith Efforts Specified** section of this Special Provision may be cause for rejection of that bidder's bid. If the lowest bidder is rejected for failure to submit required documentation in the specified time frames, the Department may either award the work to the next lowest bidder, or re-advertise and construct the work under contract or otherwise as determined by the Commonwealth.

In order to award a contract to a bidder that has failed to meet DBE contract goal requirements, VDOT will determine if the bidder's efforts were adequate good faith efforts, and if given all relevant circumstances, those efforts were to the extent a bidder actively and aggressively seeking to meet the requirements would make. Regardless of the DBE contract goal participation level proposed by the bidder or the extent of good faith efforts shown, all bidders shall timely and separately file their completed and executed Forms C-111, C-112, C-48, and Form C-49, as aforementioned, or face potential bid rejection. If a bidder does not submit it's completed and executed C-111, or C-112, when required by this Special Provision, the bidder's bid will be considered non-responsive and may be rejected. If, after reconsideration, the Department determines the bidder has failed to meet the requirements of the Contract goal and has failed to make adequate good faith efforts to achieve the level of DBE participation as specified in the bid proposal, the bidder's bid will be rejected. If sufficient documented evidence is presented to demonstrate that the apparent low bidder made reasonable good faith efforts,

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the Department will award the Contract and reduce the DBE requirement to the actual commitment identified by the lowest successful bidder at the time of its bid. The Contractor is encouraged to seek additional participation during the life of the Contract.

If the Contractor fails to conform to the schedule of DBE participation 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, the Contractor and any aforementioned affiliates may be enjoined from bidding for 60 days or until such time as conformance with the schedule of DBE participation is achieved. In such instances, the Contractor is expected to seek DBE participation towards meeting the goal during the prosecution of the Contract.

If the Contractor fails upon completion of the project to meet the required participation, the Contractor and any prime contractual affiliates, as in the case of a joint venture, may be enjoined from bidding as a prime Contractor, or participating as a subcontractor on VDOT projects for a period of 90 days.

Prior to enjoinder from bidding or denial to participate as a subcontractor for failure to comply with participation requirements, as provided hereinbefore, the Contractor may submit documentation to the State Construction Engineer to substantiate that failure was due solely to quantitative underrun(s) or elimination of items subcontracted to DBEs, and that all feasible means have been used to obtain the required participation. The State Construction Engineer upon verification of such documentation shall make a determination whether or not the Contractor has met the requirements of the Contract.

If it is determined that the aforementioned documentation is insufficient or the failure to meet required participation is due to other reasons, the Contractor may request an appearance before the Administrative Reconsideration Panel to establish that all feasible means were used to meet such participation requirements. The decision of the Administrative Reconsideration Panel shall be administratively final. The enjoinder period will begin upon the Contractor's failure to request a hearing within the designated time frame or upon the Administrative Reconsideration Panel's decision to enjoin, as applicable.

5. Verification of DBE Participation and Imposed Damages

If the Contractor fails to comply with correctly completing and submitting any of the required documentation requested 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 VDOT. Where such failures to provide required submittals or documentation are repeated the Department will move to enjoin 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.

(q) Suspect Evidence of Criminal Behavior

In addition to the remedies described heretofore in this provision VDOT also exercises its rights with respect to the following remedies:

- Failure of a bidder, Contractor, or subcontractor to comply with the Virginia Department of Transportation Road and Bridge Specifications and these Special Provisions wherein there appears to be evidence of criminal conduct shall be referred to the Attorney General for the Commonwealth of Virginia and/or the FHWA Inspector General for criminal investigation and, if warranted prosecution.

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- In appropriate cases, VDOT will bring to the attention of the U. S. Department of Transportation (USDOT) any appearance of false, fraudulent, or dishonest conduct in connection with the DBE program, so that USDOT can take the steps, e.g., referral to the Department of Justice for criminal prosecution, referral to the USDOT Inspector General, action under suspension and debarment or Program Fraud and Civil Penalties rules provided in 49CFR Part 31.

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SP107-003000-01

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
BUILD AMERICA, BUY AMERICA ACT REQUIREMENTS FOR CONSTRUCTION MATERIALS

June 8, 2023

SECTION 107.03 FEDERAL AID PROVISIONS of the Specifications is amended to include the following:

In accordance with the provisions of the Build America, Buy America Act (BABA), Public Law, No. 117-58, §§ 70901-70953, and any implementing regulations or policies (hereinafter referred to together as "BABA Requirements"): except as otherwise specified, all construction materials that are to be permanently incorporated for use on federal aid projects (hereinafter be referred to as "BABA Construction Materials") shall be manufactured in the United States of America. Note that the provisions herein do not apply to iron and steel, which are addressed in another provision of the Contract.

BABA Construction Materials. Manufactured in the United States of America means that at least the final manufacturing process and the immediately preceding manufacturing stage for the construction materials, and any other stages in the manufacturing process that are specified in the BABA Requirements or FHWA guidance, all occurred in the United States.

BABA Construction Materials, as defined and designated in the BABA Requirements, include any article, material, or supply that is or consists primarily of:

- Non-ferrous metals;
- Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- Glass (including fiber optic glass);
- Lumber; or
- Drywall.

Any items that consist of at least one of the listed BABA Construction Materials combined together through a manufacturing process with another listed BABA Construction Material or with a non-listed item are considered to be "Manufactured Products" under BABA, not BABA Construction Materials. Therefore, the BABA requirements for "Manufactured Products" and FHWA guidance would apply.

The BABA Construction Materials requirements do not apply to: cement and cementitious materials; aggregates such as stone, sand, or gravel; aggregate binding agents (including asphalt cement) or additives; or any material composed of or derived from these items.

Waivers:

The process for receiving a waiver of BABA requirements for construction materials is provided at BABA § 70914(b) through (d), and any federal regulations adopted in accordance with this law. Other than any FHWA or other Federal agency waivers of general applicability that may be in effect, the Contractor shall not anticipate that any BABA provisions will be waived.

Certification of Compliance:

The Contractor is required to submit a Certificate of Compliance prior to incorporating any items into the project containing any of the above-listed BABA Construction Materials. This shall be accomplished

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by the Contractor submitting the appropriate Form C-76A Certificate of Compliance to the Department when the items are delivered to the project site. The Certificate of Compliance will certify that the final manufacturing process and the immediately preceding manufacturing stage for the construction materials occurred in the United States. The certificate must be signed and dated by the Prime Contractor's Superintendent and include a BABA Requirements Submittal Number, which is simply the Contractor's project specific sequential numbering system that will allow the Contractor and Department to track the total number of certificates provided and the individual construction materials associated with each certificate.

Supporting Documentation:

Supporting documentation to demonstrate compliance with BABA provisions (such as manufacturer/supplier certifications, etc.) shall be organized by BABA Requirements Submittal Number, and shall be maintained by the Contractor and available for examination from the date of delivery until three years after project acceptance. The Contractor may maintain this documentation electronically or in paper format.

The Department or FHWA may review the Contractor's supporting documentation to verify compliance with the BABA Requirements for construction materials at any time upon request. Supporting documentation shall be provided within five business days of the request. The burden of proof to meet the BABA Requirements for construction materials rests with the Contractor. If the supporting documentation does not undeniably demonstrate to FHWA or the Department that the BABA Construction Materials identified in the Certificate of Compliance were produced in the United States, then such construction materials will be considered unacceptable and must be replaced at no cost to the Department, and if not replaced the Department, in addition to other rights and remedies, may have them replaced and deduct the cost of removal and replacement from any moneys due or that become due the Contractor in accordance with Section 106.10 of the Specifications.

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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.

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- 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 (C000XXXXXXXX_PS01, C000XXXXXXXX_PS02, etc.), Baseline Schedule (C000XXXXXXXX_BS, C000XXXXXXXX_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.

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- (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

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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:

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- (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.

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(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.

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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., C000XXXXXXXX_U01, C000XXXXXXXX_U01R1, C000XXXXXXXX_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,

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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 ongoing 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.

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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

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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., C000XXXXXXXX_U06RB, C000XXXXXXXX_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.

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- (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., C000XXXXXX), 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: C000XXXXXX_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.

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- 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

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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:

- IV. Failure to include all required reports and submittal items.
- V. Failure to calculate the Project Schedule using the correct Data Date.
- VI. Primavera P6 software settings are different from those specified in the Contract.
- VII. The Schedule Log shows use of prohibited constraints.
- VIII. The Schedule Log shows activity without predecessors or successors with exception of the first and last activities.
- IX. Repeated failure to correct out-of-sequence activities.
- X. The Schedule Log shows Actual Dates > Data Date.
- XI. The Schedule Log shows Milestone Activities with invalid relationships.
- XII. 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

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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.

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- (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.

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- (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

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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.

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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 all 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

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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.

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[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:

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

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.

ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

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.

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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.

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CONTRACT ID. NO.: CM524PMZ123767

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.

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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:

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

- 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 shipped to fabricator in October 2004 for this Project in pounds

$$B = \$0.2816$$

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

$$Q = 450,000 \text{ lb.}$$

$$A = 0.2816 \times 0.054 \times 450,000$$

$$A = \$6,842.88 \text{ pay adjustment to Contractor}$$

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CONTRACT ID. NO.: CM524PMZ123767

SP109-000130-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
USE OF ELECTRONICALLY TRANSMITTED WEIGH TICKETS

October 10, 2019

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

Section 109.01(b) – Measurement by Weight is replaced with the following:

Measurement by Weight: Materials that are measured or proportioned by weight shall be weighted on accurate scales as specified in this Section. When material is paid for on a tonnage basis, personnel performing the weighing shall be certified by the Department and shall be bonded to the Commonwealth of Virginia in the amount of \$10,000 for the faithful observance and performance of the duties of the weighperson required herein. The bond shall be executed on a form having the exact wording as the Weighpersons Surety Bond Form furnished by the Department and shall be submitted to the Department prior to the furnishing of the tonnage material.

Trucks used to haul material shall be equipped with a cover suitable to protect the material and to protect the traveling public. The truck tare to be used in the weighing operation shall be the weight of the empty truck determined with full tanks of fuel and the operator seated in the cab. The tare weight of trucks shall be recorded to the nearest 20 pounds. At the option of the Contractor, a new tare may be determined for each load. When a new tare is obtained for each load, the requirement for full tanks of fuel will be waived.

Net rail shipment weights may be used for pay quantities when evidenced by railroad bills of lading. However, such weights will not be accepted for pay quantities of materials that subsequently pass through a stationary mixing plant.

Scales shall conform to the requirements for accuracy and sensitivity as set forth in the NIST Handbook No. 44 for Specification Tolerances and Requirements for Commercial and Weighing Devices. Scales used in the weighing of materials paid for on a tonnage basis shall be approved and sealed in accordance with the requirements of the policies of the Bureau of Weights and Measures of the Department of Agriculture and Consumer Services, or other approved agencies, at least once every six months and upon being moved. Hopper and truck scales shall be serviced and tested by a scale service representative at least once every six months. Hopper scales shall be checked with a minimum 500 pounds of test weights and truck scales shall be checked with a minimum 20,000 pounds of test weights.

Copies of scale test reports shall be maintained on file at the scale location for at least 18 months, and copies of all scale service representative test reports shall be forwarded to the Department.

The quantity of materials paid for on a tonnage basis shall be determined on scales equipped with an automatic printer. Truck scale printers shall print the net weight and either the gross or tare weight of each load. Hopper scale printers shall print the net weight of each load. The weigh ticket shall also show the legal gross weight for material weighed on truck scales and the legal net weight for material weighed on hopper scales. As a substitute for printed tickets, electronic tickets may be provided. Electronic ticketing systems shall record and show all the same information required on a printed ticket and meet the requirements herein.

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If the automatic printer becomes inoperative, the weighing operation may continue for 48 hours provided satisfactory visual verification of weights can be made. The written permission of the District Materials Engineer shall be required for the operation of scales after 48 hours.

If significant discrepancies are discovered in the printed or electronically recorded and displayed weight, the ultimate weight for payment will be calculated on volume measurements of the materials in place and unit weights determined by the Engineer or by other methods deemed appropriate to protect the interests of the Commonwealth.

1. **Duties of the Weighperson.** The weighperson shall furnish a signed weigh ticket or electronic ticket for each load that shows the date, load number, plant name, size and type of material, project number, schedule or purchase order number, and the weights specified herein; maintain sufficient documentation so that the accumulative tonnage and distribution of each lot of material, by Contract, can be readily identified; and submit by the end of the next working day a summary of the number of loads and total weights for each type of material by Contract.
2. **Electronic ticketing system.** Electronic tickets may be provided as a substitute for weigh tickets at no additional cost to the Department. Electronic Tickets shall be automatically generated using a combined software and hardware fleet management or electronic ticketing system. This system shall be fully integrated with the Contractor's Load Read-Out scale system used to weigh the material being placed.

The system must be accessible to all engineering and inspection staff involved in the project via a mobile device (iOS or android) and a desktop computer.

In addition to the information required for printed weigh tickets, the system must provide the following information to the Engineer at any point in time during or after materials placement:

- Description of material being transported
- Mix Design Number or VDOT Material Identifier
- Unique Truck ID
- Time at Scale
- Time at Destination
- Time offloaded from vehicle
- Location (latitude and longitude in decimal degrees to nearest 0.0000001) where material was offloaded from truck.

If the supplier chooses to utilize the electronic ticket option, the system must allow individual tickets and daily summaries to be exported as Portable Document Format (PDF) files conforming to ISO 32000.

The system software and hardware shall be designed in such a way that data inputs from scales cannot be altered by the Contractor or the Department.

Delays due to poor GPS satellite reception, loss of cellular coverage, or any other technical or mechanical issues with an electronic ticketing system software, hardware, or other components will not be considered entitlement to any form of adjustment or time extension. The Engineer may reject material at any time if electronic tickets become unavailable or fail to provide appropriate and correctly formatted information at the time the ticket is transmitted. The Contractor, at his discretion, may provide printed tickets in place of electronic tickets, provided they comply with the requirements herein.

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[SP305-000100-01](#)

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SHOULDER RENOVATION

October 3, 2016

I. DESCRIPTION

This work shall consist of renovating existing low (erosion or overlay) and high shoulders (debris buildup) and shoulders disturbed due to plant mix overlay or guardrail work as specified in the Contract Documents to provide finished shoulder designs and guardrail heights that conform to the Specifications, Standard Drawings, and Plans. For the purposes of this provision, machining shoulders and manual shoulder restoration shall be viewed as placing, grading, and compacting operations of approved shoulder materials performed by mechanized equipment or manually. Materials allowed for renovating shoulders shall include furnishing and delivery of these materials to the jobsite or to the location(s) designated in the Contract Documents.

II. MATERIALS

Shoulder material shall be either virgin aggregate base material (type and size as specified) or Shoulder Maintenance Material (SMM). SMM shall be: Aggregate Material; Crusher Run Aggregate; Aggregate Subbase or Base; Select Material; recycled materials including Reclaimed Asphalt Pavement (RAP) or Crushed Hydraulic *Cement* Concrete (CHCC); or combinations thereof, conforming to the followings grading when tested in accordance with VTM-25:

% by Weight of Material Passing Sieve		
1-1/2 in	1 in	No. 4
100	80-100	20-60

Shoulder Maintenance Material, if used, shall be 1-1/2 inch maximum size as determined visually, using VTM-25, or by field measurement. Shoulder Maintenance Material shall have a loose, unconsolidated consistency and shall not contain any clusters of materials that exceed the 1-1/2-inch grading requirement. Material out of conformance with the maximum size limitation will be rejected. However, a sample of material shall be tested for gradation using VTM-25; test results within the last year may be used for stockpile material.

Shoulder Maintenance Material, when comprised of blended aggregate, RAP, or CHCC, shall be thoroughly mixed (manipulated) and shall have a dappled appearance when placed, graded, and compacted.

The use of Shoulder Maintenance Material is subject to the limitations as described herein and elsewhere in the Special Provision Copied Note for Alternate Category Bid Items and Award of Contract included in the Contract.

III. PROCEDURES

The use of more than one type of approved material on uninterrupted runs of shoulder work will not be permitted.

The use of CHCC or any CHCC blended material as SMM will only be permitted in areas 3 feet in width or less and no more than 3 inches in compacted depth once placed.

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Shoulder material shall be spread, graded, and compacted according to Section 305.03(e) of the Specifications, except as noted herein. Subgrade shaping will generally not be required unless directed by the Engineer. However, when shaping of the subgrade is required, the cost of such work shall be included in the cost of machining shoulders or manual shoulder renovation work.

The maximum compacted lift thickness of shoulder material (except CHCC or CHCC blends) shall be 6 inches. The acceptability of furnished and finished (compacted) shoulder material will be determined by visual inspection, field measurement, or a combination thereof, at the discretion of the Engineer.

Final pavement surface edge or final paved or stabilized shoulder surface edge shall include existing pavement not designated for overlay and completely compacted pavement overlays, and their corresponding shoulders.

The Contractor shall promptly remove and dispose of surplus shoulder material encountered as a result of shoulder renovation work as well as any shoulder material spilled, left or tracked on the pavement.

Grading for shoulder renovation shall be performed by the following methods:

- A. Machining shoulders** shall be performed in areas where there is no existing guardrail and none is scheduled to be placed or updated under this contract, in areas with existing guardrail where that guardrail will not be disturbed, in areas scheduled for new guardrail installation before new guardrail is installed, or in areas where existing guardrail will be removed in preparation for guardrail improvement or guardrail replacement. In each of these grading situations it is to be assumed grading can be performed by mechanized equipment unencumbered by existing or newly installed guardrail.

Machining shoulders shall include grading shoulders to appropriate slope and grade where sufficient material is present to renovate the existing shoulders, grading existing shoulders to fill in low areas after shoulder material has been placed, or grading down areas where high shoulders exist due to debris buildup.

Machining shoulders shall result in a uniformly finished slope to the shoulder break that conforms to the Standard Drawings and the included sketch after compaction. Renovated shoulders shall smoothly tie the graded shoulder edge elevation to the adjoining elevation of the final pavement surface edge and final paved or stabilized shoulder surface edge.

- B. Manual shoulder restoration** shall be used to renovate shoulders in areas where existing guardrail will be undisturbed by adjacent plant mix or other operations specified in the contract.

Manual shoulder restoration shall include grading shoulders around existing guardrail by hand or other intensive production methods to appropriate slope and grade where sufficient material is present to restore the existing shoulders, grading existing shoulders to fill in low areas after shoulder material has been placed, or grading down areas where high shoulders exist due to debris buildup.

Manual shoulder restoration shall result in a uniformly finished slope to the shoulder break that conforms to the Standard Drawings and the included sketch after compaction. Restored shoulder work shall smoothly tie the graded shoulder edge elevation to the adjoining elevation of the final pavement surface edge and final paved or stabilized shoulder surface edge.

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Note: Shoulder material specified in this Special Provision is the only allowable material for manual shoulder restoration work unless otherwise approved by the Engineer.

Shoulder material (depending on the type of shoulder renovation operation specified in the Contract Documents or directed by the Engineer) shall be furnished and placed by the Contractor in low shoulder areas, then machined or manually graded off as necessary, and then compacted to provide a finished cross slope that conforms to the applicable Standard Drawings as well as the existing road profile grade.

Where guardrail is to be installed or reinstalled, the placement widths and limits of shoulder material shall be according to the detail requirements for the specific type of guardrail as designated in the Contract Documents and as shown in the Standard Drawings, the attached sketch, or as otherwise indicated in the Contract Documents. Guardrail height shall conform to the Standard Drawings for the applicable guardrail type once work is completed. This work shall proceed as directed by the Engineer.

IV. MEASUREMENT AND PAYMENT

Machining shoulders will be measured in linear feet along the adjacent edge of pavement and will be paid for at the Contract unit price per linear foot. The price shall include placing, grading, and compaction. This price shall also include removing and disposing of surplus, spilled, and tracked material resulting from the Contractor's operations.

Manual shoulder restoration will be measured in linear feet along the adjacent edge of pavement specified in the Contract or directed by the Engineer, and will be paid for at the Contract unit price per linear foot. The price shall include placing, grading, and compaction. This price shall also include removing and disposing of surplus, spilled, and tracked material resulting from the Contractor's operations.

Virgin aggregate base material will be measured in tons and will be paid for at the Contract unit price per ton. The price bid shall include furnishing and delivery.

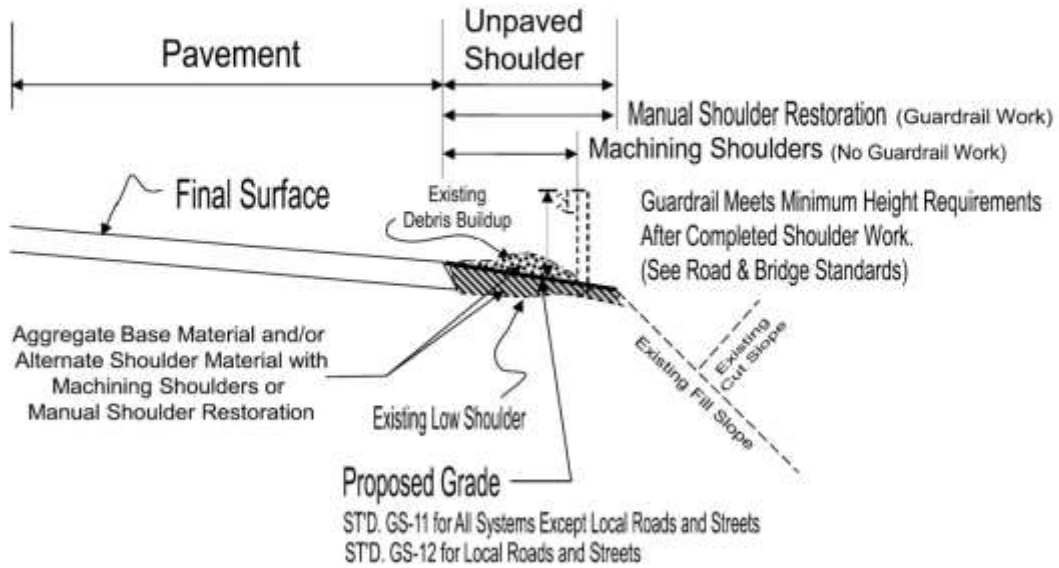
Shoulder Maintenance Material, if requested and authorized for use, will be measured in tons or square yards and will be paid for at the Contract unit price per ton as bid in Section 0002 of the Special Provision Copied Note for Alternate Category Bid Items and Award of Contract. The price bid shall include furnishing and delivery.

Tonnage for Shoulder Maintenance Material will be based on certified weigh tickets from the source of supply, or when supplied directly from the field, will be computed on the basis of 110 pounds per inch of depth per square yard, converted to tons.

Payment will be made under:

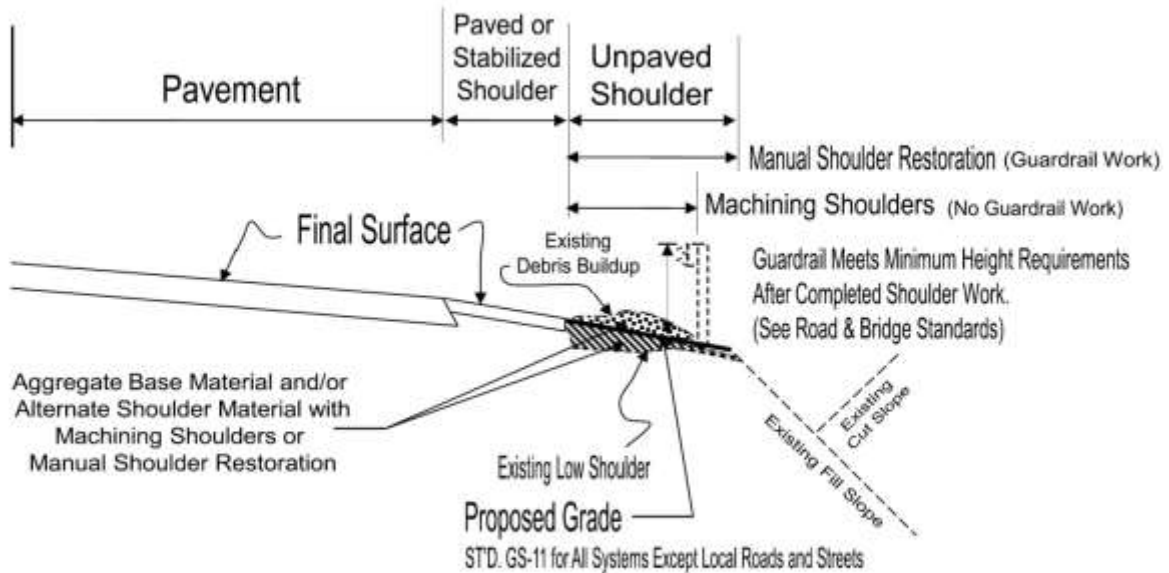
Pay Item	Pay Unit
Virgin Aggregate Base Material, Type (), No. ()	Ton
Machining Shoulders	Linear Foot
Manual Shoulder Restoration	Linear Foot
Shoulder Maintenance Material	Ton

SHOULDER RENOVATION



Typical Section for Unpaved Shoulder

Not to Scale



Typical Section for Paved or Stabilized Shoulder

Not to Scale

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[SP316-000420-00](#) [formerly SP316-040200-00]

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
RIDEABILITY FOR HYDRAULIC CEMENT CONCRETE PAVEMENT

August 13, 2002ccc; Reissued July 12, 2016

SECTION 316—HYDRAULIC CEMENT CONCRETE PAVEMENT of the Specifications is amended as follows:

For pavements designated for rideability testing Section 316.04(k) Surface Test is amended to include the following:

Pavement smoothness will be determined by a profiler on designated lanes having a design speed of 45 miles per hour or higher as specified herein. Intersections, transition lanes, and pavement within 52 feet of bridge approach slabs or manholes will be tested by a straightedge.

Except as noted hereinbefore, the surface ride quality acceptance will be based on the lowest average International Roughness Index (IRI) for each 0.01-mile section produced by a minimum of two test runs, using a South Dakota type road profiling device and reported for each travel lane. The device shall measure both wheelpaths with laser height sensing instruments. The Department shall conduct the testing as soon as practical and prior to opening to public traffic, providing the Contractor can allow unimpeded access to the paved surface for constant highway speed test runs. Testing shall be conducted according to VTM-106.

Acceptance

An IRI number in inches per mile will be established for each 0.01-mile section for each travel lane of the surface. The 0.01-mile section before and after a bridge, and the beginning and end 0.01-mile sections of the surface will not be subject to a pay adjustment.

Areas excluded from testing by the profiler will be tested using a 10-foot straightedge. 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. Humps and depressions exceeding the specified tolerance shall be subject to correction as directed by the Engineer, at no additional cost to the Department.

The following table provides the acceptance quality rating scale of pavement based on the final rideability determination. The pay incentive/disincentive schedule will be applied to the final surface area. The surface area, in square yards, shall be calculated based on the tested section length and lane width as shown on the plans.

IRI After Completion [Inches Per Mile]	Contract Unit Price Adjustment [Percent of Pavement Unit Price]
45.0 and Under	105
45.1-55.0	103
55.1-70.0	100
70.1-80.0	90
80.1-90.0	80
90.1-100.0	70
Over 100.0	Subject To Corrective Action

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This contract unit price adjustment will apply to the hydraulic cement concrete's unit price for the total area of the 0.01-mile section for the lane width.

When corrections to the pavement surface are required, the Contractor's method of correction shall be submitted for approval by the Engineer. In order to produce a uniform cross section, the Engineer may require correction to the adjoining traffic lanes or shoulders. Corrections to the pavement surface and/or the adjoining traffic lanes and shoulders will be at no cost to the Department.

Where corrections are made after the official Department test, the pavement will be retested by the Department to verify that corrections have produced the acceptable ride surface. No incentives will be provided for sections on which corrective actions have been required. The Contractor will have one opportunity to perform corrective action(s). In the event the corrective action(s) do not result in a minimum of 70 percent payment, the Contractor will be assessed the corresponding percent payment based on the following table:

IRI After Correction [Inches Per Mile]	Contract Unit Price Adjustment [Percent of Pavement Unit Price]
100.1 – 120.0	60
120.1 – 140.0	40
140.1 – 160.0	20
Over 160.0	0

Corrective work shall be completed prior to determining pavement thickness.

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CONTRACT ID. NO.: CM524PMZ123767

SP505-000200-00

VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
GUARDRAIL TERMINAL SITE PREPARATION

October 2, 2020

I. DESCRIPTION

This work shall consist of preparing run-on guardrail terminal sites in accordance with the Plans, Specifications, and Standard Drawings, and as directed by the Engineer.

II. MATERIALS

Aggregate Material shall be No. 21A or No. 21B conforming to Section 208 of the Specifications.

III. PROCEDURES

Guardrail terminal sites shall be prepared in accordance with Sections 301, 303, 305 and 505 of the Specifications and in accordance with the Standard Drawings. Site preparation requirements for the NCHRP-350 compliant GR-6, GR-7, or GR-9 terminals and the GR-MGS-2 terminal are included in the Standard Drawings for each terminal.

The type of site preparation required will be denoted on the Plans. The types are defined as follows:

- **Guardrail terminal site preparation (minor)** will be required for sites where minimal grading is required to provide the site preparation detailed in the Standard Drawing for the proposed terminal. The existing sites closely conform to the details in the Standard Drawings and require approximately 6 tons or less of aggregate base material (Type I or II, No. 21A or 21B) to prepare the terminal site.
- **Guardrail terminal site preparation (4-ft moderate)** will be required for sites where the Plans require GR-MGS2 terminals to be installed using the "limited use site preparation requirements" of Standard GR-MGS2, requiring a four-foot level bench area as measured from the face of the GR-MGS2 rail to the hinge point. These sites should require approximately between 6 and 16 tons of aggregate base material (Type I or II, No. 21A or 21B) to prepare the terminal site.
- **Guardrail terminal site preparation (6-ft moderate)** will be required for sites where the Plans require GR-MGS2 terminals to be installed using the "site preparation requirements" of Standard GR-MGS2, requiring a six-foot level bench area as measured from the face of the GR-MGS2 rail to the hinge point. These sites should require between 16 and 35 tons of aggregate base material (Type I or II, No. 21A or 21B) to prepare the terminal site as required on the Plans.

The quantity range of aggregate base material listed above is intended to show scope and scale of the amount of grading work that could be needed to establish the site prep. In addition to, or in place of aggregate base material, borrow material may be used for grading sites, if approved by the Engineer. Guardrail terminal sites shall be fertilized and seeded in accordance with Section 603 of the Specifications with the seed mixes and fertilizer applied at the rates detailed in the Plans or as directed by the Engineer.

IV. MEASUREMENT AND PAYMENT

Guardrail terminal site preparation will be measured in units of each per site and will be paid for at the Contract each price. This price shall include: clearing and grubbing; excavating; backfilling holes;

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placing fill material; benching existing slopes; all required erosion and siltation control measures; and restoring site including fertilizing and seeding. The cost of mobilizing equipment and material shall be included in the Guardrail terminal site preparation price.

Aggregate base material used for terminal site preparation, and for shoulder restoration for the guardrail runs downstream of the terminal will be measured in tons and paid for at the Contract ton price. This price shall include furnishing, delivering, placing, compacting, and grading the material; and removing and disposing of surplus, tracked, and spilled material resulting from the Contractor's operations.

Borrow excavation used for terminal site preparation, and for shoulder restoration for the guardrail runs downstream of the terminal will be measured in cubic yards in accordance with Section 303.06(a)2 of the Specifications and will be paid for at the Contract cubic yard price. This price shall include furnishing, delivering, placing, compacting, and grading the material; and removing and disposing of surplus, tracked, and spilled material resulting from the Contractor's operations.

Payment will be made under:

Pay Item	Pay Unit
Guardrail Terminal Site Preparation (Type)	Each
Aggregate Base Material (Type and No.)	Ton
Borrow excavation	Cubic yard

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[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

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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.

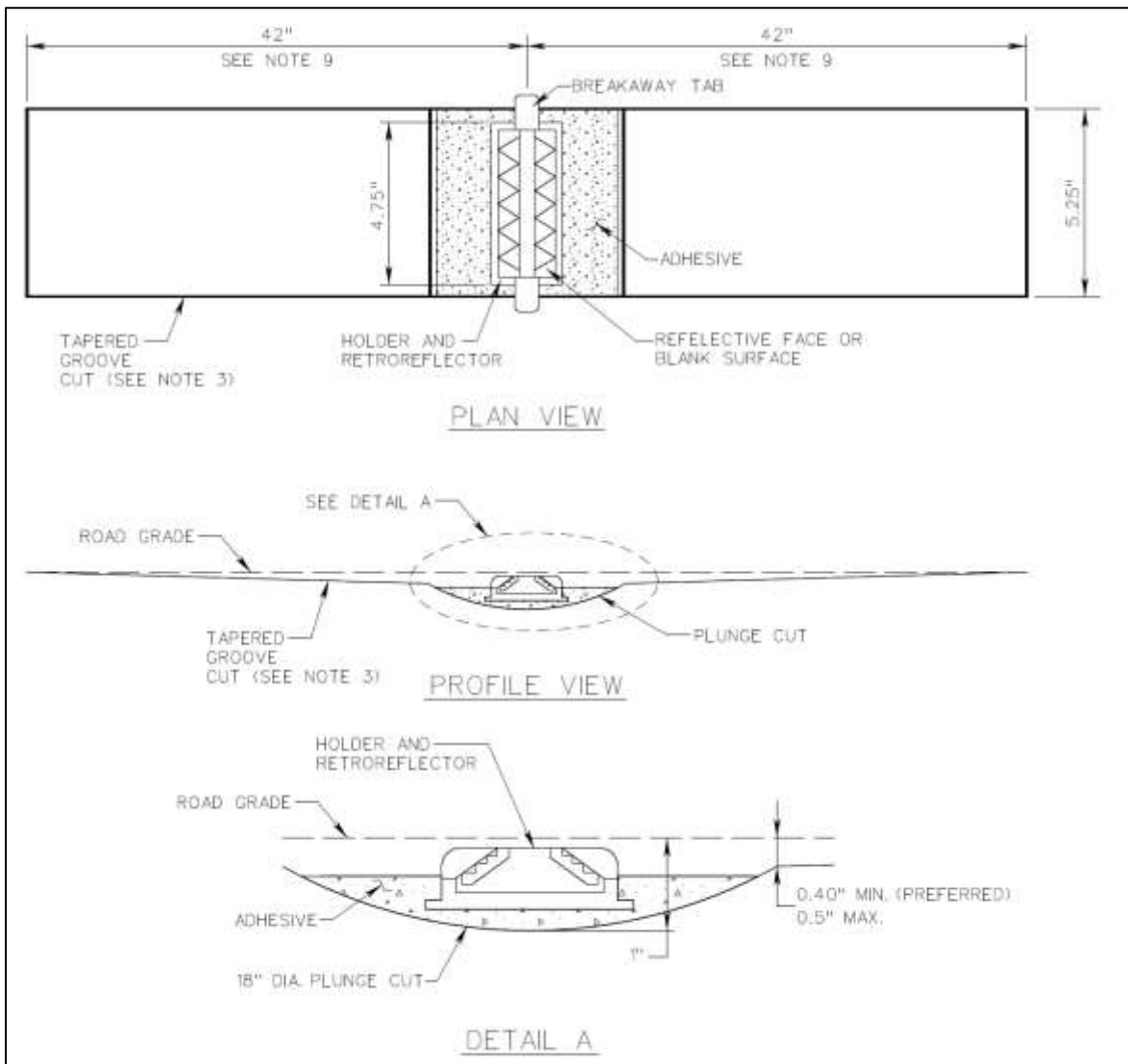


Figure 1: Installation of Inlaid Pavement Marker

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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

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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.

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- (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.

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VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
SECTION 105.06—SUBCONTRACTING
(FEDERAL 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 DBE, SWaM, and Non SWaM vendor payments quarterly to the District Civil Rights Office. The Contractor shall provide the information in a format consistent with Form C-63, Vendor Payment Compliance Report, subject to the approval of the Engineer.

DBE Participation and reporting shall be in accordance with the Special Provision for Section 107.15 (Use of Disadvantaged Business Enterprises).

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

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VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
PREVAILING WAGE RATES

October 12, 2023

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 federal and state 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 promptly and fully comply with all such applicable provisions, including, but not limited to, the following.

1.0 Federal Requirements

The Contractor and subcontractors must comply with such of the regulations in 29 C.F.R. Parts 1, 3, and 5 as may be applicable to the Contract. These requirements are considered to be effective by operation of law, whether or not they are incorporated into the Contract, as set forth 29 C.F.R. § 5.5(e).

1.1 Wage Determinations

The U.S. Department of Labor (USDOL) publishes general wage determinations applicable to specified areas on the USDOL-approved website. Wage determinations contain, among other information, a list of wage and fringe benefit rates determined to be prevailing for various classifications of laborers or mechanics for specified type(s) of construction in a given area.

The applicable wage determinations are included in the Contract. These wage determinations apply for the duration of the Contract, except as specified below.

If for any reason it is determined post-award that a wage determination and/or the correct wage determination was omitted from Contract, the omitted wage determination will be incorporated into the Contract and effective by operation of law, retroactive to the award date of the Contract.

USDOL may periodically issue revisions of the wage determinations to reflect current prevailing wage rates. Revisions to wage determinations are effective with respect to the solicitation and Contract if issued at least 10 calendar days before bid opening. If issued less than 10 calendar days before bid opening, revisions are effective to the solicitation and Contract unless the Department finds that there is not a reasonable time still available before bid opening to notify bidders of the revision.

If the Contract is not awarded within 90 days after bid opening, any revised wage determination issued prior to award is effective to the Contract unless the Department obtains an extension of the original wage determination from the Administrator of the USDOL Wage and Hour Division.

1.2 Change Orders

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The wage determinations incorporated into the Contract at Contract execution apply for the duration of the Contract, subject to the following exceptions. When the Contract is changed to include additional, substantial construction, alteration, and/or repair work not within the scope of work of the original Contract, or to require the Contractor to perform work for an additional time period not originally obligated, including where an option to extend the term of a contract is exercised, the most recent revision of any applicable wage determination(s) published at the time the change order is issued or the option is exercised are incorporated in and applicable to the change order work. The Contractor and their subcontractors must comply with the revised wage determinations when pricing and performing the change order work.

The requirement to incorporate revised wage determinations does not apply where (i) the Contract is not changed as described in the preceding paragraph, (ii) the Contractor is simply given additional time to complete the original Contract work, or (iii) where the additional construction, alteration, and/or repair work in the change order is already within the scope of the Contract.

1.3 Certified Payrolls

Each Contractor or subcontractor engaged in the construction, prosecution, completion, or repair work on the Project each week must submit certified payrolls in accordance with the records and certified payrolls requirements of Form FHWA 1273, under section IV(3) - Records and certified payrolls (29 CFR 5.5), included in the Contract.

Each certified payroll required under this section must be delivered by the Contractor or subcontractor, within 7 days after the regular payment date of the payroll period in accordance with the Special Provision for Electronic Submission of Payrolls and DBE Subcontractor Payment for Federally Funded Projects (**SP107-000120-00**).

Each Contractor or subcontractor must preserve all regular payroll records for all laborers and mechanics working at the site of the work for a period of 6 years after all the work on the Contract is completed in accordance with Form FHWA 1273, section IV(3) - Records and certified payrolls (29 CFR 5.5), included in the Contract, and section 2.4, below.

1.4 Conformance

- A. Any class of laborers or mechanics, including helpers, which is not listed in the applicable wage determination, and which is to be employed under the Contract, must be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:
 - (1) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (2) The classification is used in the area by the construction industry; and
 - (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
- B. The conformance process may not be used to split, subdivide, or otherwise avoid application of classifications listed in the wage determination.
- C. If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Engineer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken will be sent by the Engineer by email to

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DBAconformance@dol.gov. The Administrator of the USDOL Wage and Hour Division, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Engineer or will notify the Engineer within the 30–day period that additional time is necessary.

- D. In the event the Contractor, the laborers or mechanics to be employed in the classification or their representatives, and the Engineer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Engineer will, by email to *DBAconformance@dol.gov*, refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator of the USDOL Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Engineer or will notify the Engineer within the 30–day period that additional time is necessary.
- E. The Engineer must promptly notify the Contractor of the action taken by the USDOL Wage and Hour Division under paragraphs (C) and (D) of this section. The Contractor must furnish a written copy of the Administrator’s determination to each affected worker, or must be post it as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph (C) or (D) of this section must be paid to all workers performing work in the classification under this Contract from the first day on which work is performed in the classification.

2.0 Virginia Requirements

- 2.1 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 Additional Classification and Wage Rate Request using Form C-51. 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.
- 2.2 Upon the award of the Contract, the Contractor shall certify, under oath, to the Commissioner of the Virginia Department of Labor and Industry (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 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.
- 2.3 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 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 form available at: www.doli.virginia.gov/wp-content/uploads/2021/04/PW_Posting_Compliance_Form.pdf. The form may be emailed

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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.

- 2.4 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. The employer shall preserve these records for a minimum of six years and make such records available to the Virginia Department of Labor and Industry 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.
- 2.5 The Contractor shall insert this Special Provision into any subcontracts let to subcontractors for performance of services in connection with the Contract.

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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)

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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,

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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 provisions 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 frames 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.

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SS211-002020-02

May 15, 2023

VIRGINIA DEPARTMENT 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	Nominal Maximum 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

¹SM = 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:

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TABLE II-12A
Aggregate Properties

Mix Type	Coarse Aggregate Properties			Fine Aggregate Properties	
	CAA		ASTM D4791	SE	FAA
	1 fractured face	2 fractured faces	F & E (5:1) % by weight		
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.

¹10 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

Mix Type	Percentage by Weight Passing Square Mesh Sieves										
	1 1/2 in	1 in	3/4 in	1/2 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	47-67				2-10
SM-9.5 A,D,E				100 ¹	90-100	58-80	38-67			23	2-10
SM-12.5 A,D,E			100	95-100	90	58-80	34-50			23	2-10
IM-19.0 A,D,E		100	90-100	90	--	--	28-49			max	2-8
BM-25.0 A,D	100	90-100	90	--	--	--	19-38				1-7
C (Curb Mix)			max.	100	92-100	70-75	50-60		28-36	15-20	7-9

¹A 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:

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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

¹Binder content should be selected at 4.0% air voids for A & D mixes, 3.5% air voids for E mix.

²Fines-asphalt ratio is based on effective binder content.

³Base 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 Approved List 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 Approved List 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

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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 150×10^{-5} cm/sec, or if the regression method predicts a permeability exceeding 150×10^{-5} cm/sec at 7.5% voids, the Contractor shall redesign the mixture to produce a permeability number less than 150×10^{-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 1/2"	1"	3/4"	1/2"	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

¹Defined 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

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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

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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.

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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.

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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.

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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.

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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.

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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 AWWPA M6.

- (c) **Wood Preservatives** - Wood preservatives shall conform to the requirements of the American Wood Protection Association (AWPA) U1 Standards. The AWWPA 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 Tables 1 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)

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Table 1 – Southern Yellow Pine Treatments & Retentions for Highway Construction per AWP						
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**

- 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 preservatives per **Table 2** below:

Alkaline Copper Quat (ACQ)
Copper Azole (CA)
Micronized Copper Azole (MCA)

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Table 2 – Southern Yellow Pine Treatments & Retentions for Hand-Contact Surfaces per AWWA					
Commodity Specifications		Use Category	Preservative Retentions		
Designation	Wood Usage		Waterborne (pcf)		
			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 AWWA 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 AWWA, U1 Standard.
5. Treated timber shall be supplied only from facilities on Approved List # 45.

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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

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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/ft²/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).

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- 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.

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Coefficient of Retroreflected Luminance (R_L)
(mcd/ft²/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

Color	1		2		3		4	
	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.

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- 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:

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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/ft²/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/ft²/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.

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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

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- (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.

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SS248-002020-01

May 26, 2023

VIRGINIA DEPARTMENT 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.

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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.

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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

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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.

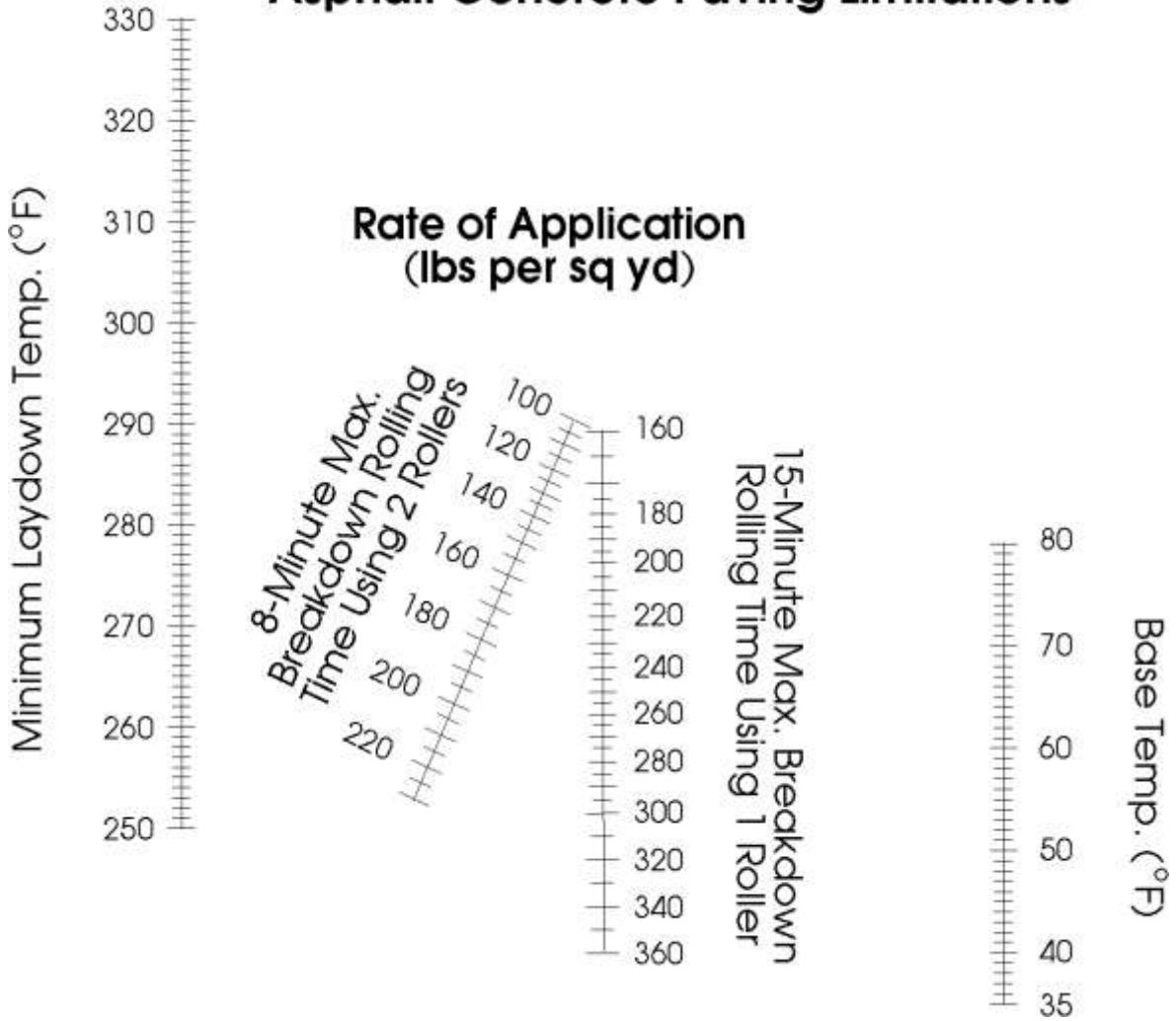
- 1. **When the base temperature is 40 degrees F and above:** The Engineer will permit lay-down at any temperature below the maximum limits given in Section 211.08.
- 2. **When the mixture temperature is below 200 degrees F:** The Contractor will not be allowed to place the material.

(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 shall the laydown temperature for BM and IM mixes be less than 250°F.

TABLE III-2
 Cold Weather Paving Limitations

Asphalt Concrete 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

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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.

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- 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

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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.

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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.

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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

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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– 96.5¹	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

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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 subplot. 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 subplot 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 subplot 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.

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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 subplot 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 subplot(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 subplot. 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.

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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 subplot. 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 subplot 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 subplot. 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.

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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.

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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.

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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

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- (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

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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.

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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

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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.

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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

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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

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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

Bolt Size	Required Min. Bolt Tension (lb.)	
	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.

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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.

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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:

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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.

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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 Contractor 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 materials 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.

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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.

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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.

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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 retroreflectivity readings. Retroreflectivity 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/ftc). 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/ftc, 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:

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- 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 (l) 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.

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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.

FTPMS 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.

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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.

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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/ft.

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.

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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.

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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

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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.

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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

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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 warrants 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

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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 (\pm 5 mils) above the riding surface, whether dense or open graded surface.

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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.

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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

¹Thinnest portion of the tape's cross section.

²Thickest portion of the tape's cross section.

³In accordance with manufacturer's installation instructions.

⁴In 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

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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.

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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 Department'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

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VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**GEOTEXTILE SEPARATION INTERLAYER AS A BOND-BREAKER FOR UNBONDED HYDRAULIC
CEMENT CONCRETE OVERLAYS**

September 27, 2023
PM5Z-047-F24, P401

I. DESCRIPTION

This is the Guide Specification for Geotextile Separation Interlayer to be used as a bond-breaker for Unbonded Hydraulic Cement Concrete Overlays as described herein, as shown on the plans and as directed by the Engineer.

II. MATERIALS

The geotextile fabric to be used in this project shall meet the minimum requirement mentioned in Section 245 of the Specifications and the following materials properties:

Table 1: Geotextile Materials Properties

Property	Requirement	Test Method
Fabric type	Nonwoven, needle-punched geotextile	
Mass per unit area	Min 15.0 oz/sq. yd	ASTM D 5261
Thickness under load (pressure)	Min 120 mil (at 0.29 psi) Min 100 mil (at 2.9 psi) Min 40 mil (at 29 psi)	ASTM D 5199
Tensile strength	Min 685 lb/ft	ASTM D 4595
Maximum elongation	130%	ASTM D 4595
Water permeability in normal direction	Min 3.3×10^{-4} (at 2.9 psi)	ASTM D 5493
Water permeability in plane direction	Min 1.6×10^{-3} (at 2.9 psi) Min 6.6×10^{-4} (at 29 psi)	ASTM D 6574
Weather resistance	70% strength retained at 500 hours	ASTM D 4355
Alkali Resistance	Min 97% Polyolefin	EN 13249 Annex B
Peel strength	4.2 lbs per linear inch (geotextile to concrete) 4.2 lbs per linear inch (geotextile to geotextile)	ASTM D 903

III. CONSTRUCTION

A. Site Preparation

Installation of the geotextile fabric shall be performed by using nails with washers to ensure the geotextile remains in place. For unbonded concrete overlays, the surface shall be clean swept before placing geotextile interlayer. Loose materials may damage geotextile during installation and service. Any superficial voids on the pavement surface up to 2 inches deep shall be filled with an approved material to provide a smooth and uniform surface. Areas greater than 2 inches deep

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should refer to special provision for **UNBONDED HYDRAULIC CEMENT CONCRETE OVERLAYS ON JOINTED CONCRETE PAVEMENT AND COMPOSITE PAVEMENT.**

B. Installation using Nails with Washers

a. Geotextile Placement

1. Place geotextile fabric on properly prepared and cleaned surface.
2. Roll the geotextile fabric onto the existing pavement surface. Keep the roll tight to minimize wrinkles, kinks, and folds.
3. The edges of the geotextile shall be overlapped by 8 inches +/- 2 inches. No more than three layers should overlap at any place.
4. Extend geotextile past both edges of the pavement a minimum of 6 inches and may be tied into a longitudinal underdrain system to provide positive drainage.
5. Roll the geotextile out in a sequence that facilitates good overlapping, prevents folding or tearing by construction traffic, and minimizes the potential that the material will be disturbed by the construction equipment/paver.
6. May utilize temporary gaps in geotextile where trucks are crossing and making sharp turns.

b. Geotextile Fastening

1. Geotextile fabric shall be secured to the underlying layer with nails placed through 2 to 2.75 inches galvanized washers or disks.
2. Secure initial geotextile roll end with nails with washers at 3-foot spacing.
3. Secure geotextile at 6-foot centers or less in both transverse and longitudinal directions. Longitudinal edges may require 3-foot spacing for extra security, especially in windy conditions.
4. Geotextiles roll end overlaps shall be secured with nails with washers at 3-foot spacings.
5. All nail lengths for the type of existing pavement shall be verified before installation begins. Usually, 0.75-inch nails for existing concrete pavements and 1.5-inch nails for asphalt or Cement Treated Base substructures should be used.
6. Fastening guns shall be tested to determine if nails can be driven to the required depth.
7. After evaluation, choose the fastener device that provides enough power to drive the selected nail into the existing pavement on a consistent basis.
8. If a nail does not fully penetrate the existing pavement, drive another nail and washer next to it. Remove loose nails to avoid truck tire punctures.
9. Use additional nails with washers as needed to ensure that the geotextile does not shift or fold before or during paving.
10. If vehicle traffic is present on the road or slow paving is expected, place geotextile no more than 650 ft distance before the paving process.
11. If construction traffic is expected to travel on geotextile, tight turns, sudden braking, and acceleration shall be avoided, as this could damage or disturb the placed geotextile. Any public traffic shall be controlled by flaggers or pilot cars and kept to a minimum.
12. If geotextile is being placed through an intersection or other area of higher traffic volume, place geotextile immediately before the paving process. This eliminates damage due to the heavy traffic directly on geotextile. Repair any traffic damage to the geotextile using a new piece of geotextile at no additional cost.

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13. If damage due to wind uplift or haul trucks occurs, cut out and replace the geotextile with adequate nails with washers at no additional cost.
14. Geotextile surface temperature shall be below 90-degree Fahrenheit at time of concrete placement to avoid heat stress and differential curing. Water misting can be used to reduce temperature.
15. Concrete overlay shall be placed directly on top of the firm geotextile layer. If geotextile becomes wet, it may be paved over provided there is no ponded water. Care should be taken not to displace geotextile while trucks drive on it, dump concrete into the paving apparatus, or onto the geotextile. Trucks shall release the emergency parking brake when dumping into an advancing paver to prevent damage to geotextile. Trucks should avoid sharp turns, hard braking, and quick acceleration. Concrete overlay shall be placed according to the project plans.
16. Geotextile shall be placed no more than five days before the paving process. Prolonged exposure to the elements may cause damage to geotextile. Do not allow construction equipment to track soil onto geotextile. Clean off any excess sediment and debris as it can impact drainage. Ensure water does not pond or deposit sediment on geotextile before concrete placement. Geotextile may be damp, but without standing water, during concrete placement.

IV. MEASUREMENT AND PAYMENT

Geotextile interlayer will be measured in Square Yards and will be paid for at the contract unit price per square yard. The price shall include all labor, equipment and materials required for site preparation, furnishing and installing geotextile fabric, overlaps, nails with washers for fastening to the existing pavement, and wastage. Any additional work that are required to meet this special provision copied note will be incidental and will not be measured and paid separately.

Payment will be made under:

Pay Item	Pay Unit
Geotextile Interlayer	Square Yard

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VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**UNBONDED HYDRAULIC CEMENT CONCRETE OVERLAYS ON JOINTED REINFORCED
CONCRETE PAVEMENT AND COMPOSITE PAVEMENT**

September 27, 2023
PM5Z-047-F24, P401

I. DESCRIPTION

This work shall consist of the construction of Unbonded Hydraulic Cement Concrete Overlays atop jointed reinforced concrete pavements and composite pavements as described herein, as shown on the plans and as directed by the Engineer and shall conform to section 316 of the Specifications except where amended below.

II. MATERIALS

Hydraulic Cement Concrete for unbonded hydraulic cement concrete pavement overlays shall be Class A4 General in accordance with Section 217 of the Specifications, except that the concrete shall have a minimum compressive strength at 7 days of 3000 psi (ASTM C39).

III. EQUIPMENT

Equipment and tools necessary for handling materials and performing the work shall be subject to the approval of the Engineer. The contractor shall provide the equipment and tools specified herein, or their approved equivalent, and they shall be of such capacity that the rate of placing concrete and finishing pavement will be continuous.

A Mechanical Spreader and Slipform Paver shall be used in the placement of concrete as described in section 316.03 of the Specifications.

IV. CONSTRUCTION

A. Pre-Overlay Repairs for Jointed Reinforced Concrete Pavement

Concrete pavement areas that are badly cracked or spalled more than 2 inches deep shall be patched with asphalt concrete. The areas to be patched shall be designated by the Engineer. VDOT shall mark the patch locations. Damaged area should be saw cut (or other method as approved by VDOT) to a minimum depth of 1.5" inches. A light weight (35 lb) jack hammer shall be used to break up loose materials (other method may be used as approved by VDOT). Exposed or visible steel not embedded shall be saw cut in place (existing position) and removed from the repair site. Use of torch cutting, jack hammer or pry bars shall not be permitted to remove steel. Repair site shall be thoroughly cleaned of all loose debris and dust. Repair surface shall have all surfaces thoroughly tacked. IM19.0E mix (up to 3" partial depth patch) or BM 25D mix (over 3" to full depth patch) shall be placed and compacted. Compacted patch shall be finished flushed with surrounding pavement in order to minimize rough ride. In areas where the Engineer deems the sub layer insufficient to support the patch, the sub layer shall be excavated to sound materials and replaced with aggregated 21B at the cost as bid per ton. This shall be full compensation for excavation and disposal of unsuitable sub layer furnishing, placing and compacting aggregate materials. Asphalt IM 19.0E or BM 25.0D patch includes saw cut and demolition of rigid pavement, removal/disposal and placing back asphalt. Number of lifts to be determined by the mix design and Specification 315.05 of the Specifications regarding nominal aggregate size. Asphalt patching material shall be compacted to minimum density of 91.5% of the maximum theoretical density. Patching shall be done no less than 24 hours prior to surface preparation for the overlay.

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B. Pre-Overlay Repairs for Composite Pavement

Asphalt pavement areas on composite pavements shall be milled to specified depth per typical section prior to placing an unbonded overlay. Milling operations shall be planned and performed to maintain positive drainage according to Section 315.05(c) of the Specifications. Note that an interlayer shall not be used for overlays on asphalt pavement.

C. Separation layer

a. Geotextile Separation Layer

After patching the deteriorated concrete as determined by the Engineer, a geotextile layer will be placed over the exposed concrete surface. All loose materials shall be swept from the existing pavement prior to the placement of the geotextile. The geotextile separator layer will be installed by using nails with washers to ensure the geotextile remains in place and shall be constructed in accordance with Special Provision for Fabric Interlayer.

b. Asphalt Separation Layer

After patching the deteriorated concrete as determined by the Engineer, a one-inch layer of asphalt stabilized open graded materials will be placed over the exposed concrete surface. Asphalt stabilized open graded materials shall be installed in accordance with the Section 313 of the Specifications.

D. Unbonded Concrete Overlay

a. Surface Cleaning

The existing surface shall be free of all loose or adhering foreign material prior to placement of the PCC. All holes greater than 2 inches wide and one inch deep in the surface shall be filled with patching material and shall be compacted to a flat, tight surface. Patching material for use in repair of surface defects prior to the overlay shall consist of approved asphalt concrete or materials from approved list 78.

b. Surface Condition of Fabric Interlayer

The surface temperature of the fabric shall not exceed 90 degrees F prior to the overlay placement. Fabric shall be tight without excess wrinkles and folds. Fabric shall be damp, but not saturated, prior to concrete placement.

c. Overlay Placement

The overlay concrete shall be constructed in accordance with Section 316 of the Specifications with the exceptions that the overlay concretes shall meet the materials requirements in section II and the overlay concrete shall be placed only when the air and concrete temperatures are between 50 and 85 degrees F. The longitudinal joints in the overlays shall be directly above the longitudinal joints in the pavement. The Contractor shall use the Maturity Test Method in accordance with ASTM C1074 to confirm the development of satisfactory strength gain to open the pavement to traffic provided the maturity test results are based upon the same concrete mix design as used in the pavement as approved by the Engineer. The minimum frequency of maturity testing shall be one per day of production, or every 0.5 mile of paving, whichever is greater. The Contractor shall not open pavement to any traffic until a minimum of 1500 psi compressive strength is achieved, per ASTM C1074 or specimen beams have attained a modulus of rupture strength of 600 pounds per square inch when tested by the third point loading method in accordance with ASTM C78.

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d. Joints

The final mainline pavement surface shall have both transverse and longitudinal joints in 6'x6' joint spacing. The concrete overlay shall be sawed 1/3 of overlay thickness. All contraction joints shall be sawed 1/3 of the overlay thickness. The joints shall be sawed as soon as possible without causing excessive raveling. Timing is critical and additional sawing may be necessary in order to keep up with pavers. All joints shall be cleaned and sealed in accordance with applicable section of the Standard Specifications or according to the manufacturer's recommendations in order to remove any incompressible from the joints. Tie bars (#4 bars, 30" long) shall be used along the longitudinal joints between the two lanes at a spacing of 30" c/c and shall conform to the requirement of section 223 of the Specifications.

e. Sealing Joints

1. Immediately prior to installation of sealant, joints shall be cleaned with an air blast or other means as recommended by the manufacturer. The Contractor shall not seal joints until visual examination verifies the joint surfaces appear dry and clear of dust and contamination. The Contractor shall prepare joint sealer and install in the joint to the proper level as shown in the Contract or as recommended by the manufacturer. The Contractor shall heat hot poured sealers in a thermostatically controlled heating kettle to the temperature required for use, but not above that recommended by the manufacturer. After sealing, excess sealer shall be removed from the pavement surface.
2. Place joint sealer only when the pavement and ambient air temperatures are 40°F or above. When near this minimum, additional air blasting, drying time, or both, may be necessary to ensure a satisfactory bond to the joint faces.
3. When surface correction is required, the Contractor shall repair seals damaged from the corrective work. Joint preparation, cleaning, and sealing may be delayed until after corrective work, provided the pavement is not opened to traffic before corrective work is performed.
4. Joint sealing details are shown in Figure 1.

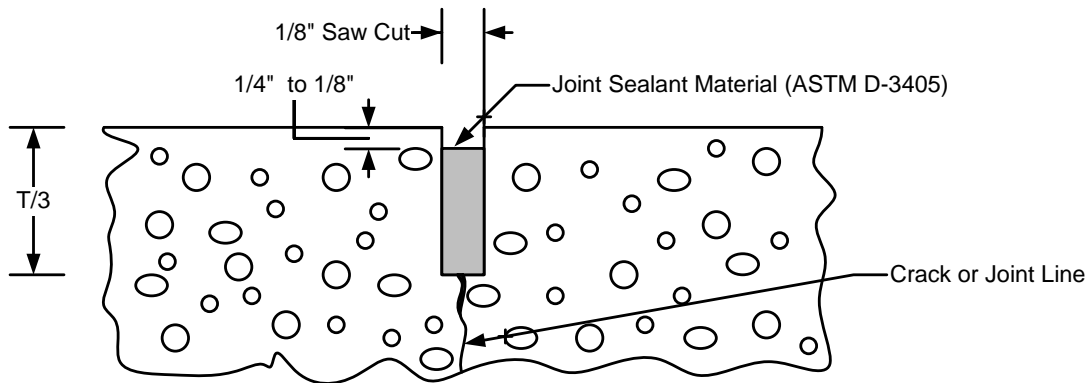


Figure 1: Joint Sealing Details

V. MEASUREMENT AND PAYMENT

Unbonded Hydraulic Cement Concrete Pavement Overlays will be measured in square yards and will be paid for at the contract unit price per square yard. These prices shall include all work involved

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in the cleaning, roughening or other preparation of the pavement, joint material, and for all labor, equipment, materials (excluding hydraulic cement concrete), testing and incidentals necessary to fully complete the work as described herein. This price shall include additional construction of 30-degree safety wedge not to be included in square yard measurement of unbonded hydraulic cement concrete pavement overlay.

Full or Partial depth AC patches will be measured in tons and will be paid for at the contract unit price per ton. These prices shall include all labor, materials and equipment necessary for saw cutting, removing, cleaning, preparing of the existing concrete pavement and placing, compacting and finishing the asphalt concrete and incidentals necessary to fully complete the work as described herein.

Hydraulic Cement Concrete will be measured by cross sectioning the final placement of concrete pavement. Total number of cubic yards shall be computed by the average end area method. Hydraulic Cement Concrete will be paid for at the contract unit price per cubic yard.

Payment will be made under:

Pay Item	Pay Unit
Unbonded Hydraulic Cement Concrete Pavement Overlay	Square Yard
Full or Partial Depth AC patches	Ton
Hydraulic Cement Concrete	Cubic Yard

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VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
**INSPECTING, REMOVING, & RETROREFLECTOR REPLACEMENT FOR EXISTING SNOW-
PLOWABLE RAISED PAVEMENT MARKERS (SRPMs)**

October 11, 2019
PM5Z-047-F24, P401

I. DESCRIPTION

This work shall consist of inspection and removal (if necessary) of existing Snow-plowable Raised Pavement Markers (SRPMs), or the replacement of missing or defective lenses (retroreflectors), in accordance with this provision and as directed by the Engineer.

II. MATERIALS

1. Retroreflectors for SRPMs shall conform to Section 235 of the Specifications.
2. Asphalt patching material shall be listed on the Department's Approved List 78.
3. Hydraulic cement concrete pavement patching shall conform to Section 217 for class A3 from the Department's Approved List 31.
4. Adhesive epoxy shall be listed on the Department's Approved List 22 used to install SRPM retroreflectors.

III. PROCEDURES

The Contractor shall have a certified Pavement Marking Technician present during all SRPM inspection and lens replacement operations. Pavement Marking Technician presence is not required for SRPM removal.

The Contractor shall inspect all SRPMs at locations designated in the schedule in the presence of the Inspector. When deficient or damaged SRPMs are discovered, the Contractor shall remove the SRPM as required.

Inspection and removal of SRPMs shall all be performed in one sequence of construction operation, unless otherwise approved by the Engineer.

If the contract involves application of Latex Modified, Slurry Seal, or Surface Treatment (LM/SS/ST) treatments, then existing SRPMs that have not been removed shall be protected while the LM/SS/ST material is applied. This protection covering shall cover the entire width and length of the SRPM, plus the areas 12 inches in front of and behind the existing holder. After LM/SS/ST application is complete, the Contractor shall completely remove all protection material, and install the new retroreflector. Unless approved otherwise by the Engineer, the protection removal and retroreflector installation shall take place in the same sequence of construction operation.

1. Inspection of SRPM's

The Contractor and Inspector shall inspect each existing SRPM to determine whether the SRPM must be removed. The inspection may be performed from a vehicle if the vehicle stops at each marker.

SRPMs shall be removed if ANY of the following criteria are met:

- Cast iron holder is cracked or damaged

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- Cast iron holder is no longer securely anchored to the pavement structure due to large areas of surrounding pavement deterioration or missing epoxy. The Contractor may need to probe with tools to determine the extent of bonding to the pavement structure. Such probing shall in no way loosen or destabilize a sound and properly affixed marker.
- SRPM front and back keel tips (heels) are flush with or slightly lower (less than 1/4 inch) than the pavement surface allowing a snowplow to pass over the top without imposing upward force on the SRPM.

The Contractor shall replace the lens unless the SRPM requires removal. If the SRPM requires removal, then the SRPM removed at that time. The Engineer will be the final arbiter on whether or not a SRPM needs to be removed.

2. Replacement of lenses in SRPMs

When replacing the lens in existing castings, the Contractor shall remove the existing lens, sandblast all adhesive material and rust from the lens cavity, and install the new lens. This work shall be accomplished in accordance with Section 704 of the Specifications and the retroreflector manufacturer's recommendations. Lens shall be of the same size as the existing lens in the casting. Replacement lens shall have the appropriate color according to Standard Drawing PM-8. Adhesive material for installing the new lens shall be in accordance with the lens manufacturer's recommendations.

3. Removal of SRPMs

SRPM removal shall consist of the removing each SRPM designated for removal and repair of the resultant roadway cavity by the Contractor. The Contractor shall remove the SRPM in such a manner as to minimize pavement structure damage surrounding the marker while effecting the removal.

The cavity shall be thoroughly cleaned and prepared to receive the patching material. The Contractor shall then patch the resulting cavity with either asphalt patching material or an adhesive epoxy. Asphalt patching material or epoxy shall be installed flush with the surrounding pavement when filling the cavity. The Contractor shall properly remove and dispose of the defective SRPM, associated retroreflector, and all debris.

IV. MEASUREMENT AND PAYMENT

Replacement of SRPM lens will be measured in units of each and will be paid for at the Contract each price. This price shall include the inspection; retroreflective lens; adhesives; removal of the existing lens, rust, and residue; and surface preparation.

Removal of SRPM will be measured in units of each and will be paid for at the Contract each price. This price shall include the inspection, removal of the steel casting, cleaning and preparing the surface, cavity patching, and disposal.

Covering of existing SRPMs during LM/SS/ST application will not be measured for payment. All cost for performing this work shall be included in the price bid for other items of work.

Payment will be made under:

Pay Item	Pay Unit
Replacement of SRPM lens	Each
Removal of SRPM	Each

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VIRGINIA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION FOR
VERIFICATION OF UTILITIES

October 27, 2023
PM5Z-047-F24, P401

I. DESCRIPTION

The intent of this provision is to identify ways to verify the locations of utilities within VDOT rights of way when installing guardrail in these areas.

The Contractor is advised that the Department has a number of utility facilities located within the limits of this project. Such facilities include, but are not limited to, those associated with VDOT's Traffic Management System, electrical facilities for powered signs and signals, fiber optics, etc. The Department's facilities will be marked by VDOT at the start of the contract time. It is the Contractor's responsibility to maintain these markings throughout the life of the project so as to prevent or minimize the potential of damage to these facilities as a result of the Contractor's operations. To that end, the Contractor shall employ all due care and diligence in maintaining these markings and being aware of their locations while performing the work. Should the markings be destroyed by the Contractor's carelessness or negligence, it shall be the Contractor's responsibility to make physical and financial arrangements to have them re-marked at the Contractor's expense.

II. PROCEDURES

When construction of guardrail appears to be in close proximity to existing utilities, the Contractor will be required to perform test pit excavations to verify the exact locations and elevations of these utilities and to determine if any of these utilities will be in conflict with the proposed work in accordance with the applicable Miss Utility Law. The Contractor shall dig the test pits well in advance of construction work as directed by the Engineer.

The Contractor shall coordinate with the utility owners to determine if the existing utilities are active, verify their extent and locations, and shall provide the following information to the Engineer: size and type of utility, station, elevation, offset and exact location in reference to the proposed work.

When the installation of guardrail posts is in close proximity to existing utilities and the Contractor has verified that installing such guardrail posts by driving or other mechanical means is prohibitive based on the information secured under the Miss Utility law(s), the Contractor shall install guardrail posts by hand digging in such areas. The depth/size of the holes shall be in accordance with the VDOT Road and Bridge Standards for the specific guardrail type being installed and shall be in conformity with existing lines, grades and limits or those established by the Engineer. After installation of posts, all post holes shall be backfilled and compacted with material conforming to Section 208 of Specifications and current details in the Standards.

The number of holes to be hand excavated is estimated in the Contract, however, additional holes may be required due to field conditions. The authorization of additional holes will be as directed by the Engineer.

III. MEASUREMENT AND PAYMENT

Hand dig guardrail post hole will be measured in units of each and will be paid for at the Contract each price. This price shall include all labor, tools, equipment, excavation, to include test pit excavation in paved and non-paved areas, sheeting/shoring, backfill, compaction, disposal of surplus material, restoration of the disturbed area and incidentals necessary to completely install guardrail post. Hand dig guardrail post hole shall only apply to posts that cannot be installed by driving or mechanical means in areas identified on the Plans or where directed by the Engineer.

ORDER NO.: K92
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Payment will be made under:

Pay Item	Pay Unit
Hand dig guardrail post hole	Each

TIER 1 PROJECT

**"NO PLAN" RAAP (CONSTRUCTION & MAINTENANCE) PROJECTS
 COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF TRANSPORTATION**

CONSTRUCTION: MAINTENANCE:

District: Hampton Roads City/County: James City County UPC NO: 123767
 FUNCTIONAL CLASS Other Principle Arterial FHWA 534 Data 43106 Type Code _____
 ROUTE: 60 PROJ. PM5Z-047-F24,P401 FEDERAL NO.: PM05537
 FROM: 2,300' east of Rte 30/60 intersection TO: 1,980' west of the New Kent Co./James City Co. line
 LENGTH (FEET): 31,152.00 MILES 5.9
 TOPO: _____ DESIGN SPEED (MPH): 60 VPD (YEAR) 6650 (2022)
 PROJECT MGR: Stephanie Lagarile R/W DONATION: N/A

Utilities No and/or Railroads No are involved in the construction of this project.


This project is to be constructed in accordance with the Department's 2020 Road and Bridge Specifications; 2016 Road and Bridge Standards Revised June 2022; 2009 MUTCD, 2011 Virginia Supplement To The MUTCD, Revision 1 effective Sept. 30, 2013; 2011 Edition of the Virginia Work Area Protection Manual with Revision 2.1 (November 1, 2020); and as amended by contract provisions and the complete plan assembly.

Design features relating to construction or to regulation and control of traffic may be subject to change as deemed necessary by the department.


RECOMMENDED FOR APPROVAL FOR CONSTRUCTION	
Todd M Halacy P.E.	Digitally signed by Todd M Halacy P.E. Date: 2023.11.02 12:58:37 -04'00'
	Todd M. Halacy, PE
DATE	DISTRICT PLANNING AND INVESTMENT MANAGER
Bruce L Duvall P.E.	Digitally signed by Bruce L Duvall P.E. Date: 2023.11.02 13:13:06 -04'00'
	Bruce L. Duvall, PE
DATE	DISTRICT PROJECT DEVELOPMENT ENGINEER
APPROVED FOR CONSTRUCTION	
Christopher G Hall	Digitally signed by Christopher G Hall Date: 2023.11.02 15:07:21 -04'00'
	Christopher G. Hall, PE
DATE	DISTRICT ENGINEER

**“NO PLAN” RAAP (CONSTRUCTION & MAINTENANCE) PROJECTS
COMMONWEALTH OF VIRGINIA
DEPARTMENT OF TRANSPORTATION**

SEALING AND SIGNING SHEET


Timmons Group Richmond, Virginia ROADWAY/HYDRAULIC ENG.

Responsible for Pages X to XX


Timmons Group Richmond, Virginia TRAFFIC ENGINEER

Responsible for Pages X to XX

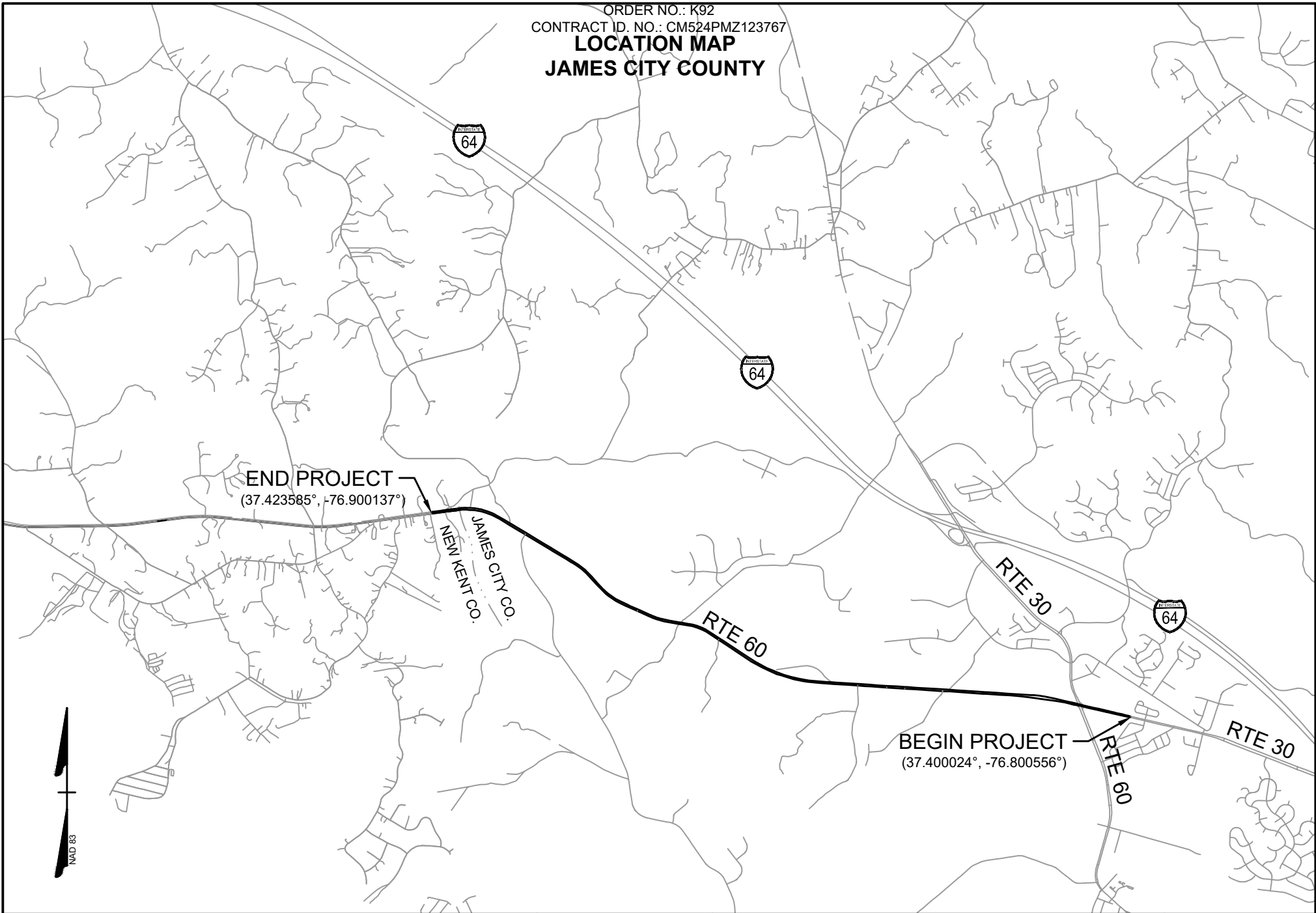
VDOT (Division) or Company Name Insert Location, Virginia Insert Technical Discipline

Responsible for Pages x to xx

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CONTRACT ID. NO.: CM524PMZ123767
LOCATION MAP
JAMES CITY COUNTY



SCALE 1"=5,000'
0 5,000' 10,000'



PROJECT LOCATION MAP
US ROUTE 60, JAMES CITY COUNTY VA

SHEET NO.
LM-1

GENERAL NOTES

GENERAL NOTES

GRADING GENERAL NOTES

G-1 The grade line denotes top of finished pavement unless shown otherwise on typical sections or plans.

DRAINAGE GENERAL NOTES

D-1 The horizontal location of all drainage structures shown on these plans is approximate only, with the exception of structures showing specific stations, special design bridges and storm sewer systems.

D-2 The horizontal location and invert elevations shown for proposed culverts and storm sewer outfall pipes are based on existing survey data and required design criteria. If, during construction, it is found that the horizontal location or invert elevations shown on the plans differ significantly from the horizontal location or elevations of the stream or swale in which the culvert or storm sewer outfall pipe is to be placed, the Engineer shall confer with, and get approval from, the applicable District Drainage Engineer before installing the culvert or storm sewer outfall pipe.

D-3 The "H" dimensions shown on the plans for drop inlets and junction boxes and the "L.F. (m)" dimensions shown for manholes are for estimating purposes and are based on the proposed invert elevations shown for the structure and the anticipated top (rim) elevation based on existing or proposed finished grade. The actual "H" or "L.F. (m)" dimensions are to be determined by the contractor from field conditions.

D-6 Pipes shall conform to any of the allowable types shown on sheet number (specify sheet number), within the applicable height of cover limitations. For strength, sheet thickness, or class designation, available sizes, height of cover limitations and other restrictions for a particular pipe type or height of cover, see the VDOT Road and Bridge Standard PC-1. Structural plate pipe may be substituted for corrugated pipe of the same size and a structural plate pipe arch may be

substituted for a corrugated pipe arch of the same size, provided the substitution complies with the applicable sections of the VDOT Road and Bridge Standard PC-1.

D-7 All pipes shown are existing and shall remain in place and undisturbed unless otherwise directed by the ACE.

D-10 The proposed riprap may be omitted by the Engineer if the slope designated for placement of riprap is found to be comprised of solid rock or closely consolidated boulders with soundness, size and weight equal to, or exceeding, the specifications for the proposed riprap.

D-13 Existing drainage facilities being utilized as a part of the drainage system, and designated on the plans "To Be Cleaned Out", shall be cleaned as directed by the Engineer. The cost incidental to this shall be included in the contract price for other items.

D-14 Proposed drop inlets with a height (H) less than the standard minimum shown in the VDOT Road and Bridge Standards shall be considered and paid for as Standard Drop Inlets for the type specified. Pipes with less than standard minimum finished height of cover shall be noted as such in the drainage description for the pipe. Specific pipe bedding and cover requirements are provided in the applicable PB-1 and PC-1 standard drawings of the VDOT Road and Bridge Standards.

D-16 When Standard CG-6 or CG-7 is specified on a radius (such as at a street intersection), the Engineer may approve a decrease in the cross slope of the gutter to facilitate proper drainage.

D-100 At the direction of the Department, the contractor shall install 3 tons of Class A1 riprap in the Standard EC-1 configuration of pipe outfalls requiring stabilization.

D-101 At the direction of the Department, the contractor shall install Std. EC-2, Type 4 matting to ditches requiring stabilization.

PAVEMENT GENERAL NOTES

P-2 The pavement materials on this project will be paid for on a tonnage basis. The weight will vary in accordance with the specific gravity of the aggregates and the asphaltic content of the mix actually used to secure the design depth. The weight of the asphalt concrete is based on 95% of theoretical maximum density.

P-100 Any references to Safety Edge is applicable to Safety Wedge and vice versa.

INCIDENTAL GENERAL NOTES

I-9 When no centerline alignment is shown for a proposed entrance, the entrance shall be constructed in the same location as the existing entrance.

I-20 The Official Electronic PDF Version of the plans will override the paper copies or prints of specific layers. Portions of this plan assembly have been CADD generated. To assist in the preparation of the bid and construction of the project, Microstation format (.dgn) files will be made available to the prime contractor during bids and after award of the contract.

I-21 All electronic plan assemblies will include the construction plans in two formats: PDF files and Microstation format (.dgn) files. Only the PDF files will be considered as part of the official plan assembly.

The Microstation format (.dgn) files are furnished only as information for the contractor. These plans are developed in layers (levels) to aid in readability. (See the VDOT CADD Manual for CADD Level Structure). However, the construction items may or may not be in the proper layering scheme as described in the VDOT CADD Manual. The Microstation files will only match the scanned files if all required levels are turned on. A Microstation Software license is required to be able to read these files.

SUMMARY OF ESTIMATED QUANTITIES

ITEM #	SPEC. NO.	DESCRIPTION	UNIT	EST. QUANTITY
		Demolition, Sawcut, Earthwork		
513SD20-0001	513	MOBILIZATION	LS	1
517SD20-0002	517	CONSTRUCTION SURVEYING MIN.-PLAN	LS	1
303SD20-0001	303	REGULAR EXCAVATION	CY	225
303SD20-0007	303	BORROW EXCAVATION	CY	500
515SD20-0005	515	FLEXIBLE PAVE. PLANING ABOVE 2"-4"	SY	45455
515SD20-0004	515	FLEXIBLE PAVE.PLANING 0"-2"	SY	24550
315SD20-0104	315	SAW-CUT ASPHALT CONCRETE	LF	500
316SX20-0010	316	SAW-CUT HYDR. CEM.CONC. PAVE. CONTRACTION JOINTS 1/3 RD DEPTH	LF	391776
510SX20-0031	510 & 521	NS MODIFY EXIST. RELOCATE EXISTING MAILBOX	EA	110
510SX20-0002	510	REMOVE COMB. CURB AND GUTTER	LF	312
510sx20-0015	510	REM. EXIST. PAVED DITCH	SY	300
		Drainage		
302SD20-0023	302	15" PIPE (<i>See note 1.</i>)	LF	1451
414SD20-0008	414	DRY RIPRAP CL. AI	TON	60
502SD20-0022	502	STD. COMB. CURB & GUTTER CG-6	LF	312
510SX20-0026	510	REMOVE EXISTING DROP INLET	EA	1
510SX20-0027	510	REMOVE EXISTING MANHOLE	EA	3
510SX20-0039	510	REMOVE EXISTING PIPE	LF	2000
302SD20-0447	302	DROP INLET DI-7 (<i>See note 2.</i>)	EA	2
302SD20-0237	302	DROP INLET DI-1 (<i>See note 3.</i>)	EA	2
302SD20-0662	302	MANHOLE MH-1 OR 2	LF	10
414SD20-0003	414	EROS.CTRL.STONE CL. I, EC-1	TON	100
302SD20-0663	302	FRAME & COVER MH-1	EA	3
502SD20-0003	502	PAVED DITCH PG-2A	SY	300
502SD20-0004	502	PAVED DITCH PG-5	SY	300
510SX20-0031	510	MODIFY EXISTING DROP INLET	EA	4
		Pavement, Stone, Curb & Cutter, Misc. Roadway Items		
313SD20-0001	313	ASPH-STAB. OPEN-GRADED MATERIAL	TON	2480
308SD20-0007	308	AGGR. MATL. NO. 21B	TON	146
315SD20-0034	315	ASPH. CONC. TY. SM-12.5D MAINT.	TON	980
315SD20-0029	315	ASPH. CONC. TY. SM-9.5D MAINT.	TON	792
315SD20-0010	315	ASPHALT CONCRETE TY. BM-25.0A	TON	1584
308SD20-0008	308	AGGR. MATL. NO. 25 OR 26	TON	32525
316SX20-0004	ATTD	NS PAVEMENT HYD.CEM. CONC.PAVE.7 INCH UNBONDED	SY	146595
404SX20-0004	ATTD	NS CONCRETE HYD. CEMENT CONCR. PAVEMENT	CY	32102

316SX20-0004	ATTD 316	NS PAVEMENT PLAIN HYDR. CEM. CONC. PAVE. 11"	SY	3613
305SP20-0003	ATTD	AGR.BASE MAT.TY.I OR II NO. 21A OR21B	TON	832
318SD20-0001	ATTD	PAVING FABRIC (TYPE I) GEOTEXTILE INTERLAYER	SY	24270
508SD20-0003	508	DEMO. OF PAVEMENT RIGID	SY	2550
508SD20-0004	508	DEMO. OF PAVEMENT FLEXIBLE	SY	15000
323SD20-0030	323	NS TRAVEL LANE PATCHING (IM-19.0A)	TON	930
		Signing / Pavement Marking / Maintenance of Traffic		
512SD20-0013	512	TYPE 3 BARRICADE 8'	EA	96
512SD20-0014	512	TEMPORARY SIGN CONSTRUCTION SIGN	SF	6880
512SD20-0023	512	TRUCK MOUNTED ATTENUATOR	HR	8060
512SD20-0024	512	GROUP 2 CHANNELIZING DEVICES	DAY	14400
512SD20-0025	512	PORT.CHANGEABLE MESS. SIGN	HR	10000
512SD20-0026	512	ELECTRONIC ARROW BOARD	HR	11760
512SD20-0027	512	FLAGGER SERVICE	HR	250
701SD20-0001	701	SIGN PANEL	SF	507
700SD20-0003	700	REMOVE EXISTING 1 POST SIGN STRUCTURE	EA	69
700SD20-0004	700	REMOVE EXISTING 2 POST SIGN STRUCTURE	EA	2
700SD20-0034	700	SIGN POST STP-1, 2", 14 GAUGE	LF	290
700SD20-0035	700	SIGN POST STP-1, 2 3/16", 10 GAUGE	LF	100
700SD20-0036	700	SIGN POST STP-1, 2 1/2", 10 GAUGE	LF	170
700SD20-0037	700	SIGN POST STP-1, 2 1/2", 12 GAUGE	LF	150
700SD20-0038	700	CONC. SIGN FDN. STP-1 TY.A	EA	71
700SD20-0118	703	14/1 CONDUCTOR CABLE ENCLOSED	LF	514
700SD20-0182	703	CONDUIT PVC 1"	LF	25
700SX20-0008	700	TEMP TRAFFIC SIGNALIZATION	LS	1
703SD20-0042	703	LOOP SAW CUT 3/8"	LF	180
703SD20-0043	703	LOOP SAW CUT 5/8"	LF	25
512SD20-0046	704	TEMP. PVMT MRKG TY. A, 4"	LF	108664
512SD20-0049	704	TEMP. PVMT MRKG TY. A, 12"	LF	200
512SD20-0061	704	TEMP. PVMT MRKG TY. D, CL.III, 4"	LF	138536
704SD20-0006	704	TYPE B CLASS I PVMT LINE MRKG 4"	LF	10270
704SD20-0007	704	TY B CL I PVMT LINE MRKG 6"	LF	12837
704SD20-0047	704	PVMT.SYMB MRKG SGL TURN ARR. TY B CL I	EA	8
704SD20-0030	704	TYPE B CLASS VI CONTRAST PVMT LINE MRKG 4"	LF	69970
704SD20-0031	704	TYPE B CLASS VI CONTRAST PVMT LINE MRKG 6"	LF	55970
512SD20-0042	512	ERADICATE EX. LINEAR PVMT MRKG	LF	173000
512SD20-0043	512	ERAD. EXIST.NONLINEAR PVMT MRKG	SF	250
704SP20-0001	510	REMOVE EXIST. REM. EXIST. RAISED PAVE. MARKER	EA	710
704SD20-0032	ATTD	INLAID PAVEMENT MARKER ASPHALT	EA	24
704SD20-0033	ATTD	INLAID PAVEMENT MARKER CONCRETE	EA	660
512SD20-0044	512	TEMP. PAVE. MARKER 1 WAY	EA	200
512SD20-0045	512	TEMP. PAVE. MARKER 2 WAY	EA	660
512SD20-0061	ATTD	TY.D,CL.III TEMP. PVMT MRKG 4"	LF	138536

512SD20-0066	512	TRAFFIC BARRIER SERVICE CONC.	LF	240
704SP20-0001	ATTD	REMOVAL OF SRPM	EA	710
		Erosion and Sediment Control / Seeding		
602SD20-0002	602	TOPSOIL CLASS A	CY	17600
603SD20-0002	603	TEMPORARY SEED	LB	2953
603SD20-0003	603	REGULAR SEED	LB	4725
603SD20-0004	603	OVERSEEDING	LB	3780
603SD20-0007	603	HYDRAULIC EROSION CONTROL PRODUCT TYPE 1	SY	72600
603SD20-0009	603	HYDRAULIC EROSION CONTROL PRODUCT TYPE 3	SY	23232
603SD20-0014	603	FERTILIZER NITROGEN - N	LB	5131
603SD20-0015	603	FERTILIZER PHOSPHOROUS - P	LB	6751
603SD20-0016	603	FERTILIZER POTASSIUM - K	LB	1876
603SD20-0017	603	LIME	TON	122
606SD20-0007	606	ROLLED EROSION CTRL PRODUCT EC-3 TYPE 3	SY	180
303SD20-0022	303	CHECK DAM, ROCK TY. I	EA	119
303SD20-0029	303	SILTATION CONTROL EXCAVATION	CY	1670
303SD20-0030	303	INLET PROTECTION , TYPE A	EA	40
303SD20-0034	303	TEMP. SILT FENCE TYPE A	LF	27825
303SD20-0028	303	DEWATERING BASIN EC-8 <i>(See note 4.)</i>	EA	5
512SD20-0037	512	TEMP. DIVERSION GS-10 TY. A <i>(See note 4.)</i>	LF	200
606SD20-0004	606	ROLLED EROSION CTRL EC-2 TYPE 4 <i>(See note 4.)</i>	SY	500
		Guardrail		
505SD20-0011	505	GUARDRAIL GR-MGS1	LF	13425
505SD20-0017	505	GUARDRAIL TERMINAL GR-MGS2	EA	40
505SD20-0019	505	GUARDRAIL HEIGHT TRANSITION GR-MGS4	EA	12
505SD20-0040	505	GUARDRAIL GR-10	LF	25
505SD20-0047	505	FIXED OBJECT ATTACH. GR-FOA-3 TY. I	EA	4
505SD20-0053	505	FIXED OBJECT ATTACH. GR-FOA-2 TY. I	EA	4
505SX20-0058	ATTD	NS GUARDRAIL TERMINAL SITE PREP. MINOR	EA	16
505SX20-0058	ATTD	NS GUARDRAIL MGS2 END TERMINAL SITE PREP., 4' MODERATE	EA	5
505SX20-0058	ATTD	NS GUARDRAIL MGS2 END TERMINAL SITE PREP., 6' MODERATE	EA	19
305SP20-0005	ATTD	MACHINING SHOULDERS	LF	106234
505SD20-0009	505	REMOVE EX. GUARDRAIL TERMINAL	EA	15
505SD20-0073	505	REMOVE EXISTING GUARDRAIL	LF	5463
601SD20-0001	601	SEL TREE REMOVAL TRIM AND CLEAN	ACRE	0.4
505SD20-0018	505	GUARDRAIL END ANCHORAGE GR-MGS3	EA	12
505SX20-0001	ATTD	HAND DIG GUARDRAIL POST HAND DIG	EA	1215

NOTES:

- 1. The quantity includes 15" pipe for the proposed temporary crossover culverts/storm sewer and any other driveway culvert replacement as the ACE determines necessary during construction.*
- 2. The quantity includes DI-7 for the proposed temporary crossover and any other drop inlet as the ACE determines necessary during construction.*
- 3. The quantity includes DI-1 for the proposed temporary crossover and any other drop inlet as the ACE determines necessary during construction.*
- 4. The quantity shall be included for the ACE to determine as necessary during construction.*

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TRAFFIC MANAGEMENT PLAN

Introduction

The Hampton Roads District developed this project for the concrete rehabilitation of the existing eastbound and westbound lanes of US route 60 in James City County. This project will consist of patching and overlaying the existing roadway with an unbonded hydraulic cement concrete pavement overlay. The length of the project is approximately 5.9 miles.

GENERAL NOTES:

1. No work to be performed within one mile in any direction of a polling location on any scheduled Election Day between the hours of 5:00 AM and 8:00 PM. A list of poll locations can be found on the Virginia Department of Elections at this web site:
<https://www.elections.virginia.gov/>
2. All work performed under this contract shall conform to the conditions of the permits and, regulatory approvals and be in accordance with Section 107.02 of the 2020 Road and Bridge Specifications.
3. Protection of Items – It shall be the Contractor’s responsibility to protect all items in the roadway, shoulders and Right-of-Way to include, but not limited to, drop inlets, electrical junction boxes, manhole covers, adjacent concrete items and concrete entrance aprons throughout the course of the work. Failure to protect such items will result in their replacement and/or a thorough cleaning to the satisfaction of the Engineer, at no additional expense to the Department.
4. Utilities – The Contractor shall preserve and protect all utility components located within the perimeter of the paving operations to include, but not limited to, drainage structure grates, drains, and utility box covers. The Contractor shall consult with the Engineer prior to paving operations over any piezo sensors/traffic loop counters located within the project limits.
5. The Contractor shall schedule the sequence of construction for this contract so that traffic shall not be disrupted by lane or shoulder closures during the time periods described herein. In addition to weekday lane or shoulder closures, some weekend closures may be allowed when approved in writing by the Engineer.
6. Restoration of traffic shall mean the opening of all traffic lanes to traffic including the completion of all construction work, the removal of all workers, materials, signs and equipment from the roadway within the time restraints.

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Type A
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7. The Contractor shall be responsible for field verification of all information listed in the Summary of Estimated Quantities prior to ordering of any material.
8. While complying with the time restrictions in the Temporary Traffic Control Plan, the Contractor may have a 2-mile lane closure separated by not less than 3 miles or one interchange from a subsequent lane closure. Separation shall be measured from last channelizing device of upstream lane closure to electronic arrow of downstream lane closure. For purposes of this note, an interchange will be from full width of upstream deceleration lane to 1500 feet downstream of the end acceleration lane taper.
9. A Portable Changeable Message Board shall be required to provide advance public notification.
10. This project is on US Route 60 and begins 2,300 feet east of the US Route 60/Route 30 intersection (Anderson's Corner) in James City County and ends 1,980 feet west of the James City County/New Kent County line.
11. The purpose of this project will consist of patching and overlaying the existing roadway with an unbonded hydraulic cement concrete pavement overlay. Work is anticipated to be completed with minor encroachment into the existing roadway, implementing temporary traffic control operations including, but not limited to, temporary traffic signal modifications, lane closures, and lane shifts.
12. Traffic along the impacted routes consists of thru and local traffic.
13. All work areas (and limits thereof) and lane closures shall be in accordance with the Virginia Work Area Protection Manual, 2011 Edition, (November 1, 2020 Revision) and shall be directed and approved by the Engineer. The Department reserves the right to change any or all the work hours stated below when such changes are in the best interest of the traveling public.
14. The contractor shall not conduct operations when the weather causes unsafe conditions for the traveling public as determined by the Engineer.
15. 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

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signs, barricades, other channelizing devices, and lights during the time that traffic is restricted due to maintenance operations.

PERMANENT MARKINGS & MARKERS

1. The contractor is responsible for field verification of all information listed in the Traffic Item Schedule.
2. The contractor will be responsible for the installation of new pavement line and message markings in accordance with the 2009 MUTCD, 2011 Virginia Supplement to the MUTCD, with Revision 1 (August 31, 2019), and this contract.
3. All work is to be performed in accordance with the standards set forth in the current Road and Bridge Standards.
4. Unless otherwise noted, the contractor shall use Thermoplastic material for all Message Marking items. This shall include but not limited to Arrows, SCHOOL, RXR Crossing and Stop Bars.
5. Any sweeping on the bridge decks will be considered incidental to the installation of the Pavement Marking Materials and will not be considered for additional payment.
6. All Traffic Control Devices shall be removed from the roadway and stored in a location suitable to the Department when not in use.
7. Group II Channelizing Devices shall be used in all stationary lane closure transitions in both daytime and nighttime operations.
8. Questions concerning specific work zone or TMP coordination issues should be directed to the VDOT Area Construction Engineer, Mr. Jim Klotz, P.E. (757)274-2552; or the appointed VDOT Construction Manager.

TEMPORARY TRAFFIC CONTROL (TTC) / MAINTENANCE OF TRAFFIC (MOT):

1. Disruption operations are anticipated for this project and shall be provided in accordance with the Virginia Work Area Protection Manual, 2011 edition, (November 1, 2020 revision). Specifically, the following 2011 VA WAPM temporary traffic control measures shall be used regularly:

TTC-1.1 WORK BEYOND THE SHOULDER OPERATION

TTC-3.2 MOBILE OR SHORT DURATION SHOULDER OPERATION

TTC-5.2 SHOULDER OPERATION WITH MINOR ENCROACHMENT

TTC-4.2 STATIONARY OPERATION ON A SHOULDER

TTC-14.2 MOBILE OPERATION ON A TWO-LANE ROADWAY

TTC-16.2 OUTSIDE LANE CLOSURE OPERATION ON A FOUR-LANE ROADWAY

TTC-17.2 INSIDE LANE CLOSURE OPERATION ON A FOUR-LANE ROADWAY

TTC-25.2 LANE CLOSURE OPERATION ON A TWO-LANE ROADWAY USING TRAFFIC CONTROL SIGNAL

TTC-44.2 MEDIAN CROSS-OVER ON A MULTI-LANE ROADWAY

TTC-58.1 END OF DAY SIGNING FOR FULL PAVING OPERATIONS ON A MULTI-LANE ROADWAY

TTC-53.0 SIGNING FOR PROJECT LIMITS

TTC-60.0 TEMPORARY PAVEMENT MARKING AND MAKER GUIDELINES

2. This is a complex operation in a rural setting, the TTC measures above are for reference only. Any combination of the above TTC measures or TTC measures not listed above may be necessary. The contractor shall install all necessary signs and/or other traffic control devices in accordance with the Virginia Work Area Protection Manual, 2011 edition, (November 1, 2020 revision).
3. All private and commercial entrances and access to adjacent properties shall be maintained at all times throughout the project. Contractor shall provide written notice to affected properties prior to commencement of work. The written notice to affected property owners shall include information on the public meeting. A copy shall be provided to VDOT 30-60 days prior for approval.
4. The Contractor may not park or stage equipment along the right-of-way or on VDOT property without prior written approval from the Engineer 10 days prior to the start of work. Contractors choosing to park equipment on VDOT right-of-way do so at their own risk. VDOT will not be liable for any loss including damage, theft, or vandalism. All parking on VDOT's right of way shall be done in a safe manner and outside of the clear zones. Contractor's equipment should not create sight distance issues for the traveling public. If

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Contractor's equipment is parked on private property, written permission must be granted by landowner prior to parking equipment.

5. The contractor shall submit plan and methodology of constructing crossovers 30 days prior to public meeting for review by A.C.E. and materials engineer.
6. The contractor shall relocate existing mailboxes and adjust driveways to accommodate the new pavement construction.
7. The contractor is responsible for communications, including notification of impacts and access changes to the general public and all affected residences and businesses; the details of which are listed in the public communications plan. VDOT Communications shall be copied on all applicable correspondence.
8. The contractor shall submit a detailed maintenance of traffic plan for all phases of construction for review and approval by the A.C.E., Traffic Engineering, and materials engineer 30-60 days prior to the commencement of any work that impacts the traveled way. The detailed MOT plans shall be in accordance with the current VDOT Work Area Protection Manual and Location and Design Division IIM-TE-351.59. The detailed MOT plans shall be sealed by a licensed VA PE with Advanced Work Zone Traffic Control Training certification.
9. Rideability will be a pay factor for the project and shall be in accordance with the VDOT Special Provision for RIDEABILITY FOR HYDRAULIC CEMENT CONCRETE PAVEMENT.
10. Portable Changeable Message Signs (PCMS) are required 30 days in advance of lane shifts and as required by the VDOT Work Area Protection Manual.

PUBLIC COMMUNICATION PLAN:

Lane closures and stopping of traffic shall only be allowed on Rte 60, Rte 30, or any other connecting road during the hours listed in the Allowable Lane Closure Hours for State Highway System in Hampton Roads, Rev April 2022 document. Each lane closure will be governed by the times established by the regional traffic engineer and the Hampton Roads Transportation Operations Center (HRTOC) as shown within the contract. The contractor and VDOT are to coordinate in notifying the public of proposed lane closures. The process developed by the traffic operations center for this purpose is as follows:

1. Contractor to submit to the project manager or designee planned lane closure for the following week by noon on Tuesday.
2. Contractor to submit planned lane closure for the upcoming week using the lane closure advisory and management system (LCAMS). The lane closure information has to be input into LCAMS and in accordance with LCAMS VA Traffic SP before Noon Wednesday for the following week.
3. HRTOC is to review planned lane closure schedule for any conflicts and notify project manager or designee by noon Friday.

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Type A
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4. Contractor to confirm their intent to install proposed and previously approved lane closures with the project manager or designee a minimum of 24 hours in advance of proposed lane closure as previously scheduled.
5. Contractor or designee to advise residency administrator, facility maintenance manager, and District public affairs as well as the HRTOC of proposed lane closure. Contractor or designee to have VA-TRAFFIC operator enter data into VA-TRAFFIC and to update the HRTOC daily during lane closures activities.
6. The Hampton Roads District Public Affairs Office will use various media publications to announce planned lane closures.
7. Contractor shall hold a project public meeting and project public meeting updates in accordance with Location and Design Division - Public Involvement Manual, Rev. Nov. 2021. The meetings shall be scheduled with the approval of VDOT, to discuss the access plan, project schedule, and anticipated impacts, at least 30 days prior to the commencement of any construction.

TRANSPORTATION OPERATION PLAN:

1. The contractor shall notify VDOT transportation operations center when the closure is implemented, and again when it is removed. VDOT traffic operations center will in turn place the information into the "511 Virginia" traffic alert system (a service of the Virginia Department of Transportation Traffic System).

2. In case of an Emergency, Call 911

The following is a list of local emergency numbers:

Virginia State Police – 757-787-5813 or 1-800-582-8350

James City County Sheriff – 757-294-5264

York County Sheriff – 757-890-3621

911 Center - 911

Haz-Mat Center (if spill involved) - 9113.

3. Procedures to respond to traffic incidents that may occur in the work Zone:
 - a. Contractor to notify State Police and VDOT Inspector in Charge.
 - b. Depending upon severity of incident, contractor may have to shut down work.
 - c. Upon arrival on scene, State Police to determine response necessary to allow traveling public around incident.

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- d. Inspector to notify Construction Manager/Resident Administrator of incident and take pictures as necessary, especially pictures of contractor's work zone to verify the proper setup.
- 1) Process of notification of incident to be followed is Contractor to call:
 - a. Project Maintenance of Traffic Coordinator (Inspector) To Be Determined
 - b. Project Manager (Construction Manager) To Be Determined
 - c. Area Construction Engineer, James Klotz, P.E., (757) 274-2552
 - d. Residency Administrator, Rossie Carroll – 757-253-5140
 - e. District Work Zone Safety Coordinator, John Sabato, 757-956-3143; (757) 284-9352
 - f. District Safety & Compliance Manager, Rodney Higgs, 757-681-2576
 - g. District Traffic Engineer, Tim Haynam, P.E., 757-376-7406
 - h. District Public Affairs Office, (757) 956-3032
 - 2) The State Police will take control of the incident and direct its clearing and restoration to normal traffic conditions.
 - 3) The State Police report of the incident will be reviewed by the Area Construction Engineer to determine if any modification of the Temporary Traffic Control Plan is necessary. If it is determined that it is necessary to alter the plan, then a meeting will be called with the contractor, VDOT project personnel, VDOT traffic safety representatives and the State Police (if necessary) to discuss modification and implementation of an improved traffic control plan.

TMP GENERAL NOTES:

1. Any required lane closures and stopping of traffic must be approved in advance by VDOT.
2. Lane closures and stopping of traffic shall only be allowed on ~~Rte 60, Rte 30~~, or any other connecting road during the hours listed in the Allowable Lane Closure Hours for State Highway System in Hampton Roads, Rev April 2022 document and in accordance with holiday restrictions. The hours listed in the Allowable Lane Closure document for US 60 is 7pm to 6am; and 9am to 3pm for Monday thru Friday, unless otherwise directed by VDOT. For more information, see suggested sequence of construction on this sheet. Upon implementation of lane closure with temporary traffic control, the contractor shall expedite construction, to extents practical.
3. Traffic shall not be stopped on any alley or connecting street for longer than fifteen minutes at any time unless otherwise directed by VDOT.

4. All traffic control shall be set up and spaced according to the Virginia Work Area Protection Manual, 2011 edition, (November 1, 2020 revision).
5. Contractor shall provide additional traffic control as directed by the engineer, should field conditions warrant.
6. Contractor is responsible for placement and maintenance of all temporary pavement markings and signage that are required or implied in the construction phasing sheets that follow. The contractor is responsible for providing all traffic control devices, signage, equipment, personnel, including certified traffic control personnel, etc. to control traffic during construction within VDOT maintained right-of-way. All traffic control shall be in strict accordance with the standards, guidelines, policies, and objectives of the latest edition of the Virginia Work Area Protection Manual, 2011 edition, (November 1, 2020 revision), Manual for Uniform Traffic Control Devices (MUTCD), and all VDOT permits.

SUGGESTED SEQUENCE OF CONSTRUCTION

Phase I:

Construction on Rte 60 and Rte 30 consists of installing the required E&SC measures within the project limits.

Phase II:

Construction consists of closing only one (1) WB lane of Rte 60 and Rte 30 while maintaining one (1) lane open to WB traffic, patching existing pavement, extending existing UD and CD outlet pipes as required, and adjusting median and roadside ditches and drainage structures as required. Upgrade existing WB guardrail run-off terminals to crash worthy. Open both WB lanes to traffic. The listed work shall be completed in the outside lane and/or shoulder and then reopened to traffic before closing any portion of the inside lane and/or shoulder for the listed work.

Phase III:

Construct Stage 1 Temporary Median Crossovers on Rte 30 and Rte 60 while maintaining traffic in the existing outside lanes for EB and WB direction of travel. Construct the Stage 1 temporary traffic signal at the Rte 60/Rte 30 intersection.

Phase IV:

Construction consists of closing the Rte 30 and Rte 60 EB lanes and shifting EB traffic to the WB inside lane, maintaining two-way traffic on WB Rte 30 and WB Rte 60, maintaining access to private driveways and commercial driveways for emergency services, religious entities, and lodging located within the project limits, extending existing UD and CD outlet pipes, patching existing pavement, mill and fill, new concrete pavement, and unbonded hydraulic cement concrete pavement overlay of EB roadway, grading inside and outside shoulders, adjusting private and commercial entrance grades, installing signs, and resetting mailboxes, replacing/installing guardrail with run-on and run-off terminals, and roadside development in its entirety on the EB side.

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Type A
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Phase V:

Open only the Rte 30 and Rte 60 EB outside lane to EB traffic, remove temporary lane shifts, remove existing crossover TTC signing, remove Stage 1 temporary median crossovers, and adjust Stage 1 temporary traffic signal.

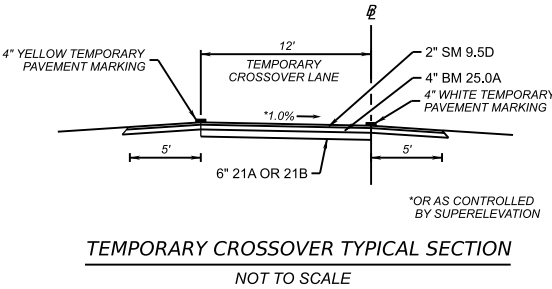
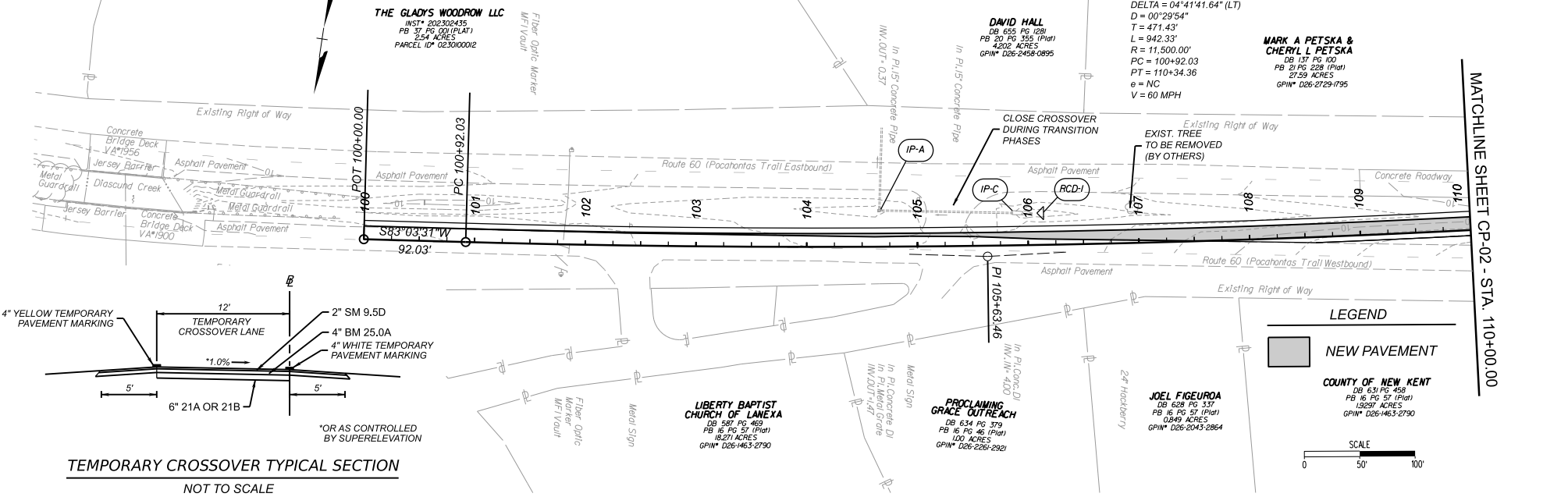
Construct the Stage 2 Temporary Median Crossovers on Rte 30 and Rte 60 and modify the Rte 60 raised median nose at the Rte 60/Rte 30 intersection while maintaining traffic in the outside lanes for each direction while maintaining access to private driveways and commercial driveways for emergency services, religious entities, and lodging located within the project limits. Construct the Stage 2 temporary traffic signal at the Rte 60/Rte 30 intersection.

Phase VI

Construction consists of closing the Rte 30 and Rte 60 WB lanes and shifting WB traffic to the EB inside lane, maintaining two-way traffic on EB Rte 30 and EB Rte 60, maintaining access to private and commercial driveways, mill and fill, new concrete pavement, and unbonded hydraulic cement concrete pavement overlay of WB roadway, grading WB inside and outside shoulders, adjusting private and commercial entrance grades, installing signs, resetting mailboxes, replacing/installing guardrail including run-on and run-off terminals, and roadside development in its entirety on the WB side.

Open WB lanes to traffic, remove temporary lane shifts, remove existing crossover TTC signing, remove Stage 2 temporary median crossovers, restore median landscaping to pre-construction conditions, remove Stage 2 temporary traffic signal, and restore existing traffic signal.

TEMPORARY CROSSOVER PLAN AND PROFILE

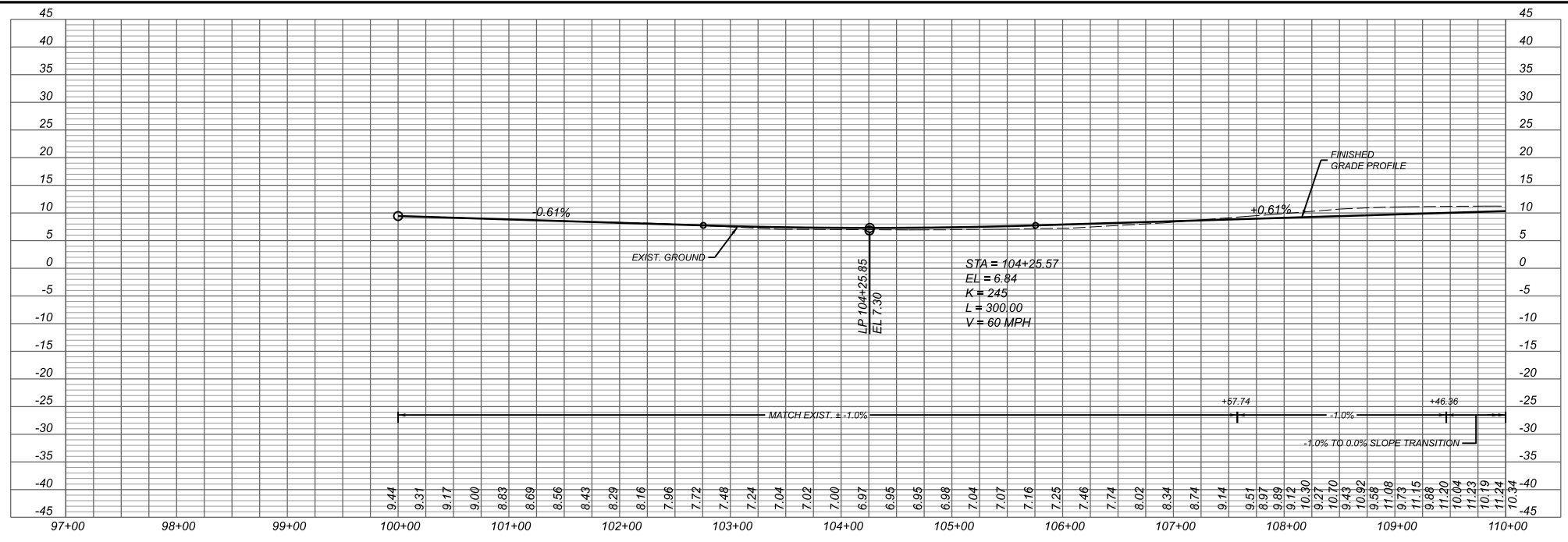


LEGEND

NEW PAVEMENT

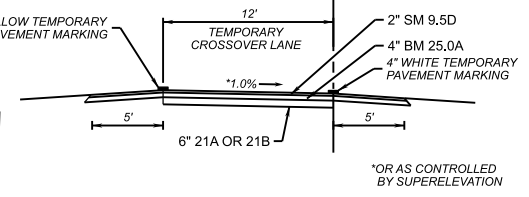
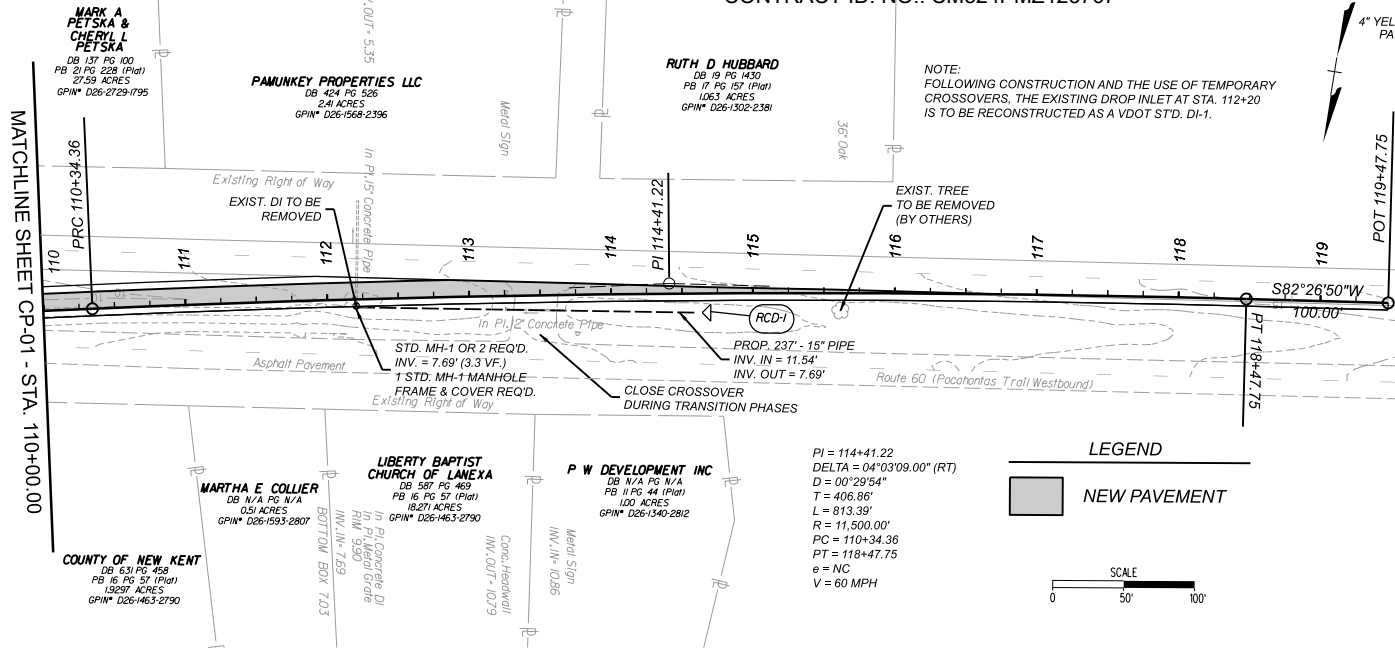
COUNTY OF NEW KENT
 DB 631 PG 458
 PB 16 PG 57 (Plan)
 13297 ACRES
 GPIN# D26-1463-2790

SCALE
 0 50' 100'

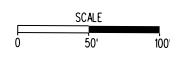


CROSSOVER PLAN AND PROFILE
 US ROUTE 60 - STAGE 1
 US ROUTE 60 - JAMES CITY COUNTY, VA

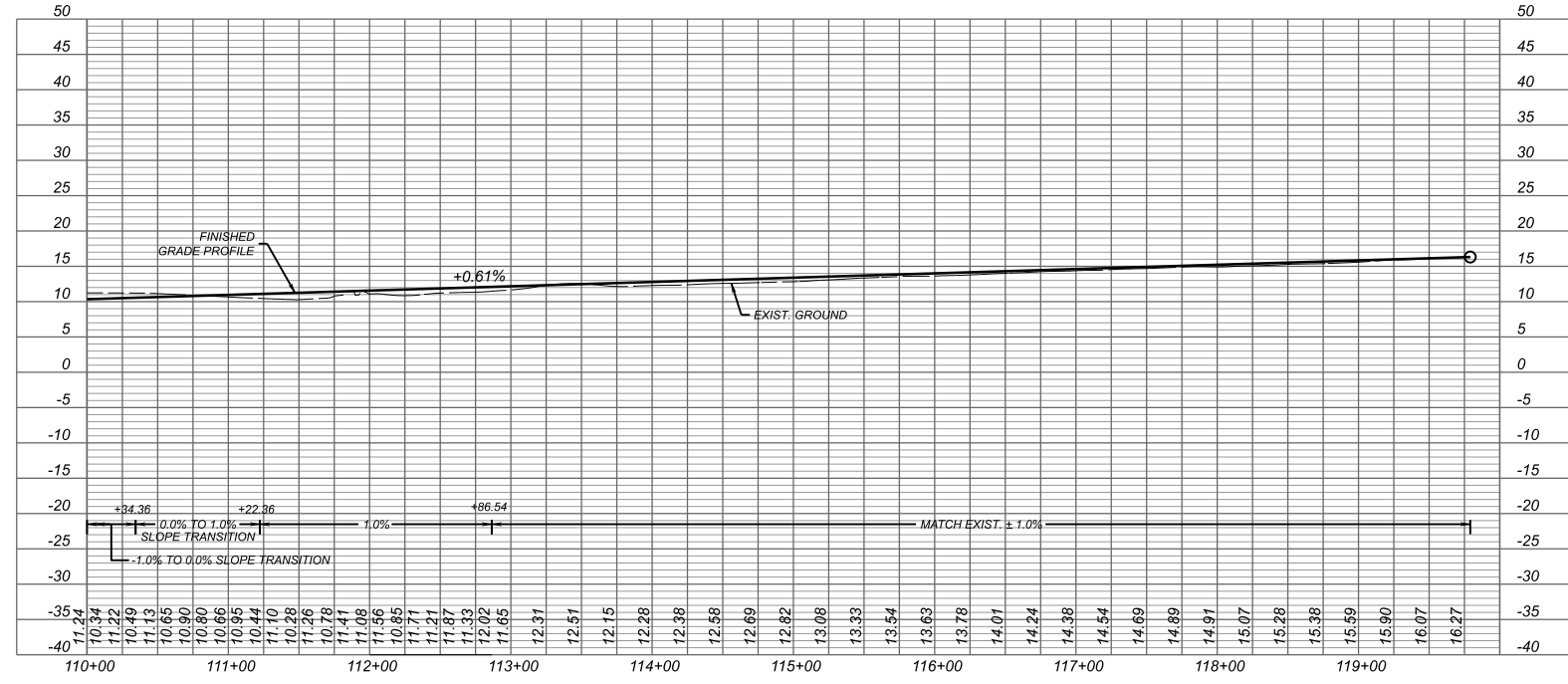
SHEET NO.
CP-01



LEGEND



PI = 114+41.22
 DELTA = 04°03'09.00" (RT)
 D = 00°29'54"
 T = 406.86'
 L = 813.39'
 R = 11,500.00'
 PC = 110+34.36
 PT = 118+47.75
 e = NC
 V = 60 MPH



CROSSOVER PLAN AND PROFILE
 US ROUTE 60 - STAGE 1

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

CP-02



ORDER NO.: K92
 CONTRACT ID. NO.: CM524PMZ123767

THE GLADYS WOODROW LLC
 INST* 202302435
 PB 37 PG 001 (PLAT)
 2.54 ACRES
 PARCEL ID* 0230100012

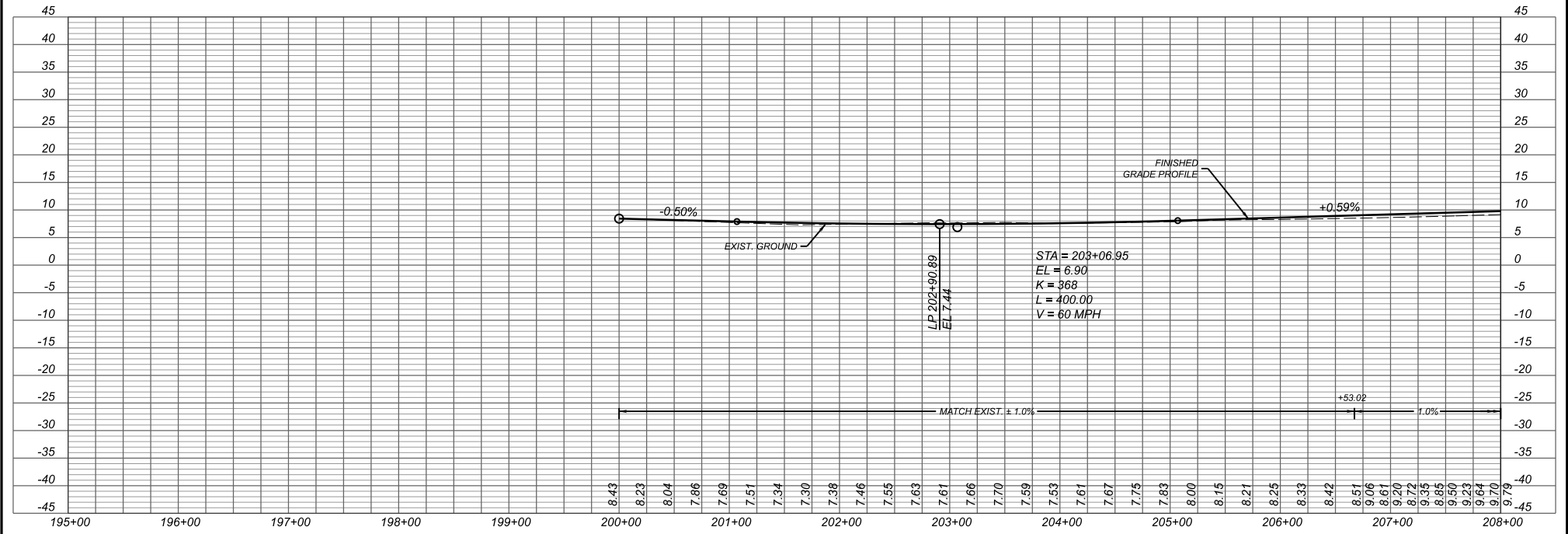
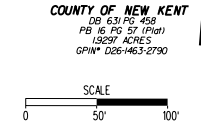
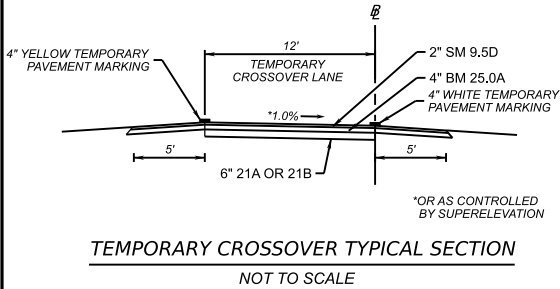
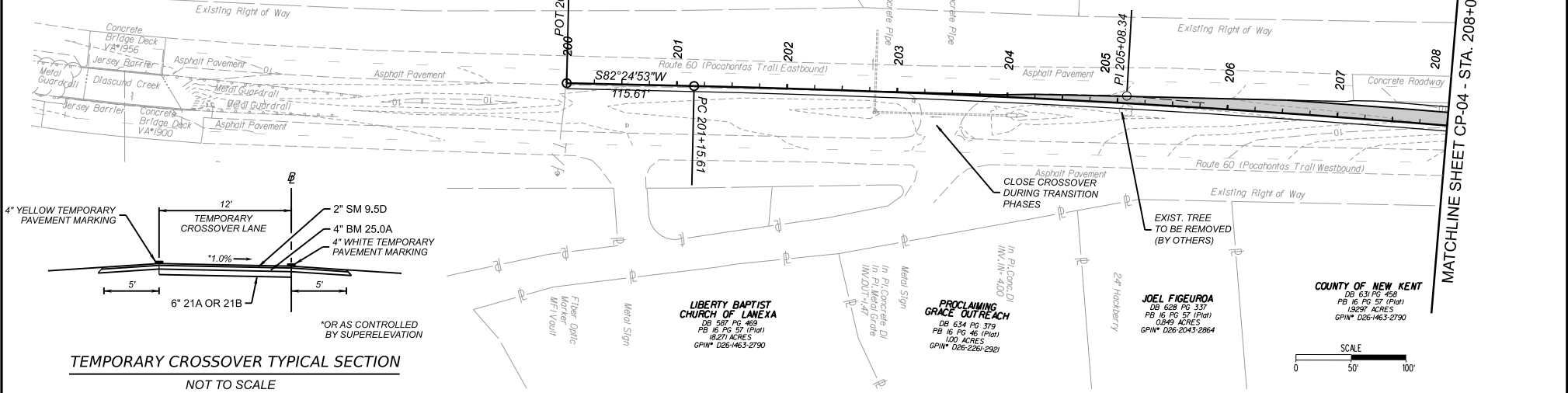
LEGEND

NEW PAVEMENT

PI = 205+08.34
 DELTA = 03°54'42.82" (RT)
 D = 00°29'54"
 T = 392.74'
 L = 785.17'
 R = 11,500.00'
 PC = 201+15.61
 PT = 209+00.77
 e = NC
 V = 60 MPH

DAVID HALL
 DB 655 PG 1281
 PB 201 PG 355 (PLAT)
 4.202 ACRES
 GPIN* D26-2458-0895

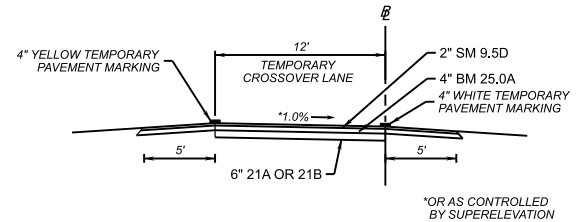
MARK A PETSKA &
 CHERYL L PETSKA
 DB 37 PG 003
 PB 21 PG 228 (PLAT)
 27.59 ACRES
 GPIN* D26-2729-1795



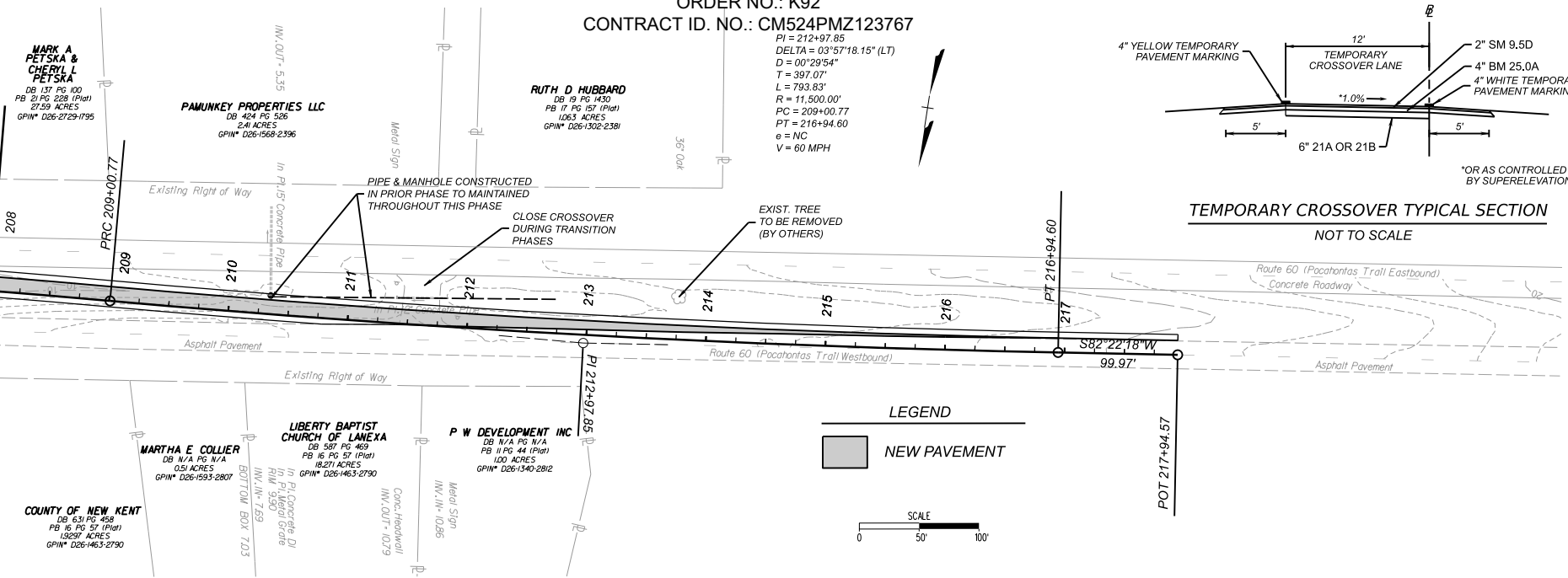
CROSSOVER PLAN AND PROFILE
 US ROUTE 60 - STAGE 2
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
 CP-03

PI = 212+97.85
 DELTA = 03°57'18.15" (LT)
 D = 00°29'54"
 T = 397.07'
 L = 793.83'
 R = 11,500.00'
 PC = 209+00.77
 PT = 216+94.60
 e = NC
 V = 60 MPH



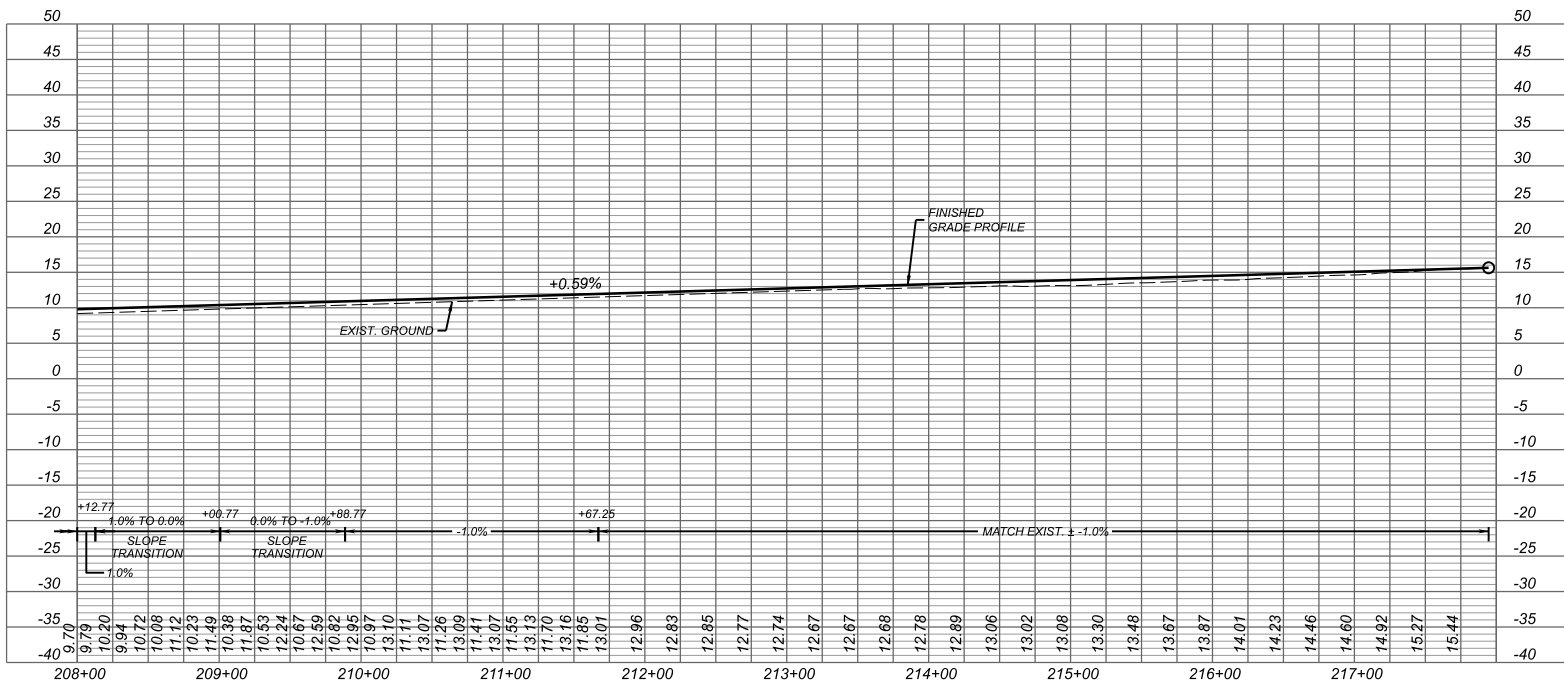
MATCHLINE SHEET CP-03 - STA. 208+00.00



LEGEND

NEW PAVEMENT

SCALE
 0 50' 100'



CROSSOVER PLAN AND PROFILE
 US ROUTE 60 - STAGE 2

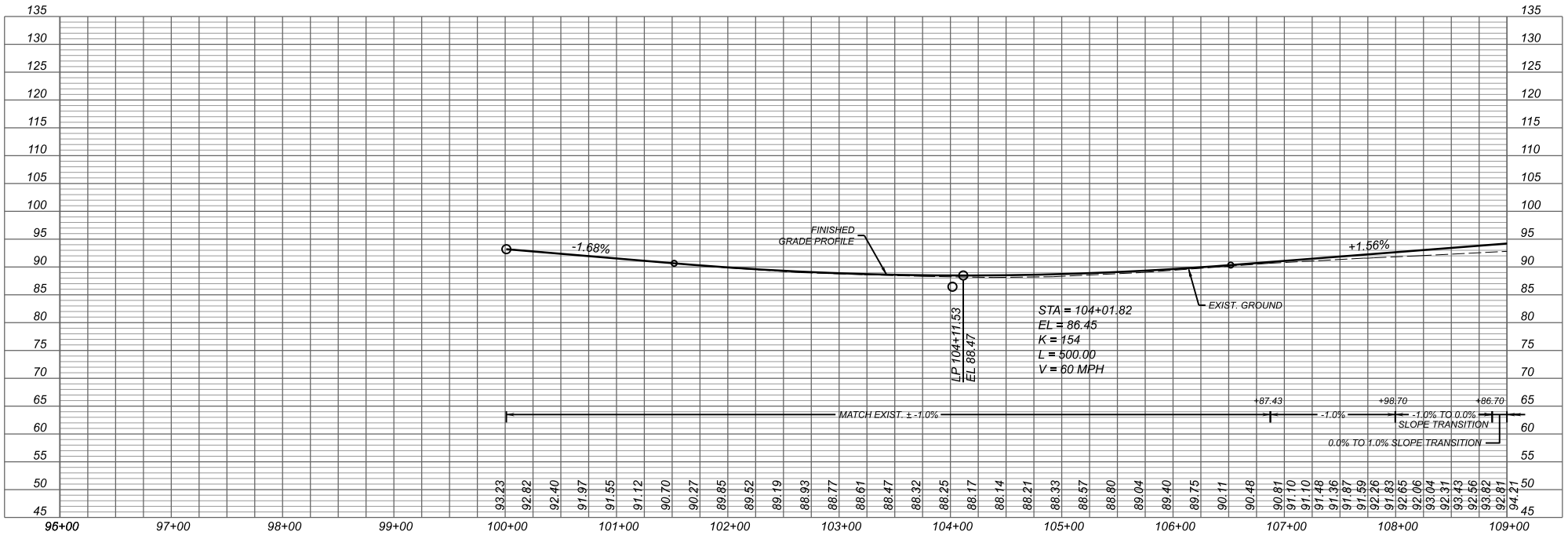
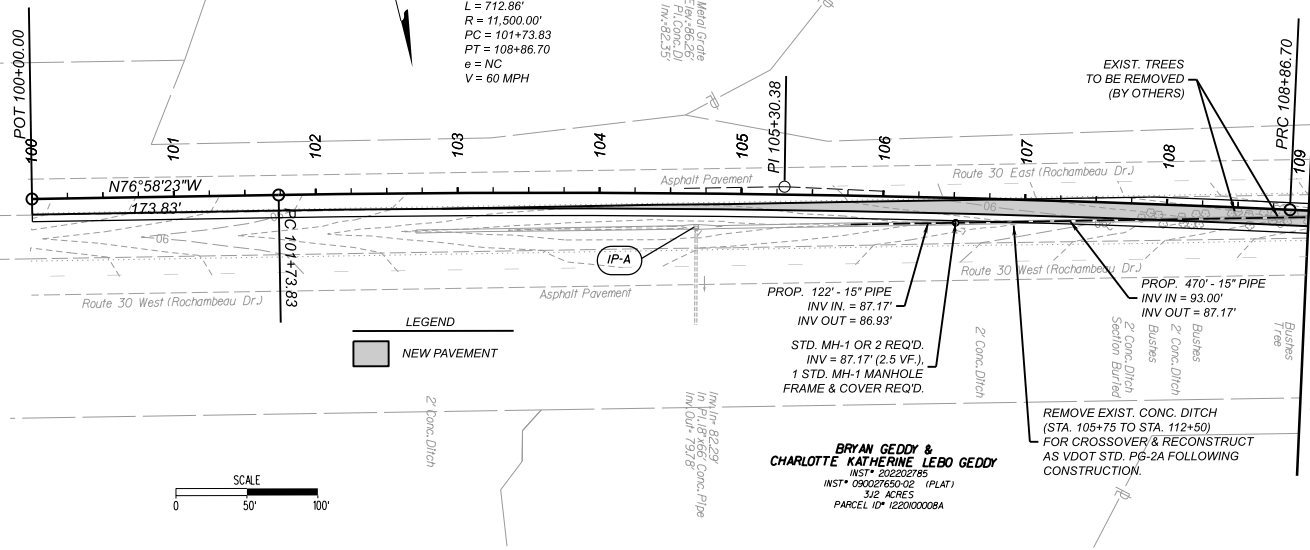
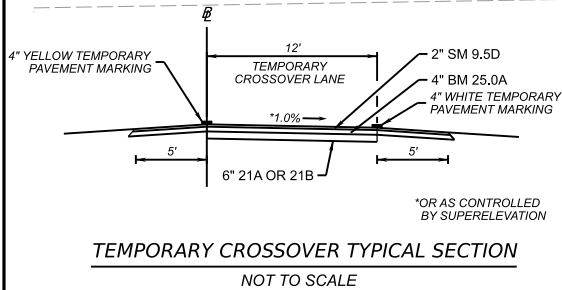
US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
CP-04



ORDER NO.: K92
 CONTRACT ID. NO.: CM524PMZ123767

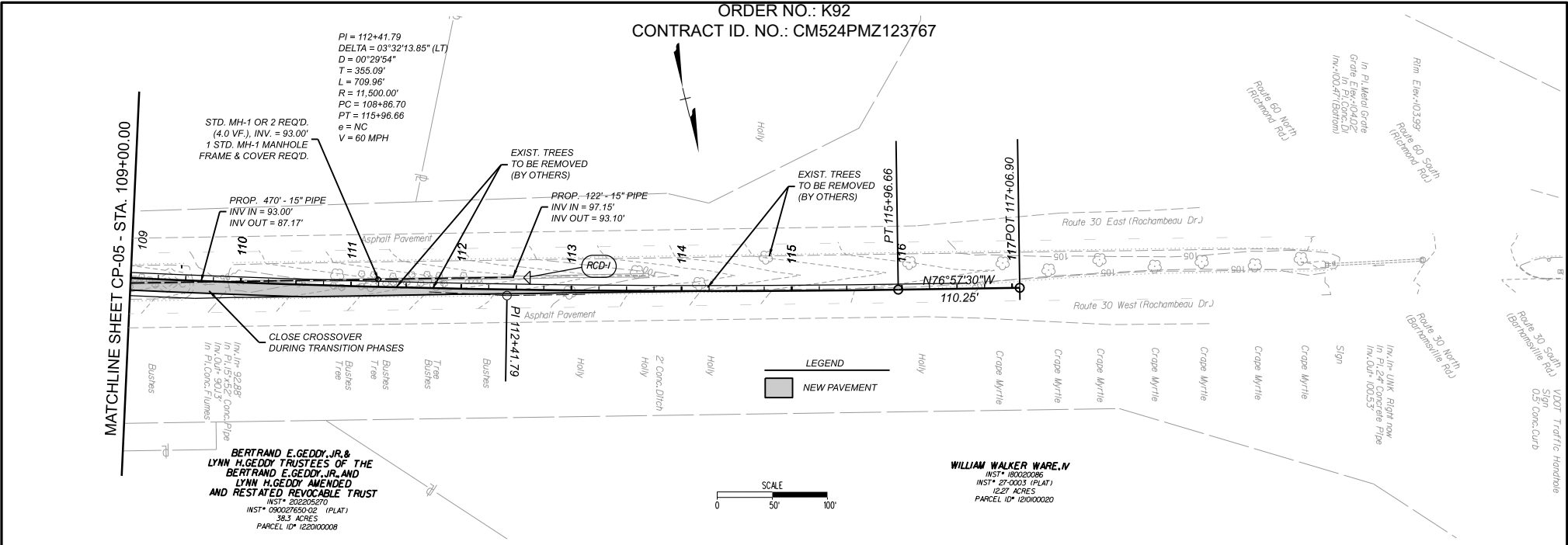
PI = 105+30.38
 DELTA = 03°33'05.97" (RT)
 D = 00°29'54"
 T = 356.55'
 L = 712.86'
 R = 11,500.00'
 PC = 101+73.83
 PT = 108+86.70
 e = NC
 V = 60 MPH



CROSSOVER PLAN AND PROFILE
 ROUTE 30 - STAGE 1
 ROUTE 30 - JAMES CITY COUNTY, VA

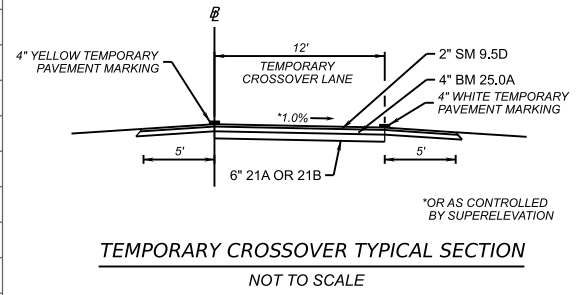
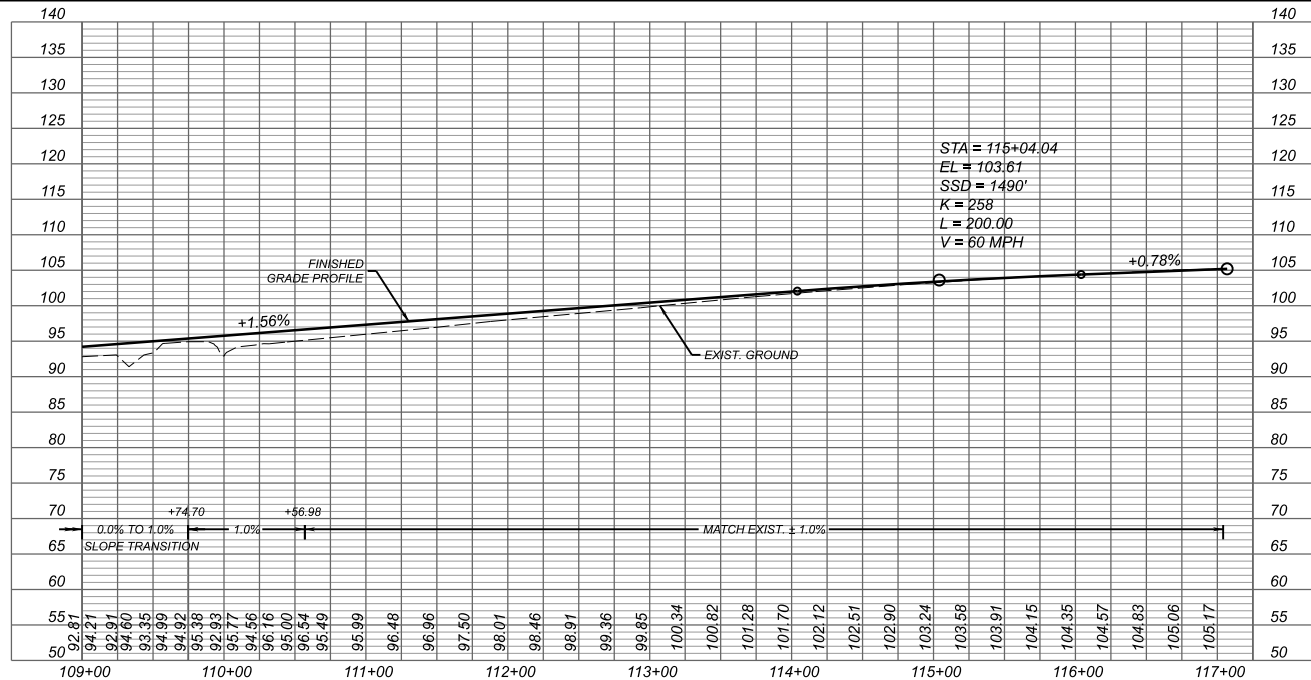
SHEET NO.
 CP-05





BERTRAND E. GEDDY, JR. &
 LYNN H. GEDDY, TRUSTEES OF THE
 BERTRAND E. GEDDY, JR. AND
 LYNN H. GEDDY AMENDED
 AND RESTATED REVOCABLE TRUST
 INST# 202202870
 INST# 090027650-02 (PLAT)
 38.3 ACRES
 PARCEL ID# 1220100008

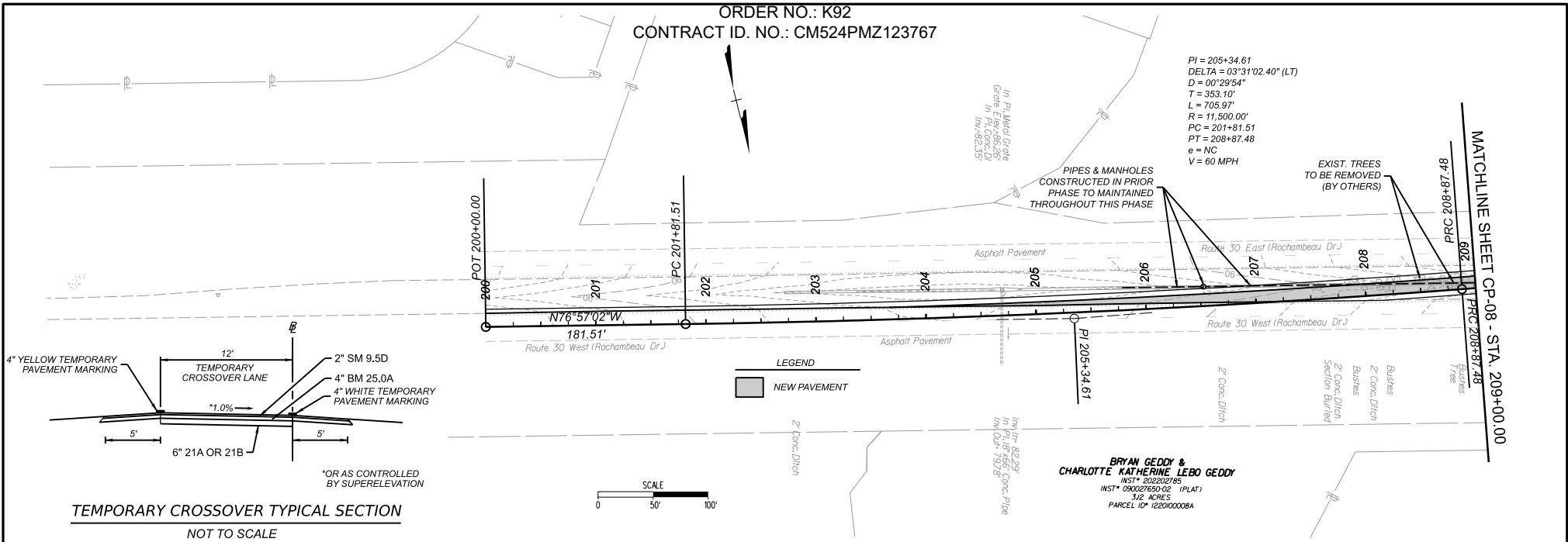
WILLIAM WALKER WARE, IV
 INST# 19002006
 INST# 27-0003 (PLAT)
 12.27 ACRES
 PARCEL ID# 1210100020



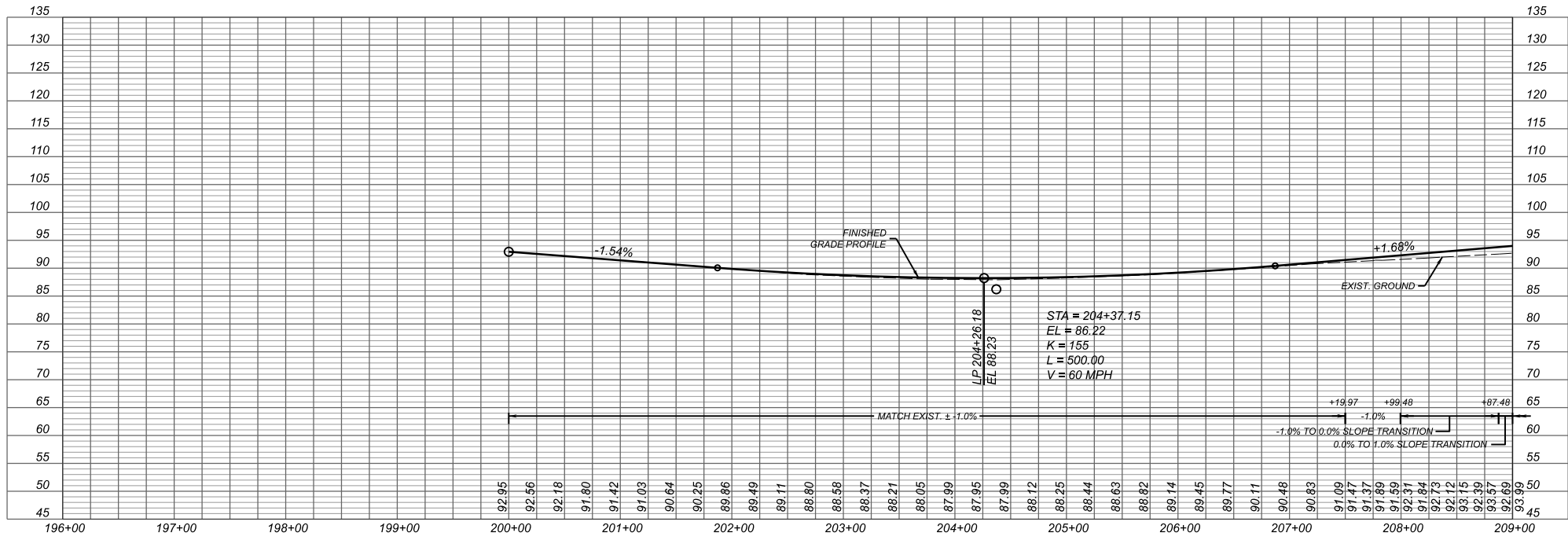
CROSSOVER PLAN AND PROFILE
 ROUTE 30 - STAGE 1
 ROUTE 30 - JAMES CITY COUNTY, VA

SHEET NO.
 CP-06

PI = 205+34.61
 DELTA = 03°31'02.40" (LT)
 D = 00°29'54"
 T = 353.10'
 L = 705.97'
 R = 11,500.00'
 PC = 201+81.51
 PT = 208+87.48
 e = NC
 V = 60 MPH



BRYAN GEDDY & CHARLOTTE KATHERINE LEBO GEDDY
 INST* 202202785
 INST* 09002650-02 (PLAT)
 3/2 ACRES
 PARCEL ID* 1220100008A

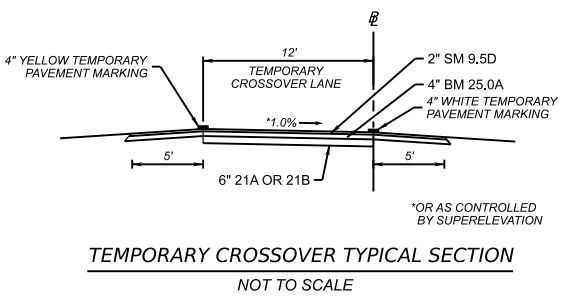
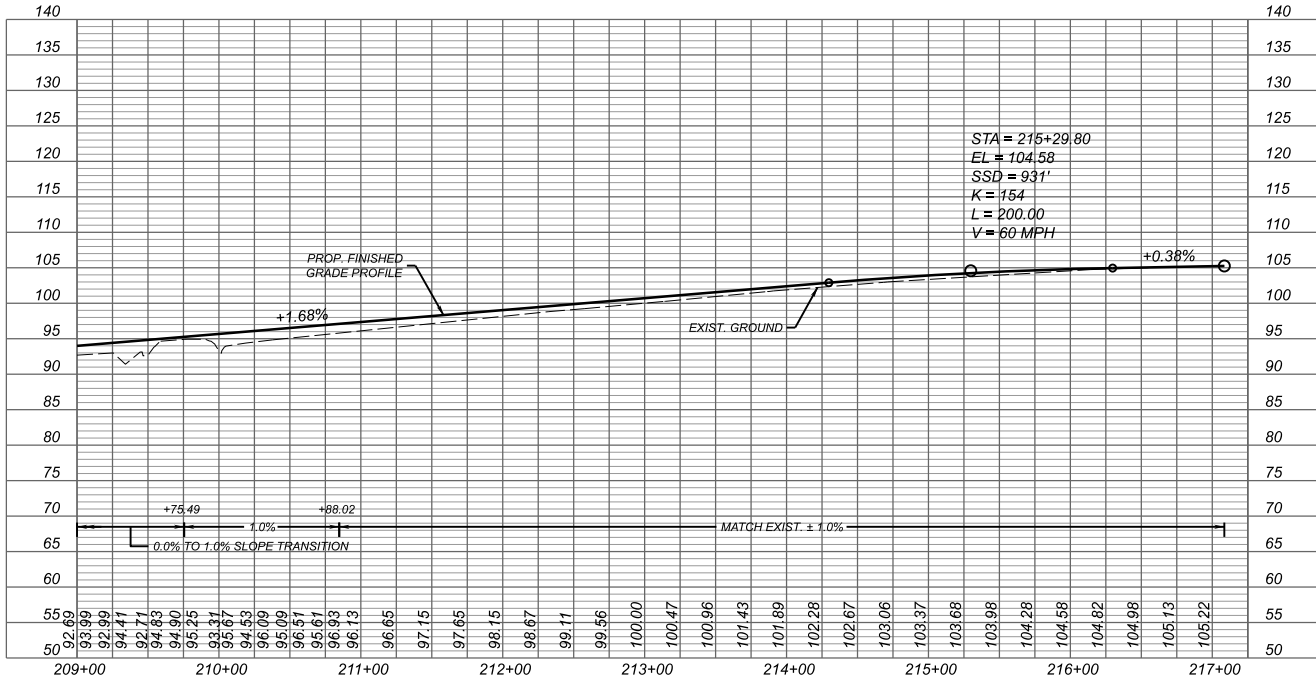
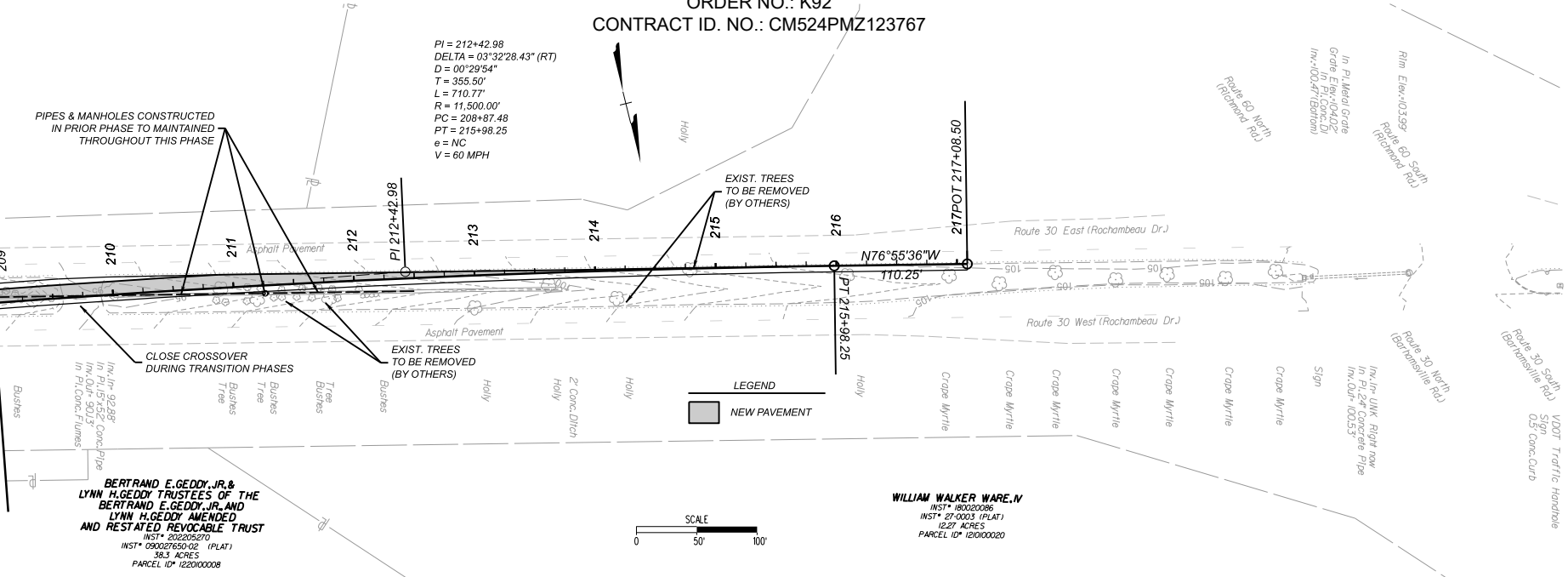


CROSSOVER PLAN AND PROFILE
 ROUTE 30 - STAGE 2
 ROUTE 30 - JAMES CITY COUNTY, VA

SHEET NO.
CP-07

PI = 212+42.98
 DELTA = 03°32'28.43" (RT)
 D = 00°29'54"
 T = 365.50'
 L = 710.77'
 R = 11,500.00'
 PC = 208+87.48
 PT = 215+98.25
 e = NC
 V = 60 MPH

MATCHLINE SHEET CP-07 - STA. 209+00.00



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

Alignment name: RTE30-STG1

Element:	Linear	STATION	NORTHING	EASTING
	START()	10000.000 R1	3673628.575	11976187.474
	PC()	10173.834 R1	3673667.759	11976187.474
	Tangent Direction:	N76.973°W		
	Tangential Length:	173.834		
Element:	Circular			
	PC()	10173.834 R1	3673667.759	11976187.474
	HPI()	10530.380 R1	3673748.128	11975840.104
	CC()		3684871.791	11978173.104
	PRC()	10886.698 R1	3673849.862	11975498.380
	Radius:	11500.000		
	Delta:	3.552°	Right	
	Degree of Curvature(Arc):	0.498°		
	Length:	712.864		
	Tangent:	356.546		
	Chord:	712.749		
	Middle Ordinate:	5.523		
	External:	9.639		
	Tangent Direction:	N76.973°W		
	Radial Direction:	N13.027°E		
	Chord Direction:	N78.197°W		
	Radial Direction:	N16.579°E		
	Tangent Direction:	N73.421°W		
Element:	Circular			
	PC()	10886.698 R1	3673849.862	11975498.380
	HPI()	11241.789 R1	3673951.182	11975158.050
	CC()		3662827.933	11972217.057
	PT()	11596.655 R1	3674031.311	11974812.118
	Radius:	11500.000		
	Delta:	3.533°	Left	
	Degree of Curvature(Arc):	0.498°		
	Length:	709.958		
	Tangent:	355.092		
	Chord:	709.893		
	Middle Ordinate:	5.478		
	External:	5.481		
	Tangent Direction:	N73.421°W		
	Radial Direction:	N16.579°E		
	Chord Direction:	N78.197°W		
	Radial Direction:	N13.042°E		
	Tangent Direction:	N76.958°W		
Element:	Linear			
	PT()	11596.655 R1	3674031.311	11974812.118
	END()	11706.904 R1	3674056.189	11974704.713
	Tangent Direction:	N76.958°W		
	Tangential Length:	110.249		

Alignment name: RTE60-STG1

Element:	Linear	STATION	NORTHING	EASTING
	START()	10000.000 R1	3681984.706	11949454.753
	PC()	10092.034 R1	3681973.584	11949363.394
	Tangent Direction:	S83.059°W		
	Tangential Length:	92.034		
Element:	Circular			
	PC()	10092.034 R1	3681973.584	11949363.394
	HPI()	10563.461 R1	3681916.610	11948895.422
	CC()		3670597.489	11950793.225
	PRC()	11034.360 R1	3681821.523	11948433.684
	Radius:	11500.000		
	Delta:	4.498°	Left	
	Degree of Curvature(Arc):	0.498°		
	Length:	942.327		
	Tangent:	471.164		
	Chord:	942.063		
	Middle Ordinate:	9.651		
	External:	9.653		
	Tangent Direction:	S83.059°W		
	Radial Direction:	N6.941°W		
	Chord Direction:	S80.711°W		
	Radial Direction:	N11.636°W		
	Tangent Direction:	S78.364°W		
Element:	Circular			
	PC()	11034.360 R1	3681821.523	11948433.684
	HPI()	11441.225 R1	3681739.459	11948035.182
	CC()		3693085.170	11946114.149
	PT()	11847.749 R1	3681685.762	11947631.876
	Radius:	11500.000		
	Delta:	4.053°	Right	
	Degree of Curvature(Arc):	0.498°		
	Length:	813.389		
	Tangent:	406.864		
	Chord:	813.220		
	Middle Ordinate:	7.191		
	External:	7.195		
	Tangent Direction:	S78.364°W		
	Radial Direction:	N11.636°W		
	Chord Direction:	S80.390°W		
	Radial Direction:	N7.584°W		
	Tangent Direction:	S82.416°W		
Element:	Linear			
	PT()	11847.749 R1	3681685.762	11947631.876
	END()	11947.749 R1	3681672.619	11947532.744
	Tangent Direction:	S82.447°W		
	Tangential Length:	100.000		

Alignment name: RTE30-STG2

Element:	Linear	STATION	NORTHING	EASTING
	START()	20000.000 R1	3673681.276	11976193.882
	PC()	20181.508 R1	3673722.259	11976193.882
	Tangent Direction:	N76.950°W		
	Tangential Length:	181.508		
Element:	Circular			
	PC()	20181.508 R1	3673722.259	11976193.882
	HPI()	20534.606 R1	3673801.986	11975849.903
	CC()		3662519.245	11973597.253
	PRC()	20887.482 R1	3673860.460	11975501.681
	Radius:	11500.000		
	Delta:	3.517°	Left	
	Degree of Curvature(Arc):	0.498°		
	Length:	705.974		
	Tangent:	353.098		
	Chord:	705.863		
	Middle Ordinate:	5.417		
	External:	5.420		
	Tangent Direction:	N76.950°W		
	Radial Direction:	N13.050°E		
	Chord Direction:	N78.709°W		
	Radial Direction:	N9.532°E		
	Tangent Direction:	N80.468°W		
Element:	Circular			
	PC()	20887.482 R1	3673860.460	11975501.681
	HPI()	21242.981 R1	3673919.332	11975151.091
	CC()		3685201.675	11977406.108
	PT()	21598.253 R1	3673999.746	11974804.806
	Radius:	11500.000		
	Delta:	3.541°	Right	
	Degree of Curvature(Arc):	0.498°		
	Length:	710.771		
	Tangent:	355.493		
	Chord:	710.639		
	Middle Ordinate:	5.491		
	External:	5.493		
	Tangent Direction:	N80.468°W		
	Radial Direction:	N9.532°E		
	Chord Direction:	N78.697°W		
	Radial Direction:	N13.073°E		
	Tangent Direction:	N76.927°W		
Element:	Linear			
	PT()	21598.253 R1	3673999.746	11974804.806
	END()	21708.502 R1	3674024.684	11974697.415
	Tangent Direction:	N76.927°W		
	Tangential Length:	110.249		

Alignment name: RTE60-STG2

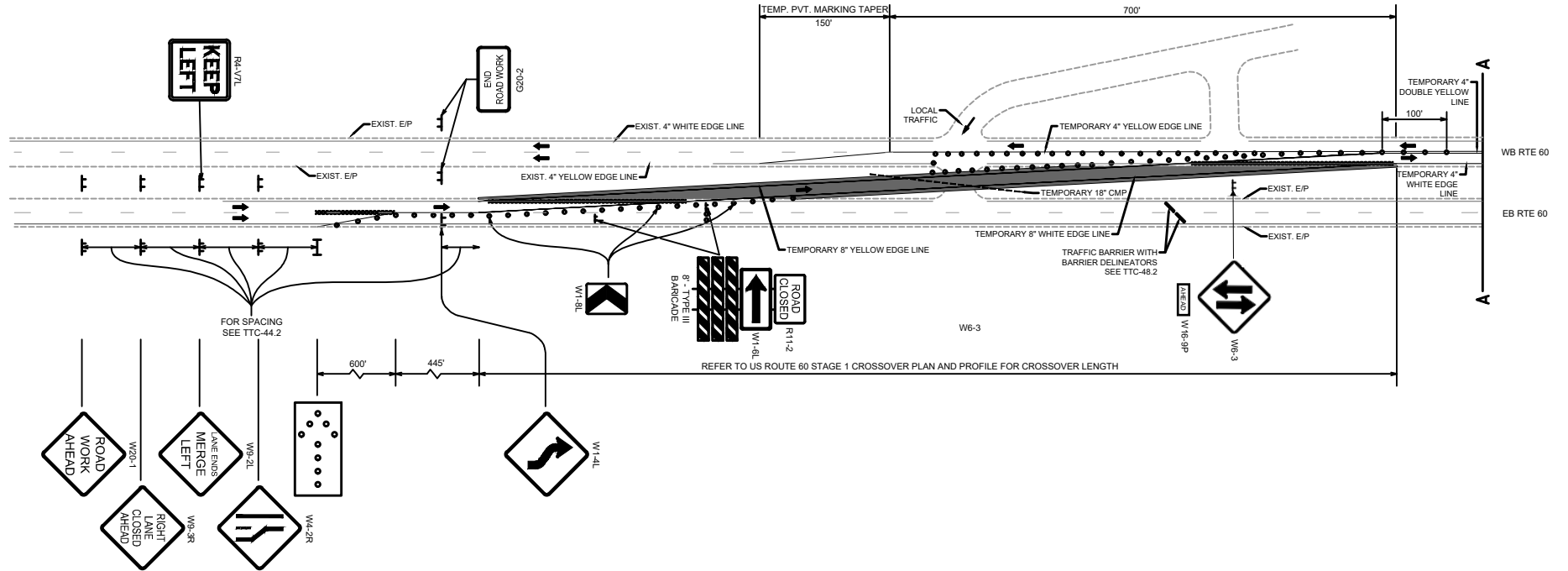
Element:	Linear	STATION	NORTHING	EASTING
	START()	20000.000 R1	3681907.268	11949278.322
	PC()	20115.607 R1	3681892.008	11949163.727
	Tangent Direction:	S82.415°W		
	Tangential Length:	115.607		
Element:	Circular			
	PC()	20115.607 R1	3681892.008	11949163.727
	HPI()	20508.343 R1	3681840.166	11948774.427
	CC()		3693291.379	11947645.725
	PRC()	20900.774 R1	3681815.005	11948382.498
	Radius:	11500.000		
	Delta:	3.913°	Right	
	Degree of Curvature(Arc):	0.498°		
	Length:	785.167		
	Tangent:	392.736		
	Chord:	785.015		
	Middle Ordinate:	6.704		
	External:	6.704		
	Tangent Direction:	S82.415°W		
	Radial Direction:	N7.585°W		
	Chord Direction:	S84.371°W		
	Radial Direction:	N3.673°W		
	Tangent Direction:	S86.327°W		
Element:	Circular			
	PC()	20900.774 R1	3681815.005	11948382.498
	HPI()	21297.845 R1	3681789.566	11947986.242
	CC()		3687033.631	1194919.270
	PT()	21694.602 R1	3681736.856	11947592.684
	Radius:	11500.000		
	Delta:	3.952°	Left	
	Degree of Curvature(Arc):	0.498°		
	Length:	793.828		
	Tangent:	397.072		
	Chord:	793.670		
	Middle Ordinate:	6.849		
	External:	6.853		
	Tangent Direction:	S86.327°W		
	Radial Direction:	N3.673°W		
	Chord Direction:	S84.349°W		
	Radial Direction:	N7.628°W		
	Tangent Direction:	S82.372°W		
Element:	Linear			
	PT()	21694.602 R1	3681736.856	11947592.684
	END()	21794.572 R1	3681723.585	11947493.598
	Tangent Direction:	S82.372°W		
	Tangential Length:	99.971		



TEMPORARY MEDIAN CROSSOVER MOT PLAN

STAGE 1

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE



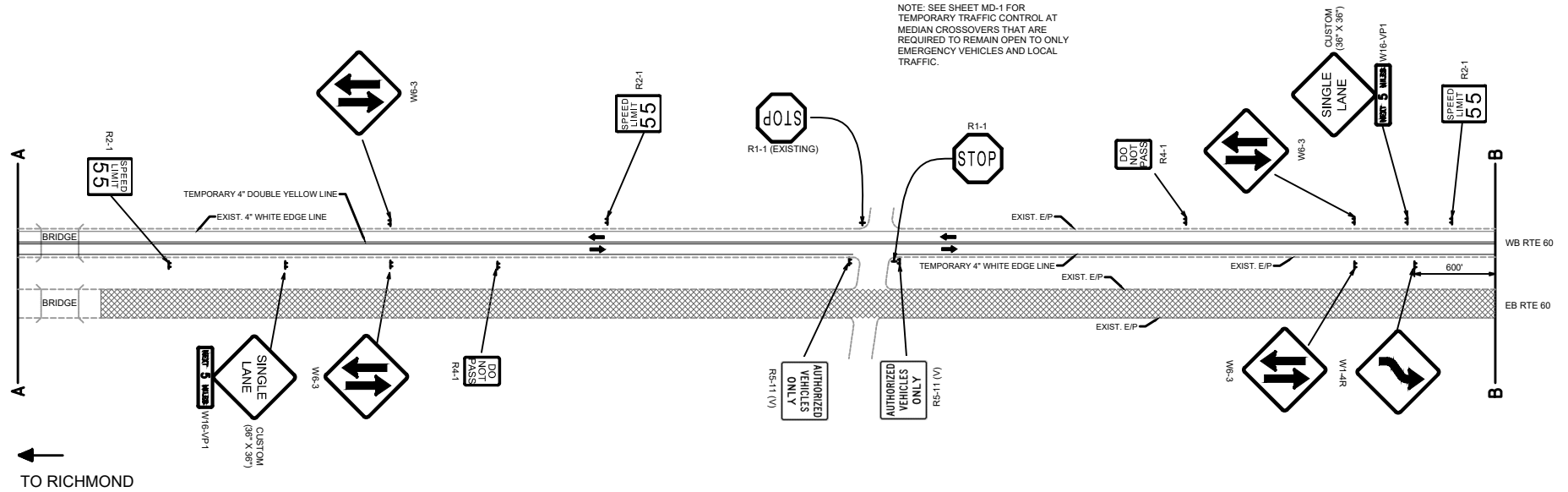
SHEET INDEX
CROSSOVER PLAN & PROFILE SHEETS CP-1 - CP-2

- NOTES:
1. CONTRACTOR TO MAINTAIN ACCESS TO PRIVATE DRIVEWAYS DURING CONSTRUCTION AT ALL TIMES. ACCESS TO AND FROM ROUTE 60 MUST BE MAINTAINED AT ALL TIMES.
 2. USE TEMPORARY RAISED PAVEMENT MARKERS WITH TEMPORARY PAVEMENT MARKINGS.
 3. SEE LOCATION PLAN SHEETS LP-1 - LP-7 FOR A SCHEMATIC OF ALL INTERSECTING ROADS AND DRIVEWAYS.
 4. CONTRACTOR WILL SURVEY SITE.
 5. BUILD CROSSOVER TO MATCH CURRENT ROADWAY ELEVATIONS.
 6. EXISTING SIGNS THAT CONFLICT WITH PROPOSED SIGNS SHALL BE COVERED OR REMOVED.

LEGEND	
PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	

STAGE 1

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE



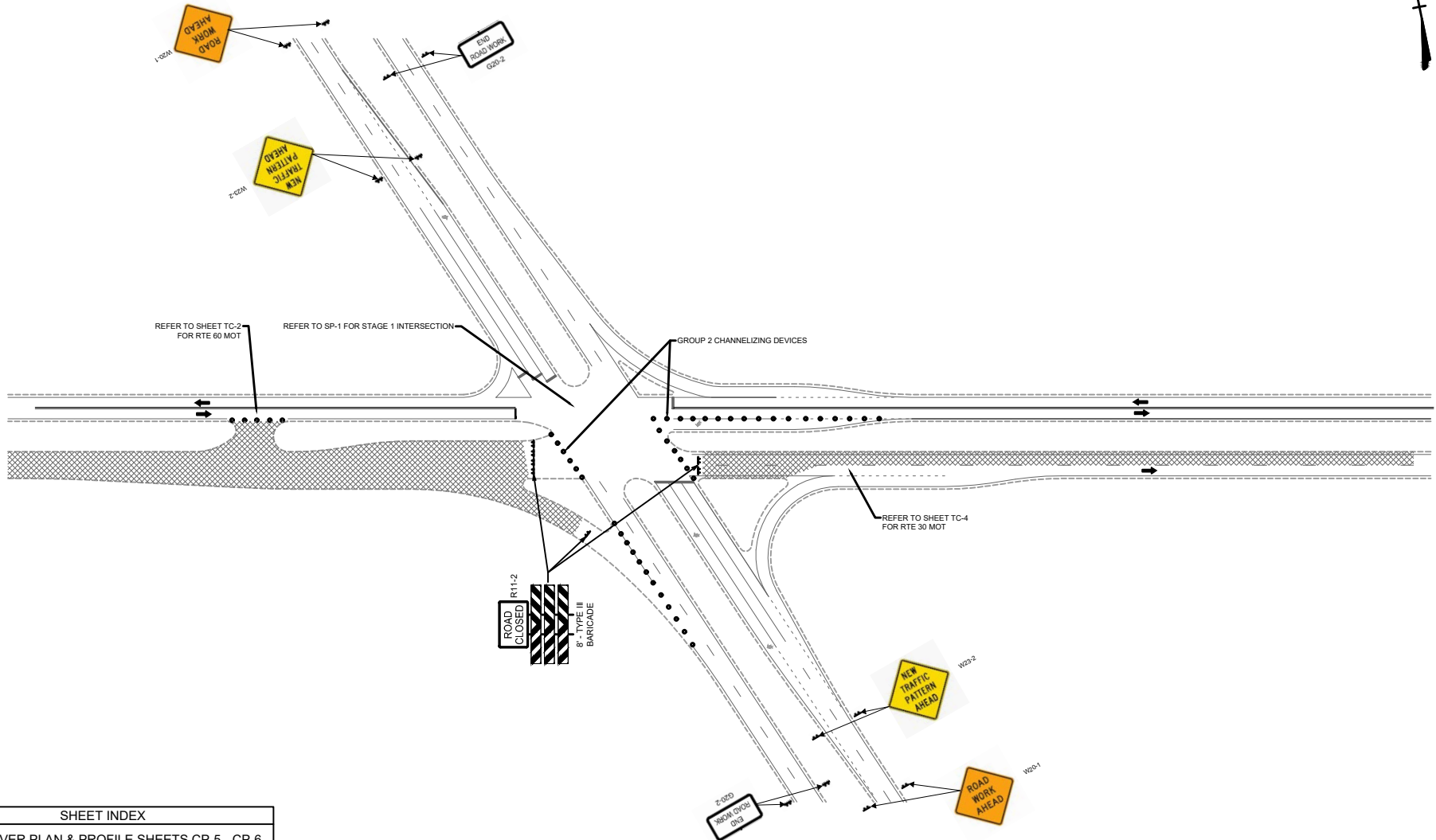
NOTE: SEE SHEET MD-1 FOR TEMPORARY TRAFFIC CONTROL AT MEDIAN CROSSOVERS THAT ARE REQUIRED TO REMAIN OPEN TO ONLY EMERGENCY VEHICLES AND LOCAL TRAFFIC.

- NOTES:
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PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	

STAGE 1

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE

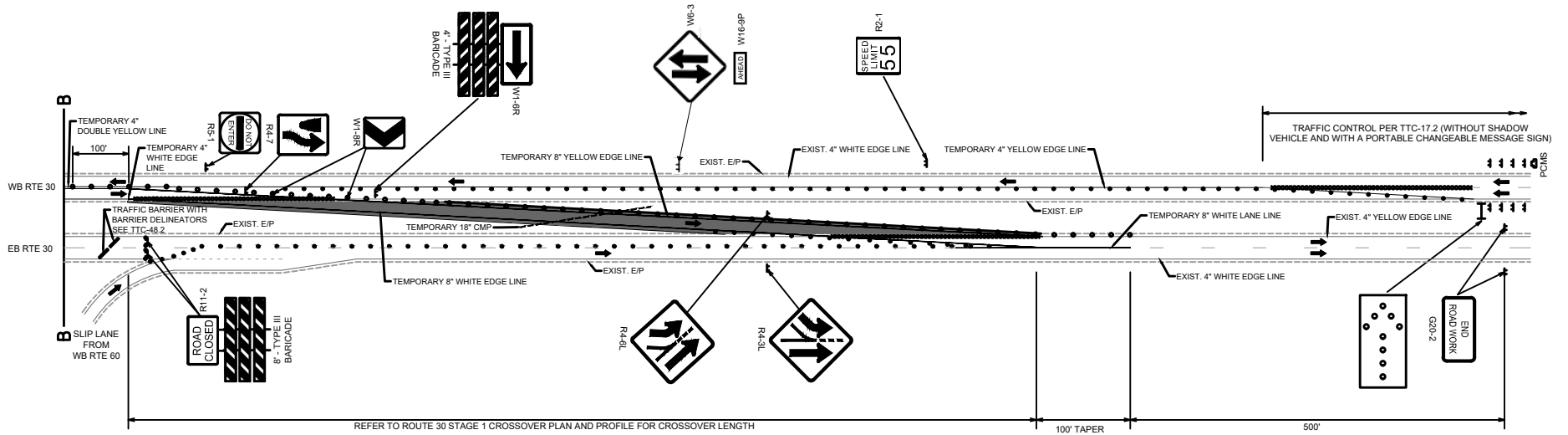


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PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	

STAGE 1

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE



REFER TO ROUTE 30 STAGE 1 CROSSOVER PLAN AND PROFILE FOR CROSSOVER LENGTH

SHEET INDEX

CROSSOVER PLAN & PROFILE SHEETS CP-5 - CP-6

NOTES:

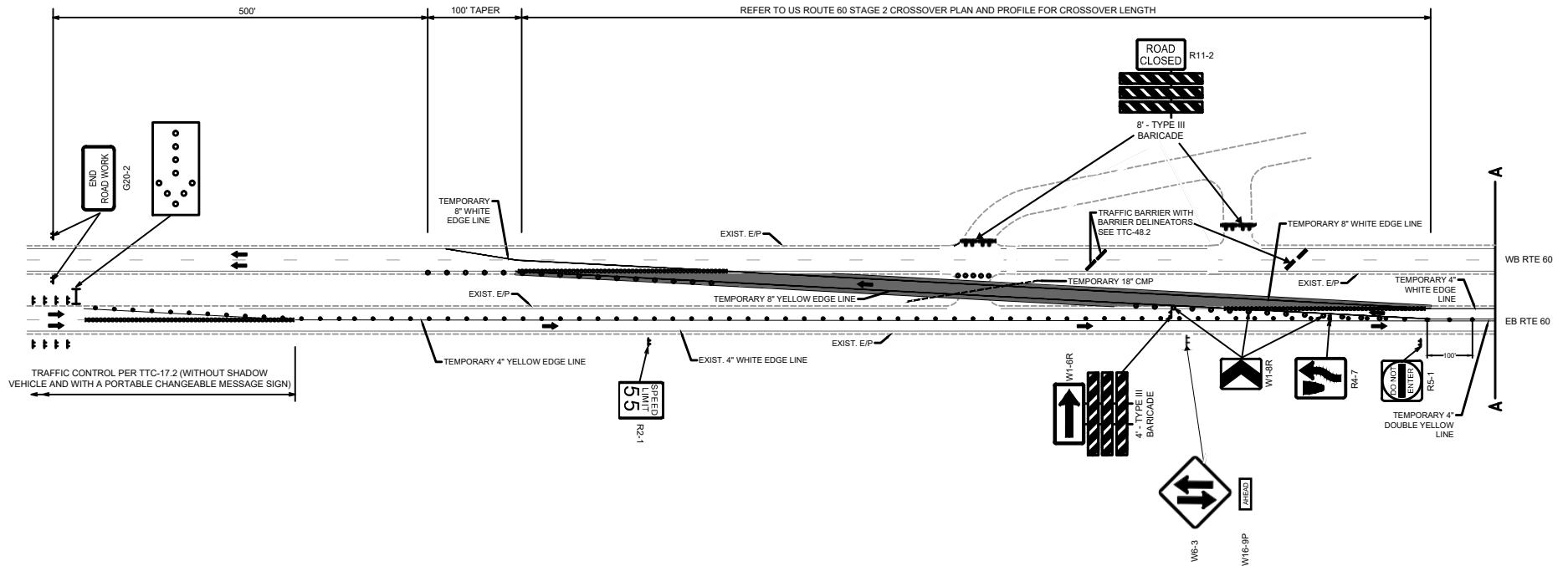
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PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	

STAGE 2

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE



TRAFFIC CONTROL PER TTC-17.2 (WITHOUT SHADOW VEHICLE AND WITH A PORTABLE CHANGEABLE MESSAGE SIGN)

SHEET INDEX
CROSSOVER PLAN & PROFILE SHEETS CP-3 - CP-4

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PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	



TEMPORARY CROSSOVER MOT
 TWO-WAY TRAFFIC ON EB LANES
 US ROUTE 60 - JAMES CITY COUNTY, VA

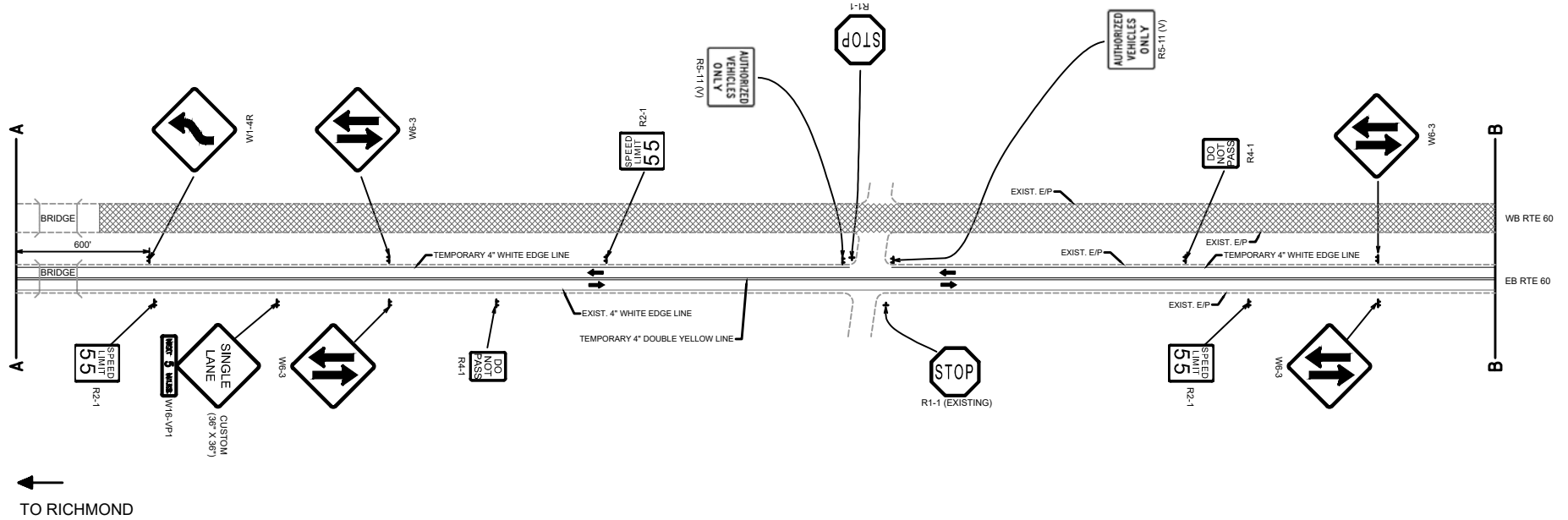
SHEET NO.
TC-5

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE 2

STAGE 2



NOTE: SEE SHEET MD-1 FOR
 TEMPORARY TRAFFIC CONTROL AT
 MEDIAN CROSSOVERS THAT ARE
 REQUIRED TO REMAIN OPEN TO ONLY
 EMERGENCY VEHICLES AND LOCAL
 TRAFFIC.

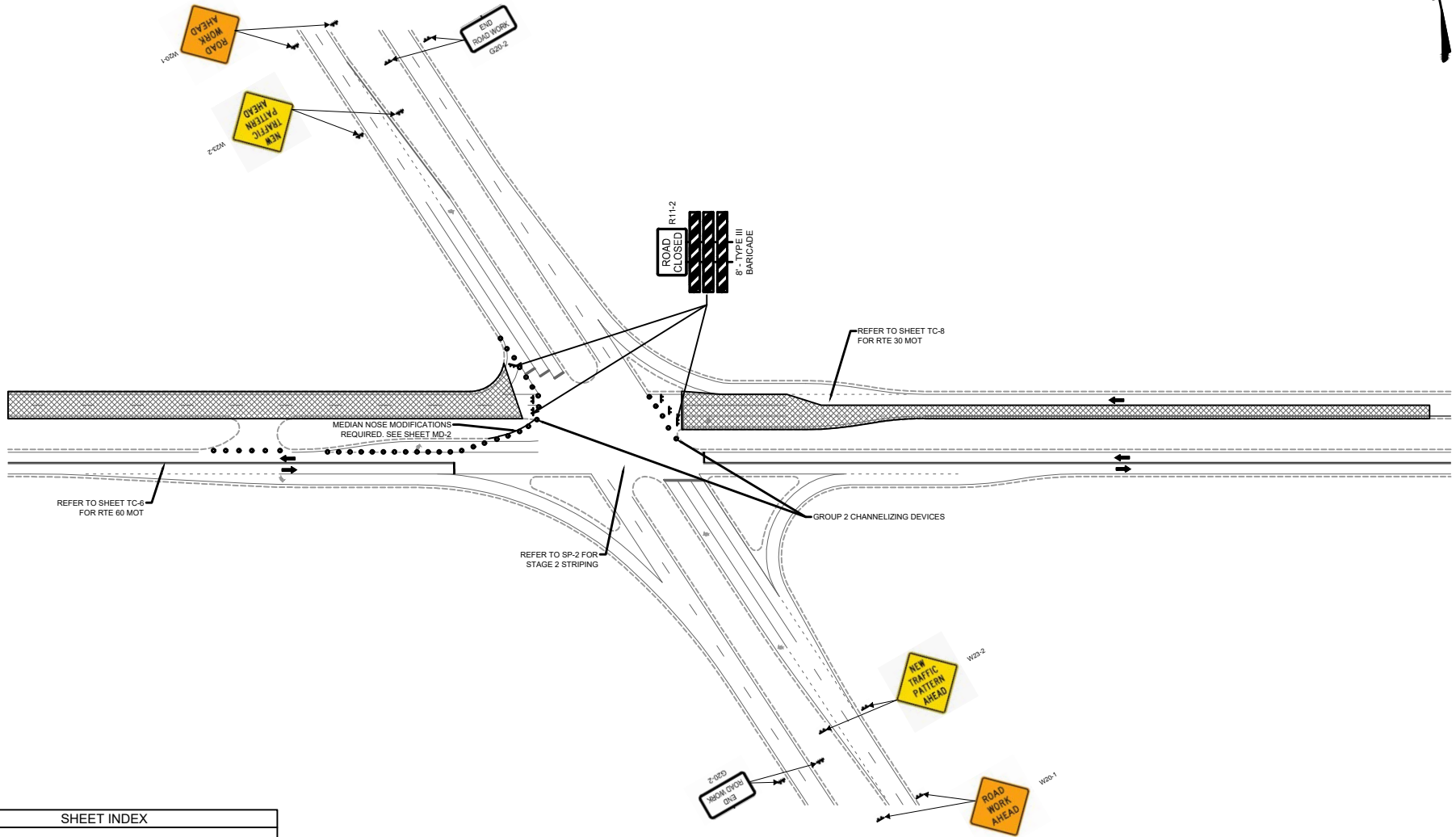


- NOTES:
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PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE

STAGE 2



SHEET INDEX
CROSSOVER PLAN & PROFILE SHEETS CP-7 - CP-8

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PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	

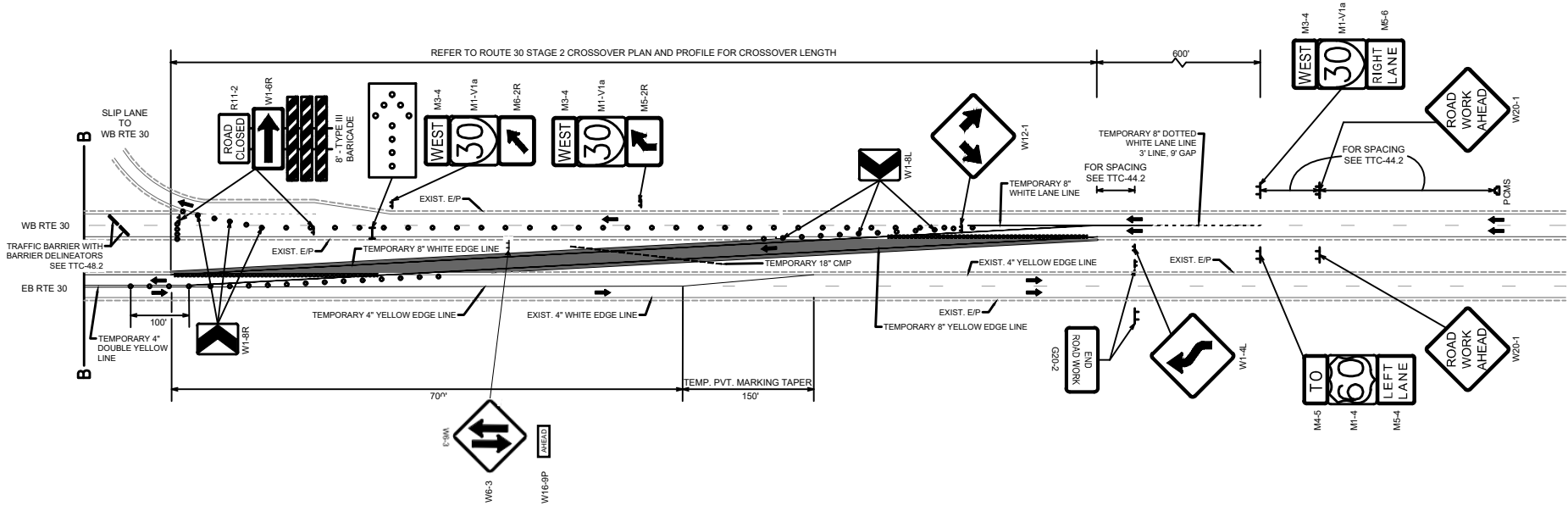


TEMPORARY MOT
 TWO-WAY TRAFFIC ON EB LANES
 US ROUTE 30 - JAMES CITY COUNTY, VA

SHEET NO.
 TC-7

STAGE 2

NOTE: THE WORK ZONE IS 5 MILES; THE DRAWING IS NOT TO SCALE



SHEET INDEX

CROSSOVER PLAN & PROFILE SHEETS CP-7 - CP-8

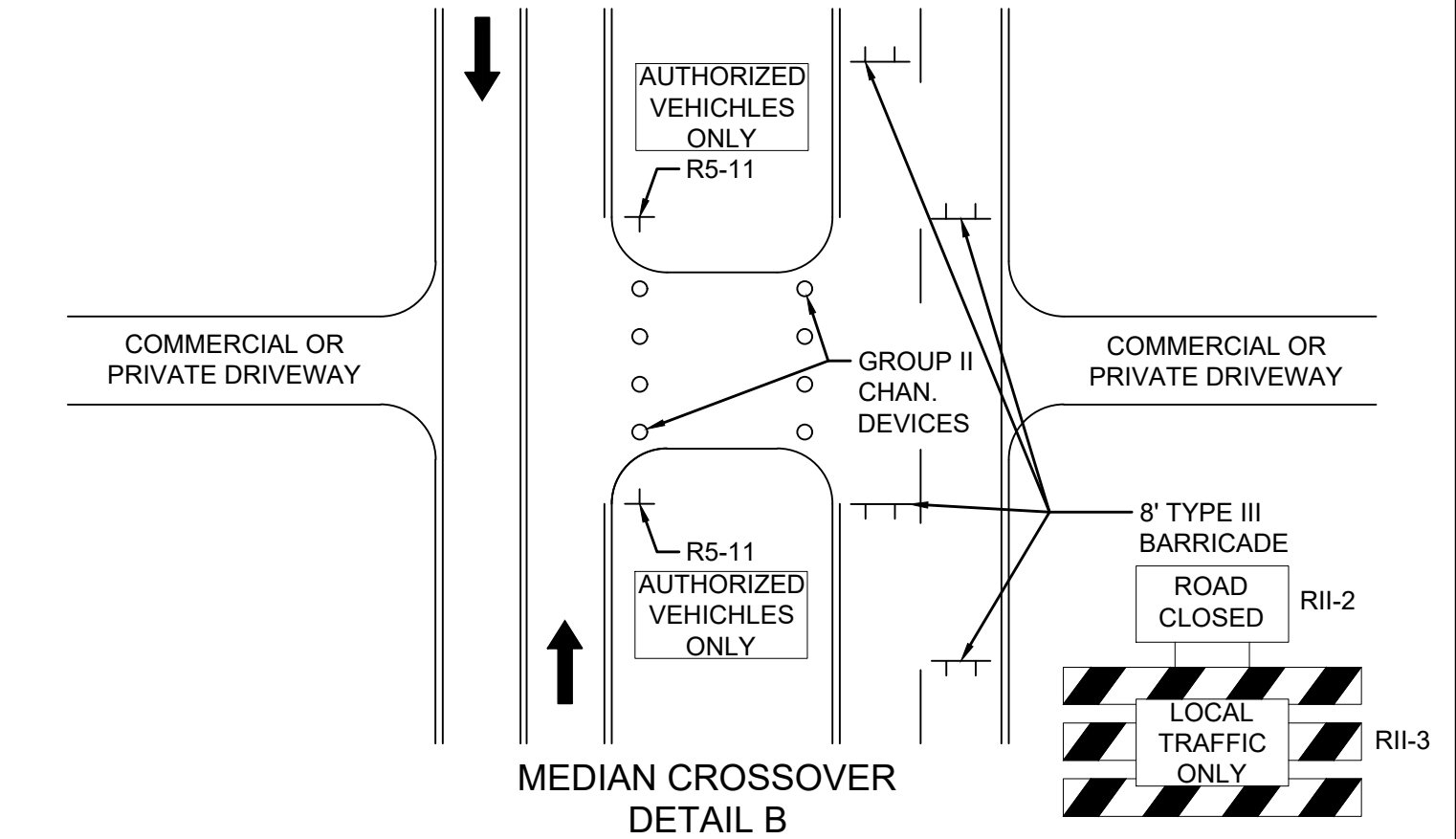
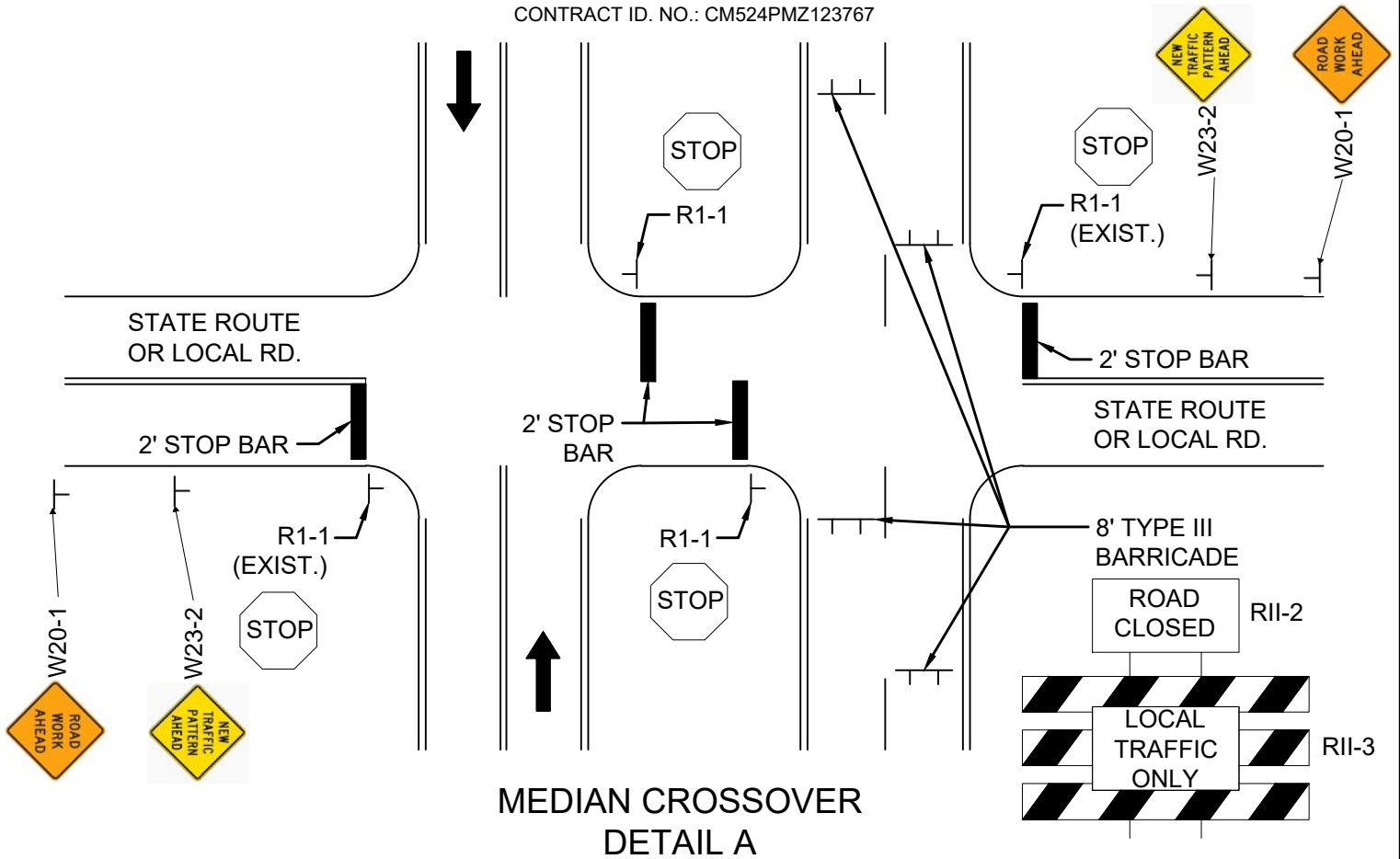
NOTES:

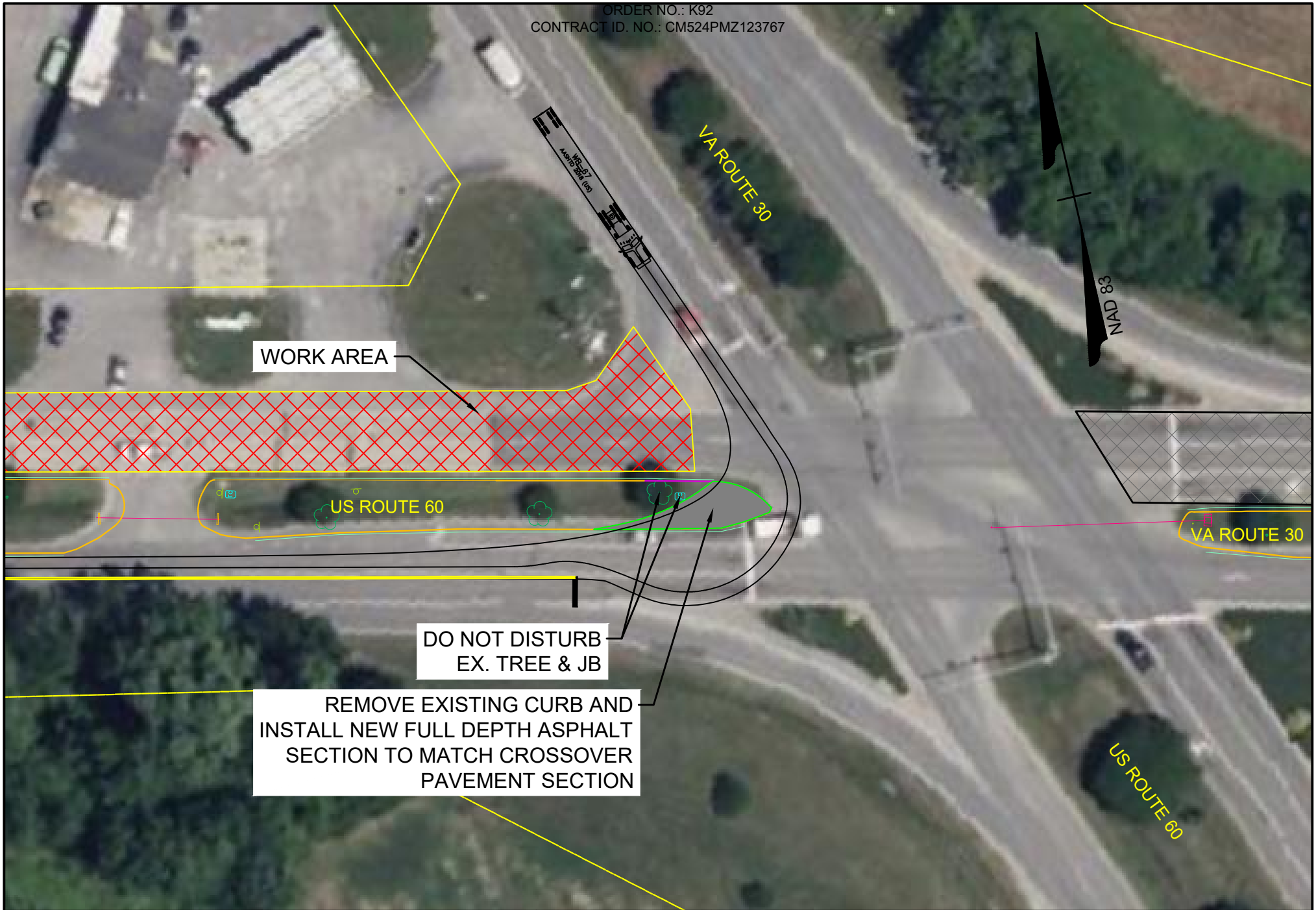
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LEGEND

PROJECT WORK AREA	
GROUP I TUBULAR CHANNELIZING DEVICES	
GROUP II CHANNELIZING DEVICES	
ERADICATE EX. PAVEMENT MARKINGS	
DIRECTION OF VEHICULAR TRAVEL	
TEMPORARY CROSSOVER	

MEDIAN CROSSOVER MOT DETAILS





TEMPORARY MEDIAN NOSE MODIFICATION
TWO-WAY TRAFFIC ON EB LANES
US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
MD-2

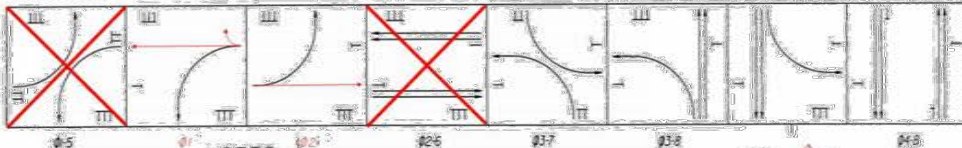
TEMPORARY TRAFFIC SIGNAL

Temporary Signalization General Notes:

1. The following items and operations shall conform to the standard listed below:
 - Conduit Installation..... ECI-1
 - Signal Head Hangers.....SW-2, SM-3
 - Sign Hanger.....SMD-2
 - Pavement Markings.....PM-1 through PM-10
2. All traffic signal work shall be constructed and installed in accordance with the current versions of Virginia Department of Transportation (VDOT) Road and Bridge Specifications, VDOT Road and Bridge Standards, the Manual on Uniform Traffic Control Devices (MUTCD), Virginia Supplement, National Electric Code and special provision copied noted and special provisions at the time of construction.
3. Temporary signal pole locations may be field adjusted within the designated corners no more than 2' in any direction from the plan locations, provided that the revised pole location:
 - Remains out of the clear zone and pavement sections.
 - Remains within the right of way.
 - Does not conflict with utilities.
 - Does not limit sight distance.
 - Does not affect drainage.
4. All permanent unused wires in the signal heads shall be capped individually with crimp-type caps.
5. Video Detection Zones (VDZ) shall be placed as shown on the Plan Sheet. The video camera placements and VDZ's may be field adjusted as necessary. Loading shall remain within the limits of the existing loading.
6. Video Detection System must connect to the controller through SDLC and cannot contain any 3rd party communications.
7. All underground and overhead utilities shown on these plans are approximate only and may not be complete. At least 72 hours prior to beginning signal work, the Contractor shall contact "Miss Utility of Virginia" at 1-800-552-7001 in order to determine the extent, location, and identification of all of the utilities within the work area. If the Contractor perceives a conflict between utilities and the proposed traffic signal equipment, the Contractor shall notify the Engineer immediately so that the conflict may be reviewed. The Contractor shall be responsible for repairing or replacing, at their own expense, any existing utilities, pavement, concrete items, etc. that are damaged or disturbed during construction.
8. VDOT utilities are not included in "Miss Utility of Virginia", for VDOT utilities markings call 1-800-367-7623.
9. Conduit systems shall be bonded in accordance with Section 700 of the Road & Bridge Specifications. Equipment Grounding Conductor (EGC) noted on the temporary signal plans in new conduits, are required only if necessary to provide a bonded system.
10. At least 2 weeks prior to any controller configurations change the Contractor shall coordinate with the Hampton Road Signal Group at 757-592-8088.
11. The contractor shall coordinate with VDOT for the signal timings required for each phase of construction.

12. Verify Existing Utility Locations: This work shall consist of digging test holes at locations specified by the Engineer for the purpose of verifying the location of underground utilities. Earthen material, aggregate, hydraulic cement concrete or asphalt used to backfill test holes shall be the same quality as existing.
13. Discrepancies between drawing and contractor specification shall be reported to the engineer immediately for clarification.
14. Covered signal heads and signs shall be covered with a durable non-transparent cover upon installation. The contractor shall maintain the covers until the new traffic signal system is operational.
15. All unused wires in the signal heads shall be capped and individually with crimp-type caps and taped.
16. All signal equipment shall be wired with a continuous run from the equipment to the controller cabinet.
17. All traffic signal head sections shall feature yellow housings with tunnel visors, 12-inch LED indications, and retro-reflective back plates.
18. Temporary traffic signal heads shall be located within the lane lines of their associated approach and have a minimum of 8' separation between each head on the same approach.
19. The contractor shall supply and install all equipment required for the signal connection to the controller and all items required in the cabinet to provide a complete working signal system.
20. The contractor shall be responsible for keeping the intersection signalized for the duration of construction. If any existing signal equipment is damaged during construction the contractor shall be responsible for replacement and maintaining continuous operation of the signal.
21. Existing signal equipment removed from the existing traffic signal mast arms shall be properly stored during construction and replaced in their original positions at the end of construction. Any existing traffic signal equipment that is damaged during removal, storage, or installation shall be replaced with in-kind or approved equivalent equipment.
22. Pavement markings are to be installed in accordance with section 704 of the Virginia Department of Transportation Road and Bridge Specifications and as called out on plans.
23. The contractor shall maintain existing VDOT communications to the traffic signal at all times during construction
24. A VDOT Digital Key will be required for accessing the traffic signal cabinet. The contractor shall coordinate with VDOT for obtaining and/or programming their Digital Key. Swapping out of the digital cabinet lock for a traditional key lock during construction will not be permitted.
25. Prior to any work on the existing traffic signal, the contractor shall request an inspection report from VDOT to confirm the existing conditions of the traffic signal. Upon completion of the project and when the signal has been restored to its original condition, a second inspection report is required to confirm the operating condition.
26. Contractor shall install enough cable for temporary signalization during Stage 1 to allow for adjustments noted in Stage 1.5 and Stage 2 without having to install new cable. Excess cabling shall be spooled along the span wire at or near the temporary wood poles and not along the span wire away from the wood poles.

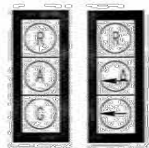
Phasing Diagram



NOTES

- ① 1" IM CONDUIT
- ② 2 1/2" IM CONDUIT
- ③ 2" CONDUIT, 2-2c/s
- ④ 2" CONDUIT, 4-4c
- ⑤ 4" JACKED PIPE, 3" CONDUIT, 4-4c/5-2c/s
- ⑥ 3-1/2" CONDUITS
- ⑦ 4" JACKED PIPE, 2" CONDUIT, 2-2c/s
- ⑧ 4" JACKED PIPE, 2" CONDUIT, 4-4c/3-2c/s
- ⑨ 1 1/2" IM CONDUIT, 3-8/1c
- ⑩ 2" CONDUIT, 2-2c/s
- ⑪ 2-3" CONDUIT, 8-4c/12-2c/s

SIGNALS



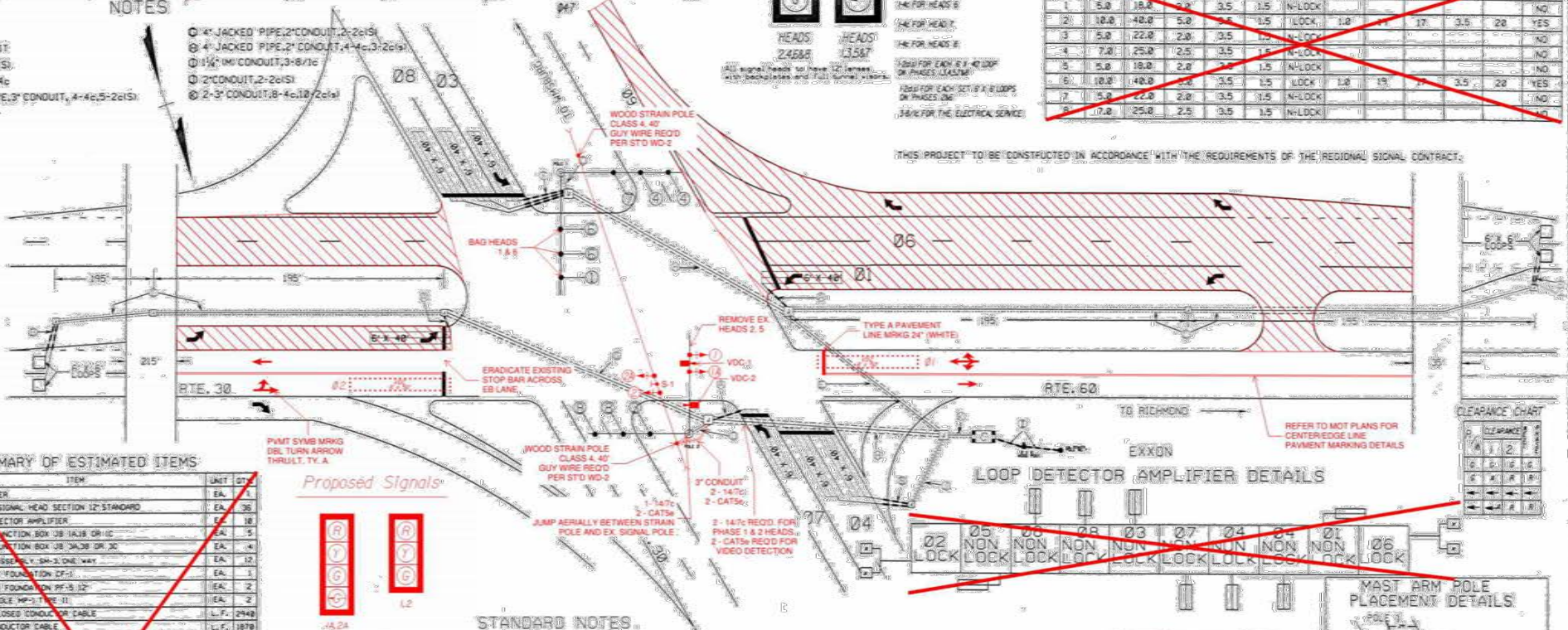
WIRING

- 1" FOR HEAD 2
- 1" FOR HEAD 3
- 1" FOR HEAD 4
- 1" FOR HEAD 5
- 1" FOR HEAD 7
- 1" FOR HEAD 8
- 1" FOR EACH SET OF 8' X 40' LOOP OR PHASE (L&R)
- 1" FOR EACH SET OF 8' X 40' LOOPS OR PHASE (L&R)
- 1" FOR THE ELECTRICAL SERVICE

TIMING CHART

PHASE	GREEN MIN	GREEN MAX	PASSAGE TIME	AMBER	ALL RED	DETECT SETTING	SEC PER ACT.	TIME TO REDUCE	TIME BEFORE REDUCT.	MIN. GAP	MAX. INITIAL RECALL	YES	NO
1	5.0	18.0	2.0	3.5	1.5	N-LOCK						NO	YES
2	10.0	48.0	2.0	3.5	1.5	N-LOCK	1.0	17	17	3.5	20	YES	NO
3	5.0	22.0	2.0	3.5	1.5	N-LOCK						NO	YES
4	7.0	25.0	2.5	3.5	1.5	N-LOCK						NO	YES
5	5.0	18.0	2.0	3.5	1.5	N-LOCK						NO	YES
6	10.0	48.0	2.0	3.5	1.5	LOCK	1.0	17	17	3.5	20	YES	NO
7	5.0	22.0	2.0	3.5	1.5	N-LOCK						NO	YES
8	17.0	25.0	2.5	3.5	1.5	N-LOCK						NO	YES

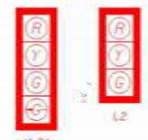
(THIS PROJECT) TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE REGIONAL SIGNAL CONTRACT.



SUMMARY OF ESTIMATED ITEMS

ITEM	UNIT	QTY
CONTROLLER	EA.	1
TRAFFIC SIGNAL HEAD SECTION 12" STANDARD	EA.	36
LOOP DETECTOR AMPLIFIER	EA.	18
SIGNAL SECTION BOX 18" 1/2" 1/8" OR 1/4"	EA.	4
SIGNAL SECTION BOX 18" 3/8" 3/8" 3/8"	EA.	4
WANGER ASSEMBLY 18" 3/8" ONE WAY	EA.	12
CONCRETE FOUNDATION 27"-1"	EA.	1
CONCRETE FOUNDATION 18" 3/8"	EA.	2
SIGNAL POLE 18" 3/8"	EA.	2
1 1/2" ENCLOSED CONDUIT, 1" CABLE	L.F.	2949
1 1/4" CONDUIT, 1" CABLE	L.F.	1879
1 1/2" CONDUIT, 1" CABLE (SH-1000)	L.F.	2420
4" JACKED PIPE	L.F.	319
1" METAL CONDUIT	L.F.	375
1 1/4" METAL CONDUIT	L.F.	25
2" CONDUIT	L.F.	1869
1 1/2" CONDUIT, 1" CABLE	L.F.	90
TRENCH EXCAVATION 60"	L.F.	1168
SAW CUT 3/8"	L.F.	1152
REMOVE EXISTING POLE	EA.	4
REMOVE EXISTING FOUNDATION	EA.	5
REMOVE EXISTING SIGNAL HEADS	EA.	27
2" CONDUIT	L.F.	275
WAST ARM 5"	EA.	2
SAW CUT 3/8"	L.F.	285
WAST ARM 60"	EA.	2
6" X 6" SIGN WOOD POST	EA.	1
ELECTRICAL SERVICE 50'-4"	EA.	1

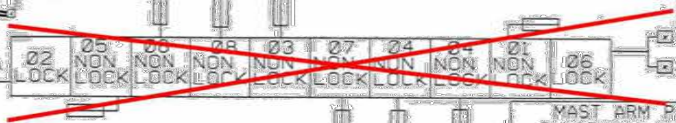
Proposed Signals



STANDARD NOTES

1. All 6' x 40' loop detectors shall be set at 10-16 inches center to center and placed 2' in front of stop bar.
2. All 6' x 6' loop detectors to set at 18-20"
3. 6' x 6' loop detectors to be set and spaced as shown and splicing in series in the junction box.
4. IM denotes metal conduit.
5. IS denotes shielded cable.
6. All underground conduit shall be installed in accordance with 402.603.1.
7. Electrical service shall be in accordance with 402.55-4 and 402.55-5 and 402.55-6 and 402.55-7.
8. Controller cabinet foundation shall be in accordance with 402.55-1.
9. All signal heads shall be mounted in accordance with 402.55-1.1.
10. The contractor shall stake signal pole locations and verify same with the prior to staking foundations with the SUFFOLK DISTRICT TRAFFIC ENGINEERING OFFICE CONTACT RAY HUNT AT 925-1658 FOR VERIFICATION.

LOOP DETECTOR (AMPLIFIER) DETAILS



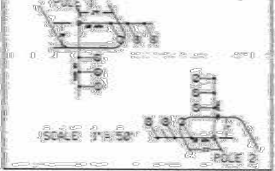
Proposed Signs



Color Sequence Chart

SIGNAL	PHASES				FLASH			
	1	2	3	4				
1	R							
2		R						
3			R					
4				R				
5					R			
6						R		
7							R	
8								R

MAST ARM POLE PLACEMENT DETAILS



COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF TRANSPORTATION
 SUFFOLK DISTRICT TRAFFIC ENGINEERING

SIGNAL MODIFICATION
 INTERSECTION ROUTES 30 & 60
 JAMES CITY COUNTY
 DATE: _____
 SCALE: _____

STAGE 1 TEMPORARY SIGNALIZATION PLAN

CONTACT "MISS UTILITY" 48 HOURS BEFORE CONSTRUCTION FOR UTILITY LOCATIONS.

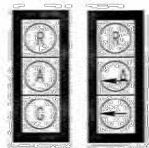
Phasing Diagram



NOTES

- ① 1" IM CONDUIT
- ② 2 1/2" IM CONDUIT
- ③ 2" CONDUIT, 2-2c/s
- ④ 2" CONDUIT, 4-4c
- ⑤ 4" JACKED PIPE, 3" CONDUIT, 4-4c/5-2c/s
- ⑥ 3-1" CONDUITS
- ⑦ 4" JACKED PIPE, 2" CONDUIT, 2-2c/s
- ⑧ 4" JACKED PIPE, 2" CONDUIT, 4-4c/3-2c/s
- ⑨ 1 1/2" IM CONDUIT, 3-8/1c
- ⑩ 2" CONDUIT, 2-2c/s
- ⑪ 2-3" CONDUIT, 8-4c/12-2c/s

SIGNALS



WIRING (SEE HEADS)
 (R) FOR HEAD 2
 (A) FOR HEAD 3
 (G) FOR HEAD 4
 (R) FOR HEAD 5
 (A) FOR HEAD 6
 (G) FOR HEAD 7
 (R) FOR HEAD 8

1" FOR EACH SET OF 4-4 OR 3-2 PHASES (LAST 2)
 1" FOR EACH SET OF 8-4 LOOPS OR PHASES (2)
 (SEE THE ELECTRICAL SERVICE)

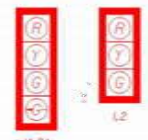
TIMING CHART

PHASE	MIN	MAX	PASSAGE TIME	AMBER	ALL RED	DETECT SETTING	SEC PER ACT.	TIME TO REDUCE	TIME BEFORE REDUCT.	MIN. GAP	MAX. INITIAL	MIN. RECALL
1	5.0	18.0	2.0	3.5	1.5	N-LOCK						NO
2	10.0	48.0	5.0	3.5	1.5	N-LOCK	1.0	17	3.5	20	YES	
3	5.0	22.0	2.0	3.5	1.5	N-LOCK						NO
4	7.0	25.0	2.5	3.5	1.5	N-LOCK						NO
5	5.0	18.0	2.0	3.5	1.5	N-LOCK						NO
6	10.0	48.0	5.0	3.5	1.5	N-LOCK	1.0	17	3.5	20	YES	
7	5.0	22.0	2.0	3.5	1.5	N-LOCK						NO
8	17.0	25.0	2.5	3.5	1.5	N-LOCK						NO

SUMMARY OF ESTIMATED ITEMS

ITEM	UNIT	QTY
CONTROLLER	EA.	1
TRAFFIC SIGNAL HEAD SECTION 12" STANDARD	EA.	36
LOOP DETECTOR AMPLIFIER	EA.	18
SIGNAL SECTION BOX 18 1/2" 1/2" 1/2" 1/2"	EA.	4
SIGNAL SECTION BOX 18 3/8" 3/8" 3/8" 3/8"	EA.	4
WANGER ASSEMBLY 3M-3 ONE WAY	EA.	12
CONCRETE FOUNDATION 27" x 27"	EA.	1
CONCRETE FOUNDATION 18" x 18"	EA.	2
SIGNAL POLE 18" x 18"	EA.	2
3/4" ENCLOSED CONDUIT 10' CABLE	L.F.	2940
3/4" CONDUIT CABLE	L.F.	1870
1/2" CONDUIT CABLE (SHIELDED)	L.F.	2420
4" JACKED PIPE	L.F.	310
1" METAL CONDUIT	L.F.	375
1 1/4" METAL CONDUIT	L.F.	25
2" CONDUIT	L.F.	3860
1/2" CONDUIT CABLE	L.F.	90
TRENCH EXCAVATION 6" x 18"	L.F.	1180
SAW CUT 3/8"	L.F.	1152
REMOVE EXISTING POLE	EA.	4
REMOVE EXISTING FOUNDATION	EA.	5
REMOVE EXISTING SIGNAL HEADS	EA.	27
2" CONDUIT	L.F.	275
WAST ARM 5'	EA.	2
SAW CUT 3/8"	L.F.	285
WAST ARM 65'	EA.	2
6" x 6" SIGN WOOD POST	EA.	1
ELECTRICAL SERVICE 50-4	EA.	1

Proposed Signals



STANDARD NOTES

- All 6" x 48" loop detectors shall be set at 10-12 inch corner drilling only and placed 2' in front of stop bar.
- All 6" x 6" loop detectors to set at 18-20"
- 6" x 6" loop detectors to be shield separately and spliced in series in the junction box.
- IM denotes metal conduit.
- IS denotes shielded cable.
- All underground conduit shall be installed in accordance with 462(B)(9).
- Electrical service shall be in accordance with 1.5E-4 and 68 and fuse boxes and 88 and fuses.
- Controller cabinet foundation shall be in accordance with 462(B)(1).
- All signal heads shall be mounted in accordance with 462(B)(10).
- The contractor shall stake signal pole locations and verify mast arm lengths prior to drilling foundations with the SUFFOLK DISTRICT TRAFFIC ENGINEERING OFFICE CONTACT RAY HUNT AT 925-1658 FOR VERIFICATION.

STAGE 1.5 TEMPORARY SIGNALIZATION PLAN

CONTACT 'MISS UTILITY' 48 HOURS BEFORE CONSTRUCTION FOR UTILITY LOCATIONS.

PROJECT NO.	STATE	FEDERAL AID	ROUTE	SHEET	DATE
0	VA				

THIS PROJECT TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE REGIONAL SIGNAL CONTRACT.

PVMT SYMB MING OBL TURN ARROW THRU LT. TY. A

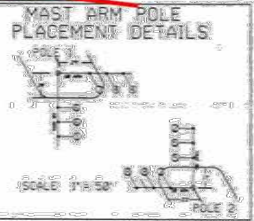
REFER TO MOT PLANS FOR CENTER EDGE LINE PAVEMENT MARKING DETAILS

LOOP DETECTOR (AMPLIFIER) DETAILS



CLEARANCE CHART

Clearance	1	2	3	4	5	6	7	8	9	10
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										



Proposed Signs



Color Sequence Chart

SIGNAL	PHASES				FLASH
	1	2	3	4	
1					
2					
3					
4					
5					
6					
7					
8					

* Empty cell denotes RED indication (Red Ball or Red Arrow) if appropriate

COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF TRANSPORTATION
 SUFFOLK DISTRICT TRAFFIC ENGINEERING
 SIGNAL MODIFICATION
 INTERSECTION ROUTES 30 & 60
 JAMES CITY COUNTY
 DATE: _____
 SCALE: _____

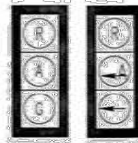
Phasing Diagram



NOTES

- ① 1 1/2" CONDUIT
- ② 2 1/2" IM CONDUIT
- ③ 2" CONDUIT (2c/s)
- ④ 2" CONDUIT, 4-4c
- ⑤ 4" JACKED PIPE, 3" CONDUIT, 4-4c, 5-2c/s
- ⑥ 3-1" CONDUITS
- ⑦ 4" JACKED PIPE, 2" CONDUIT, 2-2c/s
- ⑧ 4" JACKED PIPE, 2" CONDUIT, 4-4c, 3-2c/s
- ⑨ 1 1/2" IM CONDUIT, 3-8/3c
- ⑩ 2" CONDUIT, 2-2c/s
- ⑪ 2-3" CONDUIT, 8-4c, 10-2c/s

(SIGNALS)



(WIRING)

- 1- FOR HEAD 2
- 2- FOR HEAD 3
- 3- FOR HEAD 4
- 4- FOR HEAD 5
- 5- FOR HEAD 6
- 6- FOR HEAD 7
- 7- FOR HEAD 8
- 8- FOR EACH SET OF 6' X 48" LOOP IN PHASE 1/2/3
- 9- FOR EACH SET OF 6' X 48" LOOP IN PHASE 4/5
- 10- FOR THE ELECTRICAL SERVICE

TIMING CHART

PHASE	MIN	MAX	PASSAGE TIME	AMBER	ALL RED	DETECT SETTING	SEC PER ACT	TIME TO REDUCE	TIME BEFORE REDUCT	MIN. GREEN	MAX. GREEN	MIN. YELLOW	MIN. RED	RECALL
1	5.0	18.0	2.0	3.5	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO
2	18.0	48.0	5.0	3.0	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO
3	5.0	22.0	2.0	3.5	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO
4	7.0	25.0	(2.5)	3.5	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO
5	5.0	18.0	2.0	3.5	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO
6	18.0	48.0	5.0	3.5	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO
7	5.0	22.0	2.0	3.5	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO
8	7.0	25.0	2.5	3.5	1.5	N-LOCK	3.0	1.0	17	3.5	20			NO

(THIS PROJECT) TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF THE REGIONAL SIGNAL CONTRACT. REFER TO MOT PLANS FOR CENTER EDGE LINE PAVEMENT MARKING DETAILS.

SUMMARY OF ESTIMATED ITEMS

ITEM	UNIT	QTY
CONTROLLER	EA.	1
TRAFFIC SIGNAL HEAD SECTION 12" STANDARD	EA.	36
LOOP DETECTOR AMPLIFIER	EA.	18
SIGNAL SECTION BOX 18" X 18" ON 1C	EA.	18
SIGNAL SECTION BOX 18" X 18" ON 3C	EA.	4
HANGER ASSEMBLY 1/2" X 3" ONE WAY	EA.	32
CONCRETE FOUNDATION 12" X 12"	EA.	2
SIGNAL POLE 10'-7" HGT	EA.	2
1 1/2" ENCLOSED CONDUCTOR CABLE	L.F.	2949
1 1/4" CONDUCTOR CABLE	L.F.	1879
1 1/2" CONDUCTOR CABLE (SHIELDED)	L.F.	2420
4" JACKED PIPE	L.F.	319
1" METAL CONDUIT	L.F.	375
1 1/4" METAL CONDUIT	L.F.	25
2" CONDUIT	L.F.	3880
1/2" CONDUCTOR CABLE	L.F.	90
TRENCH EXCAVATION 60"	L.F.	168
SAW CUT 3/8"	L.F.	1052
REMOVE EXISTING POLE	EA.	4
REMOVE EXISTING FOUNDATION	EA.	5
REMOVE EXISTING SIGNAL HEADS	EA.	27
2" CONDUIT	L.F.	275
MAST ARM 5'	EA.	2
SAW CUT 1/2"	L.F.	285
MAST ARM 60"	EA.	2
6" X 6" UNION WOOD POST	EA.	1
ELECTRICAL SERVICE SE-4	EA.	1

Proposed Signals



STANDARD NOTES

1. All 6' x 48" loop detectors shall be set to 10-12 ohms and installed 12" in front of stop bar.
2. All 6' x 6" loop detectors to be 18-18-18.
3. 6' x 6" loop detectors to be 60" on center and spaced in series in the detection loop.
4. IM denotes metal conduit.
5. S1 denotes shielded cable.
6. All underground conduit shall be installed in accordance with standard 601.1.
7. Electrical service shall be in accordance with standard 601.1 and 601.2 and 601.3 and 601.4 and 601.5 and 601.6 and 601.7 and 601.8 and 601.9 and 601.10 and 601.11 and 601.12 and 601.13 and 601.14 and 601.15 and 601.16 and 601.17 and 601.18 and 601.19 and 601.20 and 601.21 and 601.22 and 601.23 and 601.24 and 601.25 and 601.26 and 601.27 and 601.28 and 601.29 and 601.30 and 601.31 and 601.32 and 601.33 and 601.34 and 601.35 and 601.36 and 601.37 and 601.38 and 601.39 and 601.40 and 601.41 and 601.42 and 601.43 and 601.44 and 601.45 and 601.46 and 601.47 and 601.48 and 601.49 and 601.50 and 601.51 and 601.52 and 601.53 and 601.54 and 601.55 and 601.56 and 601.57 and 601.58 and 601.59 and 601.60 and 601.61 and 601.62 and 601.63 and 601.64 and 601.65 and 601.66 and 601.67 and 601.68 and 601.69 and 601.70 and 601.71 and 601.72 and 601.73 and 601.74 and 601.75 and 601.76 and 601.77 and 601.78 and 601.79 and 601.80 and 601.81 and 601.82 and 601.83 and 601.84 and 601.85 and 601.86 and 601.87 and 601.88 and 601.89 and 601.90 and 601.91 and 601.92 and 601.93 and 601.94 and 601.95 and 601.96 and 601.97 and 601.98 and 601.99 and 601.100.
8. Controller cabinet foundation shall be in accordance with standard 601.1.
9. All signal heads shall be mounted in accordance with standard 601.1.
10. The contractor shall stake signal pole locations and verify mast arm lengths prior to drilling foundations with the SUFFOLK DISTRICT TRAFFIC ENGINEERING OFFICE CONTACT RAY HUNT AT 925-3658 FOR VERIFICATION.

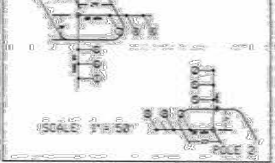
Proposed Signs



Color Sequence Chart

SIGNAL	PHASES				FLASH
	1	2	3	4	
1	1	2	3	4	
2	1	2	3	4	
3	1	2	3	4	
4	1	2	3	4	
5	1	2	3	4	
6	1	2	3	4	
7	1	2	3	4	
8	1	2	3	4	

MAST ARM POLE PLACEMENT DETAILS



COMMONWEALTH OF VIRGINIA
 DEPARTMENT OF TRANSPORTATION
 SUFFOLK DISTRICT TRAFFIC ENGINEERING

SIGNAL MODIFICATION
 INTERSECTION ROUTES 30 & 60
 JAMES CITY COUNTY
 DATE: _____ SCALE: _____

STAGE 2 TEMPORARY SIGNALIZATION PLAN

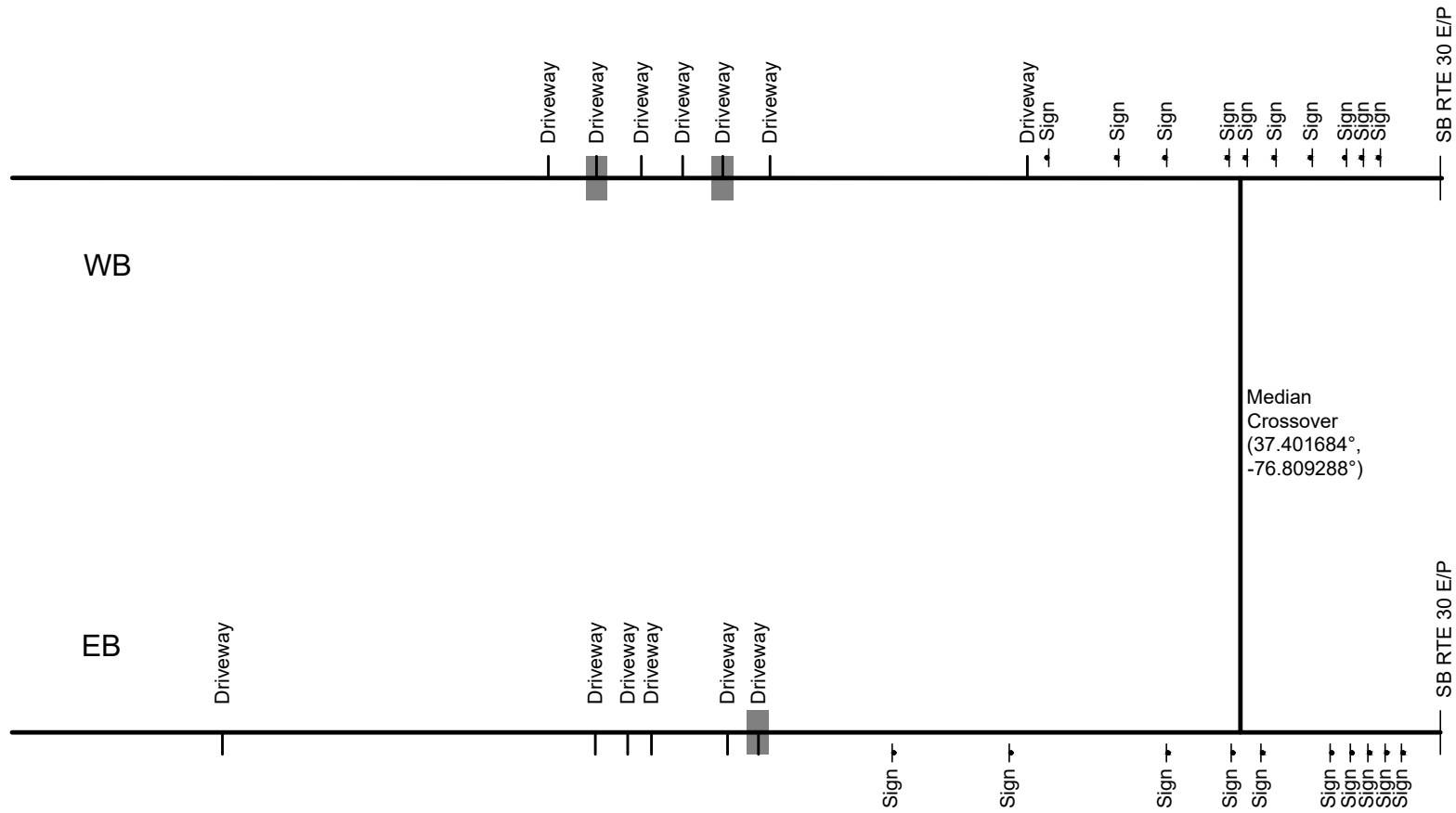
CONTACT "MISS UTILITY" 48 HOURS BEFORE CONSTRUCTION FOR UTILITY LOCATIONS.

LOCATION PLAN

Coordinates (37.401591°, -76.808412°)
To (37.403027°, -76.820549°)



SEE SHEET LP-2



NOT TO SCALE

■ DENOTES: EXISTING PAVED DRIVEWAY



US ROUTE 60 LOCATION PLAN
US ROUTE 60 - JAMES CITY COUNTY, VA

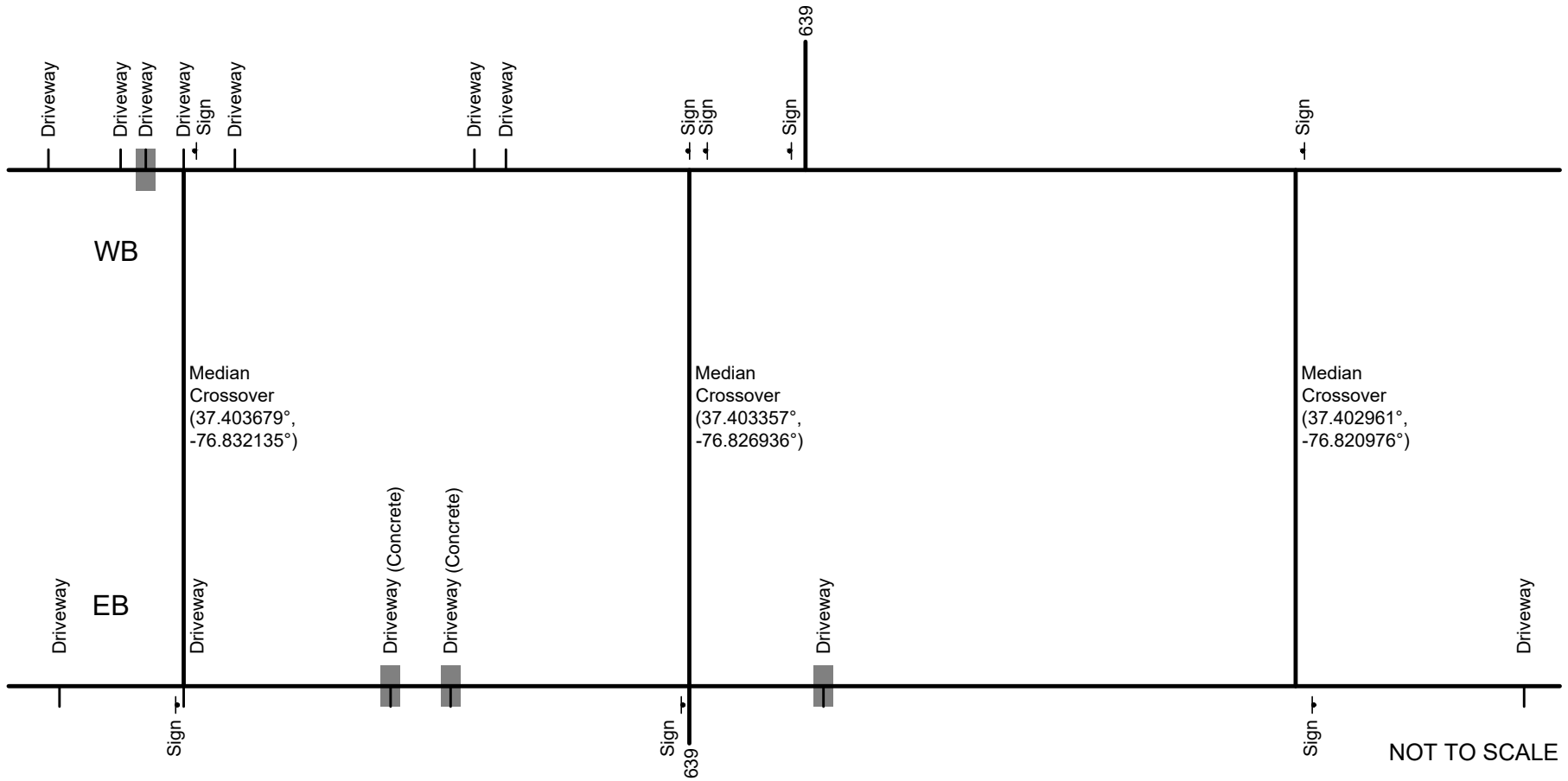
SHEET NO.
LP-1

Coordinates (37.403027°, -76.820549°)
To (37.403842°, -76.833218°)



SEE SHEET LP-3

SEE SHEET LP-1



■ DENOTES: EXISTING PAVED DRIVEWAY



US ROUTE 60 LOCATION PLAN
US ROUTE 60 - JAMES CITY COUNTY, VA

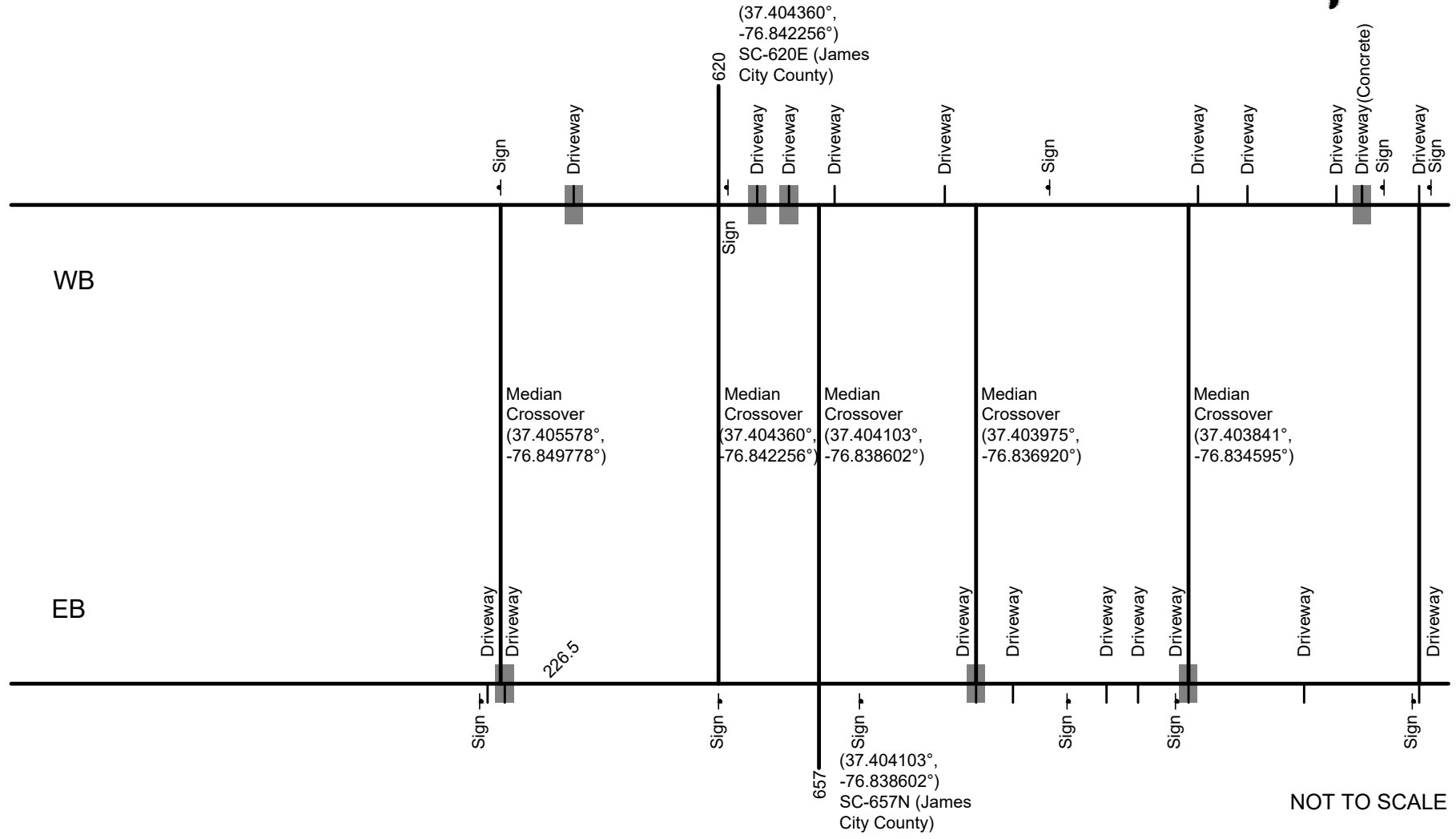
SHEET NO.
LP-2

Coordinates (37.403842°, -76.833218°) To (37.406797°, -76.852613°)



SEE SHEET LP-4

SEE SHEET LP-2



NOT TO SCALE

■ DENOTES: EXISTING PAVED DRIVEWAY



US ROUTE 60 LOCATION PLAN
 US ROUTE 60 - JAMES CITY COUNTY, VA

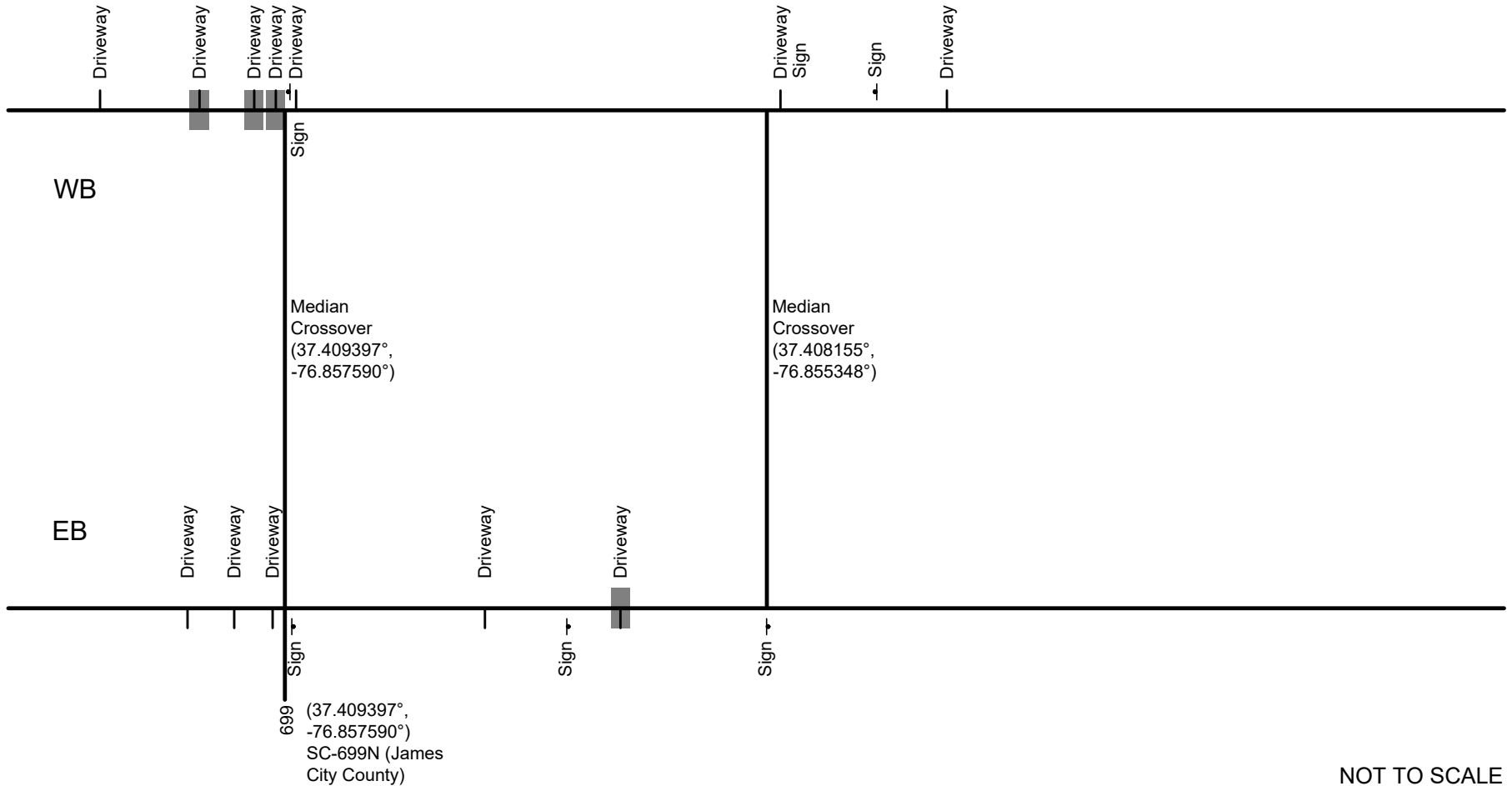
SHEET NO.
LP-3

Coordinates (37.406797°, -76.852613°)
To (37.410456°, -76.859401°)



SEE SHEET LP-5

SEE SHEET LP-3



■ DENOTES: EXISTING PAVED DRIVEWAY



US ROUTE 60 LOCATION PLAN
US ROUTE 60 - JAMES CITY COUNTY, VA

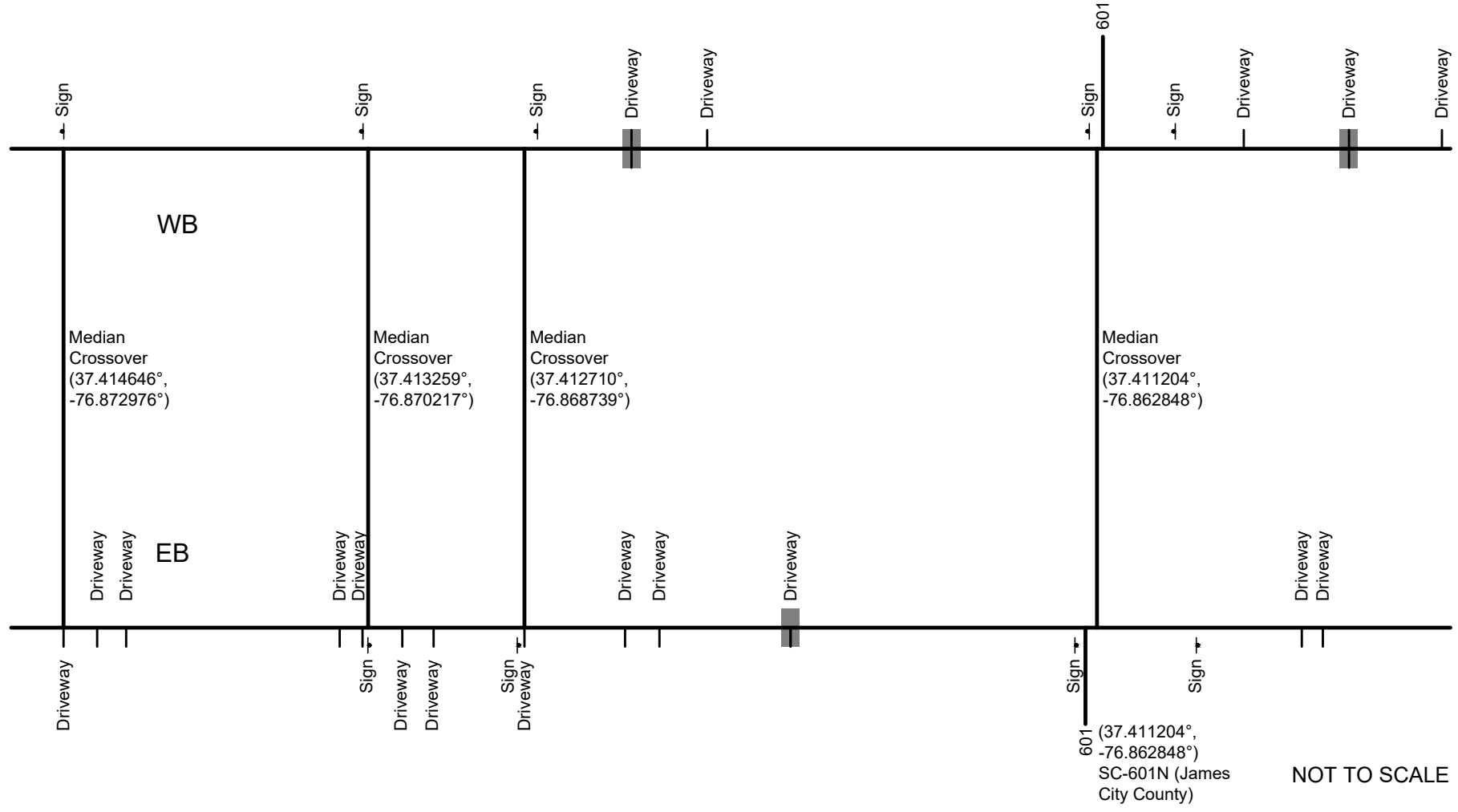
SHEET NO.
LP-4

Coordinates (37.410456°, -76.859401°)
 To (37.414860°, -76.873117°)



SEE SHEET LP-6

SEE SHEET LP-4



NOT TO SCALE

601 (37.411204°, -76.862848°)
 SC-601N (James City County)

■ DENOTES: EXISTING PAVED DRIVEWAY



US ROUTE 60 LOCATION PLAN
 US ROUTE 60 - JAMES CITY COUNTY, VA

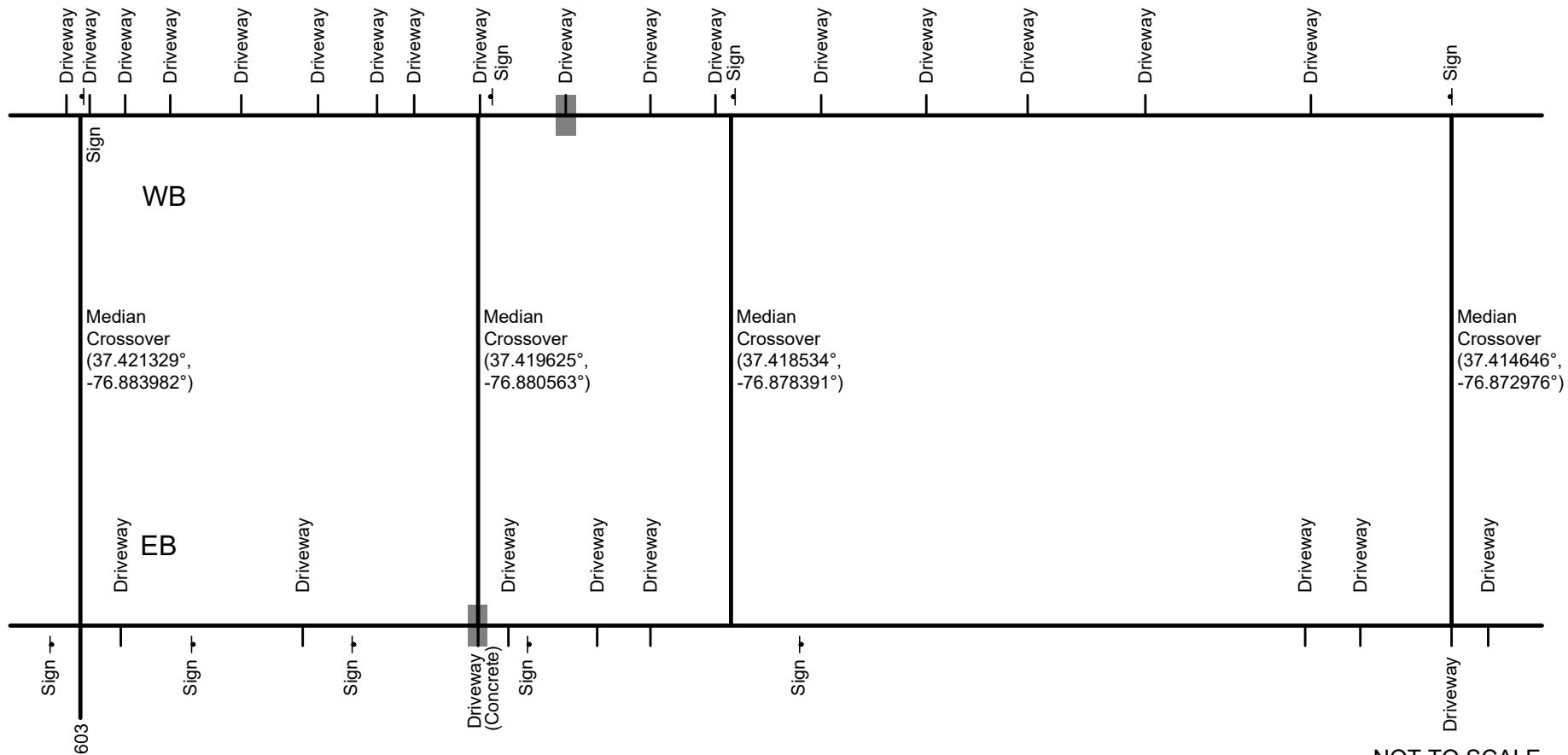
SHEET NO.
LP-5

Coordinates (37.414860°, -76.873117°) To (37.421530°, -76.884151°)



(37.421329°,
 -76.883982°)
 SC-603N (James
 City County)

SEE SHEET LP-7



SEE SHEET LP-5

NOT TO SCALE

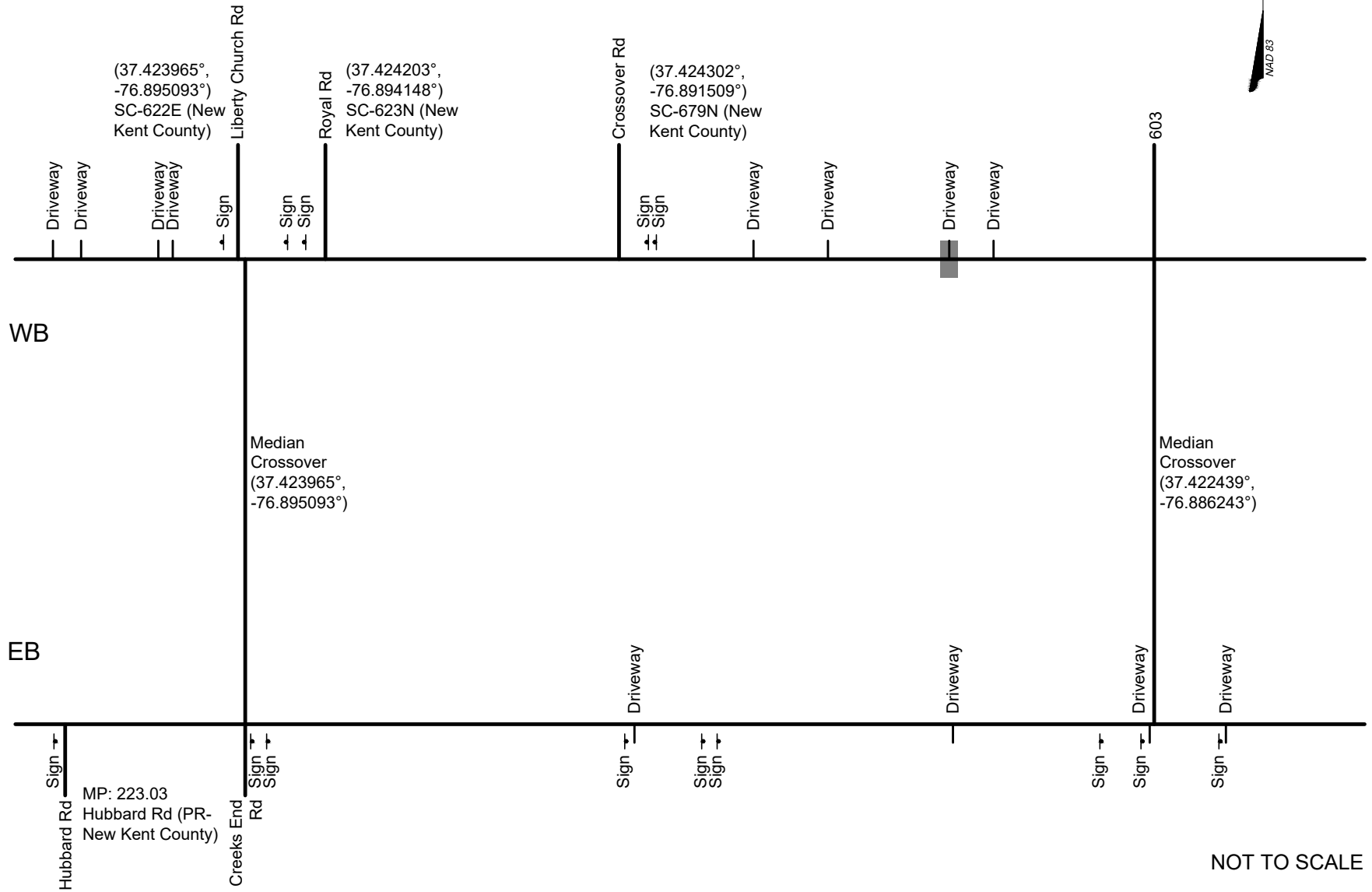
 DENOTES: EXISTING PAVED DRIVEWAY



US ROUTE 60 LOCATION PLAN
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
LP-6

Coordinates (37.421530°, -76.884151°) To (37.423851°, -76.897545°)



SEE SHEET LP-6

NOT TO SCALE

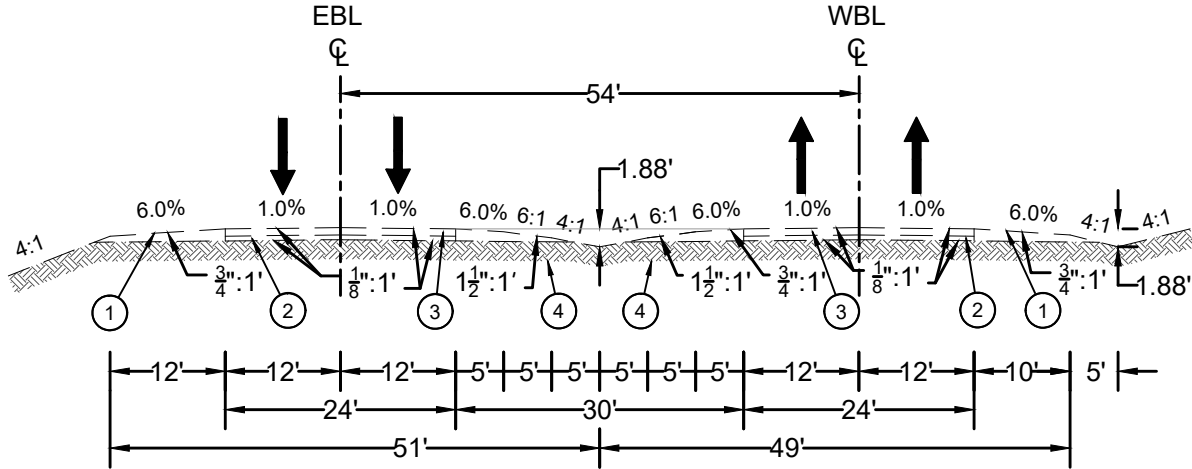
■ DENOTES: EXISTING PAVED DRIVEWAY



US ROUTE 60 LOCATION PLAN
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
LP-7

TYPICAL SECTIONS



1. GRADED SHOULDER
2. SUBGRADE TREATMENT MATERIAL
3. 9" REINFORCED CONCRETE
4. SUBGRADE

	FROM	TO
Latitude:	37.400695°	37.401132°
Longitude:	-76.804382°	-76.806557°

NOTE: US 30 CURRENTLY HAS VARIABLE DEPTH ASPHALT CONCRETE

EXISTING TYPICAL SECTION
 US 30, JAMES CITY COUNTY
 (SOURCE: RECORD DRAWINGS)

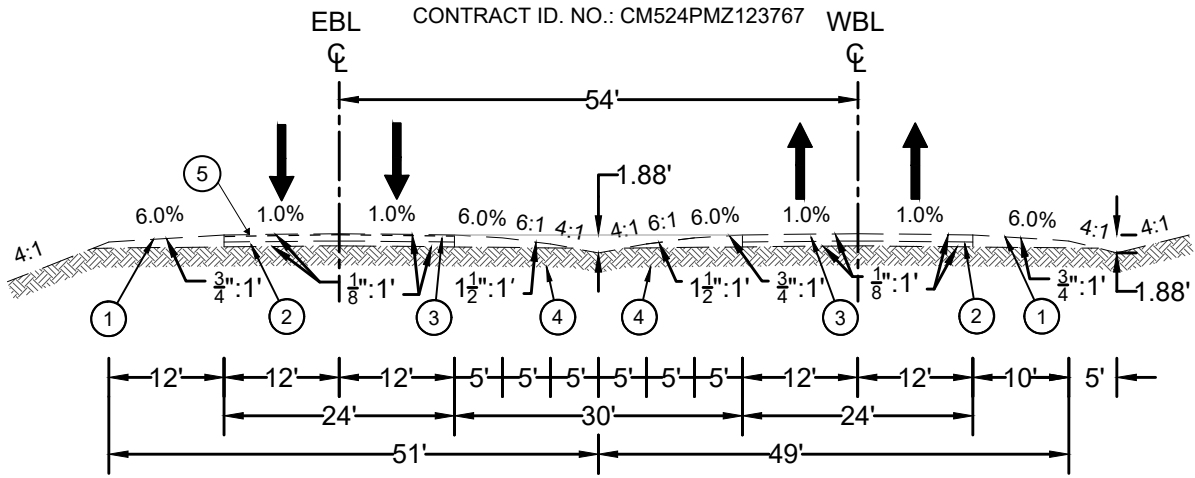
Note: The concrete pavement section may not be present in some areas due to previous maintenance activities where full depth asphalt is likely to be encountered.

NOT TO SCALE



EXISTING TYPICAL SECTION
 US ROUTE 60, JAMES CITY COUNTY VA

SHEET NO.
 TS-1

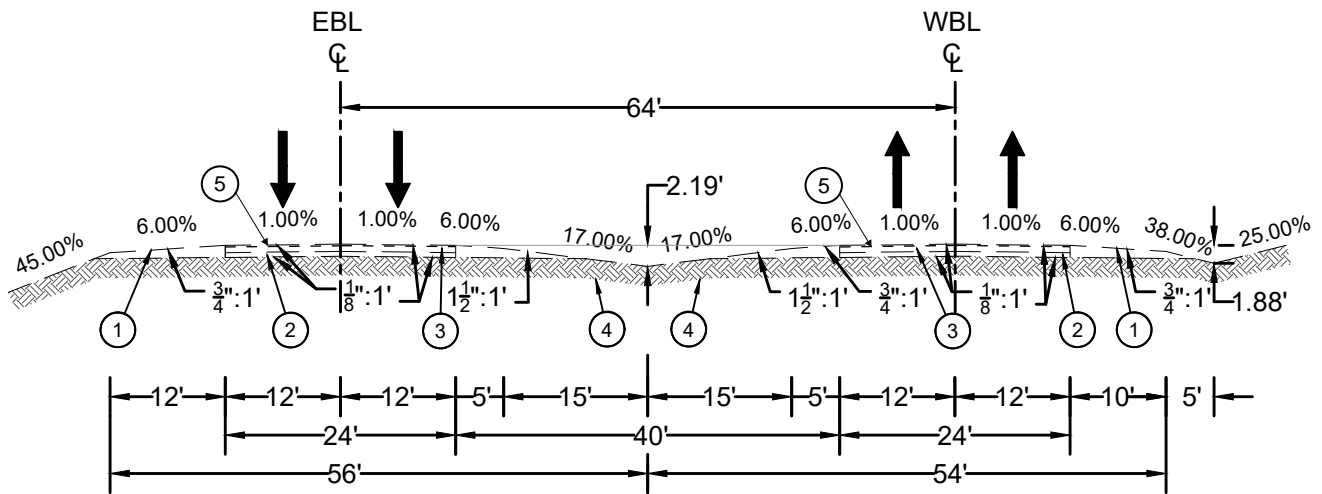


1. GRADED SHOULDER
2. SUBGRADE TREATMENT MATERIAL
3. 9" REINFORCED CONCRETE
4. SUBGRADE
5. VARIABLE DEPTH ASPHALT CONCRETE

EXISTING TYPICAL SECTION
 US 60, JAMES CITY COUNTY
 (SOURCE: RECORD DRAWINGS)

	FROM	TO
Latitude:	37.401435°	37.401778°
Longitude:	-76.808360°	-76.810153°

Note: The concrete pavement section may not be present in some areas due to previous maintenance activities where full depth asphalt is likely to be encountered.



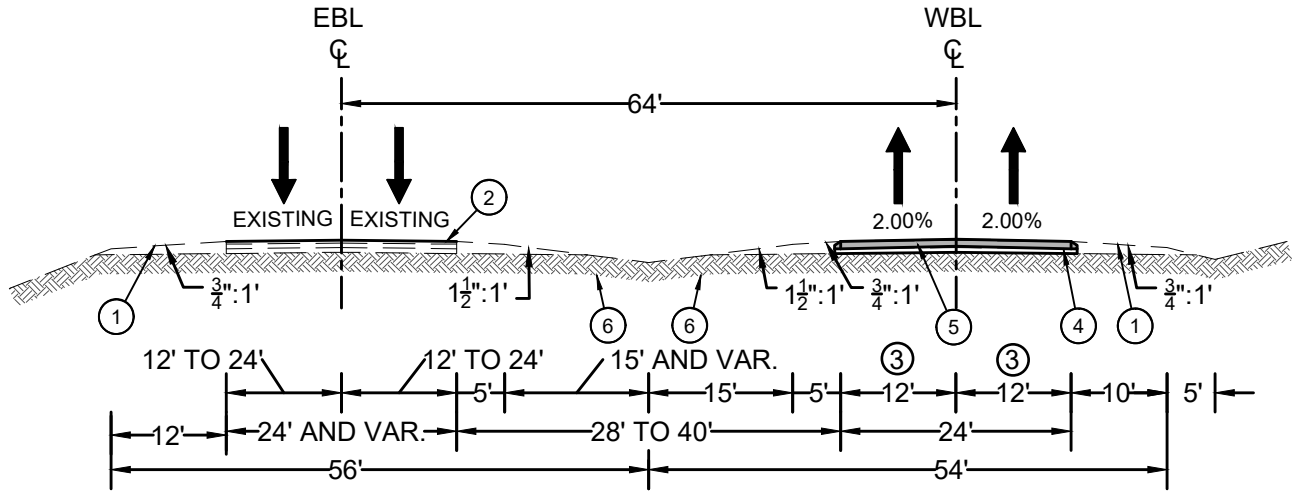
1. GRADED SHOULDER
2. SUBGRADE TREATMENT MATERIAL
3. 9" REINFORCED CONCRETE
4. SUBGRADE
5. VARIABLE DEPTH COMPOSITE PAVEMENT

EXISTING TYPICAL SECTION
 US 60, JAMES CITY COUNTY
 (SOURCE: RECORD DRAWINGS)

	FROM	TO
Latitude:	37.401778°	37.424096°
Longitude:	-76.810153°	-76.892352°

NOT TO SCALE





1. GRADED SHOULDER
2. 2" MILL AND AC OVERLAY
3. DEMOLISH EXISTING PAVEMENT
4. PROPOSED 6" MIN. AGG BASE
5. PROPOSED 11" MIN. JPCP WITH SAFETY WEDGE, ST'D PR-2
6. SUBGRADE

HALF SECTION			
	FROM	TO	LANE
Latitude:	37.401435°	37.402106°	EB
Longitude:	-76.808360°	-76.812617°	

HALF SECTION			
	FROM	TO	LANE
Latitude:	37.401591°	37.402221°	WB
Longitude:	-76.808412°	-76.811594°	
Latitude:	37.424285°	37.424286°	WB
Longitude:	-76.892280°	-76.892314°	
Latitude:	37.423999°	37.424096°	EB
Longitude:	-76.890862°	-76.892352°	

PROPOSED MILL & OVERLAY AND JPCP TYPICAL SECTION
 US 60, JAMES CITY COUNTY

Note: Some area may not include existing concrete pavement due to full depth asphalt maintenance.

NOT TO SCALE

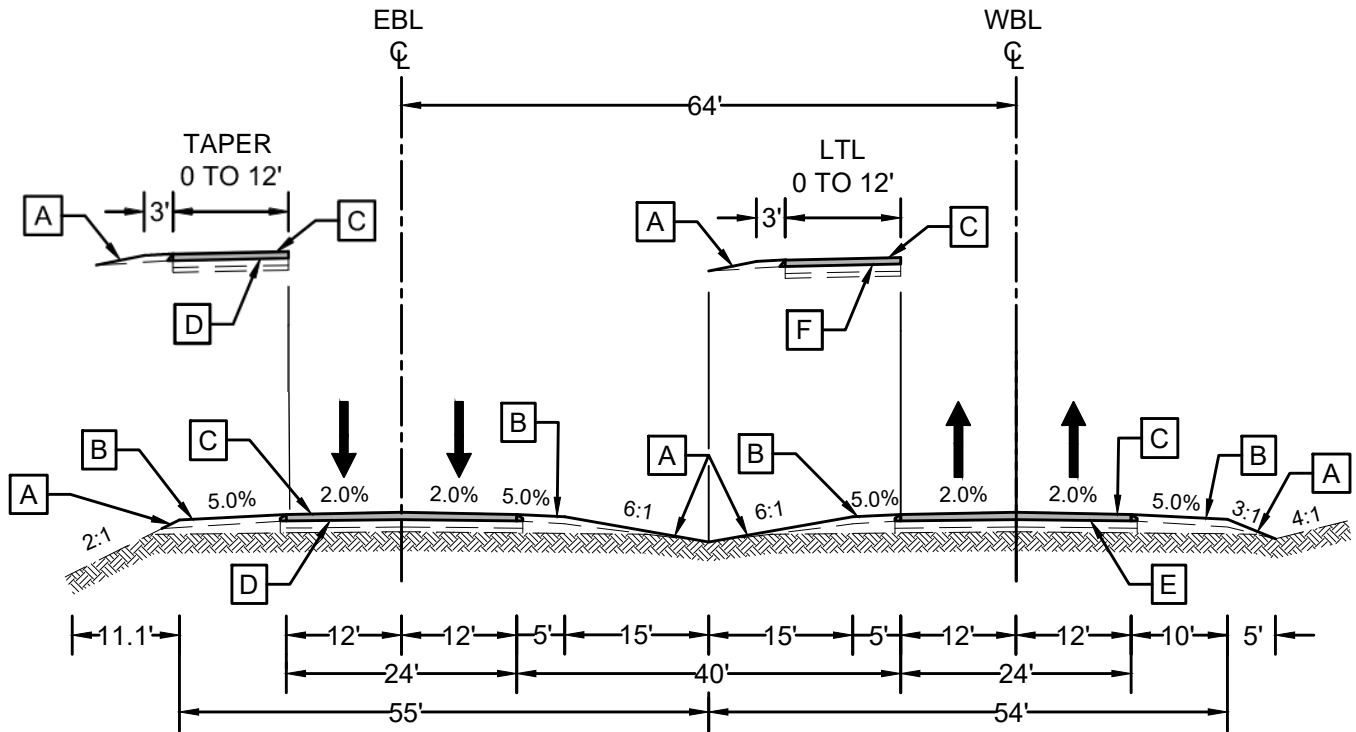


PROPOSED UNBONDED TYPICAL SECTION

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

TS-3



- A. 2:1 MAX OR TIE ABOVE DITCH INVERT, TOPSOIL, AND SEED
- B. CRUSHER RUN GRADED SHOULDER
- C. 7" MIN. UNBONDED HYDRAULIC CEMENT CONCRETE PAVEMENT OVERLAY*
- D. 2" MILL OF EXISTING ASPHALT COMPOSITE OVERLAY
- E. GEOTEXTILE INTERLAYER OVER EXISTING CONCRETE PAVEMENT
- F. GEOTEXTILE INTERLAYER OVER EXISTING ASPHALT CONCRETE PAVEMENT

*NOTE: UNBONDED HYDRAULIC CEMENT CONCRETE PAVEMENT OVERLAY SHALL BE A MINIMUM 7" THICK AT EDGE OF PAVEMENT. DUE TO THE DIFFERING CROSS SLOPES THE THICKNESS OF THE OVERLAY WILL BE GREATER AT THE CENTERLINE THAN AT THE EDGES.

HALF SECTION

	FROM	TO	LANE
Latitude:	37.402106°	37.404059°	
Longitude:	-76.812617°	-76.839033°	EB
Latitude:	37.403686°	37.403761°	
Longitude:	-76.834273°	-76.835359°	EB TAPER

HALF SECTION

	FROM	TO	LANE
Latitude:	37.402221°	37.404326°	
Longitude:	-76.811594°	-76.840583°	WB
Latitude:	37.403823°	37.403906°	
Longitude:	-76.833184°	37.403906°	WB LTL

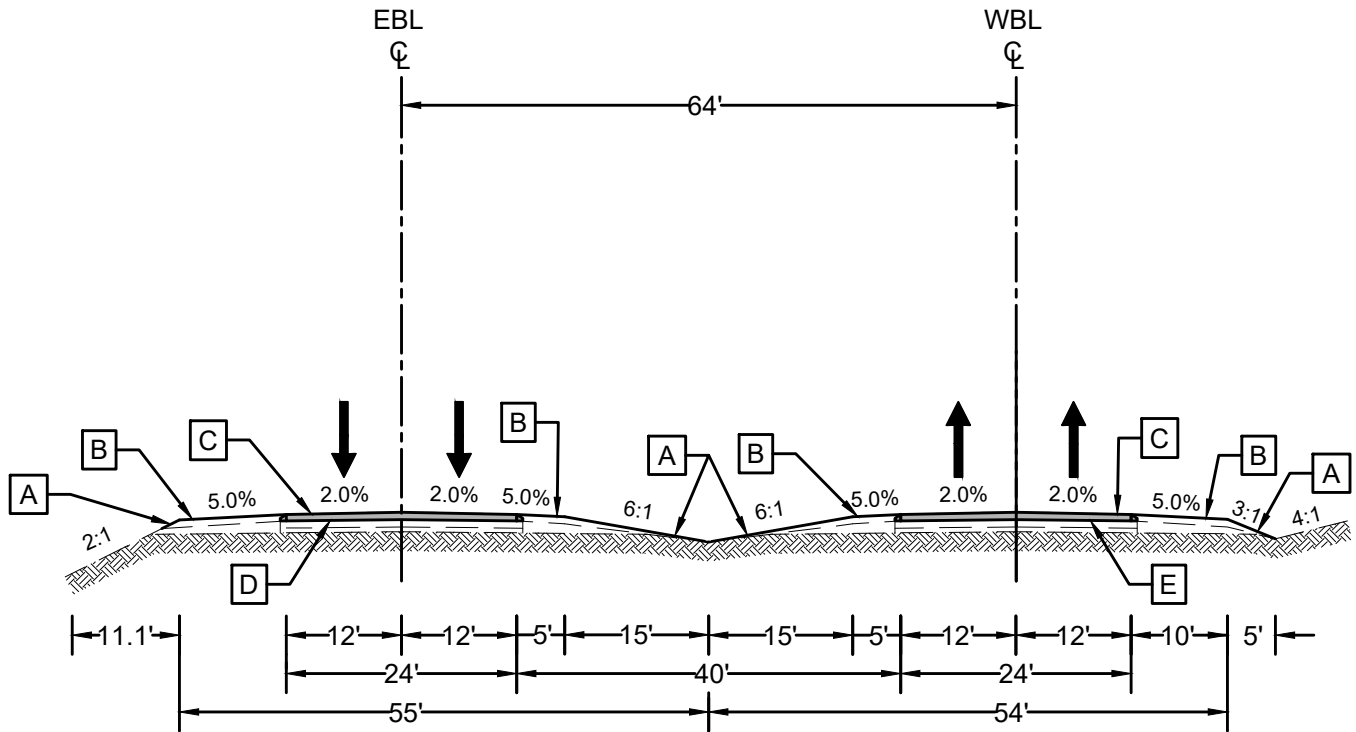
PROPOSED UNBONDED HYDRAULIC CEMENT
 CONCRETE OVERLAY TYPICAL SECTION
 US 60, JAMES CITY COUNTY

NOT TO SCALE



PROPOSED TYPICAL SECTION
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
TS-4



- A. 2:1 MAX OR TIE ABOVE DITCH INVERT, TOPSOIL, AND SEED
- B. CRUSHER RUN GRADED SHOULDER
- C. 7" MIN. UNBONDED HYDRAULIC CEMENT CONCRETE PAVEMENT OVERLAY*
- D. 1" ASPH-STAB. OPEN-GRADED MATERIAL
- E. 3" MILL OF EXISTING ASPHALT CONCRETE COMPOSITE PAVEMENT

*NOTE: UNBONDED HYDRAULIC CEMENT CONCRETE PAVEMENT OVERLAY SHALL BE A MINIMUM 7" THICK AT EDGE OF PAVEMENT. DUE TO THE DIFFERING CROSS SLOPES THE THICKNESS OF THE OVERLAY WILL BE GREATER AT THE CENTERLINE THAN AT THE EDGES.

HALF SECTION

	FROM	TO	LANE
Latitude:	37.404059°	37.423999°	
Longitude:	-76.839033°	-76.890862°	EB

HALF SECTION

	FROM	TO	LANE
Latitude:	37.404326°	37.424285°	
Longitude:	-76.840583°	-76.892280°	WB

PROPOSED UNBONDED HYDRAULIC CEMENT
 CONCRETE OVERLAY TYPICAL SECTION
 US 60, JAMES CITY COUNTY

NOT TO SCALE



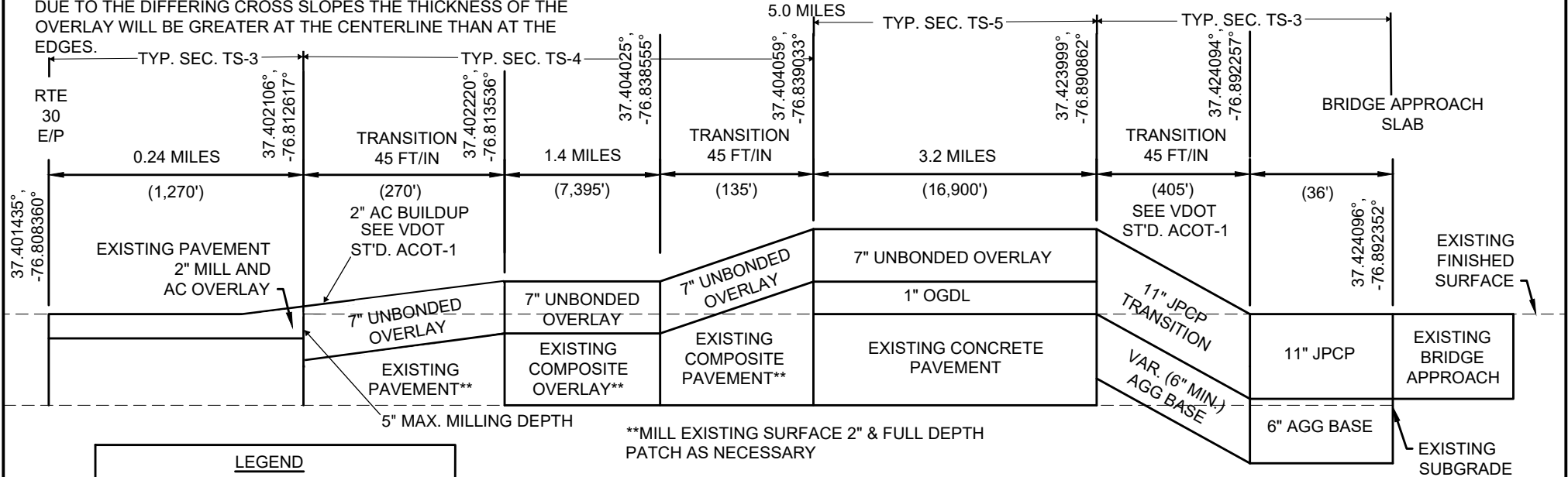
PROPOSED TYPICAL SECTION
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
 TS-5

CONCRETE OVERLAY ELEVATION

EASTBOUND RTE 60

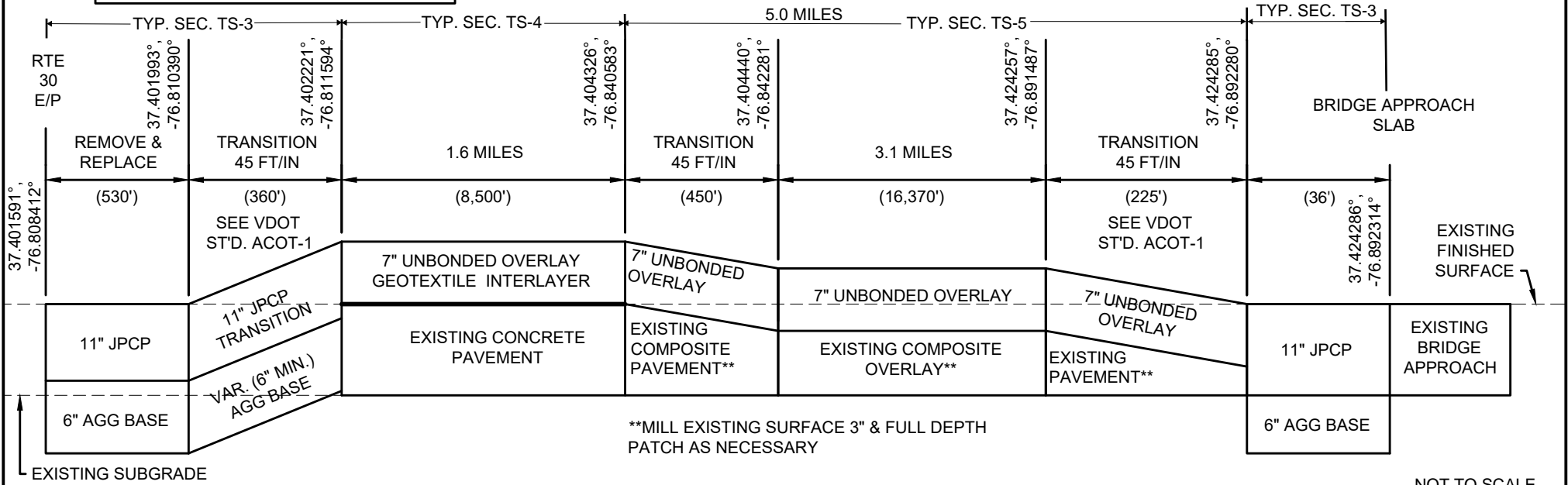
*NOTE: UNBONDED HYDRAULIC CEMENT CONCRETE PAVEMENT OVERLAY SHALL BE A MINIMUM 7" THICK AT EDGE OF PAVEMENT. DUE TO THE DIFFERING CROSS SLOPES THE THICKNESS OF THE OVERLAY WILL BE GREATER AT THE CENTERLINE THAN AT THE EDGES.



LEGEND

JPCP - JOINTED PLAIN CONCR. PAVE.
 OGDL - OPEN GRADED DRAINAGE LAYER

WESTBOUND RTE 60



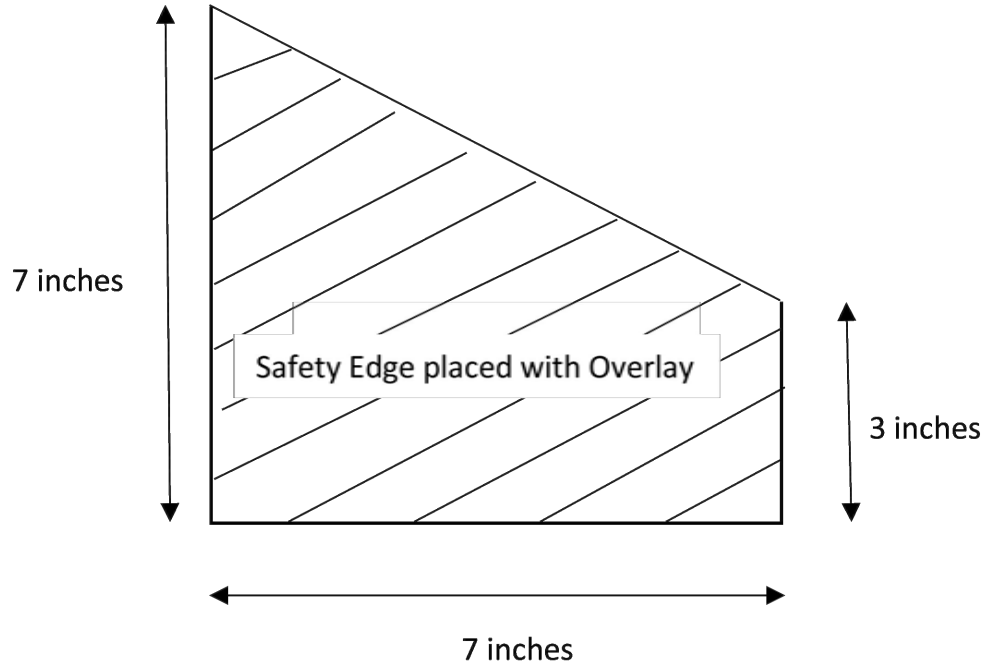
NOT TO SCALE



CONCRETE OVERLAY ELEVATION
US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
OE-1

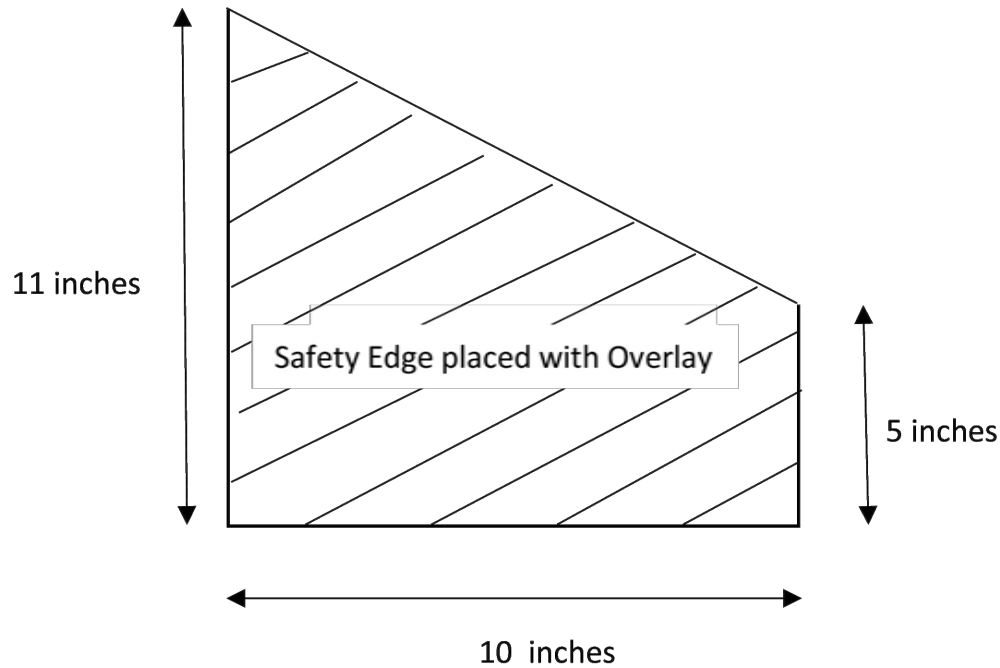
SAFETY WEDGE DETAILS



Safety Edge for 7" Concrete Overlay

Notes:

1. Safety Edge shall be placed concurrently with unbonded hydraulic cement concrete pavement overlay
2. Safety Edge shall be covered with typical section shoulder material after reaching maturity



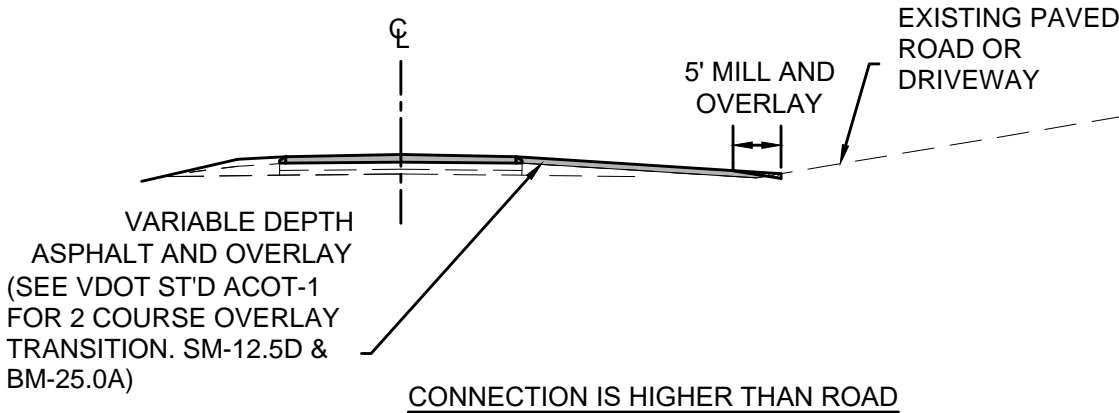
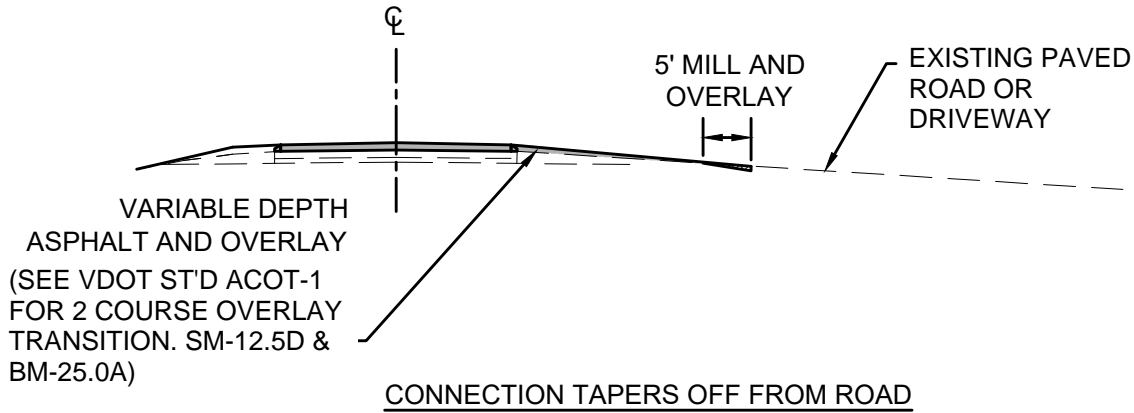
Safety Edge for 11" Concrete Pavement

Notes:

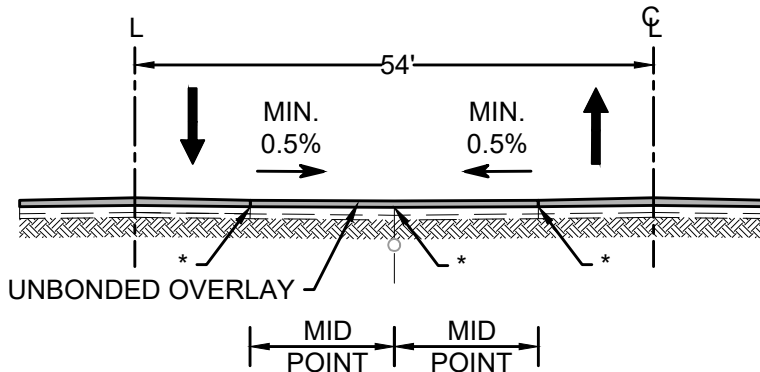
1. Safety Edge shall be placed concurrently with unbonded hydraulic cement concrete pavement overlay
2. Safety Edge shall be covered with typical section shoulder material after reaching maturity

SECONDARY ROAD / DRIVEWAY CONNECTION DETAILS

TYPICAL SECONDARY ROAD/ PAVED DRIVEWAY TIE IN DETAILS



TYPICAL CROSSOVER OVERLAY



* MATCH EXISTING OVERLAY (6" MINIMUM CONCRETE OVERLAY WITH 6' X 6' PANELS)

NOTE: IF LESS THAN 6" IS AVAILABLE, CONSTRUCT OR MILL EXISTING PAVEMENT AS REQUIRED

NOTE: FOR CROSSOVER AT 37.401672, -76.809219, 2" MILL AND AC OVERLAY

NOTE: FOR CROSSOVER AT 37.403847, -76.834618, GEOTEXTILE INTERLAYER OVER EXISTING COMPOSITE PAVEMENT

NOT TO SCALE

PRIVATE AND COMMERCIAL ENTRANCES

TYPE I
 Crusher Run Aggr.



6" Crusher Run
 Aggr. 25 or 26

TYPE II
 Concrete



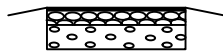
Concrete Entrance Pavement
 7" HES
 4" Aggr. Base Mat'l. Ty. I
 No. 21B

TYPE III
 Asphalt



Asphalt Conc. Type
 SM-12.5D @ 220 Lbs. per S. Y.
 4" Aggr. Base Mat'l. Ty. I
 No. 21B

TYPE IV
 Asphalt Commercial



Asphalt Conc. Type
 SM-12.5D @ 165 Lbs. per S. Y.
 4" Asphalt Conc. Base Course
 BM-25.0
 6" Aggr. Base Mat'l. Ty. I
 No. 21B

NOTES:

1. ENGINEER TO SELECT MOST APPROPRIATE DRIVEWAY TO MATCH EXISTING CONDITIONS.
2. VARIABLE DEPTH DRIVEWAY OVERLAYS AND TIE INS SHALL CONFORM TO TAPER DETAIL (REFER TO PAVEMENT BUILD-UP WITH OVERLAY DETAIL SHOWN ABOVE).
3. UNLESS OTHERWISE SPECIFIED, ALL DRIVEWAYS SHALL CONFORM TO VDOT ST'D. PE-1 DETAILS.

The type of entrance (I, II, III, IV) to be constructed will be determined by the existing condition at the time of construction.

NOT TO SCALE



CONNECTION DETAILS

US2 ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

CD-2

TABLE A - ALLOWABLE TYPE OF PIPE CULVERT

TABLE A - ALLOWABLE TYPE OF PIPE CULVERT

FOR ROADWAYS THAT ARE CONSTRUCTED, FUNDED OR WILL ULTIMATELY BE MAINTAINED BY VDOT

FUNCTIONAL CLASSIFICATION OF ROADS SYSTEM UNDER WHICH PIPE IS TO BE INSTALLED

HIGHER FUNCTIONAL CLASS - HFC 75 - YEAR DESIGN LIFE RURAL PRINCIPAL ARTERIAL, URBAN PRINCIPAL ARTERIAL, RURAL MINOR ARTERIAL, URBAN MINOR ARTERIAL, RURAL COLLECTOR ROADS, URBAN COLLECTOR STREETS, SUBDIVISION STREETS WITH AN ADT GREATER THAN 4000			LOWER FUNCTIONAL CLASS - LFC 50 - YEAR DESIGN LIFE RURAL LOCAL ROADS, URBAN LOCAL STREETS, SUBDIVISION STREETS WITH AN ADT LESS THAN OR EQUAL TO 4000		ENTRANCE PIPE
ALLOWABLE PIPE CULVERTS NOTES 1 & 2	STATEWIDE EXCEPT LOCATIONS SHOWN IN TABLE B	LOCATION SHOWN IN TABLE B	STATEWIDE EXCEPT LOCATIONS SHOWN IN TABLE B	LOCATION SHOWN IN TABLE B	
CONCRETE	✓	✓	✓	✓	✓
ALUMINUM COATED TYPE 2 CORRUGATED STEEL NOTE 3	✓		✓		✓
POLYMER COATED (10/10) CORRUGATED STEEL NOTE 3	✓	✓	✓	✓	✓
UNCOATED GALVANIZED CORRUGATED STEEL NOTES 3 & 4					✓
GALVANIZED STEEL STRUCTURAL PLATE NOTE 3			✓		✓
GALVANIZED STEEL STRUCTURAL PLATE WITH THICKENED INVERT NOTE 3, 5	✓		✓	✓	✓
CORRUGATED ALUMINUM ALLOY NOTE 3	✓	✓	✓	✓	✓
CORRUGATED ALUMINUM ALLOY STRUCTUAL PLATE NOTE 3	✓	✓	✓	✓	✓
POLYVINYLCHLORIDE (PVC) PROFILE WALL PIPE (SMOOTH INTERIOR)	✓	✓	✓	✓	✓
POLYETHYLENE (PE) CORRUGATED TYPE C	✓	✓	✓	✓	✓
POLYETHYLENE (PE) CORRUGATED TYPE S	✓	✓	✓	✓	✓
POLYPROPYLENE (PP) TYPE D OR S	✓	✓	✓	✓	✓



STORMWATER POLLUTION PREVENTION PLAN

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) GENERAL INFORMATION SHEET

0060 PM5Z-047-S24 1

The information contained in the SWPPP General Information sheets is intended to comply with the requirements of the VPDES General Permit For Discharges Of Stormwater From Construction Activities (the VPDES Construction Permit) issued July 1, 2019 and VDOT's approved Annual ESC and SWM Standards and Specifications.

The SWPPP General Information sheets are to be completed and included in the construction plan set (or other such documents) for land disturbance activities that disturb an area equal to or greater than 10,000 square feet outside the Chesapeake Bay Preservation Area, or equal to or greater than 2,500 square feet in the area defined as Tidewater, Virginia in the Virginia Chesapeake Bay Preservation Act.

The VDOT RLD (as defined in the latest IM 242) will ensure that the information shown on the SWPPP General Information sheets is updated/revised as necessary in order to reflect changes that may occur during the construction phase of the land disturbing (construction) activity. The updated/revised sheets shall be maintained with the designated record set of plans for other such documents for the land disturbance (construction) activity.

- **X 4. The location of on-site support facilities that will be covered under the VPDES Construction Permit coverage for this land disturbance (construction) activity shall be provided by the contractor and identified on the record set of plans or in other appropriate contract documents. Support facilities shall include, but not be limited to, borrow and disposal areas, construction and waste material storage areas, equipment and vehicle washing, maintenance, storage and fueling areas, storage areas for fertilizers, fuels or chemicals, concrete wash out areas, sanitary waste facilities and any other areas that may generate a stormwater or non-stormwater discharge directly related to the construction site.
- **X 5. Written Evidence of permit coverage shall be provided by the contractor for all support activities located outside of VDOT right of way or easement in the form of the Construction General Permit coverage letter: (List VPDES Permit # or Letter from VSMF Authority stating coverage not needed)

- X 13. The ESC and P2 inspections for this land disturbing (construction) activity shall follow (Select Schedule 1 or 2, if schedule #2 is used, void note #14) as defined in 2016 R&B Specifications except for Section 107.16(e) 4 an Inspection Requirements Rain gauge notes apply only to Inspection Schedule 1.

- 6. List the surface waters that have been identified as impaired in the DEQ 2012 305(b)/303(d) Water Quality Assessment Integrated Report for sediment, total suspended solids, turbidity, Nitrogen or Phosphorus. These pollutants are considered benthic impairments: N/A

- **X 14. The location of the on-site rain gauge that will be used to determine the occurrence of a measurable storm event for the purposes of ESC and Pollution Prevention inspections will be provided by the contractor and identified on the record set of plans or in other appropriate SWPPP documents for this land disturbance activity: (List location of rain gauge).

- 7. Identify the TMDL's where stormwater from construction activities discharges into a watershed with a TMDL waste load allocation established and approved by the State Water Control Board prior to July 1, 2016 for sediment, total suspended solids, turbidity, nitrogen or phosphorus: N/A

The rain gauge shall be observed daily at "_____ " to determine the occurrence of a measurable storm event (i.e., 0.25 inches of rainfall or greater in a 24 hour period). A log book shall be maintained to record observation information which shall include (1) the date, (2) the time, (3) whether or not rainfalls occurring at the time of the observation, (4) the amount of accumulated rainfall in the gage, if any, and (5) whether or not an inspection is required based on the amount of accumulated rainfall in the gage. If there is no rainfall occurring at the time of the observation, the observation information shall be noted in the log book and the rain gauge emptied and replaced. An inspection is required if there is 0.25 inches or more accumulation noted in the rain gauge. If there is rainfall occurring at the time of the observation, the observation information is to be noted in the log book. The rain gauge is not to be emptied but left to accumulate additional rainfall until the conclusion of the rainfall event. At the conclusion of the rainfall event, an observation of the rain gauge shall be made and the observation information shall be noted in the log book and the rain gauge emptied and replaced. An inspection is required if there is 0.25 inches or more accumulation noted in the rain gauge.

- 8. This land disturbance activity discharges stormwater to the following surface waters that have been identified as exceptional in Section 9VAC25-260-30 A 3 c of the Virginia Administrative Code: N/A

- 9. Locations of surface waters and locations where concentrated stormwater is discharged from this land disturbance (construction) activity are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity. (List name of surface waters and locations here if not shown in construction plan or other such documents).

- 15. The following VDOT documents are applicable to a) permitted projects b) non-permitted projects in Chesapeake Bay Preservation Areas (CBPA) with 2,500 S.F. to 1.0 acre of land disturbance c) non-permitted projects requiring a SWPPP and d) Non-permitted, Non-CBPA with BMP projects that have a water quantity BMP:
 - VDOT LD-445: Permitted projects, CBPA projects and Non-permitted, Non-CBPA with BMP projects that have a water quantity BMP and ESC projects > 10,000 s.f. but < 1 acre.
 - VDOT LD-445A: Permitted projects only.
 - VDOT LD-445C: Projects that require a permit, ESC Plan, or SWPPP.
 - VDOT LD-445D: Permitted projects, CBPA projects and Non-permitted, Non-CBPA with BMP projects that have a water quantity BMP.
 - VDOT LD-445F: Emergency work projects (when applicable).
 - Water Quality Requirement (when applicable)
 - VDOT LD-445H: Permitted projects only.
 - VDOT C-107 Part Land Part II. All projects that require a permit or SWPPP.
 - VDOT LD-445I: AS&S Approval Form (when applicable)

- 10. The ESC and SWM plans (where applicable) for this land disturbance (construction) activity have been developed in accordance with VDOT's Approved Annual Erosion and Sediment Control and Stormwater Management Standards and Specifications as approved by the DEQ.

- 11. List the RLD and other responsible parties for the land disturbance activity: (required for erosion and sediment control). The following individuals have "delegated authority" to sign all reports required by the construction permit including the SWPPP General Information Sheets and Inspection Reports (C-107). Reference form LD-445H for delegation of authority (form 445H for the project is hereby incorporated by reference into this SWPPP). These individuals has/have overall responsibility or the environmental matters for the project (required only for permitted projects):

- 16. If there is an excessive loading of sediment from the project (i.e. more than to be expected from the project with an implemented ESC plan) that is discovered within a local watershed with a sediment TMDL that allocates a WLA to VDOT's MS4, (see note #7) the contractor shall investigate the area of concern at the site within 24 hours of discovery and ensure all erosion and sediment control best management practices are being implemented in accordance with the permits approved standards and specifications required by Part I.B of the current Construction General Permit. If corrective action is necessary, the contractor shall initiate corrective actions no later than 5 business days after the initial investigation.

- 17. If excessive loading of sediment from a land disturbing activity that is not the responsibility of the contractor is discovered discharging into a MS-4, the contractor shall notify the municipality with jurisdiction over erosion and sediment control activities.

X Denotes information that is to be provided/completed by the RLD.
 **X Denotes information that is to be provided/completed by the contractor.

I certify under penalty of law that I have read and understand this document and that this document and all attachments were prepared in accordance with a system designed to assure that qualified personnel properly gathered and evaluated 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.

I further certify that this document and all other documents related to the SWPPP, as identified on the SWPPP General Information Sheets, are maintained at the activity site, or at a location convenient to the activity site where no on-site facilities are available, and such documents will be made available for review upon request in accordance with the provisions of the General VPDES Permit for Discharges of Stormwater from Construction Activities (VAR10) when applicable. Where the SWPPP documents are not stored on-site, a copy of such documents shall be in the possession of those with day to day operational control over the implementation of the SWPPP whenever they are on site.

• or ** Delegated Authority Signature"

Signature: _____
 Printed Name: _____
 Date: _____

(1) See Section I, Item 11 relating to delegation of authority, and form LD-445H (Delegation of Authority).

ACRONYMS

CBPA - Chesapeake Bay Preservation Act	SWPPP - Stormwater Pollution Prevention Plan
BMP - Best Management Practice	TMDL - Total Maximum Daily Load
DEQ - Department of Environmental Quality	VDOT - Virginia Department of Transportation
EPA - U.S. Environmental Protection Agency	VPDES - Virginia Pollutant Discharge Elimination System
ESC - Erosion and Sediment Control	VSMF - Virginia Stormwater Management Program
IM - Instructional and Informational Memorandum	VESCP - Virginia Erosion and Sediment Control Program
R&B - Road and Bridge	WLA - Waste Load Allocation
RLD - Responsible Land Disturber	SWM - Stormwater Management

SECTION I GENERAL INFORMATION

- 1. Activity Description - Maintenance project to overlay existing road and re-establish shoulders along US Route 60 in James City County. The project is exempt from the VSMF regulations pursuant to §62.1-44.15-34C7.
- 2. This land disturbance (construction) activity site is located in James City County and approximately 27.00 acres will be disturbed by excavation, grading or other construction activities.
- 3. (Include one of the following notes as appropriate)
 - A. This proposed activity disturbs one acre or greater and requires coverage under the VPDES General Permit for Discharges Of Stormwater from Construction Activities (the VPDES Construction Permit) as issued by the DEQ. A copy of the VPDES Construction Permit (VAR10), the registration information (LD-445 & LD-445C forms) and the permit coverage letter received from DEQ shall be maintained with other SWPPP documents for this land disturbing activity.
 - B. This proposed activity disturbs less than one acre and is exempt from coverage under the VPDES General Permit for Discharges of Stormwater from Construction Activities (the VPDES Construction Permit) as issued by the DEQ.
 - C. This proposed activity is exempt from coverage under the VPDES General Permit For Discharges Of Stormwater From Construction Activities (the VPDES Construction Permit) as issued by the DEQ because it is considered a routine maintenance activity (i.e., the proposed activity is intended to maintain the original line and grade, hydraulic capacity or original construction of the project or involves the paving of an existing roadway with a compacted or impervious surface and the reestablishment of associated ditches and shoulders).

Name	Position	Responsibility
	RLD	Certify the SWPPP (with date & sig.)
	Certified Inspector	Sign (C-107) Inspection Form Part 1
	Certified Inspector	Sign (C-107) Inspection Form Part 2

- X 12. The name of the VDOT individual(s) responsible for the oversight inspection in accordance with IM-LD-256 on these land disturbance construction activities as identified on these SWPPP General Information Sheets. The names will be updated and maintained with the other SWPPP documents for this land disturbance activity.

VDOT Individuals	Position	Responsibility
	NPDES	NPDES coordinator responsible for the oversight inspection in accordance with IM-LD-256
	Dist. Hyd. Engineer	District Hydraulic Engineer or designee(s) responsible for the review & the coordination approval of ESC SWM plan modifications.

Revised 5/1/19

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STORMWATER POLLUTION PREVENTION PLAN

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

SW-1

SECTION II EROSION AND SEDIMENT CONTROL

- XX 1. The intended sequence and timing of activities that disturb soils at the site (e.g., grubbing, excavation, grading, utilities and infrastructure installation, etc.) shall be provided by the contractor in accordance with the current edition of Section 108.03 of the VDOT R&B Specifications and shall be included with the other SWPPP documents for this land disturbance (construction) activity.
- 2. Directions of stormwater flow and approximate slopes anticipated after major grading activities are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.
- 3. Areas of soil disturbance and areas of the site which will not be disturbed are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.
- 4. Locations of major structural and nonstructural ESC measures intended to filter, settle or similarly remove sediment are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.
- 5. Locations where stabilization practices are expected to occur are identified in the construction plan set (or other such documents) for this land disturbance (construction) activity.
- 6. A description of interim and permanent stabilization practices for the site are identified in the applicable sections of the documents identified in the Note 1 of Section IV.
- XX 7. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated will be provided by the contractor and maintained with the record set of plans or other SWPPP documents for this land disturbance (construction) activity: (List how this will be tracked and the location)
- 8. A description and schedule of procedures to maintain vegetation, erosion and sediment control measures and other protective measures in good and effective operating conditions are identified in the current edition of Sections 107.16 and 303.03 of the VDOT R&B Specifications.
- 9. Nutrients shall be applied in accordance with the current edition of Sections 603 and 604 of the VDOT Road and Bridge Specifications. Nutrients shall not be applied during rainfall events. Top soil shall be applied in accordance with the current edition of section 602 of the latest Road and Bridge Specifications.
- 10. All engineering calculations supporting the design of erosion and sediment control measures proposed for this land disturbance (construction) activity are contained in the project drainage file located in the VDOT Hampton Roads District Hydraulics Section or the VDOT James City County Residency Office and will be made available for review upon request during normal business hours.
- 11. The temporary erosion and siltation control items shown on the ESC Plan for this land disturbing (construction) activity are intended to provide a general plan for controlling erosion and sediment within the project limits. The ESC Plan is based on field conditions at the time of plan development and on an assumed sequence of construction for the project. The contractor, in conjunction with the VDOT Project Engineer and/or ESC Inspector, shall adjust the location, quantity and type of erosion and sediment control items required based on the actual field conditions encountered at the time of construction and the actual scheduling and sequencing of the construction activities. Significant changes to the proposed ESC Plan (e.g., those that require an engineering analysis, elimination of a perimeter control, change to ESC concept that would affect the quantity or direction of flow of water) shall be submitted to the applicable District Hydraulics Engineer for review and approval. Any changes to the proposed ESC Plan must be noted on the designated record set of plans which shall be retained on the project site and made available upon request during normal business hours.
- 12. The areas beyond the project's construction limits are to be protected from siltation. Perimeter controls such as silt fence, diversion dikes, turbidity curtains, etc. shall be installed prior to any grubbing operations or other earth moving activities.
- 13. Temporary earthen structures such as dikes and berms are to be stabilized immediately upon installation. Stabilization may include temporary or permanent seeding, riprap, aggregate, sod, mulching, and/or soil stabilization blankets and matting in conjunction with seeding.
- 14. All channel relocations are to be constructed during the earliest stage of construction and shall be constructed in accordance with all applicable permit requirements and shall be constructed in the dry wherever possible. Stabilization or vegetation shall be established before flow is redirected through the constructed area as directed by the Engineer.
- 15. The contractor shall plan and implement his land disturbance operations in order to:
 - a. Control the volume and velocity of stormwater runoff within the site to minimize erosion.
 - b. Control the peak flow rates, volume and velocity of stormwater discharges to minimize erosion at outlets and in downstream channels.
 - c. Minimize the amount of soil exposed.
 - d. Minimize the disturbance of steep slopes.
 - e. Minimize sediment discharge from the site.
 - f. Provide and maintain natural buffers around surface waters, direct stormwater runoff to vegetated areas and maximize stormwater infiltration, unless infeasible.
 - g. Minimize soil compaction (except in those areas where compaction is required by the contract documents) and preserve topsoil where feasible.

- XX 16. The name of the individual(s) or contractor(s) responsible for the installation and maintenance of the erosion and sediment control measures shall be supplied by the contractor and maintained with the other SWPPP documents for this land disturbance (construction) activity.
 - 17. Soil stockpiles temporarily placed within the project area or on VDOT right of way or easement shall be identified, stabilized, and protected with sediment trapping measures.
 - 18. A construction entrance or other approved measure shall be installed at all locations where construction vehicular traffic access routes intersect a paved or a public road in order to minimize the transport of sediment by vehicular tracking onto the paved surface. Where sediment is transported onto a paved or a public road surface, the road shall be cleaned thoroughly at the end of each work day by shoveling or sweeping. Removed sediment shall be disposed of in accordance with Section 106.04 of the R&B Specifications.
 - 19. Any variance, exception or deviation approved by DEQ must be listed below and supporting documentation (exception/variance/deviation request and DEQ approval) must be maintained with the SWPPP.
- The following exceptions to the Water Quantity criteria of the VSMP Regulation have been approved by the DEQ for this land disturbance (construction) activity: (list all approved exceptions and include a brief description of the exception, the date approved and the approving DEQ Office)

Type(1)	Regulation Modified(2)	Approval Date(3)	Description of Variance

- (1) Type of modification (Variance from ESC regulations, or Deviation from published guidance)
- (2) Section of Regulation or Guidance Document Modified (e.g. ESC Min. Std. 15)
- (3) Date that variance/exception/deviation was approved by DEQ.

SECTION III POST CONSTRUCTION STORMWATER MANAGEMENT

Choose the appropriate note 1A or 1B that is applicable to the proposed post construction SWM Plan for this land disturbance (construction) activity. (Delete, strikethrough or mark as NA those notes not applicable.)

- 1. (Include one of the following notes as appropriate)
 - X A. This land disturbance activity is grandfathered under Section 9VAC25-870-48 of the VSMP Regulations and utilizes the Part IIC technical criteria (i.e., Performance or Technology Based, MS 19, etc.) in Section 9VAC25-870-93 et seq. of the VSMP Regulations.
 - X B. This land disturbance activity utilizes the Part IIB technical criteria (i.e., Runoff Reduction Method, Energy Balance Equation, etc.) in Section 9VAC25-870-62 et seq. of the VSMP Regulations.
 - 2. An exception for (number) pounds of phosphorus removal has been granted for this land disturbance activity by the DEQ in its letter dated (date).
 - 3. Any variance, exception or deviation approved by DEQ must be listed below and supporting documentation (exception/variance/deviation request and DEQ approval) must be maintained with the SWPPP.
- The following exceptions to the Water Quantity criteria of the VSMP Regulation have been approved by the DEQ for this land disturbance activity: (list all approved exceptions and include a brief description of the exception, the date approved and the approving DEQ Office)

Type(1)	Regulation Modified(2)	Approval Date(3)	Description of Waiver

- (1) Type of modification (Variance, or Exception from SWM Regulations or Deviation from published guidance)
- (2) Section of Regulation or Guidance Document Modified (e.g. ESC Min. Std. 15)
- (3) Date that variance/exception/deviation was approved by DEQ.

- 4. The permanent onsite SWM facilities or offsite strategies proposed to meet the water quality/quantity requirements for this land disturbance (construction) activity are listed in Section VI.

- 5. A description of all post-construction stormwater management measures that will be installed during the construction process to control pollutants in stormwater discharges after construction operations have been completed is included in the construction plan set (or other such documents) for this land disturbance (construction) activity.
- 6. All engineering calculations supporting the design of the post-construction stormwater management measures for this land disturbance (construction) activity, including an explanation of the technical basis used to select the practices, are contained in the project drainage file located in the (insert appropriate location, i.e., VDOT Central Office Hydraulics Section or the VDOT (specify) District Hydraulics Section or the VDOT (specify) Residency Office) and will be made available for review upon request during normal working business hours.

ACRONYMS

CBPA - Chesapeake Bay Preservation Act	SWPPP - Stormwater Pollution Prevention Plan
BMP - Best Management Practice	TMDL - Total Maximum Daily Load
DEQ - Department of Environmental Quality	VDOT - Virginia Department of Transportation
EPA - U.S. Environmental Protection Agency	VPDES - Virginia Pollutant Discharge Elimination System
ESC - Erosion and Sediment Control	VSMP - Virginia Stormwater Management Program
IM - Instructional and Informational Memorandum	VESCP - Virginia Erosion and Sediment Control Program
R&B - Road and Bridge	WLA - Waste Load Allocation
RLD - Responsible Land Disturber	SWM - Stormwater Management

- X Denotes information that is to be provided/ completed by the RLD.
- XX Denotes information that is to be provided/completed by the contractor.

Revised 5/1/19

PM52-047-S24 2



STORMWATER POLLUTION PREVENTION PLAN

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

SW-2

STORMWATER POLLUTION PREVENTION PLAN (SWPPP) GENERAL INFORMATION SHEET

The information contained in the SWPPP General Information sheets is intended to comply with the requirements of the VPDES General Permit For Discharges Of Stormwater From Construction Activities (the VPDES Construction Permit) issued July 1, 2019 and VDOT's approved Annual ESC and SWM Standards and Specifications.

The SWPPP General Information sheets are to be completed and included in the construction plan set (or other such documents) for land disturbance (construction) activities that disturb an area equal to or greater than 10,000 square feet outside the Chesapeake Bay Preservation Area, or equal to or greater than 2,500 square feet in the area defined as Tidewater, Virginia in the Virginia Chesapeake Bay Preservation Act.

The VDOT RLD will ensure that the information shown on the SWPPP General Information sheets is updated/revised as necessary in order to reflect changes that may occur during the construction phase of the land disturbing (construction) activity. The updated/revised sheets shall be maintained with the designated record set of plans (or other such documents) for the land disturbance (construction) activity.

SECTION IV SWPPP

1. All documents related to the SWPPP for this land disturbance (construction) activity shall be maintained at the activity site and shall be readily available for review upon request during normal business hours. Such documents include, but are not limited to, the construction plans (or other such documents), the ESC Plan, the Pollution Prevention Plan, the post construction SWM Plan (if applicable), the VDOT R&B Standards and Specifications, Supplemental Specifications, Special Provisions and Special Provision Copied Notes, Documents related to stormwater pollution prevention which are not a part of those documents referenced above, such as copies of the VPDES Construction Permit coverage letter (when applicable) and the VPDES General Permit For Discharges Of Stormwater From Construction Activities (when applicable) and those required to be developed by the contractor for pollution prevention associated with any on-site support facilities being included in the VPDES Construction Permit coverage for this land disturbance (construction) activity are to be maintained at the activity site with the other SWPPP documents for this land disturbance (construction) activity. Where no facilities are available at the activity site to maintain the SWPPP documents, they are to be kept by or with the designated RLD at a location convenient to the activity site where they would be made available for review upon request during normal business hours.

2. The SWPPP and any subsequent amendments, modifications and updates shall be implemented from commencement of land disturbance until termination of VPDES Construction Permit coverage or completion of land disturbance (construction) activities where no VPDES Construction Permit coverage is required.

XX 3. For all on-site support facilities that will be included in the VPDES Construction Permit coverage for this land disturbance (construction) activity, the contractor shall develop a SWPPP in accordance with, but not limited to, Section 106.08, 107.02 and 107.16 of the VDOT Road and Bridge Specifications. The SWPPP for the on-site support facilities shall be maintained with and become a component of the SWPPP for this land disturbance (construction) activity. Support facilities shall include, but not be limited to, borrow and disposal areas, construction and waste material storage areas, equipment and vehicle washing, maintenance, storage and fueling areas, storage areas for fertilizers, fuels or chemicals, concrete wash out areas, sanitary waste facilities and any other areas that may generate a stormwater or non-stormwater discharge directly related to the construction site.

4. For those land disturbing (construction) activities requiring coverage under the VPDES Construction Permit, the SWPPP shall be made available for review upon the request of the DEQ, the EPA, the VSMP Authority, the VESCP Authority, local government officials or the operator of a municipal separate storm sewer system (MS4) receiving discharge from the construction site.

X 5. For those land disturbing (construction) activities requiring coverage under the VPDES Construction Permit, the VDOT RLD shall post, or have posted, a copy of the General Permit coverage letter and a copy of a completed LD-445A form, noting the name and contact information for the VDOT person responsible for the land disturbing (construction) activity and its SWPPP, outside the project's construction office along with other Federal and State mandated information. Where there is no construction office (e.g., a maintenance activity), the permit coverage letter and the LD-445A form are to be maintained with the other SWPPP documents for the land disturbing (construction) activity.

6. The SWPPP shall be made available for review by the public upon request. Such reviews shall be at a time and publicly accessible location convenient to the VDOT and shall be scheduled during normal business hours and no less than once per month.

SECTION V - POLLUTION PREVENTION PLAN

1. The following non-stormwater discharges from this land disturbing (construction) activity and any on-site support facilities are prohibited:

- a. Wastewater from concrete washouts.
- b. Wastewater from the washout and cleanout of stucco, paint, from release oils, curing compounds and other construction materials.
- c. Fuels, oils or other pollutants used in vehicle and equipment operation and maintenance.
- d. Oils, toxic substances or hazardous substances from spills or other releases.
- e. Soaps, solvents or detergents used in equipment and vehicle washing.
- f. There shall be no discharge of floating solids or visible foam in other than trace amounts

2. The following non-stormwater discharges from this land disturbing (construction) activity and any on-site support facilities are allowed when discharged in compliance with the VPDES Construction Permit:

- a. Discharges from firefighting activities.
- b. Fire hydrant flushings.
- c. Waters used to wash vehicles or equipment where soaps, solvents or detergents have not been used and the wash water has been filtered, settled or similarly treated prior to discharge.
- d. Water used to control dust that has been filtered, settled or similarly treated prior to discharge.
- e. Potable water sources including uncontaminated waterline flushings managed in a manner to avoid stream impacts.
- f. Routine external building wash down where soaps, solvents or detergents have not been used and the wash water has been filtered, settled or similarly treated prior to discharge.
- g. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (or where all spilled or leaked material has been removed prior to washing), where soaps, solvents or detergents have not been used and where the wash water has been filtered, settled or similarly treated prior to discharge.
- h. Uncontaminated air conditioning or compressor condensate.
- i. Uncontaminated ground water or spring water.
- j. Foundation or footing drains where flows are not contaminated with process materials such as solvents.
- k. Uncontaminated excavation dewatering, including dewatering trenches and excavations that have been filtered, settled or similarly treated prior to discharge.
- l. Landscape irrigation.

XX

3. The contractor shall develop a Pollution Prevention Plan to address any of his on-site operations that have a potential to generate a pollutant that may reasonably be expected to affect the quality of stormwater discharges from this land disturbance (construction) activity. The Pollution Prevention Plan shall be developed in accordance with, but not limited to, Sections 106.08, 107.02 and 107.16 of the VDOT Road and Bridge Specifications and shall include a narrative with appropriate plan detail and shall be provided on standard 8.5 x 11 inch paper or larger and shall:

- a. Identify the potential pollutant-generating activities and the pollutant that is expected to be exposed to stormwater.
- b. Describe the location where the potential pollutant-generating activities will occur, or if identified on the record set of plans, reference the record set of plans.
- c. Identify all non-stormwater discharges, as described in note two of this section, that are or will be commingled with stormwater discharges from the construction activity, including any on-site support activities.
- d. Identify the person(s) or contractor(s) responsible for implementing and maintaining the pollution prevention practice or practices for each pollutant-generating activity.
- e. Describe the pollution prevention practices and procedures that will be implemented to:
 - 1) Prevent and respond to leaks, spills, and other releases, including procedures for expeditiously stopping, containing, and cleaning up spills, leaks, and other releases, and procedures for reporting leaks, spills, and other releases in accordance with Section 107.16 of the VDOT Road and Bridge Specifications and the requirements within the VPDES Construction Permit.

2) Prevent the discharge of spilled and leaked fuels and chemicals from vehicle fueling and maintenance activities.

3) Prevent the discharge of soaps, solvents, detergents, and wash water from construction materials, including procedures for the clean-up of stucco, paint, form release oils, and curing compounds.

4) Minimize the discharge of pollutants from vehicle and equipment washing, wheel wash water, and other types of washing.

5) Direct concrete wash water into a leak-proof container or leak-proof settling basin. The container or basin shall be designed so that no overflows can occur due to inadequate sizing or precipitation. Hardened concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wastes. Liquid concrete wastes shall be removed and disposed of in a manner consistent with the handling of other construction wash waters and shall not be discharged to surface waters.

6) Minimize the discharge of pollutants from storage, handling, and disposal of construction products, materials, and wastes including building products (such as asphalt sealants, copper flashing, roofing materials, adhesives, and concrete admixtures), pesticides, herbicides, insecticides, fertilizers, landscape materials, construction and domestic wastes (such as packaging materials), scrap construction materials, masonry products, timber, pipe and electrical cuttings, plastics, styrofoam, concrete, and other trash or building materials.

7) Prevent the discharge of fuels, oils, and other petroleum products, hazardous or toxic wastes, waste concrete and sanitary wastes.

8) Address any other discharge from any potential pollutant-generating activity not listed herein.

9) Minimize the exposure of waste materials to precipitation by closing or covering waste containers during precipitation events and at the end of the business day, or implementing other similarly effective practices. Minimization of exposure is not required in case where the exposure to precipitation will not result in a discharge of pollutants.

10) Describe and implement procedures for providing pollution prevention awareness (including but not limited to prevention practices, disposal practices and appropriate disposal locations) for all applicable wastes (including any wash water), to appropriate personnel.

X Denotes information that is to be provided/completed by the RLD.

XX Denotes information that is to be provided/completed by the contractor.

Revised 5/1/19



STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
 GENERAL INFORMATION SHEET

The information contained in the SWPPP General Information sheets is intended to comply with the requirements of the VPDES General Permit For Discharges Of Stormwater From Construction Activities (the VPDES Construction Permit) issued July 1, 2019 and VDOT's approved Annual ESC and SWM Standards and Specifications.

The VDOT RLD will ensure that the information shown on the SWPPP General Information sheets is updated/revised as necessary in order to reflect changes that may occur during the construction phase of the land disturbing (construction) activity. The updated/revised sheets shall be maintained with the designated record set of plans (or other such documents) for the land disturbance (construction) activity.

The SWPPP General Information sheets are to be completed and included in the construction plan set (or other such documents) for land disturbance (construction) activities that disturb an area equal to or greater than 10,000 square feet, or equal to or greater than 2,500 square feet in the area defined as Tidewater, Virginia in the Virginia Chesapeake Bay Preservation Act.

SECTION VI - PERMANENT BMP INFORMATION Δ

X Denotes information that is to be completed by the RLD.
 () See note referenced by number in parentheses.

INSTALLED BMP INFORMATION
 (VDOT Owned/Operated)

Plan Sheet(s)	Date BMP Made Functional	Type of BMP Installed (See Table A and C)	Geographic Location (County or City)	Latitude/Longitude (1)		VA 6th Order HUC (7)	Receiving Water (2)	Name of Impaired Water (9)	Acres Treated Per BMP (3)			X BMP Maintenance ID Number (10)	BMP Maintenance Manual (11)	BMP Inspection Manual (11)
				LAT	LONG				Impervious	Pervious	TOTAL			

ALTERNATIVE BMP INFORMATION

Plan Sheet(s)	Date	Type of BMP Installed (See Table B)	Geographic Location (County or City) (5)	Latitude/Longitude (1) (5)		VA 6th Order HUC (5) (7)	Receiving Water (2)	Name of Impaired Water (9)	Perpetual Nutrient Credits Acquired for Project	
				LAT	LONG				Name of Nutrient Credit Generating Entity (6)	Nutrient Credits (lbs./TP./year) Acquired (6) (12)

Δ Any changes to the proposed SWM Plan or BMPs necessitated during the construction phase of the project that affects the proposed construction details or potentially affects the information shown in the BMP Tables A and/or B shall be coordinated by the VDOT RLD with the appropriate VDOT District Hydraulics Engineer. The construction plans and the BMP Tables A and/or B are to be formally revised to reflect any authorized/approved changes to the proposed SWM Plan and/or the proposed BMP construction details. All plan revisions shall be completed in accordance with the Road Design Manual and the Construction Division IM-CD-2013-12-01, signed and sealed in accordance with Department's sealing and signing policy IM-LD-243 and filed with the construction record drawings maintained in the VDOT Central Office Plan File Room (ProjectWise). Prior to submitting for termination of coverage under the VPDES General Permit For The Discharge Of Stormwater From Construction Activities, the RLD shall have the District Maintenance Division review the BMPs installed with the project (BMP Table A) for acceptance of maintenance responsibility and to obtain a Maintenance ID number for each BMP listed in BMP Table A. The RLD shall use the information in BMP Tables A and B along with the assigned Maintenance ID number and the date that the BMP became functional as a permanent control measure (for BMPs in Table A only) to complete the LD-445D form when certifying the construction of the BMPs and submitting for termination of coverage under the VPDES General Permit For The Discharge Of Stormwater From Construction Activities.

Table A: Permanent BMP Types (1999 Va. SWM Handbook)

- Bio-retention Basin
- Bio-retention Filter
- Constructed Stormwater Wetlands
- Extended Detention Basin
- Extended Detention Basin Enhanced
- Grassed Swale
- Infiltration Basin
- Infiltration Trench
- Manufactured Treatment Device (MTD) (8)
- Retention Basin I
- Retention Basin II
- Retention Basin III
- Sand Filter
- Vegetated Filter Strip
- Other Approved Types (List Type)
- Detention Basin

Table C: Permanent BMP Types (BMP Clearing House)

- Sheet Flow to Vegetated Filter Strip
- Grass Channel
- Soil Compost Amendment
- Permeable Pavement (Level 1)
- Permeable Pavement (Level 2)
- Infiltration Practice (Level 1)
- Infiltration Practice (Level 2)
- Bioretention (Level 1)
- Bioretention (Level 2)
- Dry Swale (Level 1)
- Dry Swale (Level 2)
- Wet Swale (Level 1)
- Wet Swale (Level 2)
- Filtering Practice (Level 1)
- Filtering Practice (Level 2)
- Constructed Wetlands (Level 1)
- Constructed Wetlands (Level 2)
- Extended Detention Pond (Level 1)
- Extended Detention Pond (Level 2)
- Wet Pond (Level 1)
- Wet Pond (Level 2)
- Manufactured Treatment Device (MTD) (8)
- Other Approved Types (List Type)

NOTES:

- (1) In decimal degrees to the nearest one ten-thousandth of a degree.
- (2) For streams with no names, list "(Unnamed Tributary to downstream name)".
- (3) Show acres treated to the nearest one hundredths acre.
- (4) Include agreements with off-site BMP owners.
- (5) Information pertains to the alternative BMP option location, where applicable. Exception - Not required for nutrient credit purchase option.
- (6) Applies to the purchase of nutrient credits only.
- (7) Virginia 6th Order HUC (VAHU6) Example - Y030.
- (8) Final approved shop drawings of Manufactured Treatment Devices (MTDs) are to be included with the BMP information submitted with the LD-445D form.
- (9) List the name of any impaired water to which the BMP discharges. The determination of impaired water shall be based on those streams listed as impaired in the DEQ 2012 305(b)/303(d) Water Quality Assessment Integrated Report and shall be the first named waterbody to which the BMP discharges. The impaired waters are those impaired by sediment, total suspended solids, turbidity, nitrogen or phosphorus.
- (10) BMP Maintenance ID Number is to be assigned by the District Maintenance Division at permit termination or project completion. This ID number shall be assigned prior to the permit close out process and entered by the area construction engineer under this column, per IM-LD-95

- (11) Provide the section of each Maintenance manual that pertains to the type of BMP. Both manuals can be found at www.vdot.virginia.gov/business/manuals in the Maintenance selections. Example: Section 4 would be noted for both the maintenance and inspection manuals for a Bioretention I infiltration BMP.
- (12) Nutrient credits purchased to the nearest one hundredth pound.

Revised 5/1/19



Project Name: Route 60 Unbonded Overlay		Date: 10/23/2023		CLEAR ALL <i>(Ctrl+Shift+R)</i>		data input cells	
Linear Development Project? Yes						constant values	
Site Information						calculation cells	
						final results	
Post-Development Project (Treatment Volume and Loads)							
Enter Total Disturbed Area (acres) → 27.00				Check:			
				BMP Design Specifications List: 2013 Draft Stds & Specs			
Maximum reduction required: 20%				Linear project? Yes			
The site's net increase in impervious cover (acres) is: 0				Land cover areas entered correctly? ✓			
Post-Development TP Load Reduction for Site (lb/yr): 2.48				Total disturbed area entered? ✓			
Pre-ReDevelopment Land Cover (acres)							
	A Soils	B Soils	C Soils	D Soils	Totals		
Forest/Open Space (acres) -- undisturbed forest/open space					0.00		
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed			27.00		27.00		
Impervious Cover (acres)					0.00		
					27.00		
Post-Development Land Cover (acres)							
	A Soils	B Soils	C Soils	D Soils	Totals		
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested land					0.00		
Managed Turf (acres) -- disturbed, graded for yards or other turf to be mowed/managed			27.00		27.00		
Impervious Cover (acres)					0.00		
Area Check	OK.	OK.	OK.	OK.	27.00		
3.3 Routine Maintenance Activities							
<p>In accordance with the Stormwater Act Virginia Code 62.1-44.15:34.C.7, routine maintenance is defined as those activities performed to maintain the original line and grade, hydraulic capacity or original construction of the project. The paving of an existing road with a compacted or impervious surface and reestablishment of existing associated ditches and shoulders shall be deemed routine maintenance for stormwater management purposes if performed to maintain the original line and grade, hydraulic capacity or original construction of the project.</p> <p>According to EPA's 2017 Construction General Permit (CGP) Frequent Questions, re-grading a dirt road or cleaning out a roadside drainage ditch to maintain the "original as built" state is road maintenance and not active construction; repaving, for the purposes of VPDDES CGP applicability, is routine maintenance unless underlying bare soils or surrounding soil is cleared, graded, or excavated as part of the repaving operation. Where repaving involves clearing, grading, or excavating (i.e., down to bare soils), ESC and VPDDES CGP permit coverage is required if at least one acre is disturbed.</p> <p>Routine maintenance activities are exempt from the Virginia Stormwater Management Act, the attending VSMP Regulations, and the VPDDES Construction General Permit requirements, unless repaving exposes bare soils as part of the construction project, regardless of the amount of land disturbance. The routine maintenance exemption DOES NOT apply to the ESC Program and therefore ESC is required. Repaving projects that expose bare soils as part of an active construction project per Scenarios 3 and 4 require VPDDES CGP permitting. See LIM-LD-242 and Chapter 10 of the VDOT Drainage Manual for more information on ESC Plan requirements.</p>							
Constants							
Annual Rainfall (inches)	43			Runoff Coefficients (Rv)			
Target Rainfall Event (inches)	1.00			A Soils	B Soils	C Soils	D Soils
Total Phosphorus (TP) EMC (mg/L)	0.26			Forest/Open Space	0.02	0.03	0.04
Total Nitrogen (TN) EMC (mg/L)	1.86			Managed Turf	0.15	0.20	0.22
Target TP Load (lb/acre/yr)	0.41			Impervious Cover	0.95	0.95	0.95
Pj (unitless correction factor)	0.90						
LAND COVER SUMMARY -- PRE-REDEVELOPMENT				LAND COVER SUMMARY -- POST DEVELOPMENT			
<i>Land Cover Summary-Pre</i>				<i>Land Cover Summary-Post (Final)</i>			
Pre-ReDevelopment	Listed	Adjusted ¹		Post ReDev. & New Impervious		Post-ReDevelopment	Post-Development New Impervious
Forest/Open Space Cover (acres)	0.00	0.00		Forest/Open Space Cover (acres)	0.00	Forest/Open Space Cover (acres)	0.00
Weighted Rv(forest)	0.00	0.00		Weighted Rv(forest)	0.00	Weighted Rv(forest)	0.00
% Forest	0%	0%		% Forest	0%	% Forest	0%
Managed Turf Cover (acres)	27.00	27.00		Managed Turf Cover (acres)	27.00	Managed Turf Cover (acres)	27.00
Weighted Rv(turf)	0.22	0.22		Weighted Rv (turf)	0.22	Weighted Rv (turf)	0.22
% Managed Turf	100%	100%		% Managed Turf	100%	% Managed Turf	100%
Impervious Cover (acres)	0.00	0.00		Impervious Cover (acres)	0.00	ReDev. Impervious Cover (acres)	0.00
Rv(impervious)	0.95	0.95		Rv(impervious)	0.95	Rv(impervious)	0.95
% Impervious	0%	0%		% Impervious	0%	% Impervious	0%
Total Site Area (acres)	27.00	27.00		Final Site Area (acres)	27.00	Total ReDev. Site Area (acres)	27.00
Site Rv	0.22	0.22		Final Post Dev Site Rv	0.22	ReDev Site Rv	0.22
Treatment Volume and Nutrient Load				Treatment Volume and Nutrient Load			
Pre-ReDevelopment Treatment Volume (acre-ft)	0.4950	0.4950		Final Post-Development Treatment Volume (acre-ft)	0.4950	Post-ReDevelopment Treatment Volume (acre-ft)	0.4950
Pre-ReDevelopment Treatment Volume (cubic feet)	21,562	21,562		Final Post-Development Treatment Volume (cubic feet)	21,562	Post-ReDevelopment Treatment Volume (cubic feet)	21,562
Pre-ReDevelopment TP Load (lb/yr)	13.55	13.55	*	Final Post-Development TP Load (lb/yr)	13.55	Post-ReDevelopment TP Load (lb/yr)*	13.55
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	0.50	0.50	*	Final Post-Development TP Load per acre (lb/acre/yr)	0.50	Post-ReDevelopment TP Load per acre (lb/acre/yr)	0.50
Baseline TP Load (lb/yr) (0.41 lbs/acre/yr applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		11.07				Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
						TP Load Reduction Required for Redeveloped Area (lb/yr)	2.48
						TP Load Reduction Required for New Impervious Area (lb/yr)	0

¹ Adjusted Land Cover Summary:
 Pre-ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

new impervious cover).
 Column 1 shows load reduction requirement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

* Reduction below new development load limitation not required

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	2.48
Linear Project TP Load Reduction Required (lb/yr):	2.48

ROADSIDE DEVELOPMENT

ROADSIDE DEVELOPMENT NOTES

1. RECOMMENDATIONS FOR THE APPLICATION OF SEED MIXTURES (CORE MIX AND ADDITIVES), FERTILIZER, LIME, ETC. SHALL BE OBTAINED FROM THE DISTRICT ROADSIDE MANAGER.
2. ALL SEED, FERTILIZER, LIME, MULCH, ETC. MUST BE IN CONFORMANCE WITH VDOT ROAD AND BRIDGE SPECIFICATIONS AND ANY APPLICABLE INFORMATIONAL & INSTRUCTIONAL MEMORANDA.
3. APPROXIMATELY 27 ACRES WILL BE DISTURBED ON THIS PROJECT AND WILL REQUIRE THE ESTABLISHMENT OF GRASSES AND/OR LEGUMES.
4. REGULAR SEED SHALL BE APPLIED AT THE RATES SHOWN IN THE CORE MIX, ADDITIVES, AND WHERE APPLICABLE, CUSTOM SEED MIX TABLES.
SEEDING QUANTITIES SHOWN IN THE ROADSIDE DEVELOPMENT SUMMARY TABLE ARE BASED ON THE HIGHEST "NORMAL" SEEDING RATE FOR EACH CORE MIX (BY SEASON FOR BOTH MOWED AREAS AND NON-MOWED SLOPES), WITH A 25% INCREMENTAL ADJUSTMENT TO ACCOUNT FOR SEEDING PROGRESSION, SEEDING AFTER SIGN OR GUARDRAIL INSTALLATION, AND OTHER MINOR UNPLANNED DISTURBANCES.
5. REGULAR SEED SHALL BE FERTILIZED AT THE RATES SHOWN IN THE FERTILIZER SUMMARY TABLE.
THE TOTAL FERTILIZER QUANTITIES SHOWN IN THE TABLES INCLUDES THE 25% INCREMENTAL ADJUSTMENT DESCRIBED ABOVE.
6. OVERSEEDING RATES SHALL BE 100% OF THE REGULAR SEED RATE WITHOUT THE INCREMENTAL ADJUSTMENT.
7. OVERSEEDING SHALL ONLY INCLUDE FERTILIZER ONCE, AT THE RATE SHOWN IN THE FERTILIZER SUMMARY TABLE. ADDITIONAL OVERSEEDING MAY BE DONE WITH NO FERTILIZER APPLIED, OR A SOIL TEST MAY BE PERFORMED TO DETERMINE THE SPECIFIC NUTRIENTS NECESSARY TO ESTABLISH THE GRASSES AND/OR LEGUMES.
8. THE ENGINEER WILL REQUIRE THE CONTRACTOR TO PERFORM SUPPLEMENTAL SEEDING WHEN LESS THAN 75% UNIFORM STAND OF THE PERMANENT GRASS (AND LEGUMES) SPECIFIED IN THE MIXTURES IS OBTAINED. (ANNUAL SPECIES SUCH AS RYE AND MILLET ARE TEMPORARY VARIETIES AND REQUIRE SUPPLEMENTAL SEEDING.)
9. LEGUME SEED SHALL BE INOCULATED WITH THE APPROPRIATE STRAIN AND RATE OF BACTERIA. FOR HYDROSEEDING, USE FIVE TIMES (5X) THE AMOUNT OF INOCULANT RECOMMENDED BY THE MANUFACTURER.
10. THE DATE SEED IS APPLIED SHALL BE USED TO DETERMINE WHETHER TO USE HULLED OR UNHULLED SEED FOR BERMUDA GRASS AND SERICEA LESPEDEZA.
SPRING & SUMMER (3/1 TO 9/15): USE HULLED SEED
FALL & WINTER (9/16 TO 2/29): USE UNHULLED SEED.
11. EROSION CONTROL MULCH, AS DIRECTED BY THE ENGINEER, IS TO BE USED ON AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN 14 DAYS DURING THE DORMANT PERIOD (11/16 TO 2/29).
12. WHEN EROSION CONTROL MULCH IS USED, IT SHALL PROVIDE 100% COVERAGE OF ALL DENUDED AREAS.
13. HECF SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS (OR RECOMMENDATIONS).



CODES LISTED IN THIS TABLE <f-c> r O i H E LISTS OF CORE MIXES \$ ADDITIVES, WHICH SHOW SEED NAMES & APPLICATION RATES FOR THIS PROJECT.	SEEDING SCHEDULE							
	SLOPES	MOWED	SLOPES	MOWED	SLOPES	MOWED	SLOPES	MOWED
	SEED MIX	SEED MIX	SEED MIX	SEED MIX	SEED MIX	SEED MIX	SEED MIX	SEED MIX
	WITH	WITH	WITH	WITH	WITH	WITH	WITH	WITH
	ADDITIVE	ADDITIVE	ADDITIVE	ADDITIVE	ADDITIVE	ADDITIVE	ADDITIVE	ADDITIVE
	SPRING		SUMMER		FALL		DORMANT	
PROJECT NUMBERS	MONTH & DATE		MONTH & DATE		MONTH & DATE		MONTH & DATE	
AND/OR LOCATION	3/1 to 5/15		5/16 to 9/15		9/16 to 11/15		11/16 to 2/29	
Route 60	(2)D	(2)D	(2)C	(2)C	(2)0	(2)0	(T1)	(T1)

Location		Max. Slope	Area (ac)	Mulch Type	Inc. Adj.	Total Area (ac)
Core Mix 1	Mow	4.00:1	12	HECP Type 1	3	15
Core Mix 1	Slopes	2.00:1	15	HECP Type 3	3.75	19
Core Mix 2	Mow	0.00:1	0.00	ma	0	0.00
Core Mix 2	Slopes	0.00:1	0.00	ma	0	0.00
Core Mix 3	Mow	0.00:1	0.00	ma	0	0.00
Core Mix 3	Slopes	0.00:1	0.00	ma	0	0.00
Temporary Seed		ma	0.10	HECP Type 3	0	0.10

HECP TYPE	REGULAR SEED		TEMPORARY SEED	OVER-SEEDING	TOTAL (ACRES)	TOTAL (SQ. YARDS)
	MOW	SLOPES				
TYPE 1	15	0.00	0.00	0.00	15	72,600
TYPE 2	0.00	0.00	0.00	0.00	0.00	0
TYPE 3	0.00	18	30	0.00	48	23,232
TYPE 4	0.00a	0.00	.00	0.00	0.00	0
ma (too steep)	0.00	0.00	0.00	0.00	0.00	0



Application Rates	Area	Fertilizer Grade	Fertilizer Application Rate	Nitrogen (N)	Phosphoric Acid (P)	Potaeh (K)	Lime Rate
	(ac)	(N-P-K)	(lbs/ac)	(lbs/ac)			(tons/aC)
Regular Seed	27	15-30-15	250	62.5	11.25	62.5	2.0
Incremental Adjustment (P.S. Only)	7	15-30-15	150	31.25	62.5	31.25	2.0
Temporary Seed	30	15-30-15	150	31.25	62.5	31.25	1.0
Overseeding	27	46-0-0	65	30	0	0	1.0

Total Amounts	Area	Fertilizer Grade	Fertilizer Application Rate	Nitrogen (N)	Phosphoric Acid (P)	Potash (K)	Lime
	(ac)	(N-P-K)	(lbs/ac)	Total (lbs)			(tons)
Regular Seed	27	15-30-15	250	1688	3375	1688	54
Incremental Adjustment (P.S. Only)	7	15-30-15	250	844	1688	844	13.5
Temporary Seed	30	15-30-15	125	844	1688	844	27
Overseeding	27	46-0-0	65	1755	0	0	<u>27</u>
Total Applied (lbs)				5131	6751	1876	121.5



CORE SEEDS:

MIX	DESCRIPTION	LBS/ACRE
2	100% CERTIFIED TALL FESCUE	120
T1	50% CERTIFIED TALL FESCUE / 50% BARLEY, WINTER RYE, OR WINTER WHEAT	100
T2	50% FOXTAIL MILLET / 50% CERTIFIED TALL FESCUE	100

ADDITIVES:

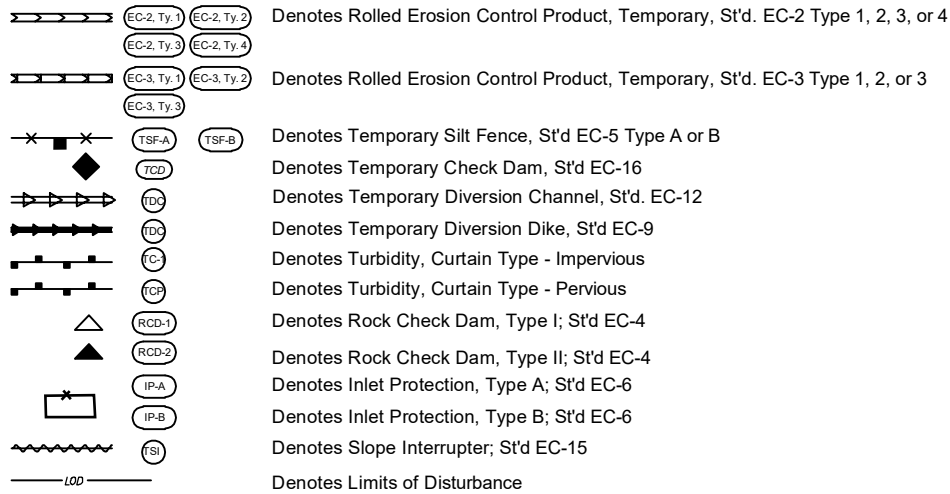
TYPE	DESCRIPTION	LBS/ACRE
C	100% FOXTAIL MILLET	20
D	100% ANNUAL RYEGRASS	20



EROSION AND SEDIMENT CONTROL

EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES

- E-1 If the removal of Brush Silt Barrier is specified by the plans or required by the Engineer, the cost of removal and disposal of brush shall be in accordance with Section 109 of the applicable VDOT Road and Bridge Specifications.
- E-2 Rock for Check Dams, Inlet Protection, Erosion Control Stone and Riprap shall be in accordance with Section 203 and Section 414 of the applicable VDOT Road and Bridge Specifications.
- E-3 The following symbols are used to depict Erosion and Sediment Control items in the plan assembly:



The ESC symbols are to be used to denote proposed erosion and sediment control items on the plans and are available in the CADD Cell and Custom Line Style Libraries and the GEOPAK Road Plan View Labels.

The location (sheet number) of the ESC legend is to be noted in the "References" block on each applicable sheet of the plan set.


- E-4 Permanent vegetation shall be established on all denuded areas not otherwise stabilized with non-erodible materials. See the Roadside Development Sheet for details on permanent vegetation establishment

Hazardous Materials - Any waste material generated should be disposed of in accordance with all local, state, and federal regulations. No material should be allowed to discharge into any ditch, stream, or navigable waterway.

Natural Resources - If additional tree clearing is needed, the clearing needs to be coordinated with VDOT Environmental.

Water Quality - No permits are required for this project. No jurisdictional features will be impacts. If scope of work changes VDOT environmental needs to be made aware for proper coordination with other agencies.

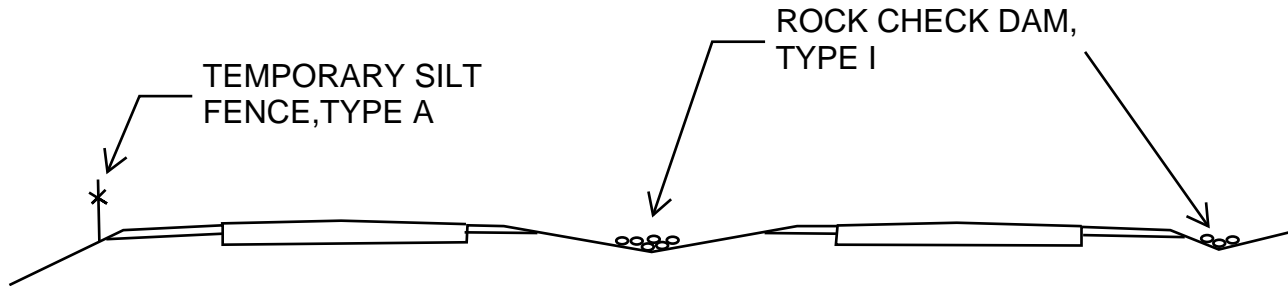
LOD includes 30' x 50' OC at each entrance and roadway.

	UPC: 123767 STATE PROJECT #: PM5Z-047-S24	SCALE: N.T.S. SHEET 01 OF 34
	E&S CONTROL LEGEND US ROUTE 60 - JAMES CITY COUNTY, VA	SHEET NO. EC-1A

EROSION AND SEDIMENT CONTROL (ESC) GENERAL NOTES (CONT.)

SEQUENCE OF CONSTRUCTION NARRATIVE:

1. ALL EROSION & SEDIMENT CONTROL MEASURES SHALL BE PLACED AND IN PROPER WORKING ORDER PRIOR TO COMMENCEMENT OF ANY DISTURBANCE OF EARTH OR GRADING IN A CERTAIN AREA.
2. ALL CONVEYANCE CHANNELS RE-GRADED SHALL RECEIVE SAME DAY STABILIZATION TREATMENT.
3. ALL EROSION & SEDIMENT CONTROL FEATURES SHALL REMAIN IN PLACE AND CONTINUE TO BE MAINTAINED UNTIL SUCH TIME THAT THE AREA CONSTRUCTION ENGINEER DEEMS THEM NO LONGER REQUIRED AT SUCH TIME THEY ARE TO BE REMOVED.



ESC TYPICAL SECTION

NOTE: REFER TO EC-2 THRU EC-34 FOR LOCATIONS

UPC: 123767
STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
SHEET 01 OF 34

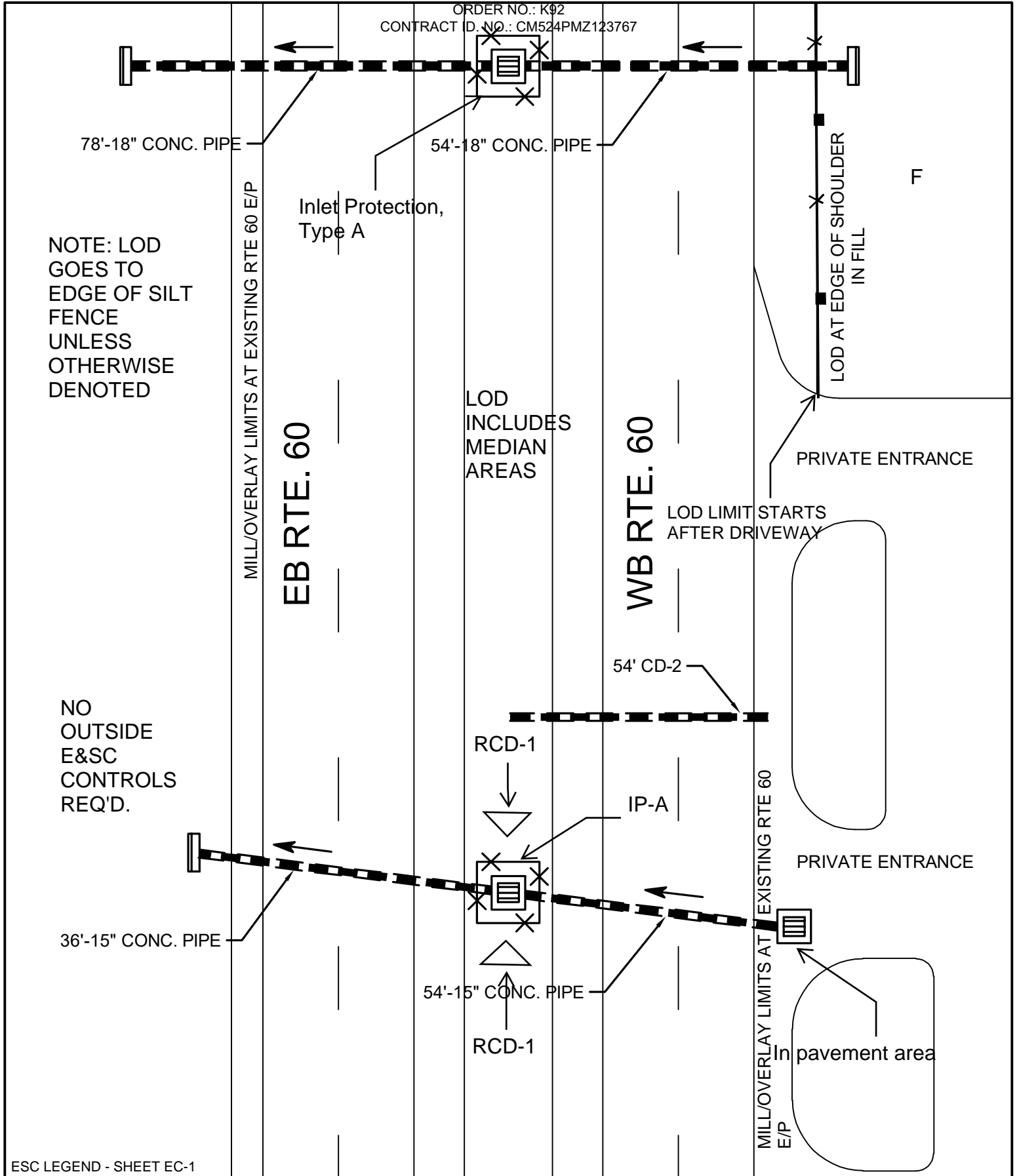


E&S CONTROL LEGEND

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-1B



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

NO OUTSIDE E&SC CONTROLS REQ'D.

ESC LEGEND - SHEET EC-1

(37.401692, -76.809003)
 TO
 (37.402512, -76.813033)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 02 OF 34

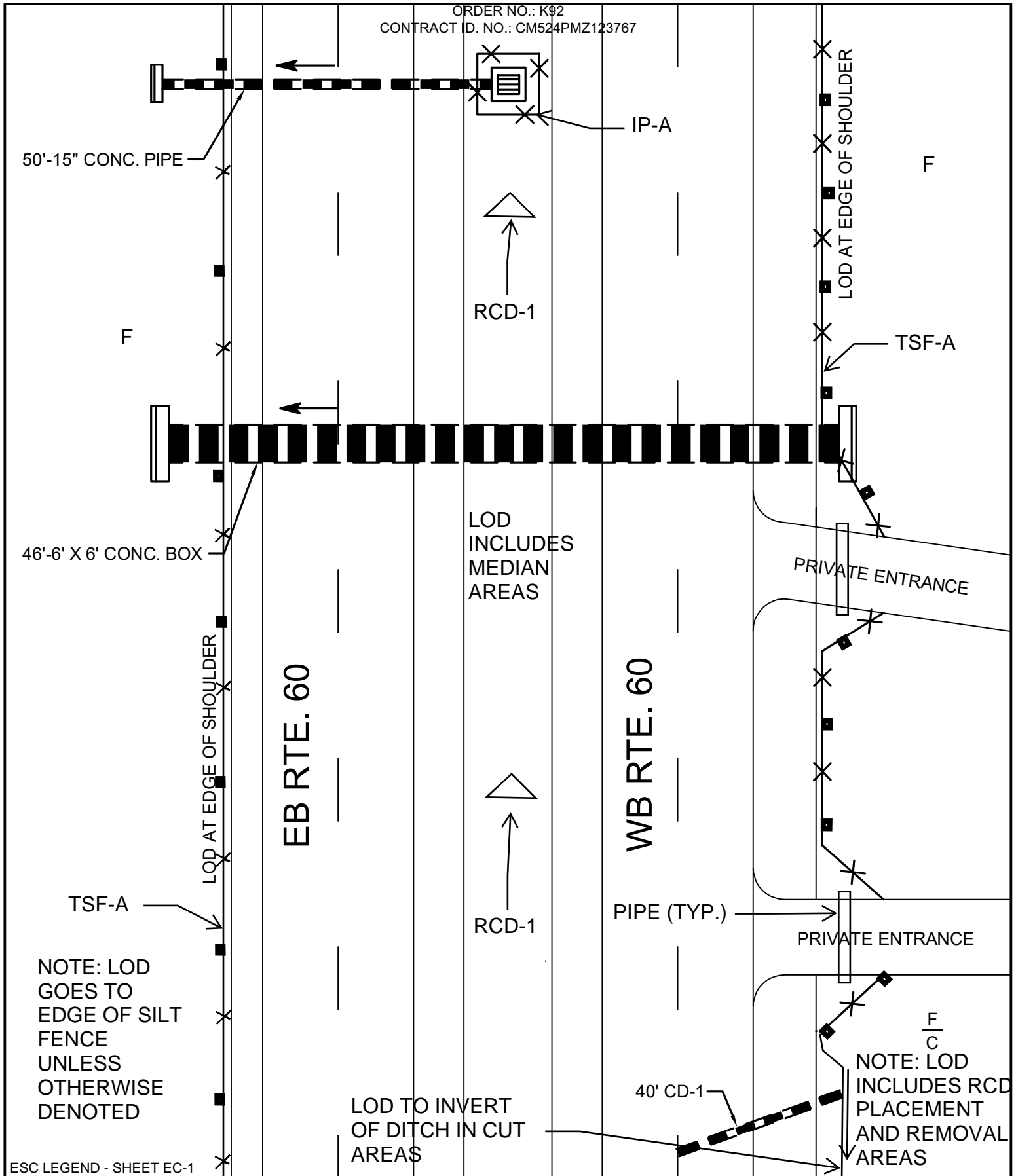


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-2



ESC LEGEND - SHEET EC-1

(37.402512, -76.813033)
 TO
 (37.402785, -76.816907)

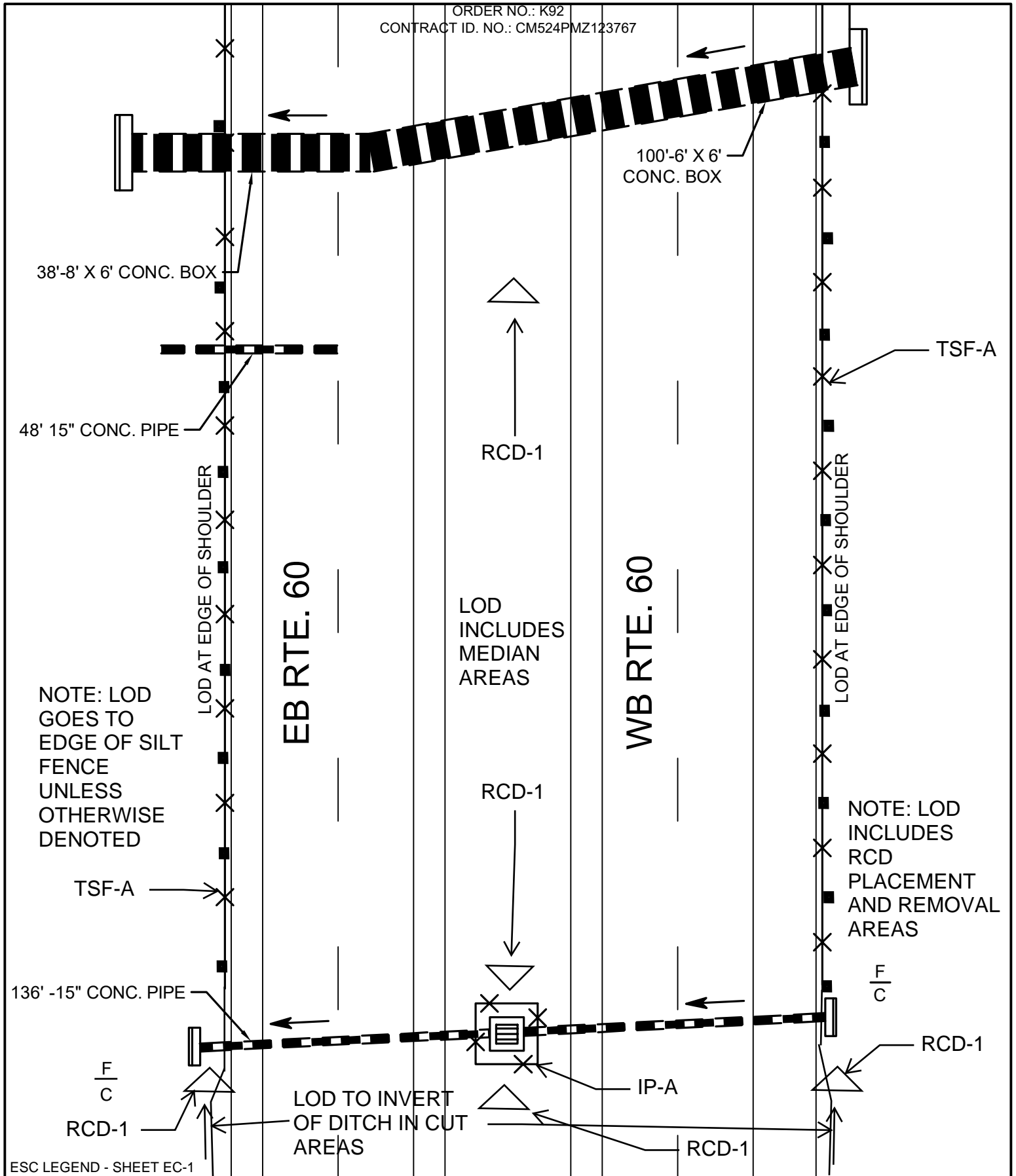
UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 03 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
EC-3



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS

NOTE: LOD INCLUDES RCD PLACEMENT AND REMOVAL AREAS

ESC LEGEND - SHEET EC-1

(37.402785, -76.816907)
 TO
 (37.402958, -76.819342)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 04 OF 34

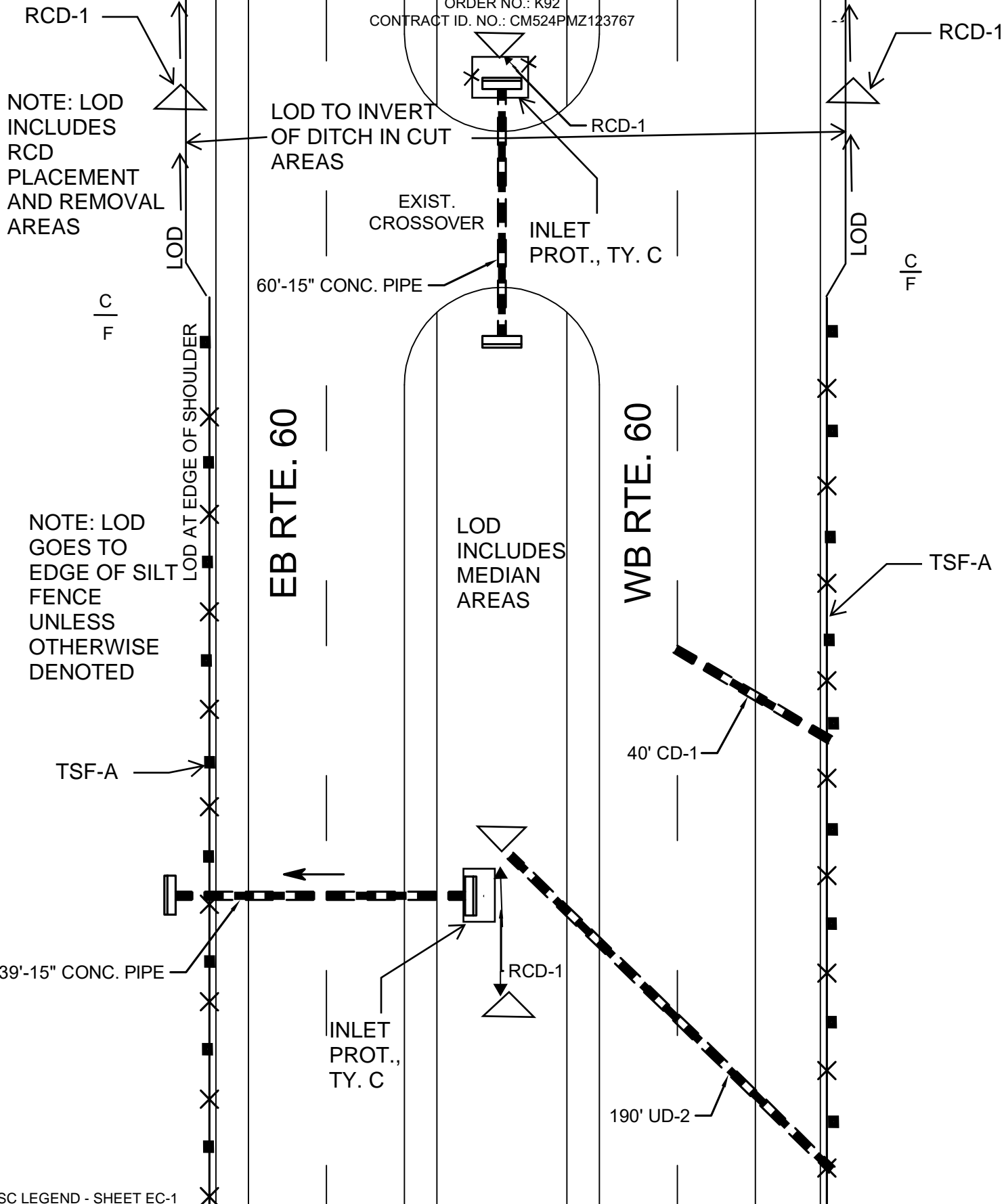


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-4



ESC LEGEND - SHEET EC-1

(37.402958, -76.819342)
 TO
 (37.403055, -76.821108)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 05 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-5

LOD
 INCLUDES
 MEDIAN
 AREAS

RCD-1

IP-A

TSF-A

TSF-A

12'- 24" C.I. PIPE

F

NOTE: LOD
 GOES TO
 EDGE OF SILT
 FENCE
 UNLESS
 OTHERWISE
 DENOTED

RCD-1

84'-24" CONC. PIPE

F

EB RTE. 60

WB RTE. 60

LOD AT EDGE OF SHOULDER

LOD AT EDGE OF SHOULDER

ESC LEGEND - SHEET EC-1

(37.403055, -76.821108)
 TO
 (37.403194, -76.823456)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 06 OF 34

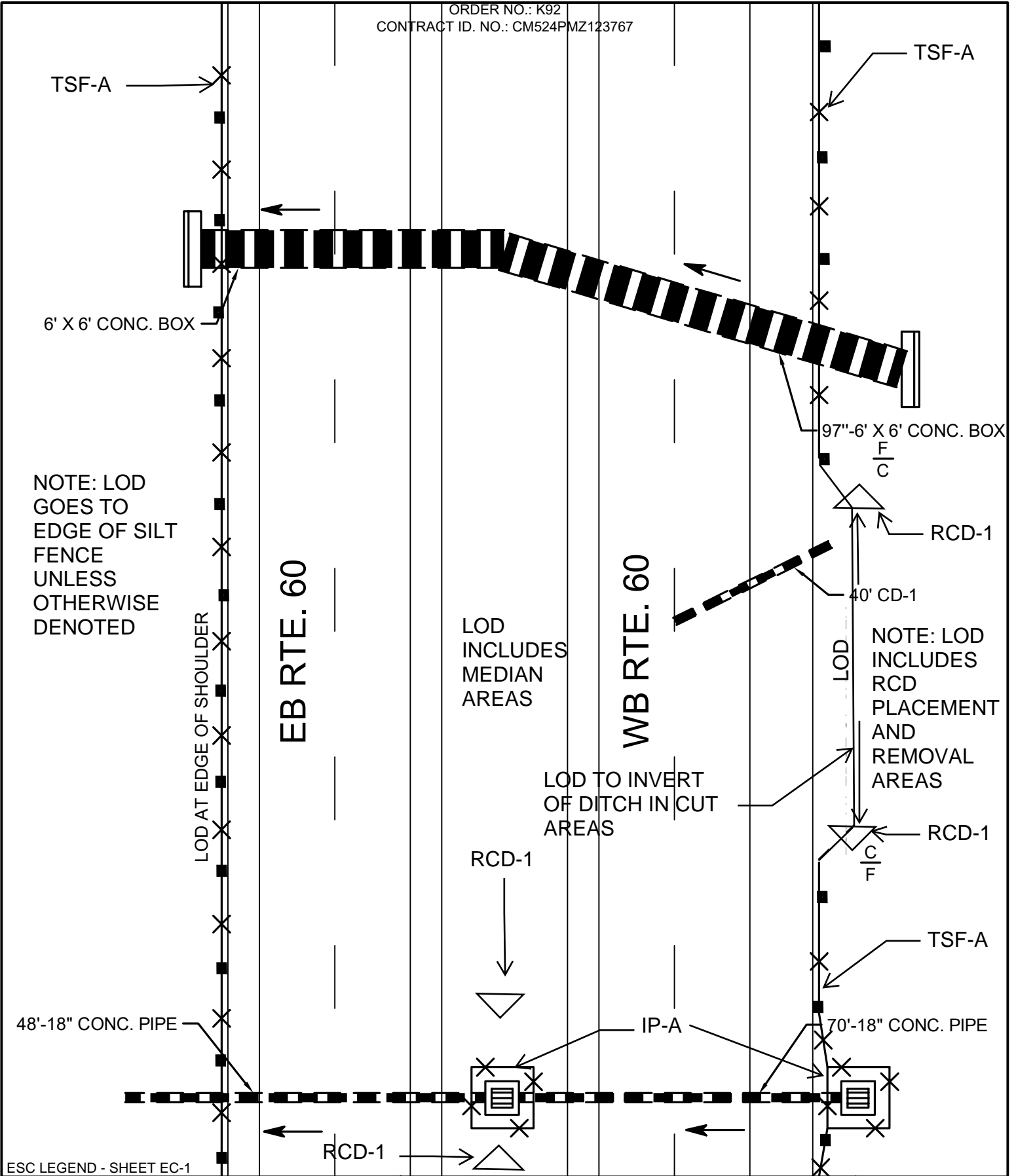


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-6



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS

NOTE: LOD INCLUDES RCD PLACEMENT AND REMOVAL AREAS

LOD TO INVERT OF DITCH IN CUT AREAS

ESC LEGEND - SHEET EC-1

(37.403194, -76.823456)
 TO
 (37.403333, -76.825506)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 07 OF 34

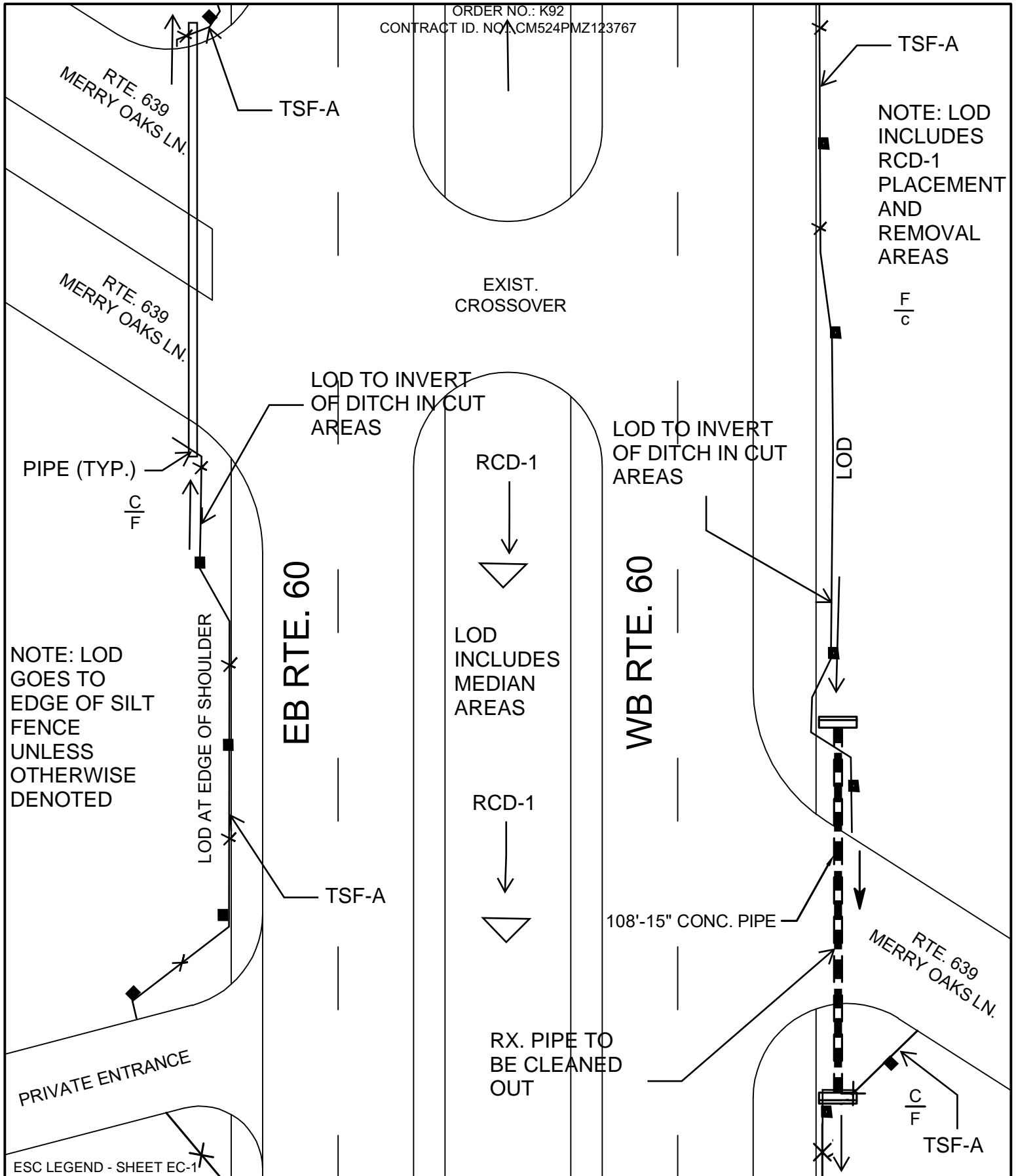


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-7



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

ESC LEGEND - SHEET EC-1
 (37.403333, -76.825506)
 TO
 (37.403470, -76.827379)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 08 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
EC-8

NOTE: LOD GOES TO
 EDGE OF SILT
 FENCE
 UNLESS
 OTHERWISE
 DENOTED

LOD
 INCLUDES
 MEDIAN
 AREAS

RCD-1

50' CD-2

PRIVATE ENTRANCE

IP-A

LOD AT EDGE OF SHOULDER

64'-15" CONC. PIPE

EB RTE. 60

RCD-1

WB RTE. 60

LOD AT EDGE OF SHOULDER

F

TSF-A

46'-5" x 5' CONC. BOX

100'-5" X 5' CONC. BOX

TSF-A

40' CD-1

ESC LEGEND - SHEET EC-1

(37.403470, -76.827379)
 TO
 (37.403759, -76.831916)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 09 OF 34

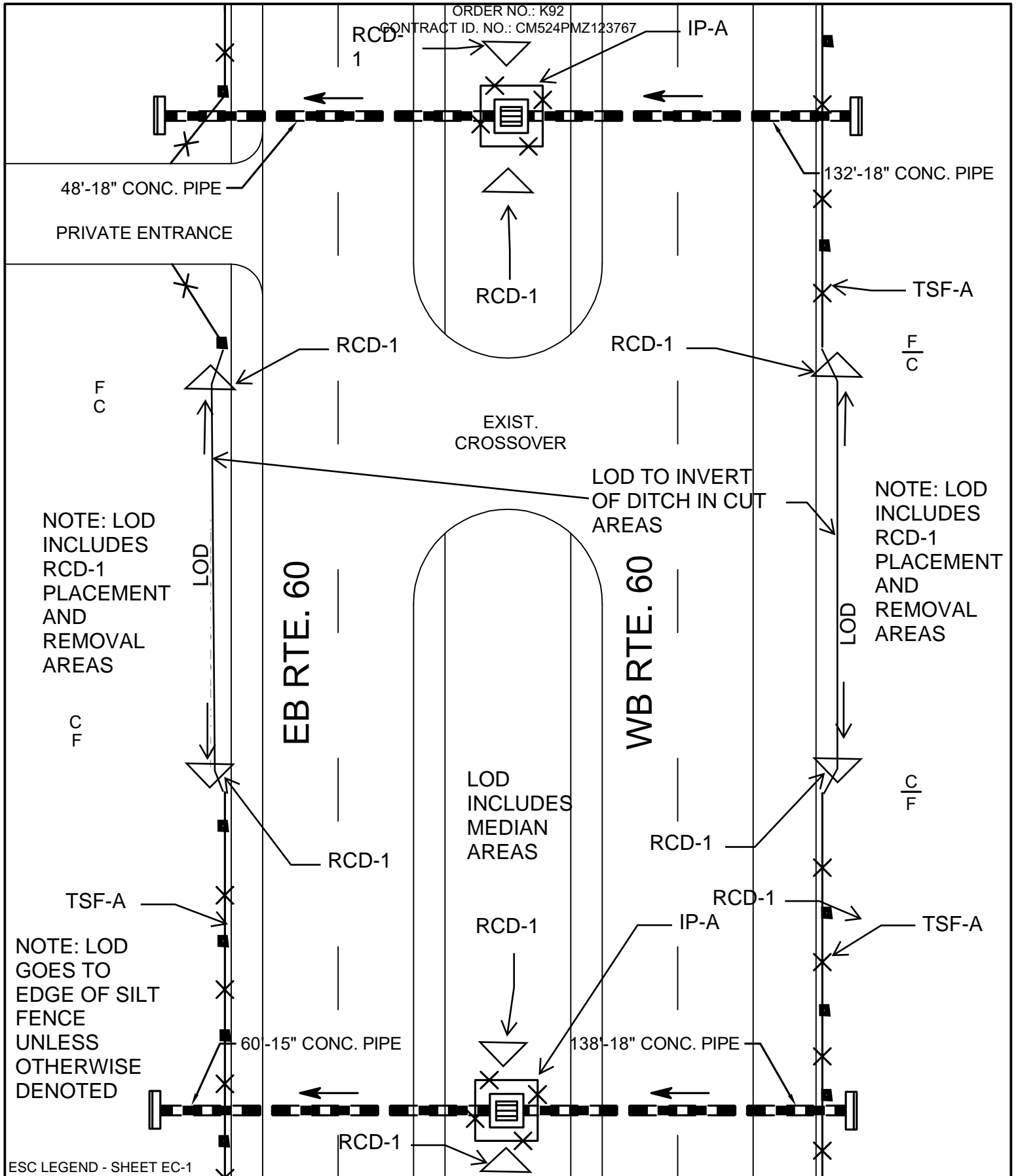


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US2ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-9



ORDER NO.: K92
 CONTRACT ID. NO.: CM524PMZ123767

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS

ESC LEGEND - SHEET EC-1
 (37.403782, -76.832271)
 TO
 (37.403967, -76.835318)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 10 OF 34

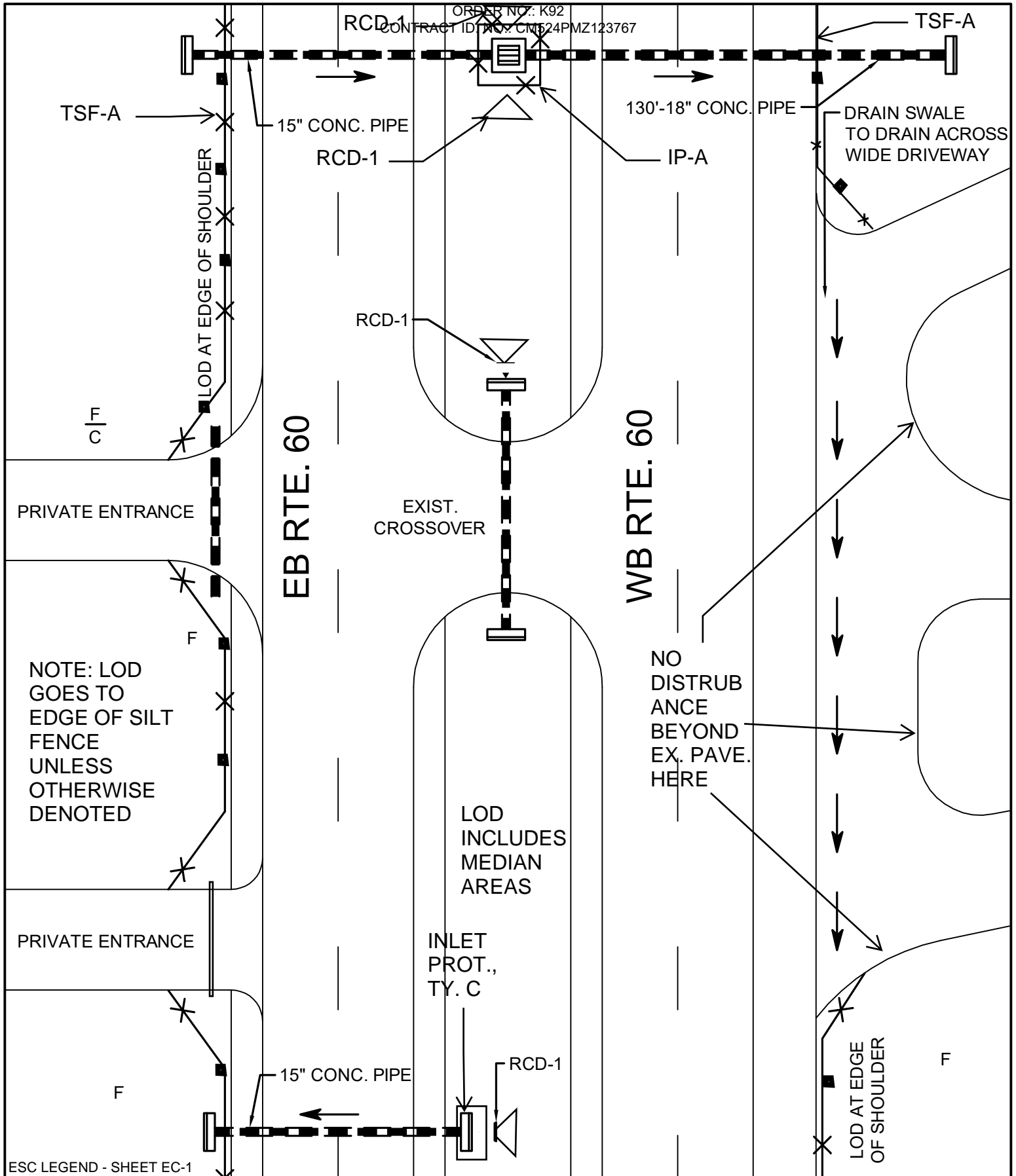


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-10



ESC LEGEND - SHEET EC-1
 (37.404051, -76.836001)
 TO
 (37.404154, -76.837910)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 11 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
EC-11

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

LOD TO INVERT OF DITCH IN CUT AREAS

LOD INCLUDES MEDIAN AREAS

PRIVATE ENTRANCE

F

F

TSF-A

EXISTING ASPHALT DRIVEWAY TO BE OVERLAYED

PRIVATE ENTRANCE

TSF-A

F

PRIVATE ENTRANCE

F

LOD AT EDGE OF SHOULDER

LOD

C/F

TSF-A

IP-A

RCD-1

EXISTING CURB & GUTTER TO BE REMOVED & REPLACED

RCD-1

66'-15" CONC. PIPE

RTE. 657

EB RTE. 60

EXIST. CROSSOVER

WB RTE. 60

TSF-A

F

18" CONC. PIPE

78'-18" CONC. PIPE

ESC LEGEND - SHEET EC-1

(37.404154, -76.837910)

TO (37.404384, -76.840996)

UPC: 123767

STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 12 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-12

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

ORDER NO.: K92
 CONTRACT ID. NO.: CM524PMZ123767

LOD INCLUDES MEDIAN AREAS

RTE. 620

TSF-A

EB RTE. 60

WB RTE. 60

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

LOD AT EDGE OF SHOULDER

EXIST. CROSSOVER

60'-15" CONC. PIPE

40' CD-1

INLET PROT., TY. C

RCD-1

TSF-A

F

F

40' CD-1

RCD-1

IP-A

LOD AT EDGE OF SHOULDER

132'-18" CONC. PIPE

RCD-1

ESC LEGEND - SHEET EC-1

(37.404384, -76.840996)
 TO
 (37.404466, -76.842459)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 13 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

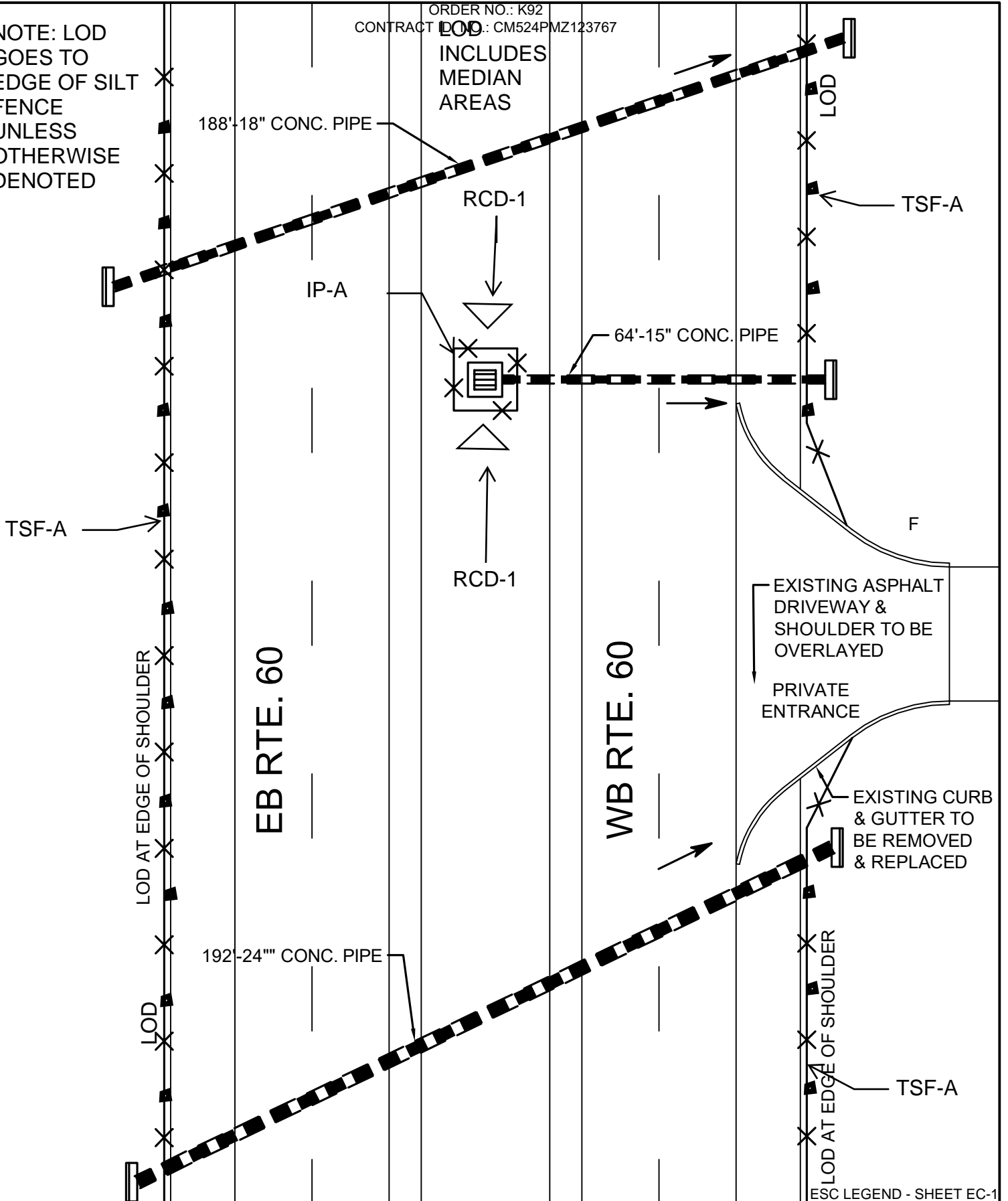
US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-13

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS



ESC LEGEND - SHEET EC-1

(37.404466, -76.842459)
 TO
 (37.404645, -76.845067)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 14 OF 34

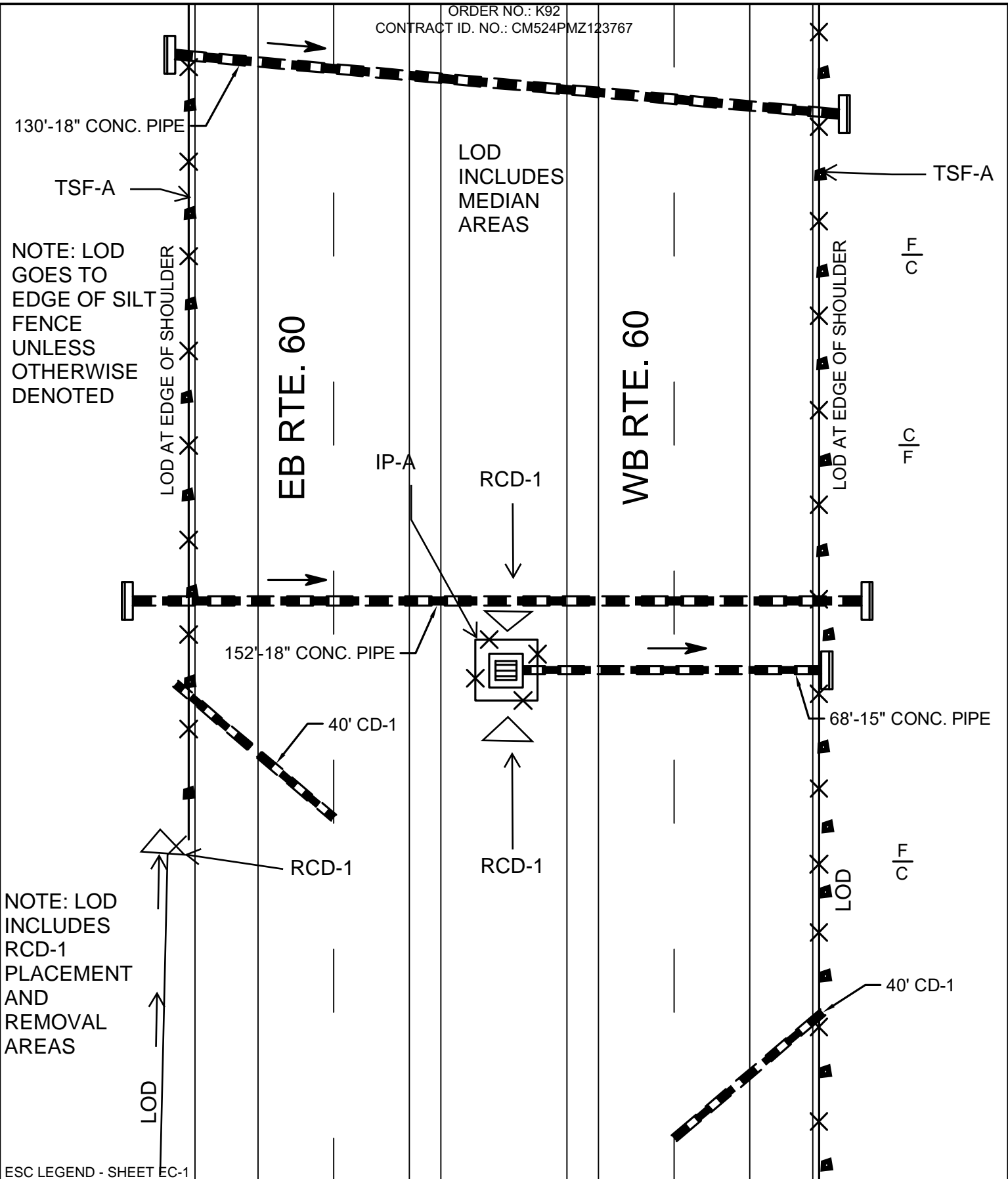


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-14



ESC LEGEND - SHEET EC-1

(37.404645, -76.845067)
 TO
 (37.404889, -76.846861)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 15 OF 34



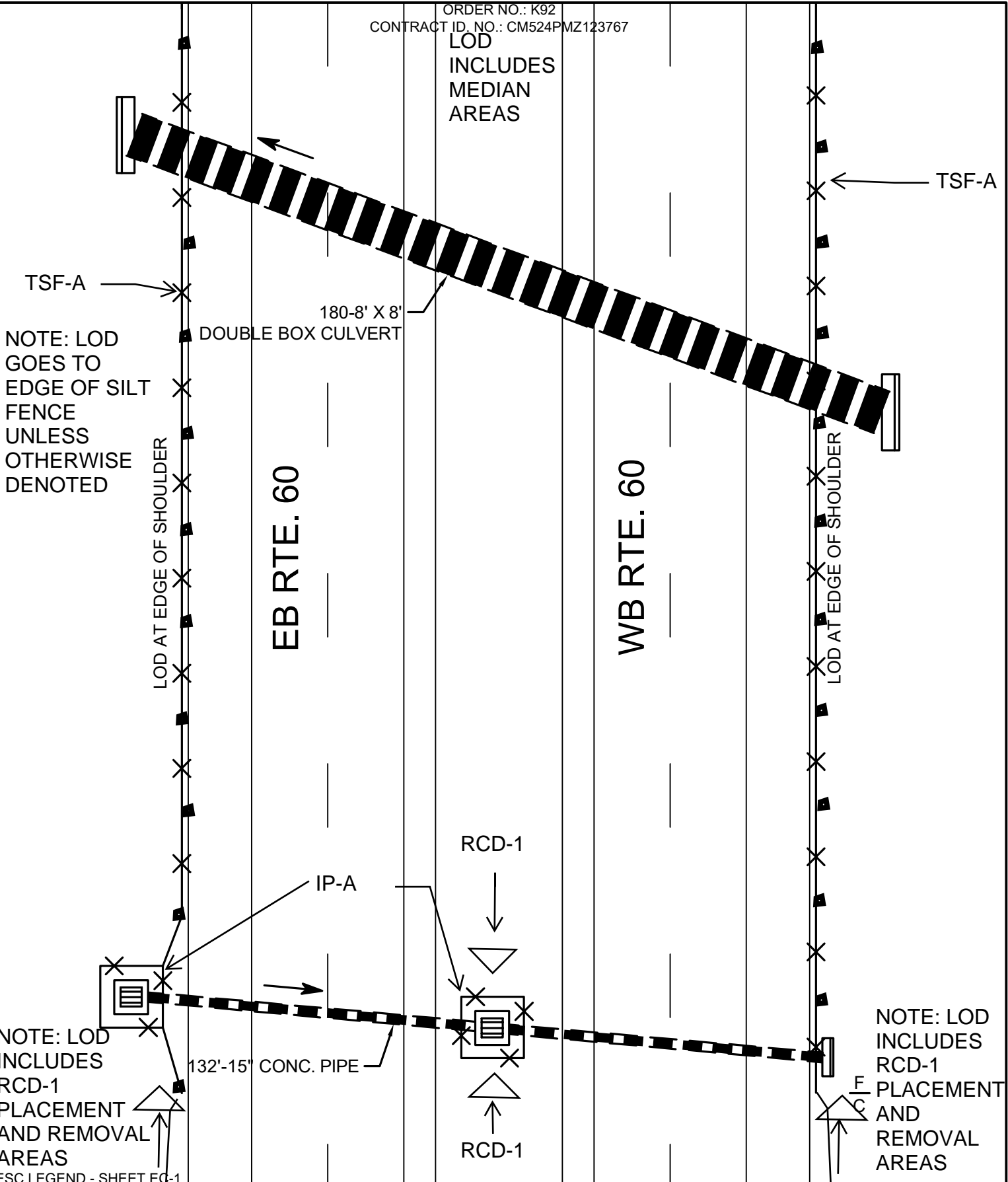
E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-15

LOD
 INCLUDES
 MEDIAN
 AREAS



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

(37.404889, -76.846861)
 TO
 (37.405243, -76.848051)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 16 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-16

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

LOD INCLUDES MEDIAN AREAS

LOD TO INVERT OF DITCH IN CUT AREAS

LOD

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

RCD-1

130'-15" CONC. PIPE

RCD-1

IP-A

C/F

RCD-1

EB RTE. 60

WB RTE. 60

RCD-1

LOD AT EDGE OF SHOULDER

LOD AT EDGE OF SHOULDER

TSF-A

TSF-A

ESC LEGEND - SHEET EC-1

(37.405243, -76.848051)
TO
(37.405621, -76.849582)

UPC: 123767
STATE PROJECT #: PM5Z-047-S24

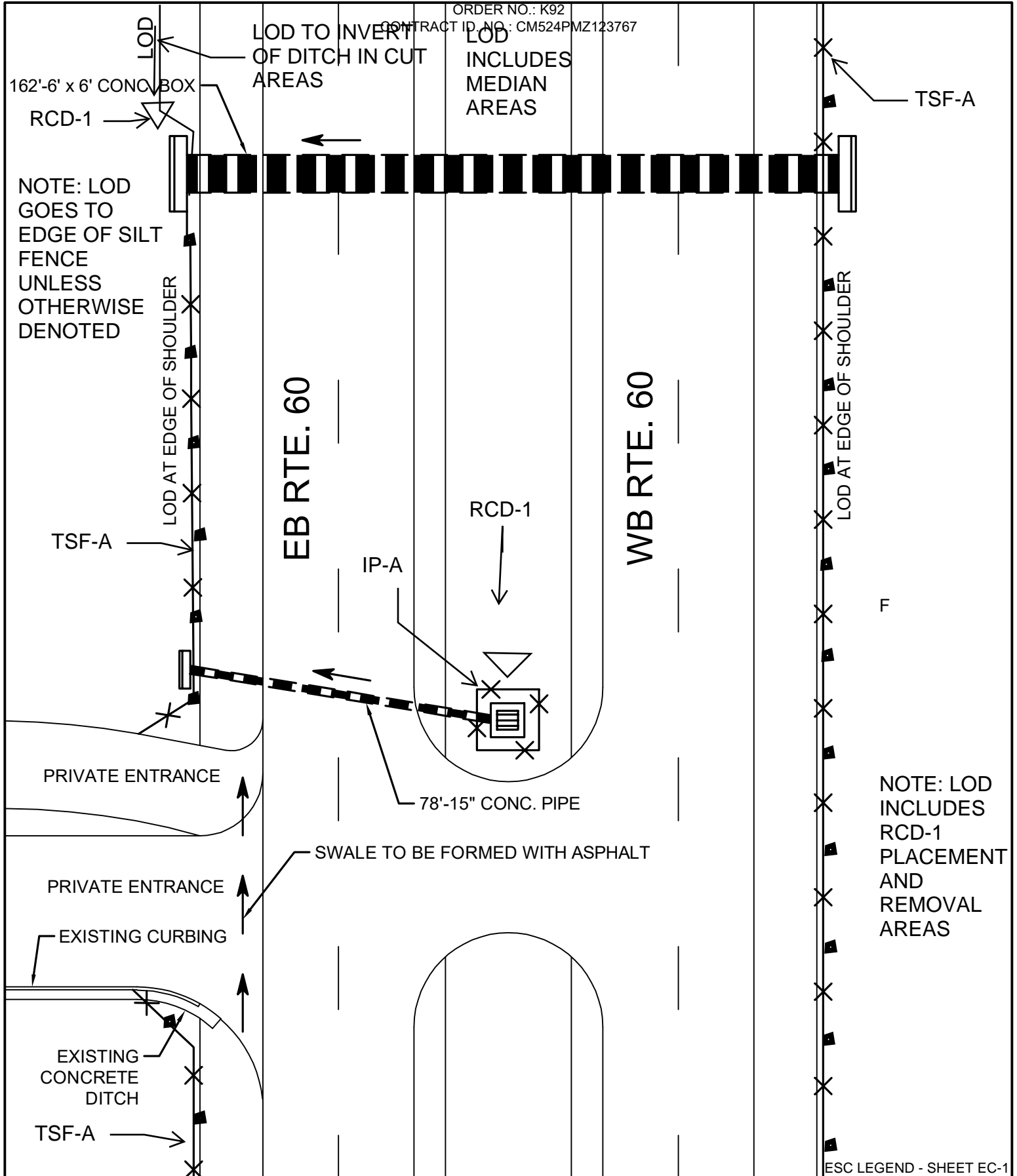
SCALE: N.T.S.
SHEET 17 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
EC-17



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

ESC LEGEND - SHEET EC-1

(37.405621, -76.849582)
 TO
 (37.406029, -76.850841)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 18 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-18

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

RCD-1 →
 132'-15" CONC. PIPE

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

C

EB RTE. 60

IP-A

RCD-1

WB RTE. 60

TSF-A

F

ESC LEGEND - SHEET EC-1

LOD

LOD INCLUDES MEDIAN AREAS

40' CD-1

LOD AT EDGE OF SHOULDER

RCD-1 →

(37.406029, -76.850841)
 TO
 (37.406932, -76.852883)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 19 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

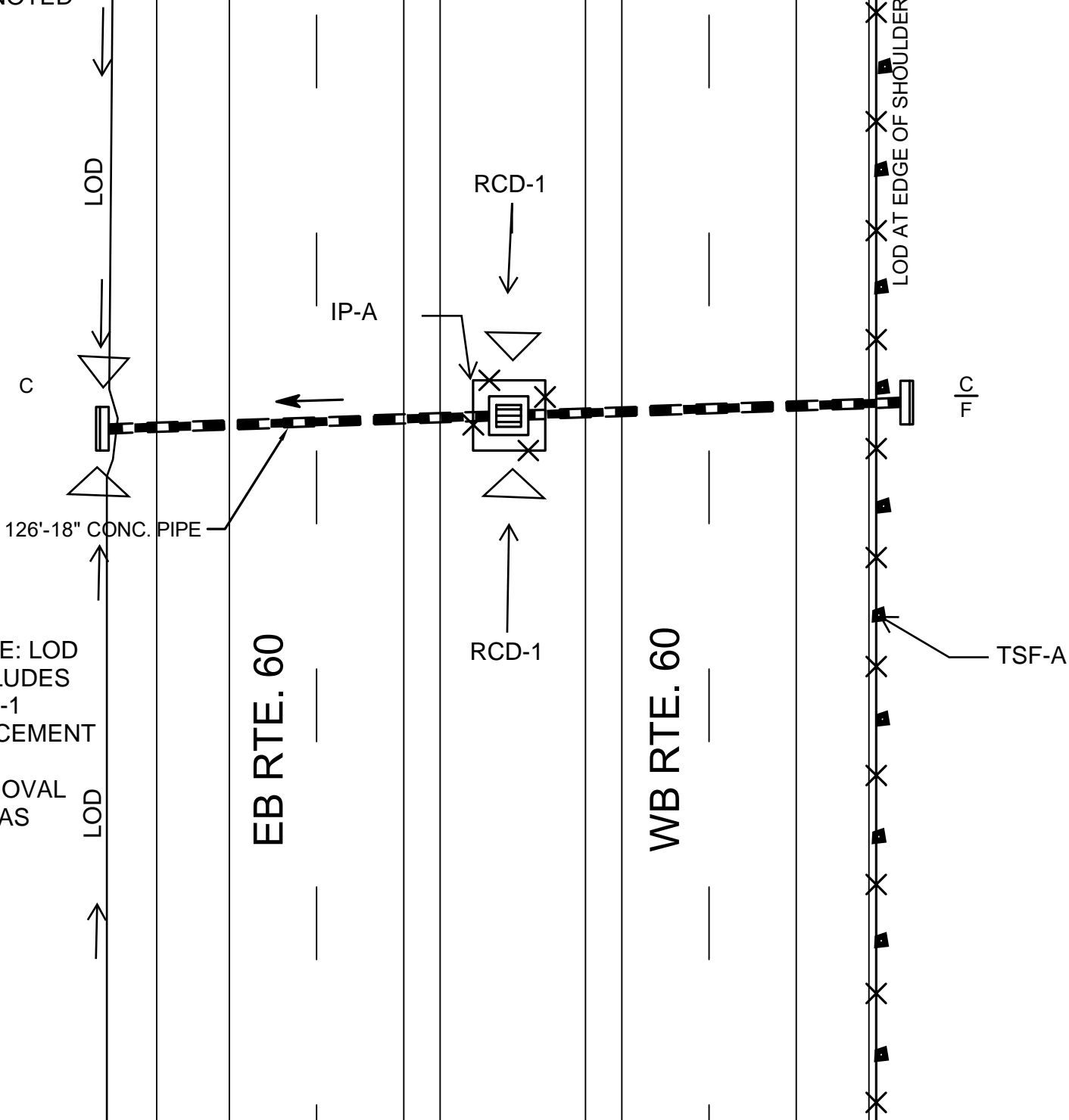
US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-19

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS



NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

EB RTE. 60

WB RTE. 60

ESC LEGEND - SHEET EC-1

(37.406932, -76.852883)
 TO
 (37.408149, -76.855128)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 20 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

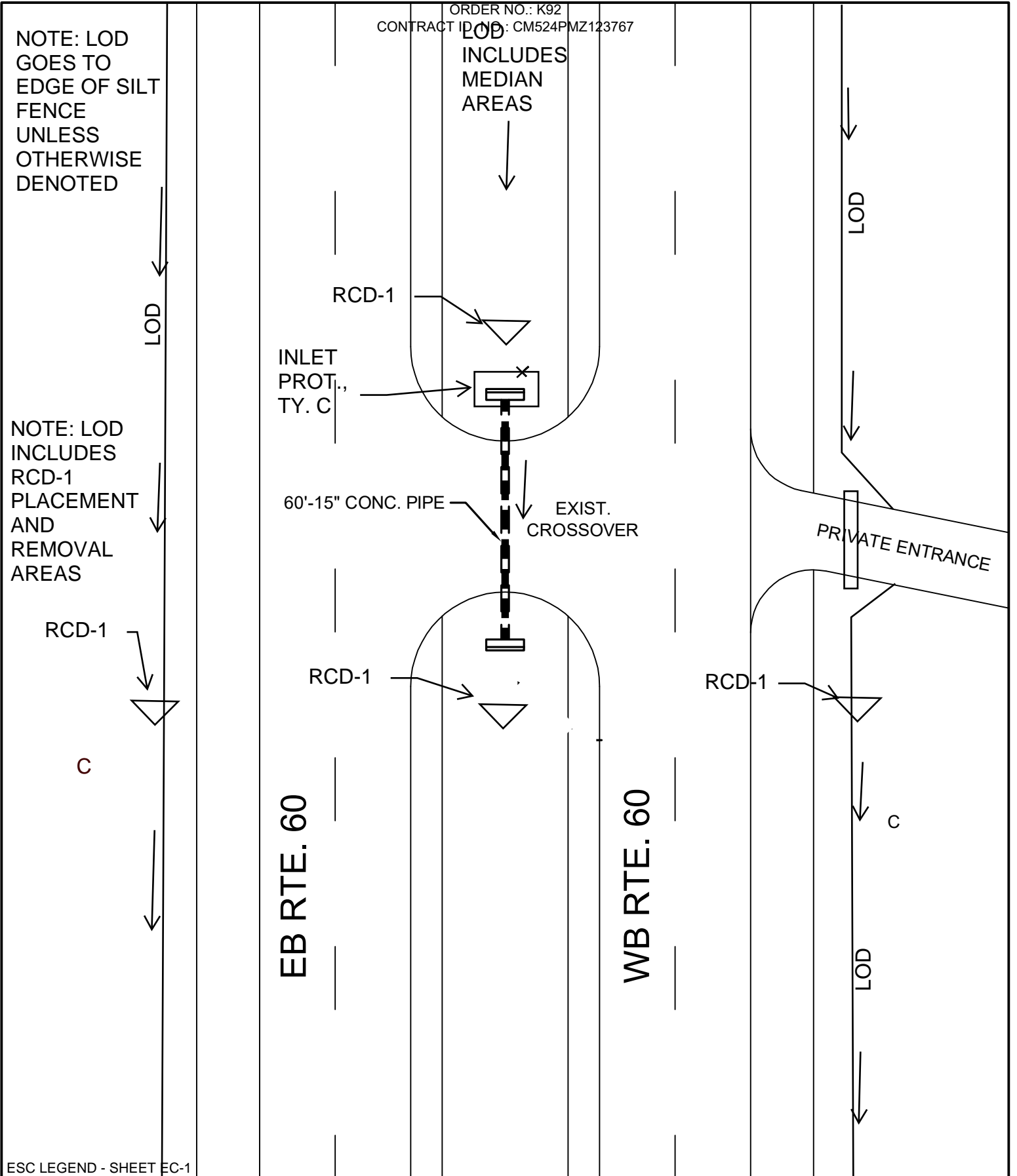
SHEET NO.

EC-20

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS



ESC LEGEND - SHEET EC-1

(37.408149, -76.855128)
 TO
 (37.408290, -76.855392)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 21 OF 34



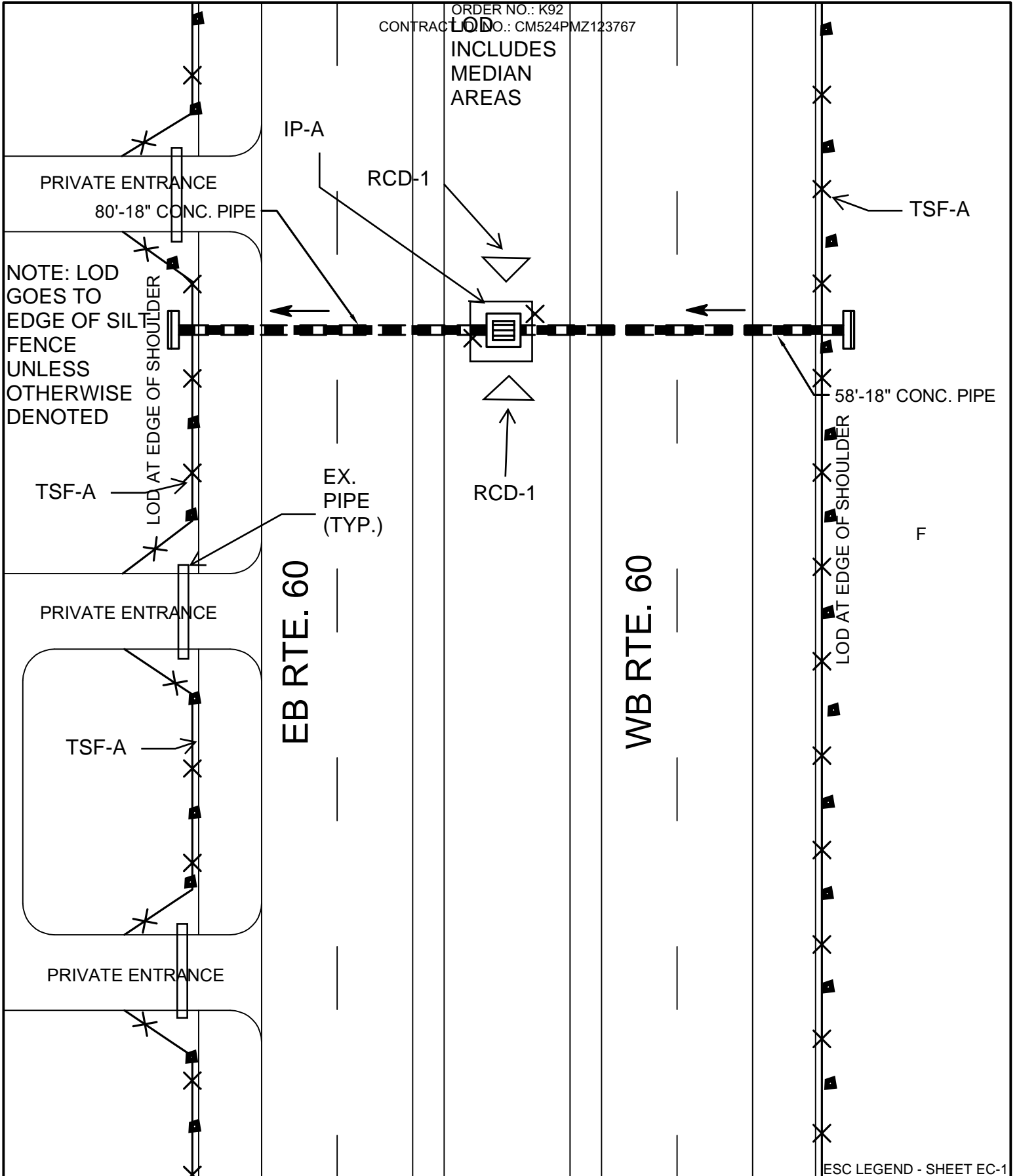
E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-21

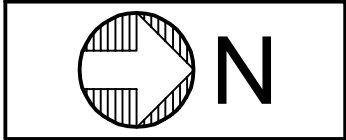
LOD
 INCLUDES
 MEDIAN
 AREAS



(37.408448, -76.855695)
 TO
 (37.409027, -76.856781)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 22 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
EC-22

ESC LEGEND - SHEET EC-1

LOD
 INCLUDES
 MEDIAN
 AREAS

NOTE: LOD
 GOES TO
 EDGE OF SILT
 FENCE
 UNLESS
 OTHERWISE
 DENOTED

LOD AT EDGE OF SHOULDER

PRIVATE ENTRANCE

TSF-A

PRIVATE ENTRANCE

EB RTE. 60

WB RTE. 60

PRIVATE ENTRANCE

RCD-1

100' CD-2

TSF-A

IP-A

58'-15" CONC. PIPE

RCD-1

100'-15" CONC. PIPE

PRIVATE ENTRANCE

IP-A

126'-18" CONC. PIPE

162'-18" CONC. PIPE

TSF-A

RCD-1

ESC LEGEND - SHEET EC-1

(37.410566, -76.859649)
 TO
 (37.411026, -76.861353)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 23 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

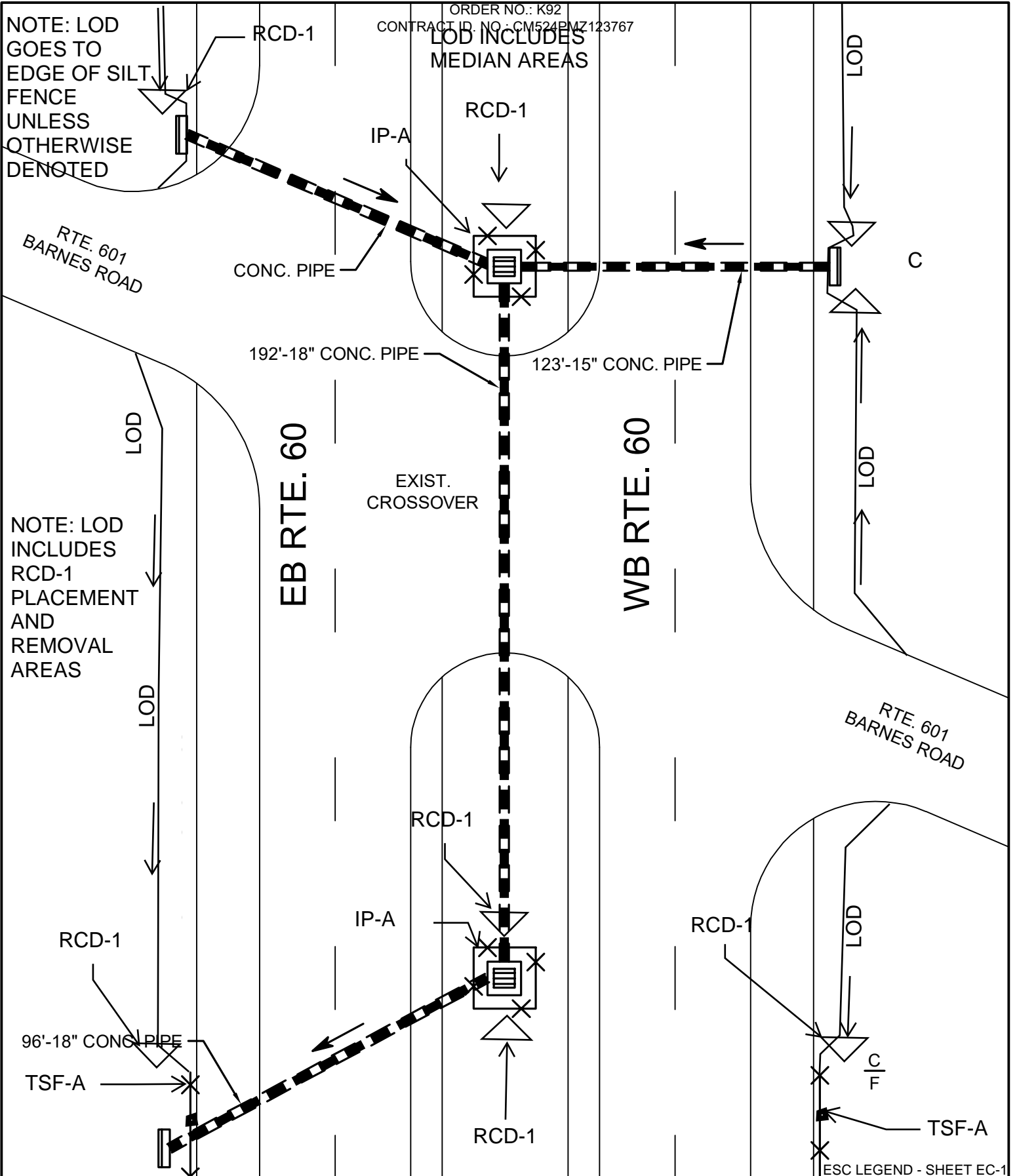
SHEET NO.

EC-23

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS



(37.411353, -76.863412)
 TO
 (37.411804, -76.865733)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 25 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

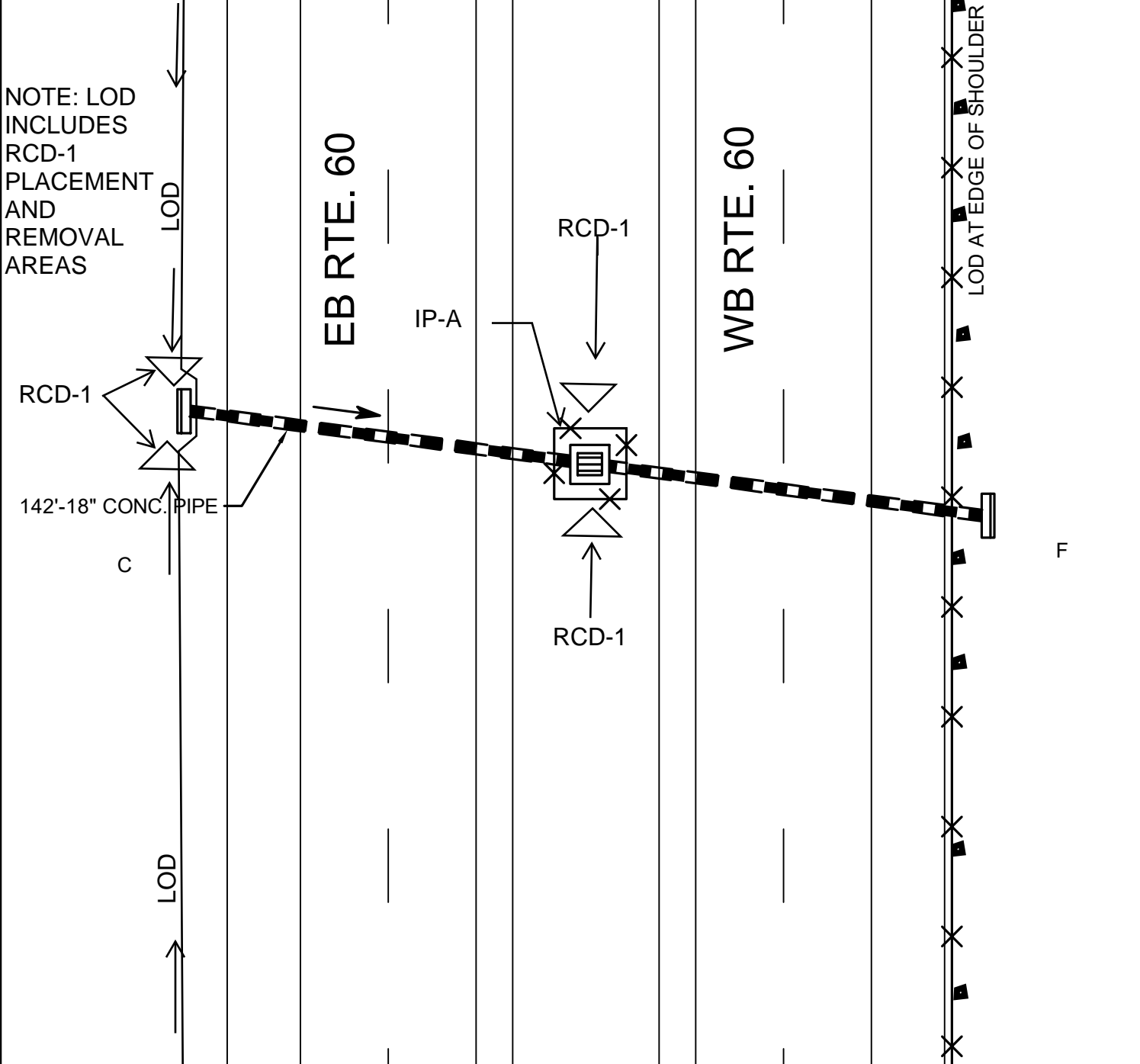
EC-24

ESC LEGEND - SHEET EC-1

LOD
 INCLUDES
 MEDIAN
 AREAS

NOTE: LOD
 GOES TO
 EDGE OF SILT
 FENCE
 UNLESS
 OTHERWISE
 DENOTED

NOTE: LOD
 INCLUDES
 RCD-1
 PLACEMENT
 AND
 REMOVAL
 AREAS



ESC LEGEND - SHEET EC-1

(37.411353, -76.863412)
 TO
 (37.411804, -76.865733)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 25 OF 34



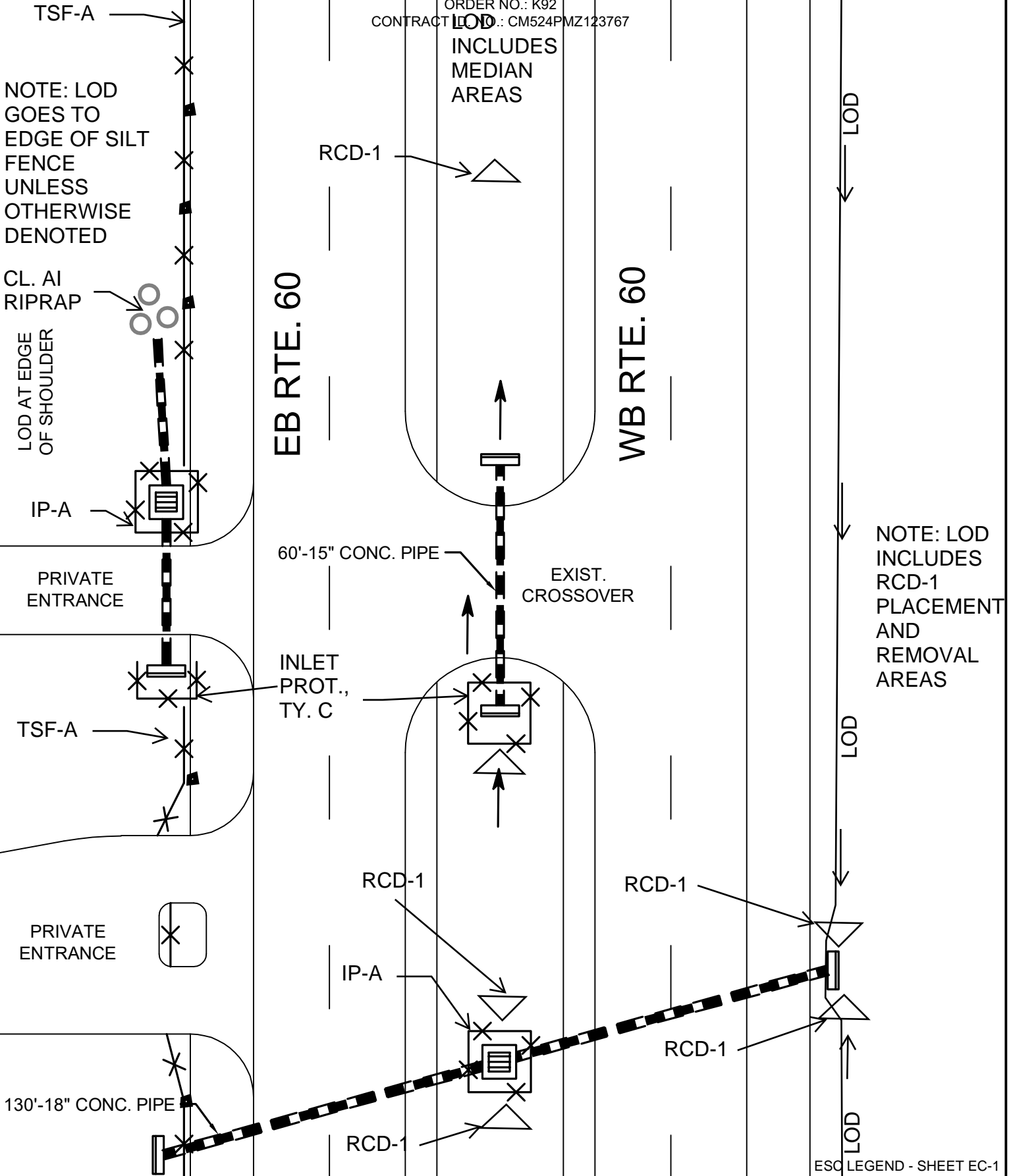
E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-25

LOD
 INCLUDES
 MEDIAN
 AREAS



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

CL. AI RIPRAP

LOD AT EDGE OF SHOULDER

EB RTE. 60

WB RTE. 60

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

(37.411804, -76.865733)
 TO
 (37.413751, -76.871211)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

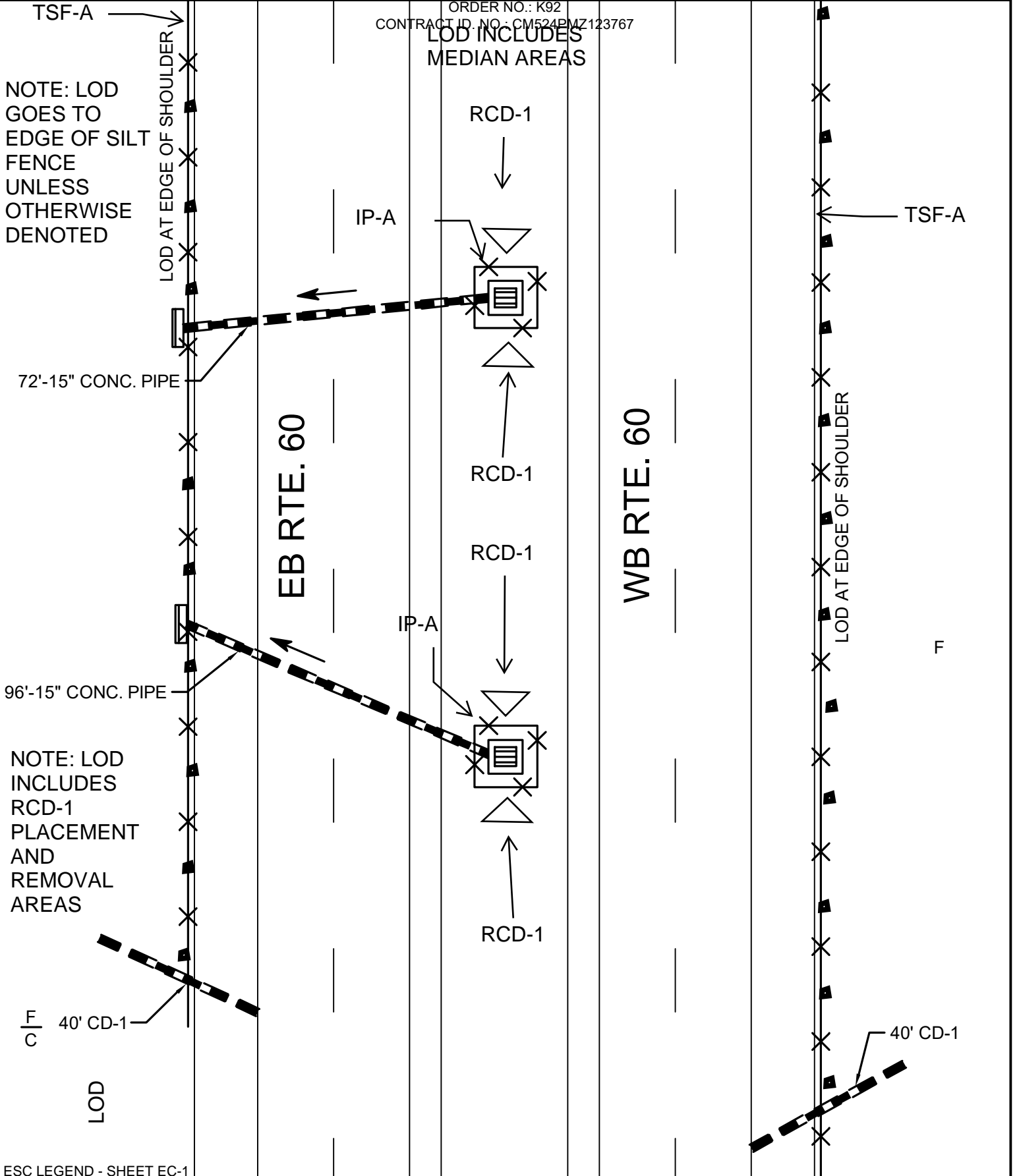
SCALE: N.T.S.
 SHEET 26 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
EC-26

LOD INCLUDES
 MEDIAN AREAS



ESC LEGEND - SHEET EC-1

(37.413751, -76.871211)
 TO
 (37.417098, -76.875738)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 27 OF 34

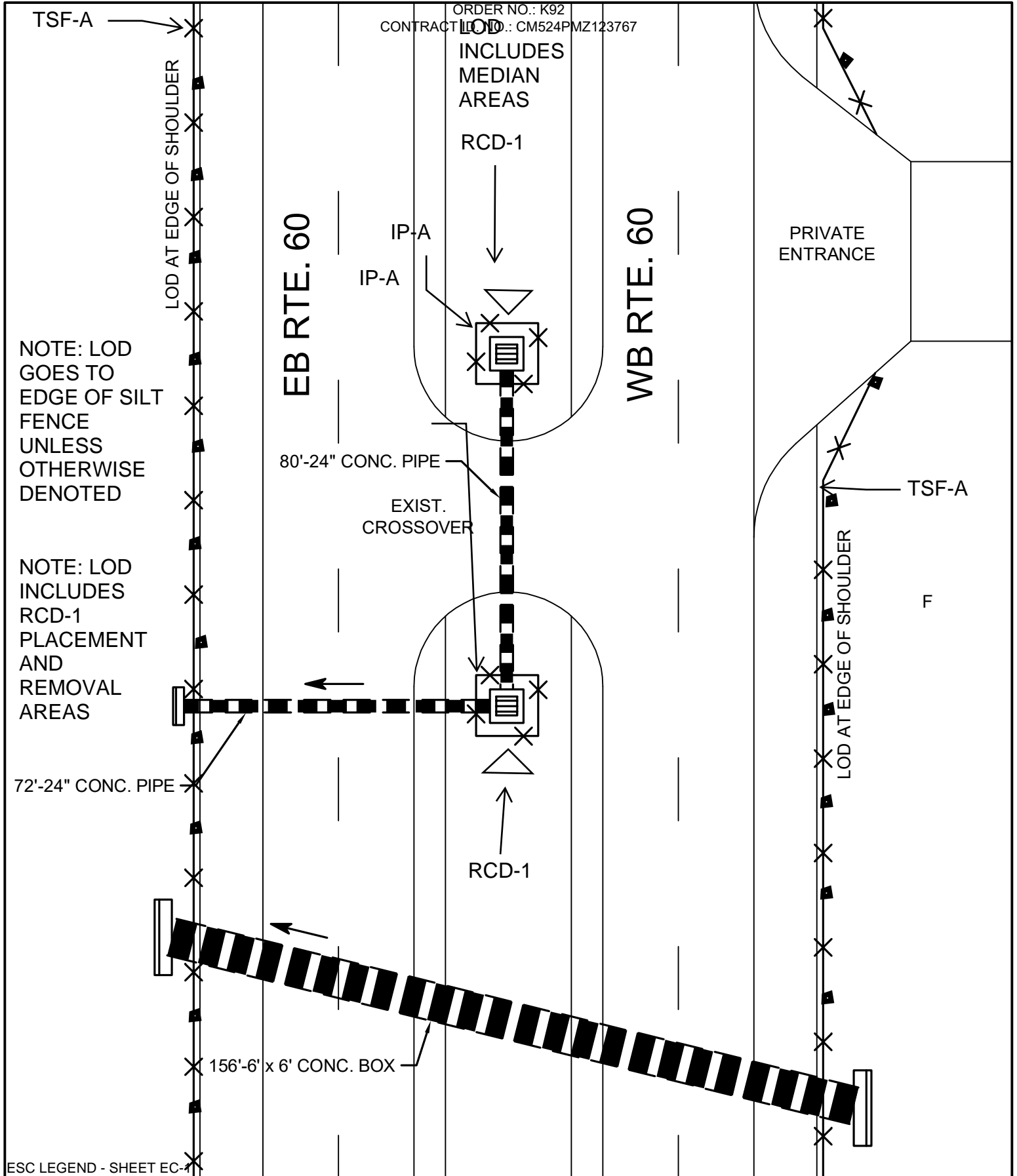


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-27



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

72'-24" CONC. PIPE

156'-6" x 6' CONC. BOX

ESC LEGEND - SHEET EC-
 (37.417098, -76.875738)
 TO
 (37.418871, -76.878846)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 28 OF 34



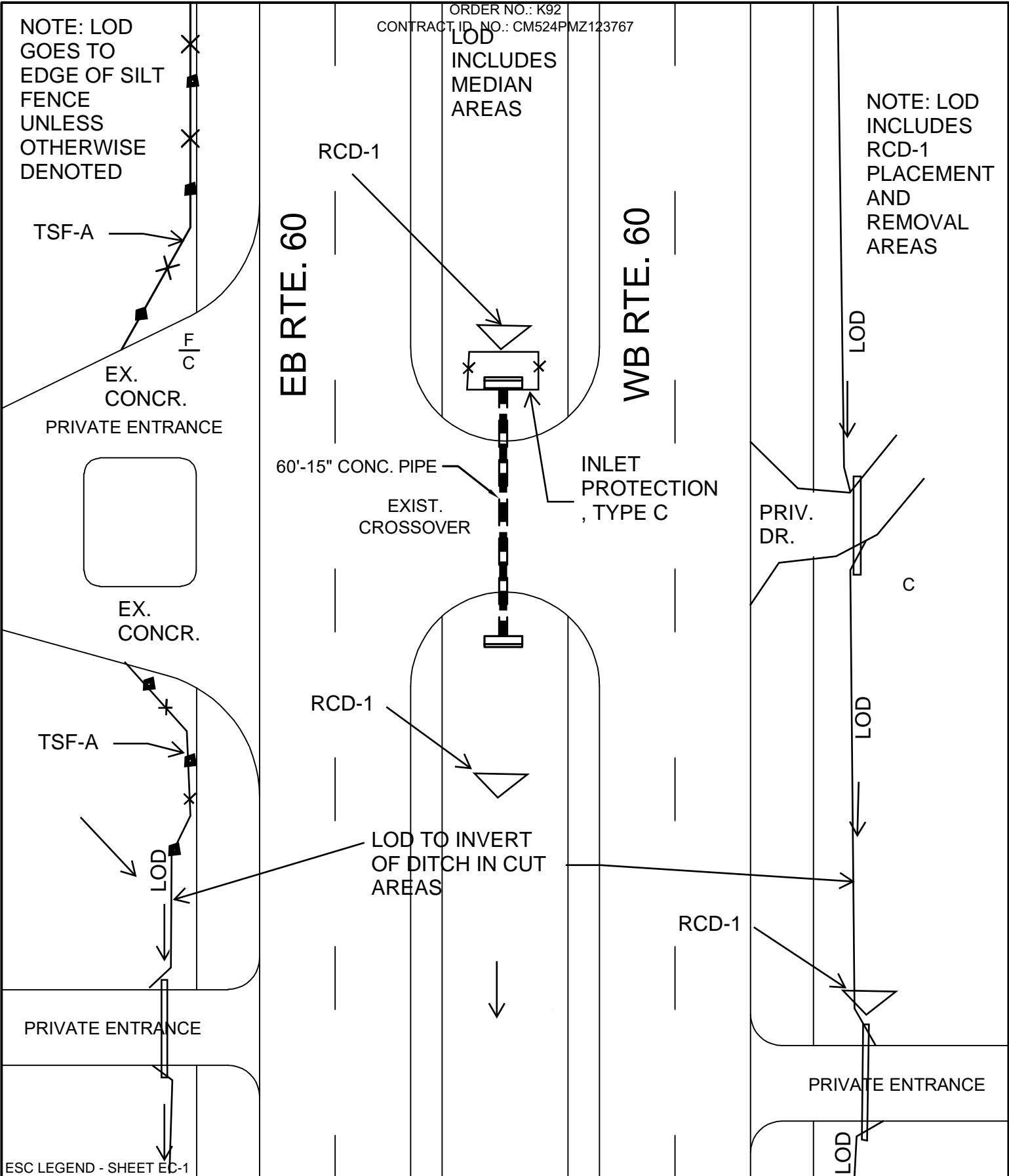
E&S CONTROL SKETCH AND DRAIN. ADJUST.
 US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.
EC-28

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD INCLUDES MEDIAN AREAS

NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS



ESC LEGEND - SHEET EC-1

(37.419354, -76.879816)
 TO
 (37.419878, -76.880733)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 29 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-29

LOD
 INCLUDES
 MEDIAN
 AREAS

TSF-A →

NOTE: LOD
 GOES TO
 EDGE OF SILT
 FENCE
 UNLESS
 OTHERWISE
 DENOTED

NOTE: LOD
 INCLUDES
 RCD-1
 PLACEMENT
 AND
 REMOVAL
 AREAS

PRIVATE ENTRANCE

EB RTE. 60

WB RTE. 60

LOD AT EDGE OF SHOULDER

LOD AT EDGE OF SHOULDER

RCD-1

IP-A

F

90'-18" CONC. PIPE

39'-12" CONC. PIPE

RCD-1

TSF-A

PRIVATE ENTRANCE

TSF-A →

ESC LEGEND - SHEET EC-1

(37.420371, -76.881861)
 TO
 (37.420741, -76.882589)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 30 OF 34

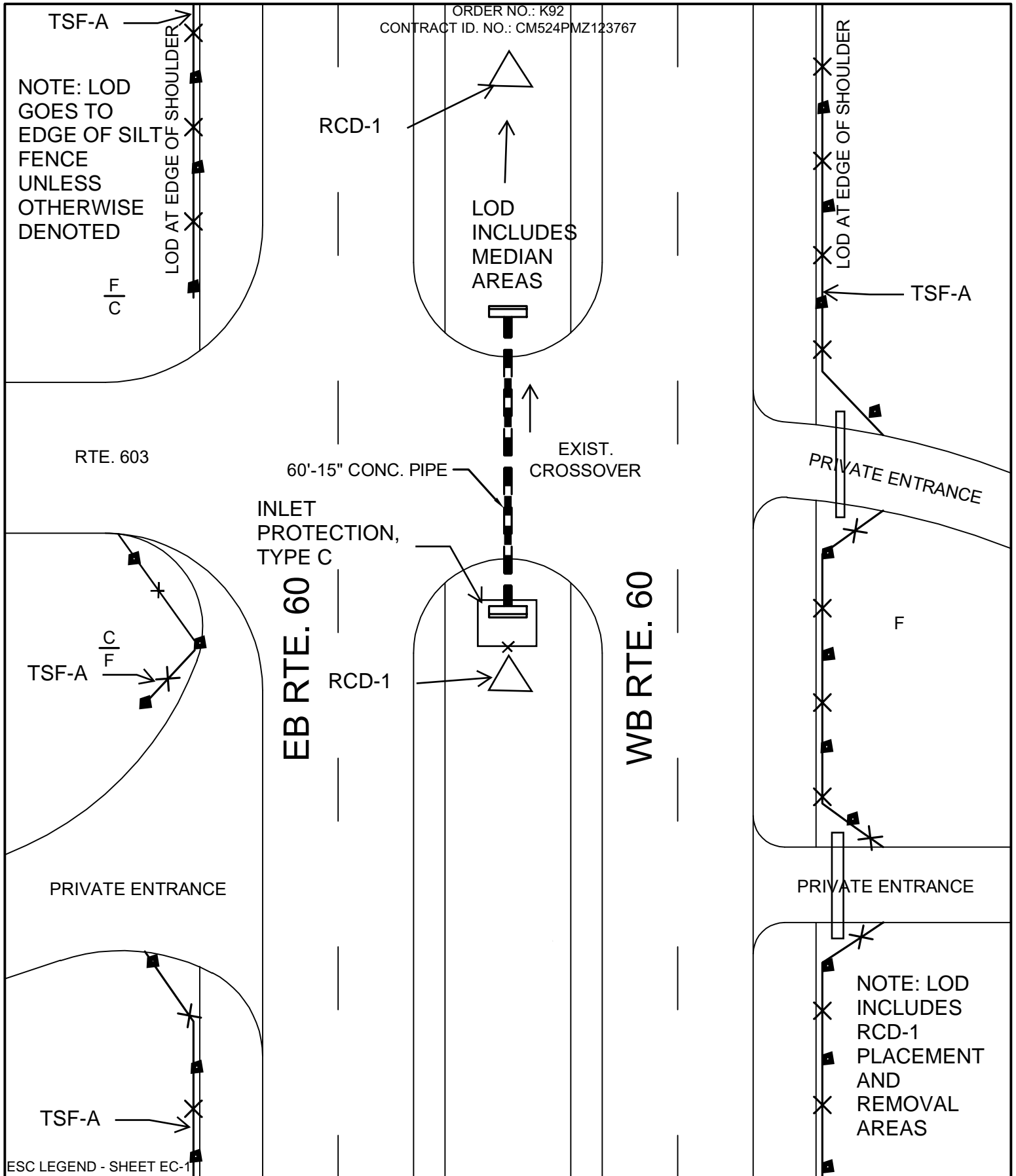


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-30



(37.421135, -76.883381)
 TO
 (37.421512, -76.884128)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 31 OF 34

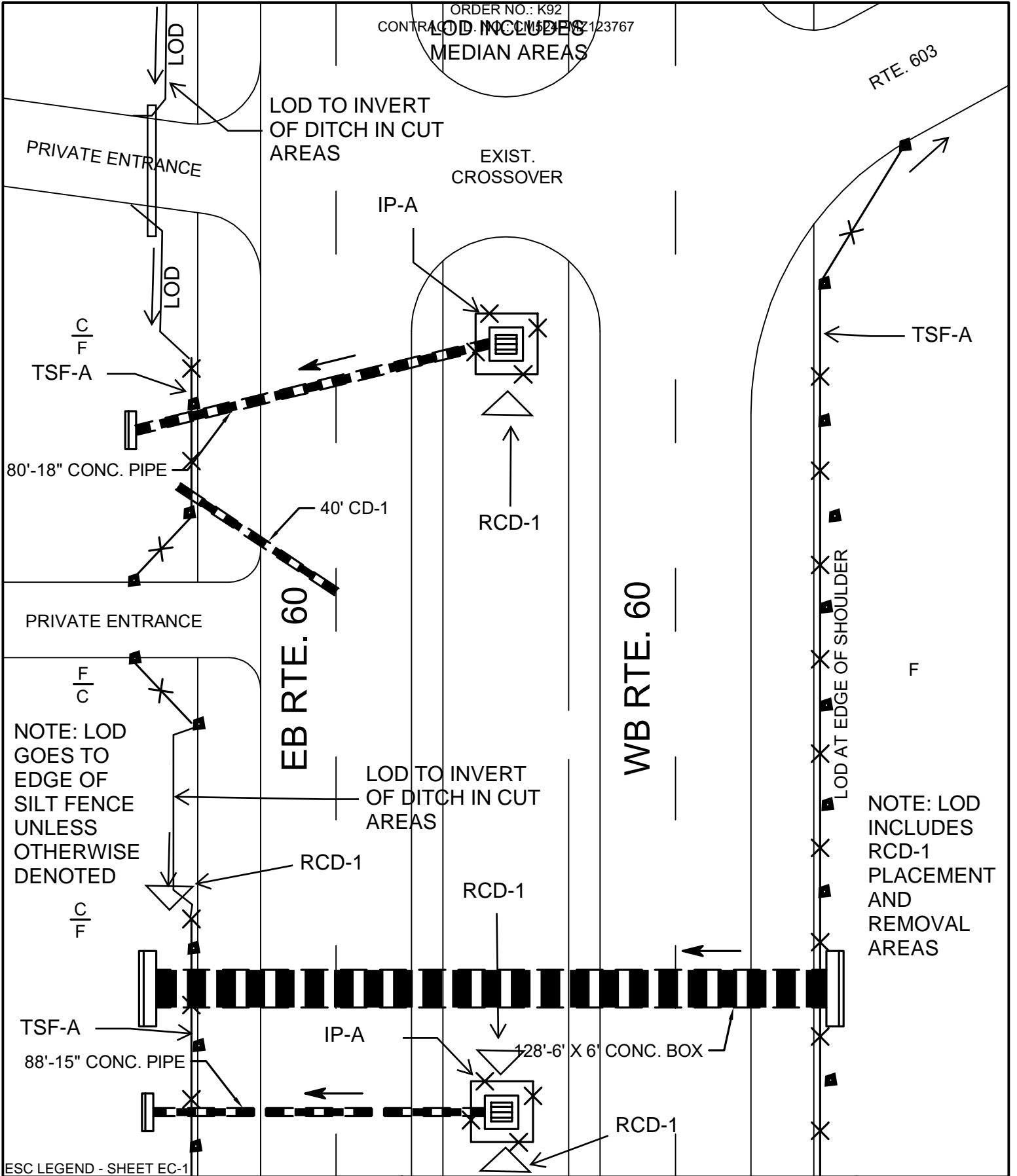


E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-31



NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

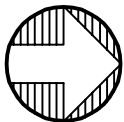
NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

ESC LEGEND - SHEET EC-1

(37.421512, -76.884128)
 TO
 (37.422671, -76.886410)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 32 OF 34



N



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

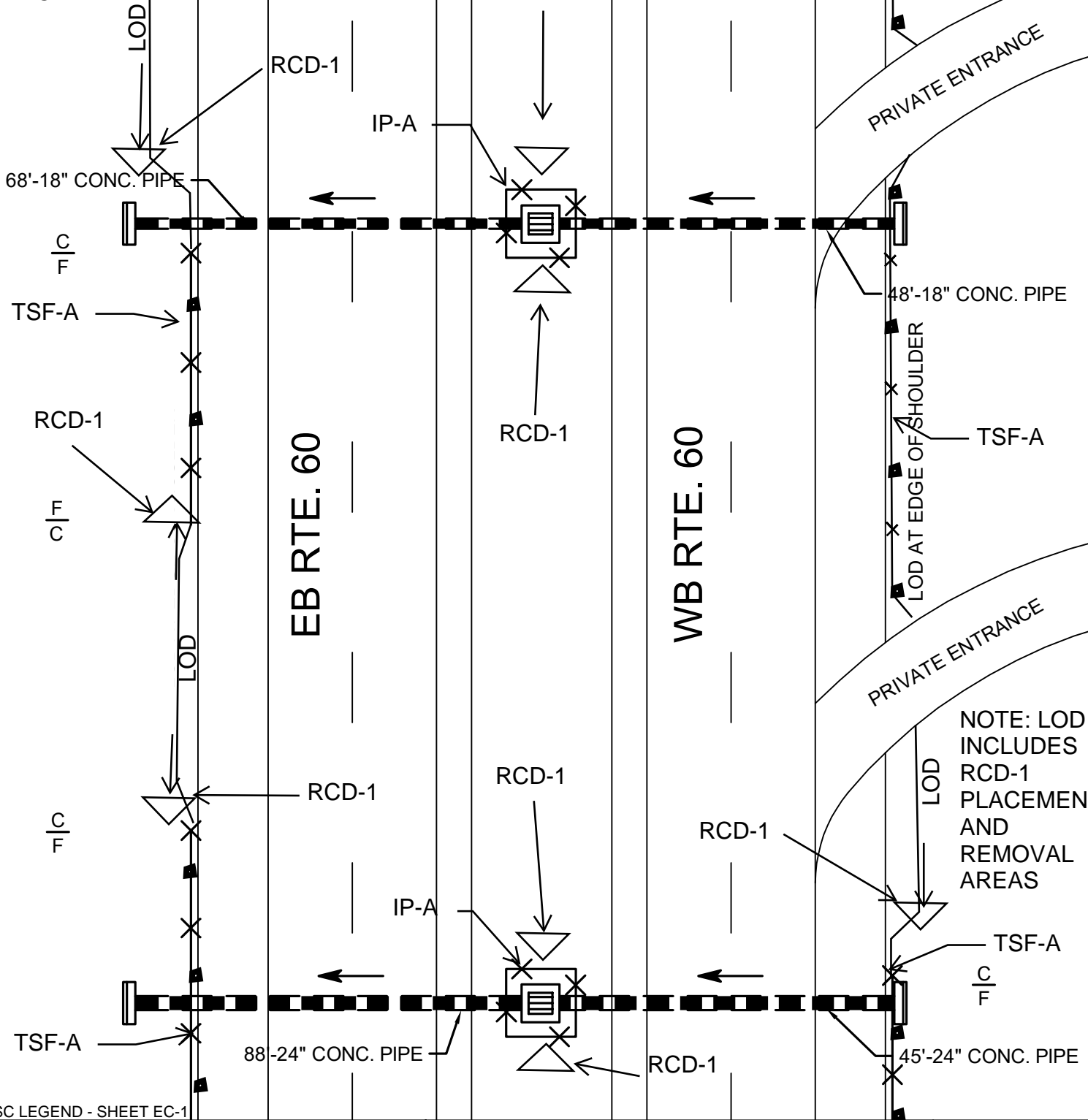
EC-32

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

LOD TO INVERT OF DITCH IN CUT AREAS

LOD INCLUDES MEDIAN AREAS

TSF-A



NOTE: LOD INCLUDES RCD-1 PLACEMENT AND REMOVAL AREAS

ESC LEGEND - SHEET EC-1

(37.422671, -76.886410)
 TO
 (37.423926, -76.889452)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 33 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

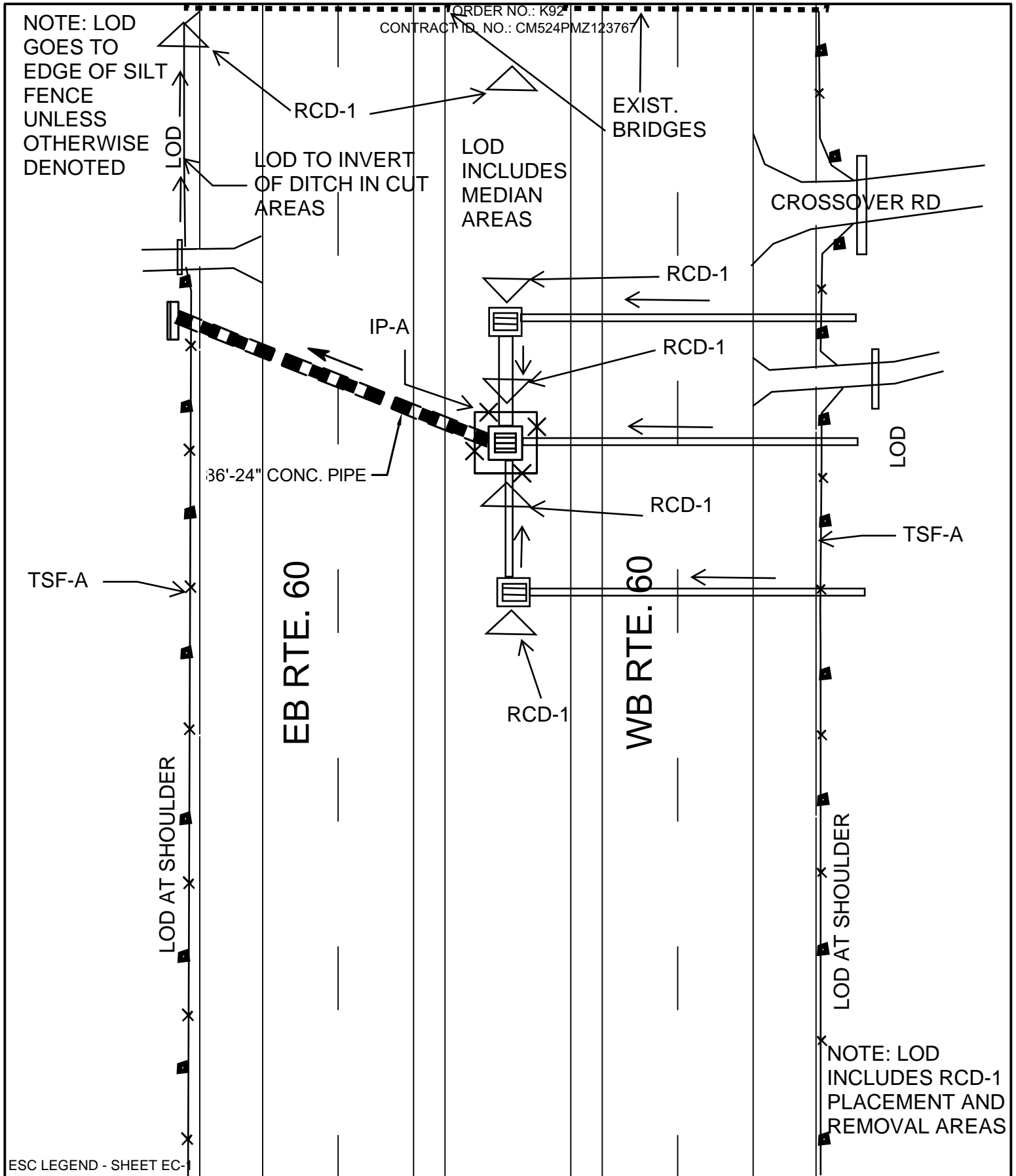
US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-33

NOTE: LOD GOES TO EDGE OF SILT FENCE UNLESS OTHERWISE DENOTED

ORDER NO.: K92
 CONTRACT ID. NO.: CM524PMZ123767



ESC LEGEND - SHEET EC-1

(37.423926, -76.889452)
 TO
 (37.424284, -76.892392)

UPC: 123767
 STATE PROJECT #: PM5Z-047-S24

SCALE: N.T.S.
 SHEET 34 OF 34



E&S CONTROL SKETCH AND DRAIN. ADJUST.

US ROUTE 60 - JAMES CITY COUNTY, VA

SHEET NO.

EC-34

PHASE II GUARDRAIL



COMMONWEALTH of VIRGINIA
TRAFFIC ENGINEERING DIVISION:

MASH GUARDRAIL UPGRADE

HAMPTON ROADS DISTRICT

James City County US Route 60 Unbonded Overlay

Phase II – Westbound Existing

October 17, 2023

PREPARED BY:



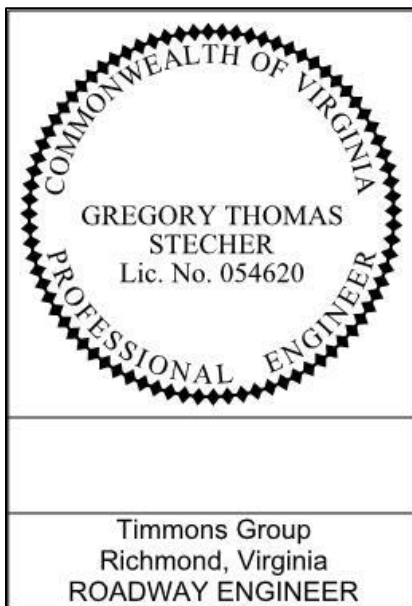
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

ENGINEER'S CERTIFICATION OF DELIVERABLES

The engineer is responsible only for the material supplied in this package. The engineer has provided solutions to the best of his ability based on information provided from field exploration, experience, and other research. The solutions detailed in this report may not be all-encompassing due to the possibility of unknown standard/guideline limitations, unknown site conditions, or other factors.

It should be noted that a detailed survey (using electronic methods) of existing conditions was not completed for this project. The Contractor or Construction Inspector shall notify the engineer of any site conditions that differ substantially from what is shown in this package. The Contractor or Construction Inspector shall also notify the engineer of any site conditions or proposed installations that would present unsafe guardrail installations.

The engineer has only certified this package in coordination with the Virginia Department of Transportation (VDOT). The information in this package is a collective effort made by VDOT, Timmons Group (multiple professional engineers), and other outside sources who have expertise in the details of guardrail upgrade and development. Installation details described in this package may not always satisfy new-installation criteria, as detailed in VDOT manuals and guides. The installation details are intended to represent betterments to existing conditions. This approach is substantiated by guidance found in the AASHTO Roadside Design Guide, section 8.3.3.2.



Contract Notes

General

1. This project to be constructed in accordance with the 2020 VDOT Road and Bridge Specifications, 2016 Road and Bridge Standards, 2011 Work Area Protection Manual (Revision 2.1, November 2020), the Manual for Uniform Traffic Control Devices, the Guardrail Installation Training Manual (GRIT, revised August 2019), all VDOT permits, and the plans.
2. The Contractor shall provide the Engineer with the manufacturer's installation instructions and drawings of all terminal end sections prior to installation.
3. All unused guardrail post holes shall be back filled to existing ground level with approved materials placed in layers not more than 4" in height. Each layer shall be compacted by tamping. This cost will be considered incidental to the guardrail or guardrail terminal pay item.
4. The Contractor shall call Miss Utility at least 72 hours prior to the start of excavation. Contractor shall verify location and elevation of all underground utilities in the area of construction prior to starting work. The Contractor shall contact the engineer immediately if there is an expected conflict with what is shown in this package, including the straight-line diagrams.
5. VDOT is to receive written notification two weeks prior to commencing with initial construction activities.
6. The latitude / longitude coordinates provided in this package (for each site begin and end location) are approximate only and are not intended to represent actual installation locations. The coordinates represent a general guide for installation; actual location should be determined from the installation instructions and (if provided) the straight-line diagrams. The Contractor shall contact the Engineer if questions exist regarding the precise locations of the guardrail.
7. The distances listed (on the detailed analyses and/or the straight-line diagrams) from adjacent driveways, connecting roads, or other site features are approximate and shall be field-verified prior to installing guardrail. The Contractor shall contact the Engineer if distances appear inaccurate and/or if the distances as noted would result in a guardrail installation materially different from what is required in the plans.
8. Existing signs may exist near or adjacent to the existing guardrail. Signs shall not be disturbed; if they are disturbed, they shall be returned to their original condition at the Contractor's expense.
9. All construction debris, materials, etc. shall be located outside the roadway prism whenever possible. The Contractor shall keep the roadway clear of dirt and debris whenever possible, cleaning the roadway at the end of each work day.
10. Existing pavement markings and/or rumble strips/rumble stripes shall not be disturbed during construction. If pavement markings or rumble strips/rumble stripes are damaged during the course of guardrail installation, they shall be restored to their original condition at the Contractor's expense.

Technical

1. If coring of asphalt is required for guardrail installation, the coring, backfill, and compaction shall be incidental to guardrail and/or guardrail terminals.
2. Delineators shall be incidental to guardrail and/or guardrail terminals.
3. Offsets to proposed guardrail, as shown on the straight line diagrams, are approximate and shall be field-verified prior to construction.
4. The scheduling of aggregate installation for shoulder renovation shall accommodate forecasted weather conditions per section 315 of the VDOT Road and Bridge Specifications.
5. The Contractor shall return any associated site grass/landscaping to its original condition prior to the conclusion of construction.
6. The Contractor shall maintain a 6:1 wedge at the edge of pavement/shoulder at all times during construction.
7. The Contractor is responsible for placement and maintenance of all temporary pavement markings, signage, portable temporary rumble strips, etc. that are required or implied in the suggested Temporary Traffic Control on the sheets that follow. The cost of these items shall be incidental to the price for other maintenance of traffic items as noted in the overall summary of quantities. The Contractor is responsible for providing all traffic control devices, signage, equipment, personnel, including certified traffic control personnel, etc. to control traffic during construction within VDOT Right-of-Way.

TABLE OF CONTENTS

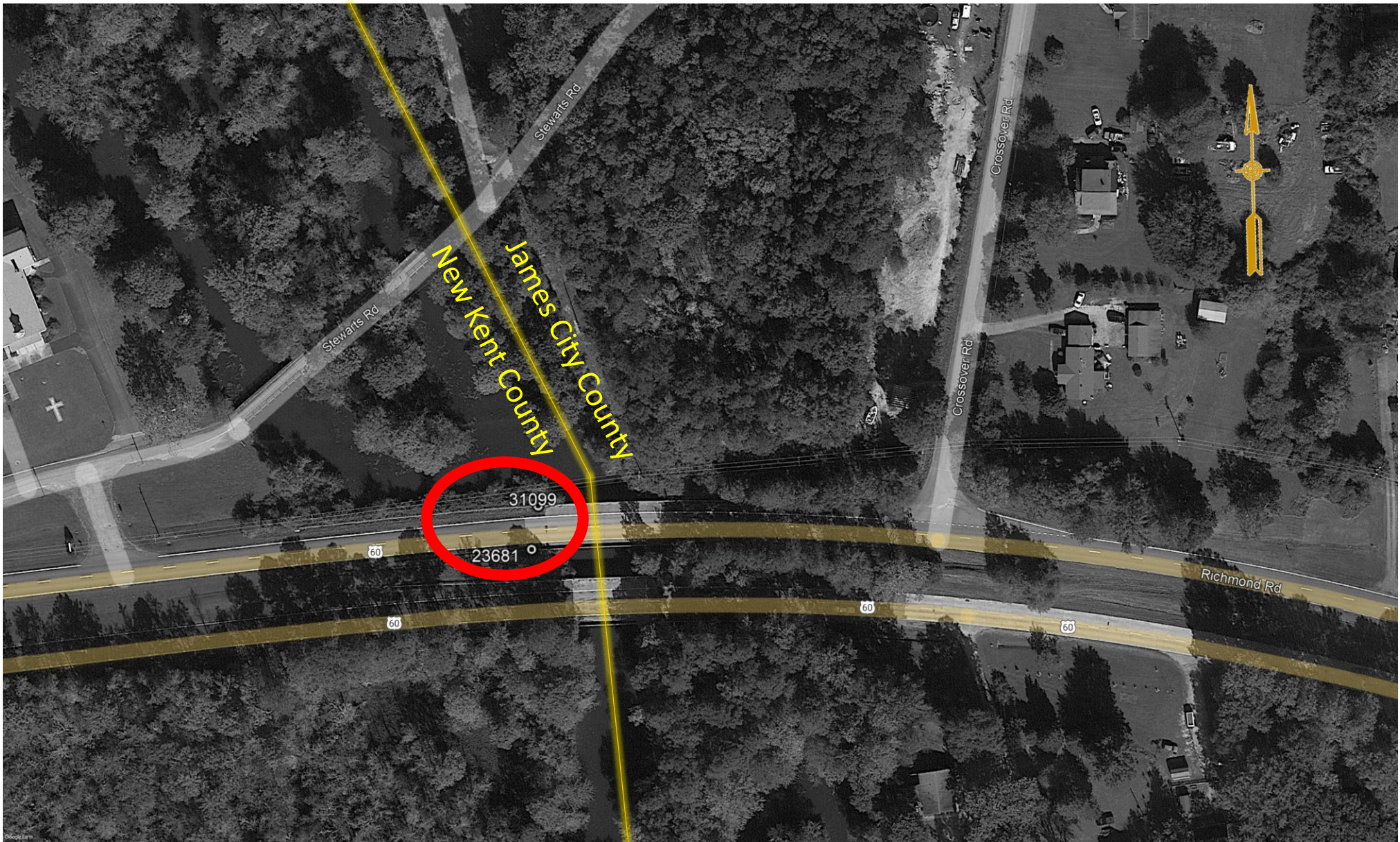
Part 1Vicinity Map

Part 2Item and Quantity Summary

Part 3Detailed Site Analyses and Straight-Line Diagrams

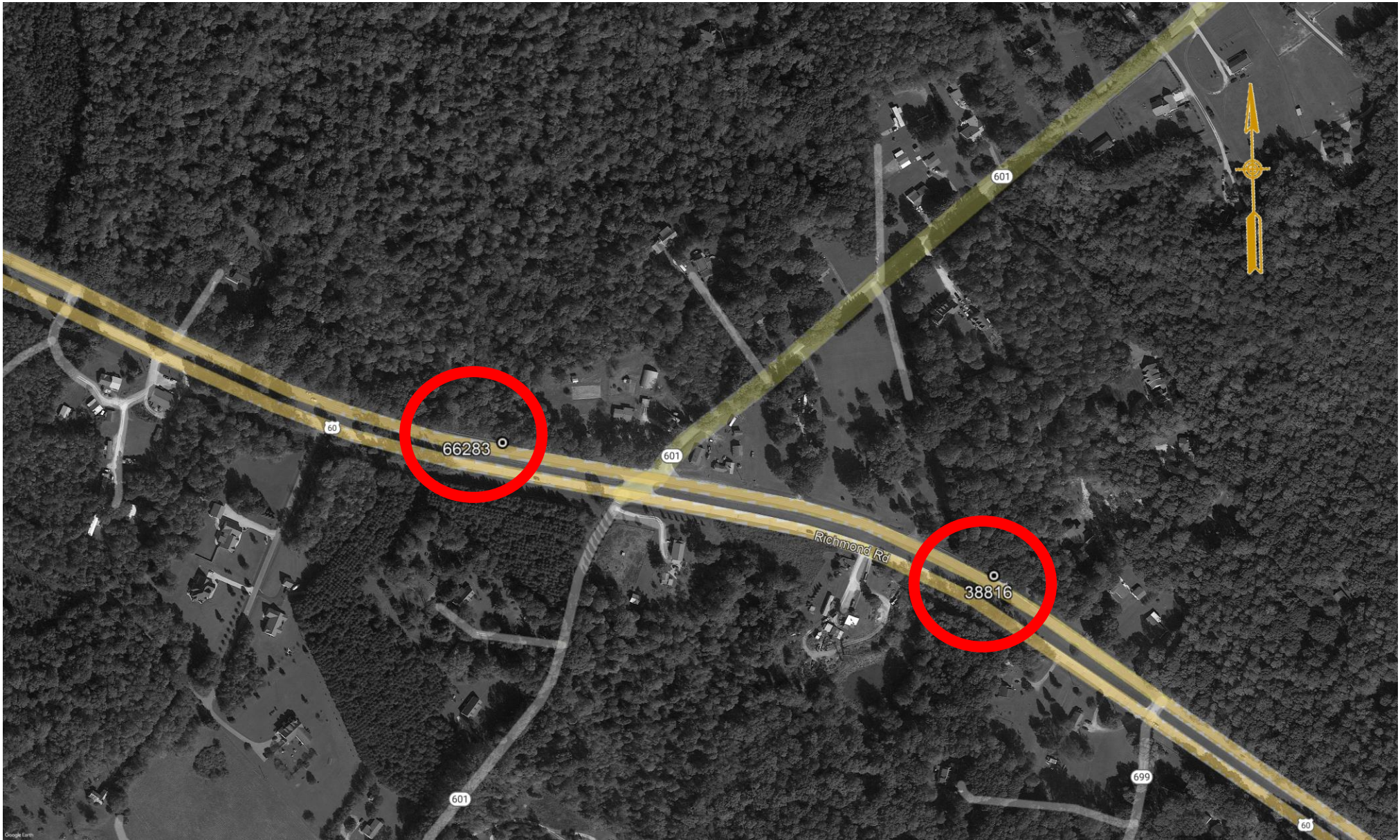
PART 1:
VICINITY MAP

Hampton Roads District Guardrail Vicinity Map No. 1 of 3



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

Hampton Roads District Guardrail Vicinity Map No. 2 of 3



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

Hampton Roads District Guardrail Vicinity Map No. 3 of 3



PART 2:
ITEM AND QUANTITY SUMMARY

Concrete Overlay Phase II Item and Quantity Summary										
Item Code	Unit	Item	23681	31099	20157 - INTERIM	35116 - INTERIM	38816 - INTERIM	66283 - INTERIM	TOTAL	
505SD20-0011	LF	Guardrail GR-MGS1	150	187.5	300	475	0	312.5	1,425.0	
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1	1	1	1	1	1	6	
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1	1	1	1	1	1	6	
505SD20-0040	LF	Guardrail GR-10	0	25	0	0	0	0	25	
505SD20-0047	EA	Fixed Object Attachment, GR-FOA-3, Ty. I (Run On)	1	1	0	0	0	0	2	
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	0	1	0	0	1	0	2	
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	0	0	1	1	0	1	3	
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	1	0	0	0	0	0	1	
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	75	75	120	160	20	120	570	
305SP20-0005	LF	Machining Shoulders	215	275	340	515	40	350	1,735	
505SD20-0073	LF	Remove Existing Guardrail	137.5	225	50	50	50	12.5	525	
520SX20-0013	HR	NS Utilities Hand Dig and Install Guardrail Post	See Overall Quantity							40

NOTE: These quantities are for information, only. Refer to the overall quantity summary.

PART 3:
**DETAILED SITE ANALYSES AND STRAIGHT-LINE
DIAGRAMS**

Site #:	20157 - INTERIM
Action:	UPGRADE
Begin Coordinates:	37.40342° N -76.82731° W
Mile Marker:	227.29

Route: 60	ADT (2021): 11,000
Direction: Westbound	Classification: US Route
County: James City	Speed Limit 55 MPH
Side: Left	Funct. Rating ₂ : B

Guardrail Installation Instructions

Run-on Terminal:	N/A	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:
 The existing run-on terminal is to remain undisturbed. Remove the final 50 feet of existing guardrail, from the trailing end of the run of guardrail. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-MGS4 height-transition. Install 300 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Provide 6-foot moderate site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	252 ft	Run-off	N/A		259 ft	Run-off

Run-on: The existing guardrail terminal is to remain undisturbed. Run-off: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **TTC-17.2: Inside Lane Closure on a Four-Lane Roadway**
 All MOT measures and lane closures shall be in accordance with the VDOT Work Area Protection Manual, 2011 edition, Revision 2.1 (November 2020). Refer to the Transportation Management Plan of this package for more information.

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

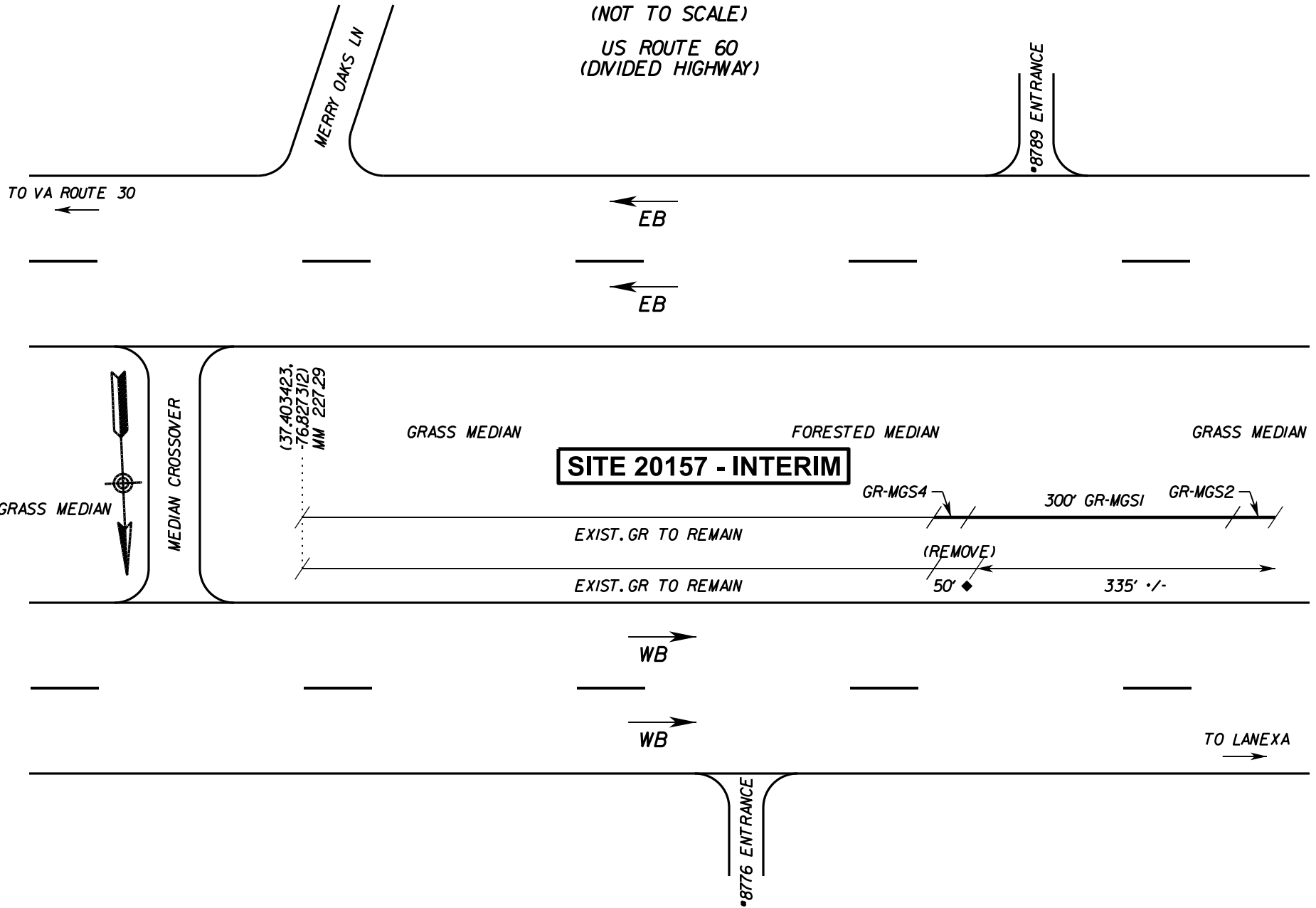
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **20157 - INTERIM**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	300
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	120
305SP20-0005	LF	Machining Shoulders	340
505SD20-0073	LF	Remove Existing Guardrail	50

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	23681
Action:	REPLACE
Begin Coordinates:	37.42423° N -76.89281° W
Mile Marker:	223.3

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	New Kent
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	A

Guardrail Installation Instructions

Run-on Terminal:	FOA-3	End-Terminal Site:	4-foot,	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Remove the existing guardrail in its entirety, including the existing terminals. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-FOA-3, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 150 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at a 6-foot offset. Provide 4-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	242 ft	Run-off	Steep Slope		247 ft	Run-off

Run-on: The FOA and the upstream bridge fully protect the hazard. Run-off: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **TTC-17.2: Inside Lane Closure on a Four-Lane Roadway**
All MOT measures and lane closures shall be in accordance with the VDOT Work Area Protection Manual, 2011 edition, Revision 2.1 (November 2020). Refer to the Transportation Management Plan of this package for more information.

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

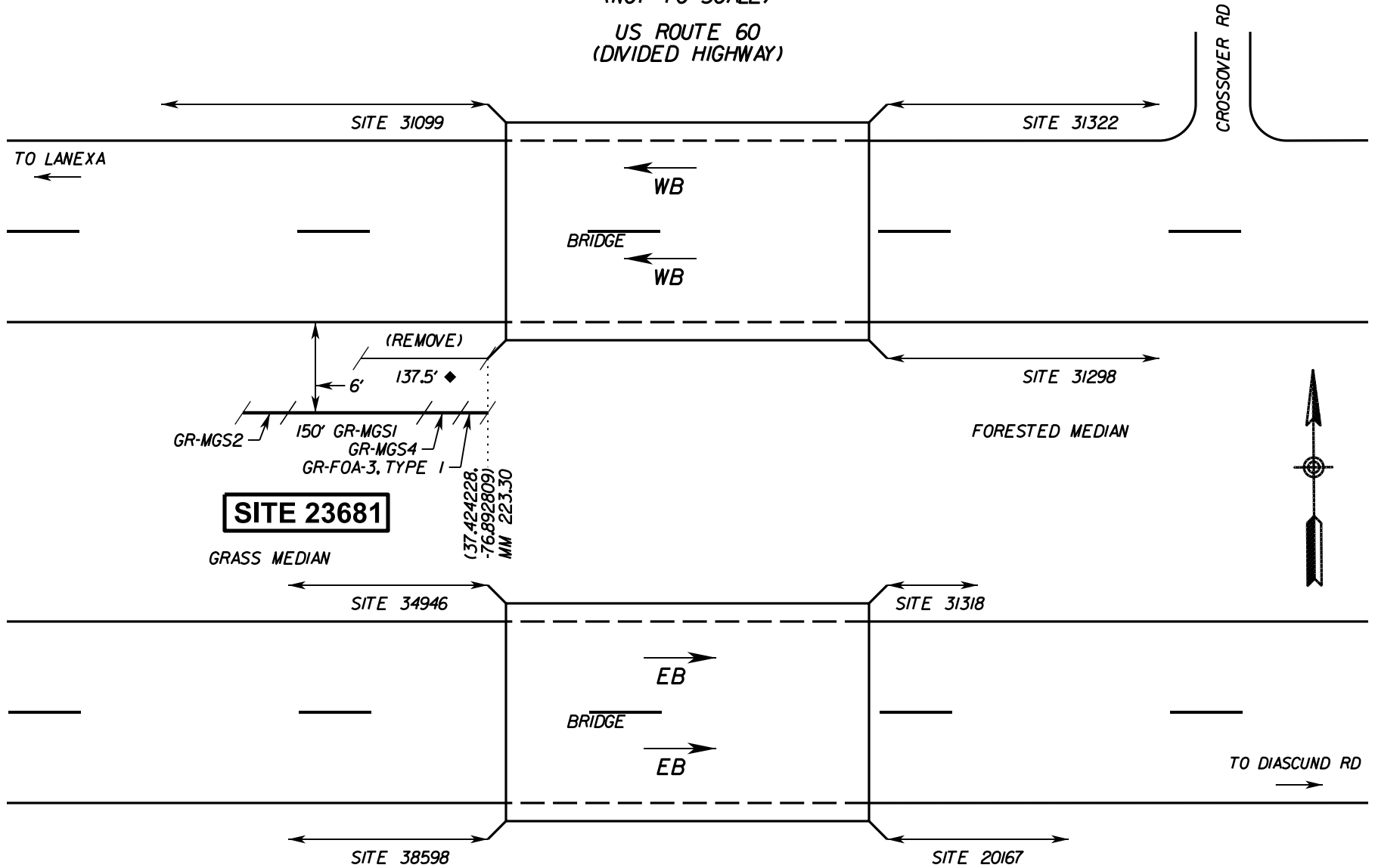
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 23681

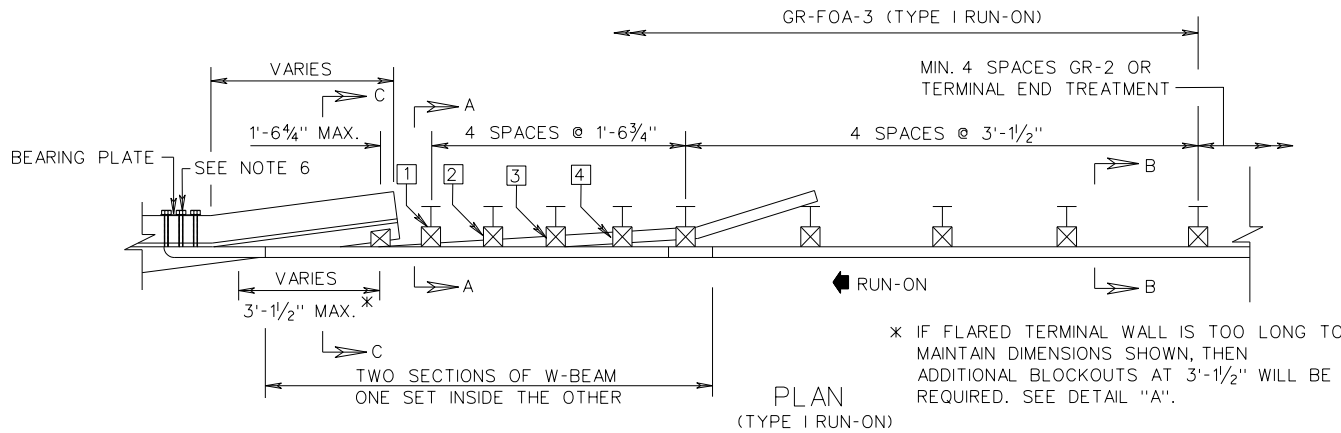
Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	150
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0047	EA	Fixed Object Attachment, GR-FOA-3, Ty. I (Run on)	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	75
305SP20-0005	LF	Machining Shoulders	215
505SD20-0073	LF	Remove Existing Guardrail	137.5

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)

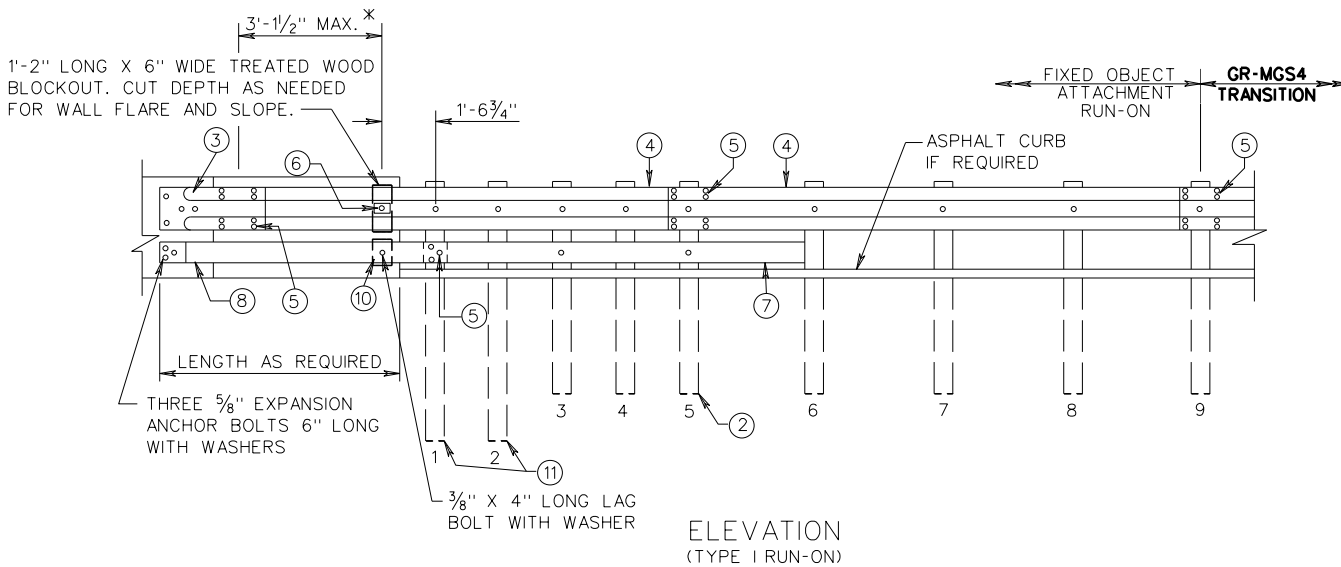


◆ LENGTH INCLUDES TERMINALS, IF ANY.



NOTES:

1. FIXED OBJECTS MAY CONSIST OF SAFETY SHAPED BRIDGE PARAPETS OR CONCRETE BARRIERS.
2. BRIDGE RAIL ENDS AND BRIDGE PARAPETS MUST BE OF ADEQUATE STRENGTH TO ACCEPT FULL IMPACT LOADING.
3. GUARDRAIL COMPONENTS SHALL BE IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS.
4. POSTS 1, 2, 3, 4, AND 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKS AND/OR RUBRAIL. RUBRAIL IS NOT BOLTED TO POSTS 2 AND 4.
5. BOTTOM WOOD BLOCKS LOCATED ON POSTS 1 THROUGH 4, ARE CENTER DRILLED AND SECURED WITH 5/8" CARRIAGE BOLTS. (LENGTH AS REQUIRED).
6. APPROPRIATE LENGTH 7/8" ASTM A449 HEX BOLTS WITH WASHERS MUST BE USED WITH THRU DRILLED HOLES WITH A 5/8" BEARING PLATE ON THE BACK SIDE OF THE BRIDGE PARAPET OR CONCRETE BARRIER.



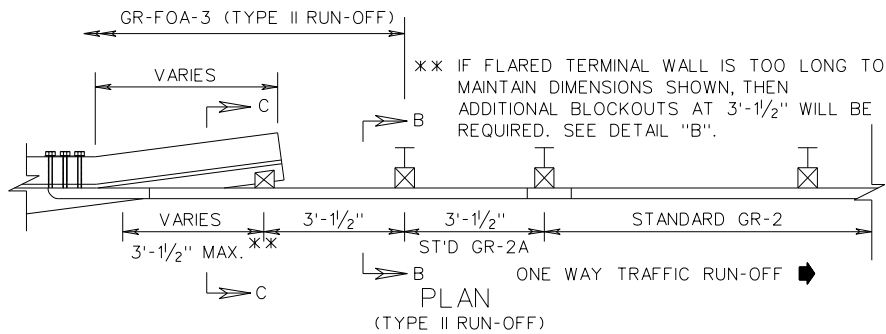
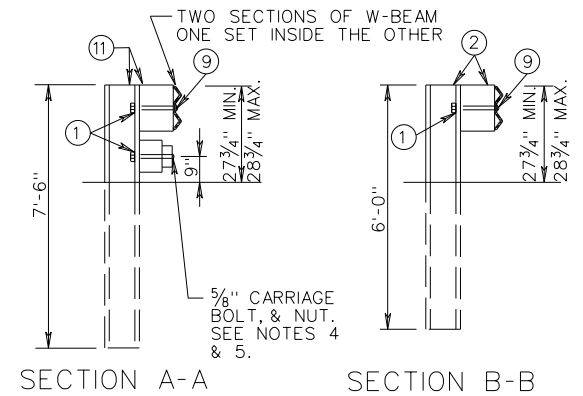
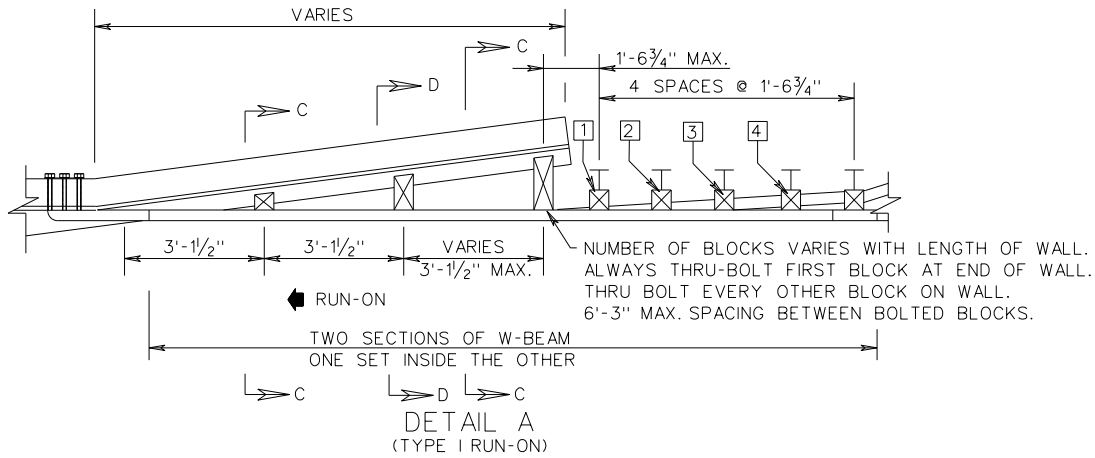
ITEM	MATERIAL/SPECIFICATIONS/NOTES
①	WASHER FOR 5/8" BOLT
②	ST'D. W6 X 8.5 OR W6 X 9 STEEL POST W/ ST'D. 6" X 8" X 14" LG. TREATED PINE BLOCK OR RECYCLED MATERIAL
③	STANDARD W-BEAM TERMINAL CONNECTOR
④	STANDARD W-BEAM RAIL
⑤	5/8" X 2" LONG GUARDRAIL BOLT & RECESSED NUT. (SEE STANDARD GR-HDW)
⑥	RECTANGULAR PLATE RUBRAIL WASHER (SEE STANDARD GR-HDW)
⑦	BENT PLATE RUBRAIL. CAN BE FIELD CUT AND BENT USING HEAT.
⑧	C6 X 8.2 RUBRAIL. CAN BE FIELD CUT AND BENT USING HEAT.
⑨	5/8" X 10" LG. GUARDRAIL BOLT & RECESSED NUT
⑩	WOOD BLOCKOUT FOR RUBRAIL SIZE AS REQUIRED
⑪	W8 X 13 X 7'-6" LG. STEEL POST WITH STD. 6" X 8" X 14" LG. TREATED PINE OR RECYCLED MATERIAL BLOCK.

GR-FOA-3 W-BEAM GUARDRAIL INSTALLATION CRITERIA
 FIXED OBJECT ATTACHMENT METHODS WITH RUBRAIL AND HARDWARE DETAILS

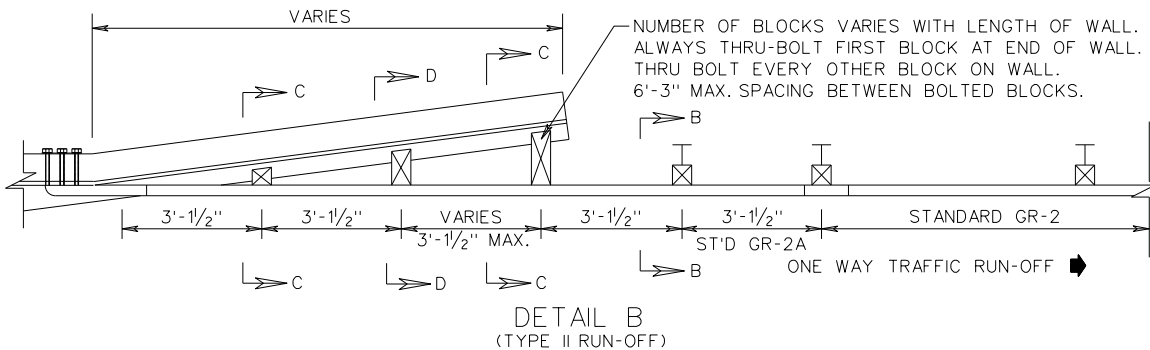
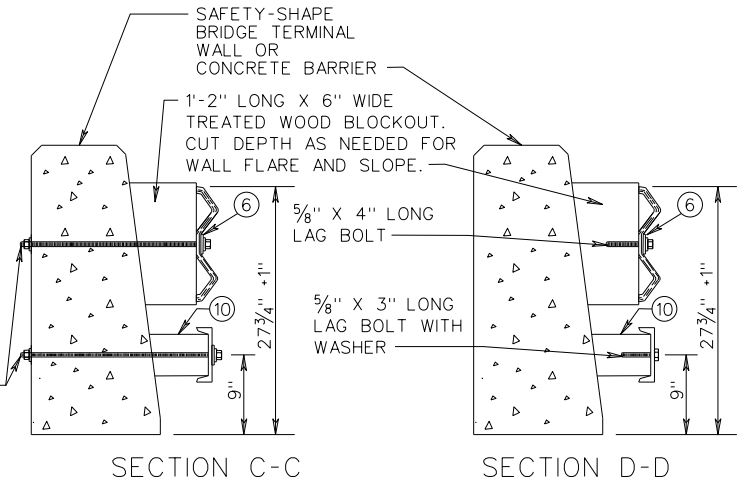
A COPY OF THE SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.



REVISION DATE	SPECIAL DESIGN SECTION DRAWING NO.	SHEET 1 OF 3
01/14	IISA47	



5/8" THREADED ROD WITH NUT AND LOCK WASHER ON EACH END. CUT ROD FLUSH WITH NUT ON TRAFFIC SIDE.

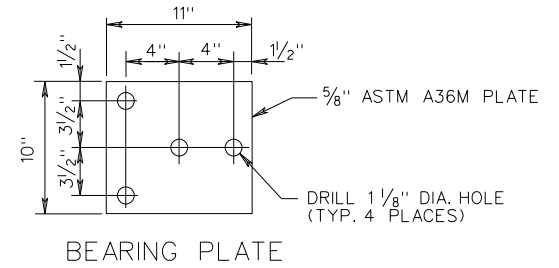
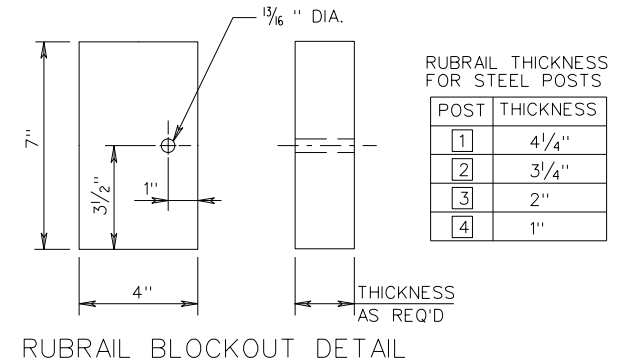
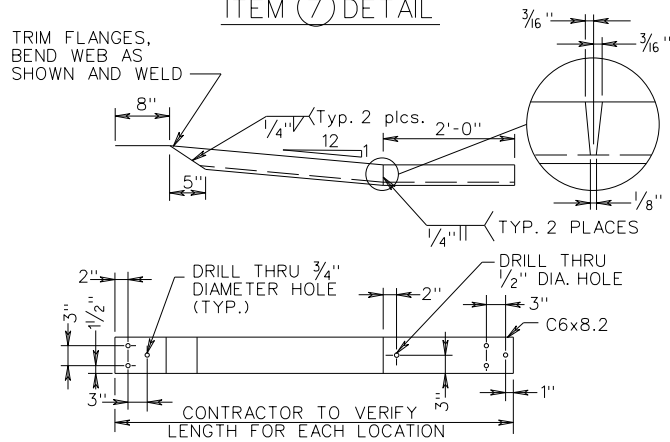
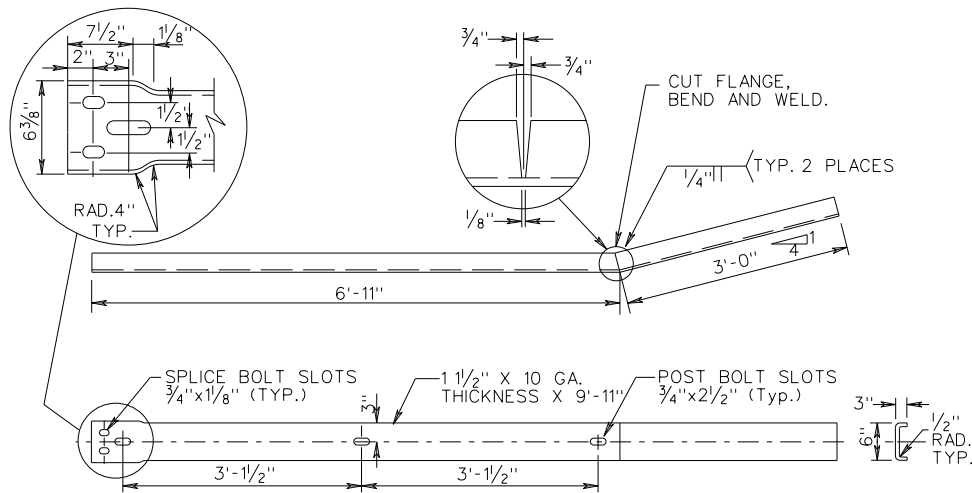


GR-FOA-3 W-BEAM GUARDRAIL INSTALLATION CRITERIA
 FIXED OBJECT ATTACHMENT METHODS WITH RUBRAIL AND HARDWARE DETAILS

A COPY OF THE SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.




REVISION DATE	SPECIAL DESIGN SECTION DRAWING NO.	SHEET 2 OF 3
01/14	IISA47	



GR-FOA-3 W-BEAM GUARDRAIL INSTALLATION CRITERIA
 FIXED OBJECT ATTACHMENT METHODS WITH RUBRAIL AND HARDWARE DETAILS

A COPY OF THE SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.



VDOT
 VIRGINIA DEPARTMENT
 OF
 TRANSPORTATION

REVISION DATE	SPECIAL DESIGN SECTION DRAWING NO.	SHEET 3 OF 3
01/14	IISA47	

Site #:	31099
Action:	REPLACE
Begin Coordinates:	37.42434° N -76.89279° W
Mile Marker:	223.3

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	New Kent
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	FOA-3	End-Terminal Site	4-foot, MINOR	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Remove the existing guardrail in its entirety, including the existing terminals. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-FOA-3, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 150 feet of GR-MGS1 guardrail. Install a GR-10, Type I. Install 37.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at a 6-foot offset. Provide 4-foot site preparation.

 Following the GR-FOA3, the Contractor shall taper the guardrail from a 10.5-foot offset to a 6-foot offset, over the first 75 feet of GR-MGS4 height-transition and GR-MGS1 guardrail installed.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	126 ft	Run-off	Steep Slope		10 ft	Run-off

Run-on: The FOA and the upstream bridge fully protect the hazard. Run-off: The maximum allowable length-of-need has already been provided. The downstream entrance prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **TTC-16.2: Outside Lane Closure on a Four-Lane Roadway**
 All MOT measures and lane closures shall be in accordance with the VDOT Work Area Protection Manual, 2011 edition, Revision 2.1 (November 2020). Refer to the Transportation Management Plan of this package for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

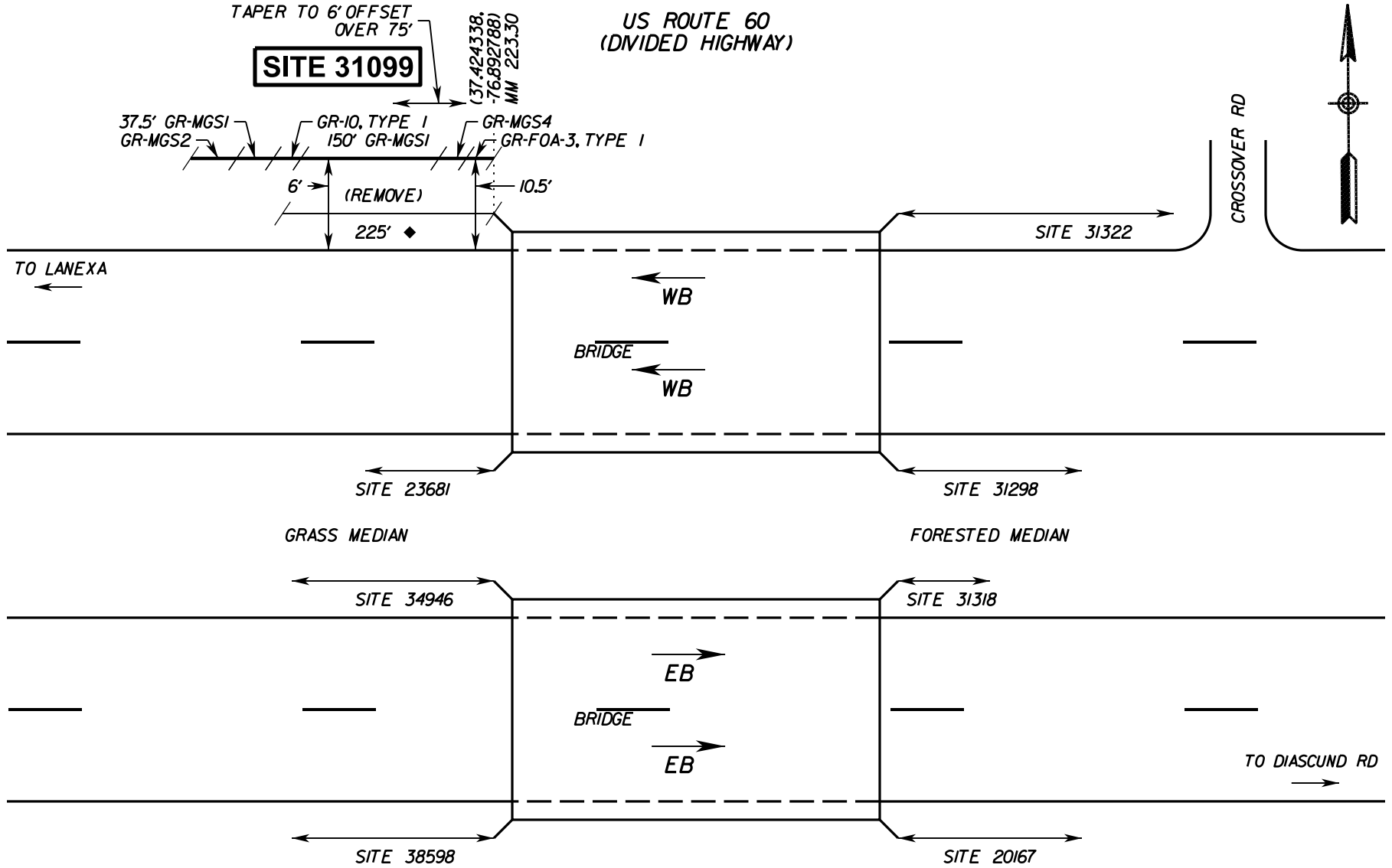
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **31099**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	187.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0040	LF	Guardrail GR-10	25
505SD20-0047	EA	Fixed Object Attachment, GR-FOA-3, Ty. I (Run on)	1
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	75
305SP20-0005	LF	Machining Shoulders	275
505SD20-0073	LF	Remove Existing Guardrail	225

**US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)**

**US ROUTE 60
 (DIVIDED HIGHWAY)**



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	35116 - INTERIM
Action:	REPLACE
Begin Coordinates:	37.40302° N -76.82105° W
Mile Marker:	227.64

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	N/A	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:

The existing run-on terminal is to remain undisturbed. Remove the final 50 feet of existing guardrail, from the trailing end of the run of guardrail. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-MGS4 height-transition. Install 475 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Provide 6-foot moderate site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	242 ft	Run-off	N/A		247 ft	Run-off

Run-on: The existing guardrail terminal is to remain undisturbed. Run-off: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure:	TTC-17.2: Inside Lane Closure on a Four-Lane Roadway
All MOT measures and lane closures shall be in accordance with the VDOT Work Area Protection Manual, 2011 edition, Revision 2.1 (November 2020). Refer to the Transportation Management Plan of this package for more information.	

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

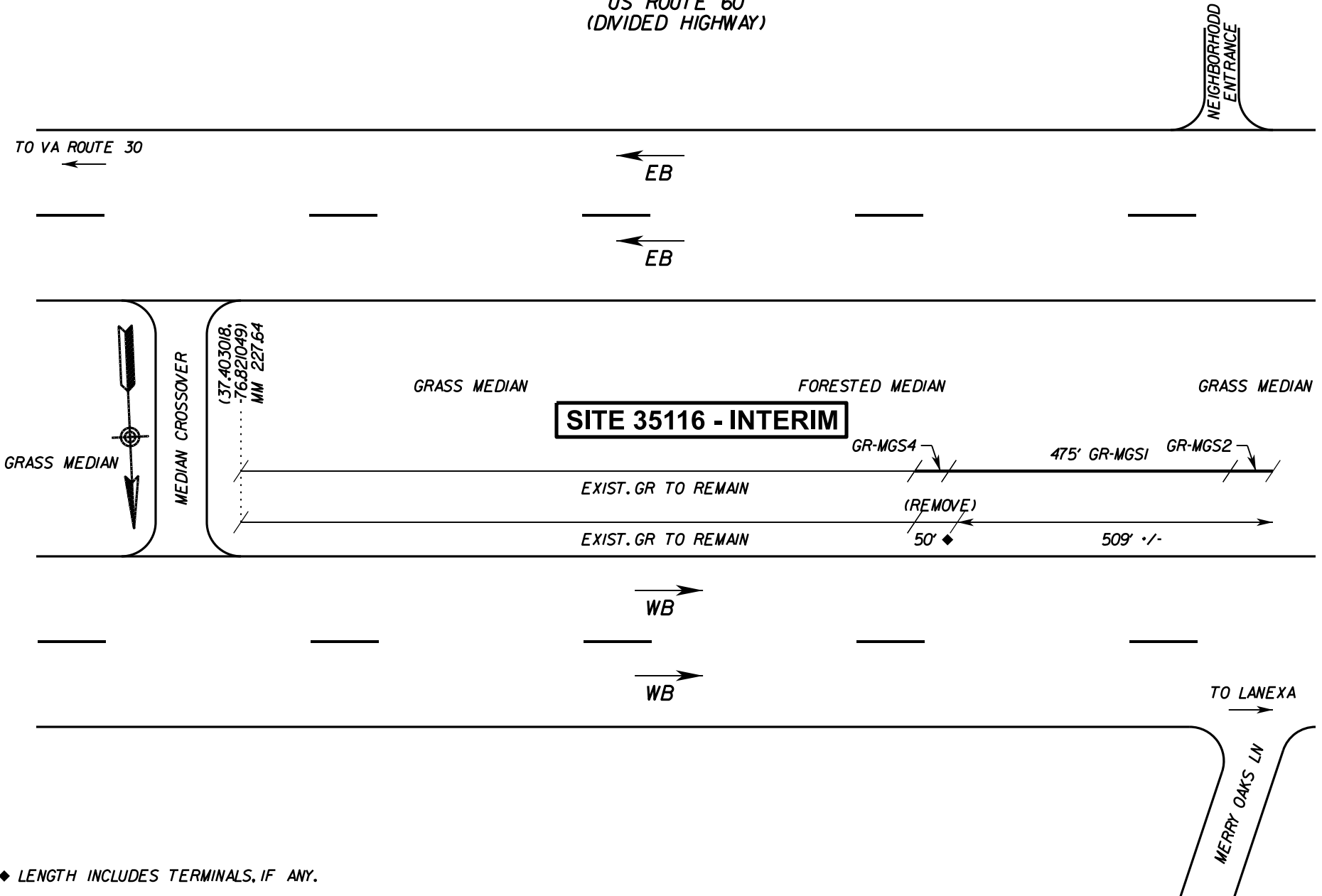
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **35116 - INTERIM**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	475
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	160
305SP20-0005	LF	Machining Shoulders	515
505SD20-0073	LF	Remove Existing Guardrail	50

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

COUNTY JAMES CITY COUNTY	US ROUTE 60	DIRECTION WB	SITE NO. SITE 35116 - INTERIM
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Site #:	38816 - INTERIM
Action:	REPLACE
Begin Coordinates:	37.41047° N -76.85924° W
Mile Marker:	225.44

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	N/A	End-Terminal Site	6-foot, MINOR	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
The existing run-on terminal is to remain undisturbed. Remove the final 50 feet of existing guardrail, from the trailing end of the run of guardrail. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-MGS4 height-transition. Install a GR-MGS2 terminal. Provide 6-foot minor site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	106 ft	Run-off	N/A		0 ft	Run-off

Run-on: The existing guardrail terminal is to remain undisturbed. Run-off: The maximum allowable length-of-need has already been provided. The downstream driveway prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **TTC-16.2: Outside Lane Closure on a Four-Lane Roadway**
All MOT measures and lane closures shall be in accordance with the VDOT Work Area Protection Manual, 2011 edition, Revision 2.1 (November 2020). Refer to the Transportation Management Plan of this package for more information.

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

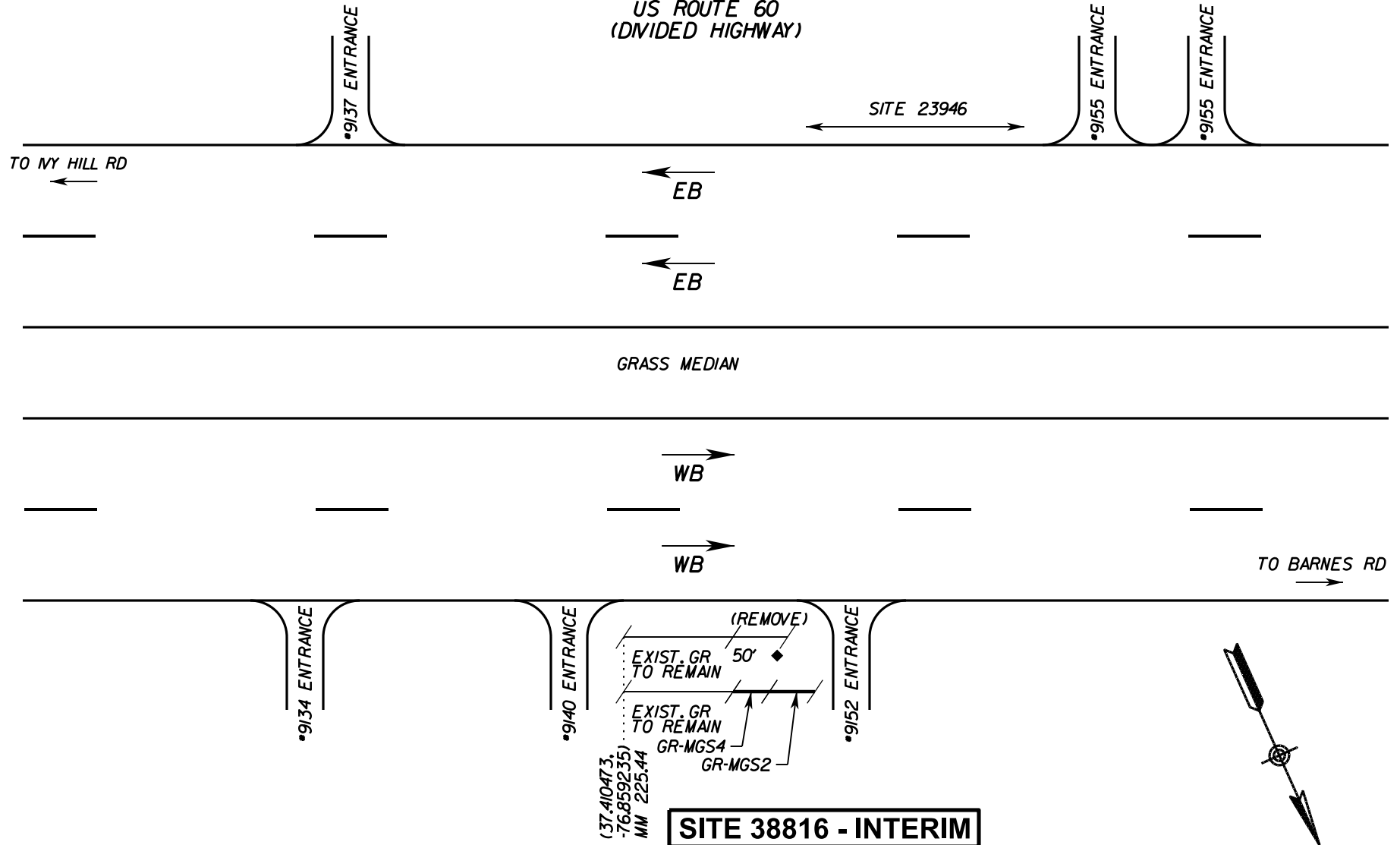
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **38816 - INTERIM**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	20
305SP20-0005	LF	Machining Shoulders	40
505SD20-0073	LF	Remove Existing Guardrail	50

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
STRAIGHT-LINE DIAGRAM
(NOT TO SCALE)

US ROUTE 60
(DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	66283 - INTERIM
Action:	UPGRADE
Begin Coordinates:	37.41155° N -76.86427° W
Mile Marker:	225.14

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	D

Guardrail Installation Instructions

Run-on Terminal:	N/A	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:

The existing run-on GR-9 terminal is to remain undisturbed. Remove the existing run-off GR-11 terminal. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-MGS4 height-transition. Install 312.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at a 6.5-foot offset. Provide 6-foot moderate site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	121 ft	Run-off	N/A		122 ft	Run-off

Run-on: The existing guardrail terminal is to remain undisturbed. Run-off: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **TTC-16.2: Outside Lane Closure on a Four-Lane Roadway**
All MOT measures and lane closures shall be in accordance with the VDOT Work Area Protection Manual, 2011 edition, Revision 2.1 (November 2020). Refer to the Transportation Management Plan of this package for more information.

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

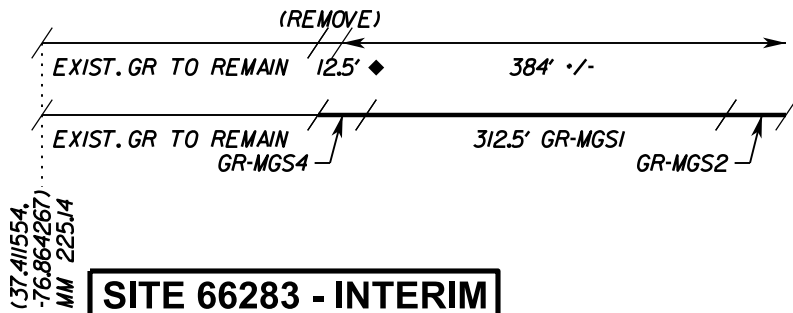
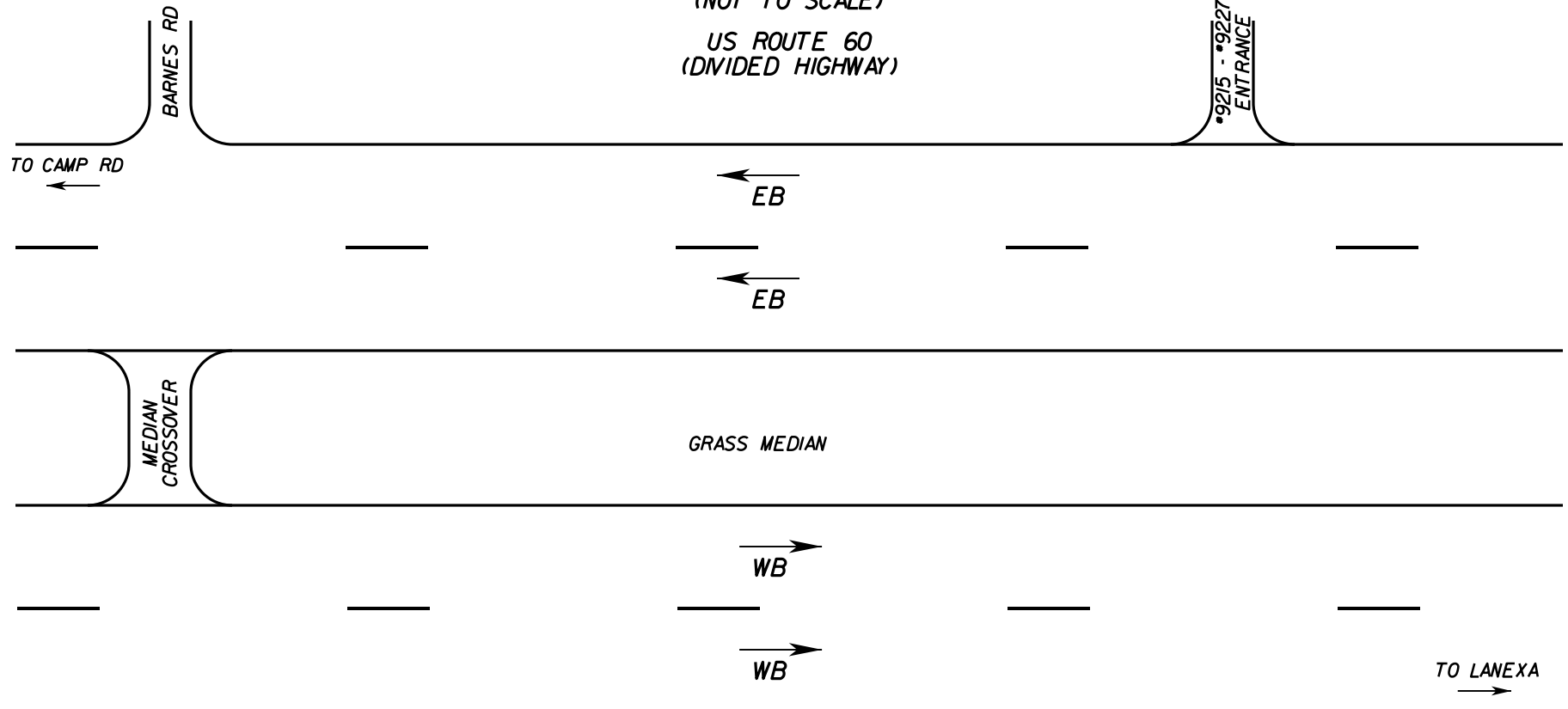
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **66283 - INTERIM**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	312.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	120
305SP20-0005	LF	Machining Shoulders	350
505SD20-0073	LF	Remove Existing Guardrail	12.5

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



SITE 66283 - INTERIM

♦ LENGTH INCLUDES TERMINALS, IF ANY.

PHASE IV GUARDRAIL



COMMONWEALTH of VIRGINIA
TRAFFIC ENGINEERING DIVISION:

MASH GUARDRAIL UPGRADE

HAMPTON ROADS DISTRICT

James City County US Route 60 Unbonded Overlay

Phase IV – Eastbound

October 17, 2023

PREPARED BY:



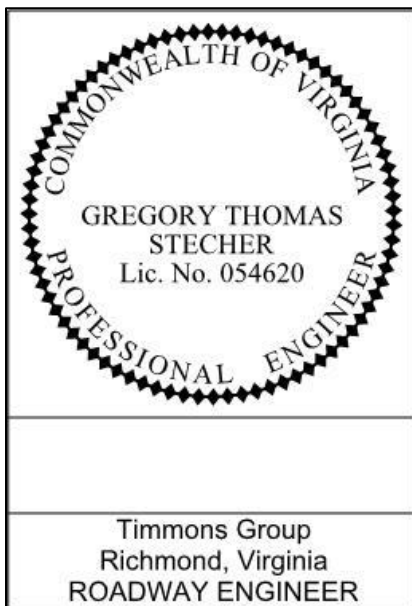
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

ENGINEER'S CERTIFICATION OF DELIVERABLES

The engineer is responsible only for the material supplied in this package. The engineer has provided solutions to the best of his ability based on information provided from field exploration, experience, and other research. The solutions detailed in this report may not be all-encompassing due to the possibility of unknown standard/guideline limitations, unknown site conditions, or other factors.

It should be noted that a detailed survey (using electronic methods) of existing conditions was not completed for this project. The Contractor or Construction Inspector shall notify the engineer of any site conditions that differ substantially from what is shown in this package. The Contractor or Construction Inspector shall also notify the engineer of any site conditions or proposed installations that would present unsafe guardrail installations.

The engineer has only certified this package in coordination with the Virginia Department of Transportation (VDOT). The information in this package is a collective effort made by VDOT, Timmons Group (multiple professional engineers), and other outside sources who have expertise in the details of guardrail upgrade and development. Installation details described in this package may not always satisfy new-installation criteria, as detailed in VDOT manuals and guides. The installation details are intended to represent betterments to existing conditions. This approach is substantiated by guidance found in the AASHTO Roadside Design Guide, section 8.3.3.2.



Contract Notes

General

1. This project to be constructed in accordance with the 2020 VDOT Road and Bridge Specifications, 2016 Road and Bridge Standards, 2011 Work Area Protection Manual (Revision 2.1, November 2020), the Manual for Uniform Traffic Control Devices, the Guardrail Installation Training Manual (GRIT, revised August 2019), all VDOT permits, and the plans.
2. The Contractor shall provide the Engineer with the manufacturer's installation instructions and drawings of all terminal end sections prior to installation.
3. All unused guardrail post holes shall be back filled to existing ground level with approved materials placed in layers not more than 4" in height. Each layer shall be compacted by tamping. This cost will be considered incidental to the guardrail or guardrail terminal pay item.
4. The Contractor shall call Miss Utility at least 72 hours prior to the start of excavation. Contractor shall verify location and elevation of all underground utilities in the area of construction prior to starting work. The Contractor shall contact the engineer immediately if there is an expected conflict with what is shown in this package, including the straight-line diagrams.
5. VDOT is to receive written notification two weeks prior to commencing with initial construction activities.
6. The latitude / longitude coordinates provided in this package (for each site begin and end location) are approximate only and are not intended to represent actual installation locations. The coordinates represent a general guide for installation; actual location should be determined from the installation instructions and (if provided) the straight-line diagrams. The Contractor shall contact the Engineer if questions exist regarding the precise locations of the guardrail.
7. The distances listed (on the detailed analyses and/or the straight-line diagrams) from adjacent driveways, connecting roads, or other site features are approximate and shall be field-verified prior to installing guardrail. The Contractor shall contact the Engineer if distances appear inaccurate and/or if the distances as noted would result in a guardrail installation materially different from what is required in the plans.
8. Existing signs may exist near or adjacent to the existing guardrail. Signs shall not be disturbed; if they are disturbed, they shall be returned to their original condition at the Contractor's expense.
9. All construction debris, materials, etc. shall be located outside the roadway prism whenever possible. The Contractor shall keep the roadway clear of dirt and debris whenever possible, cleaning the roadway at the end of each work day.
10. Existing pavement markings and/or rumble strips/rumble stripes shall not be disturbed during construction. If pavement markings or rumble strips/rumble stripes are damaged during the course of guardrail installation, they shall be restored to their original condition at the Contractor's expense.

Technical

1. If coring of asphalt is required for guardrail installation, the coring, backfill, and compaction shall be incidental to guardrail and/or guardrail terminals.
2. Delineators shall be incidental to guardrail and/or guardrail terminals.
3. Offsets to proposed guardrail, as shown on the straight line diagrams, are approximate and shall be field-verified prior to construction.
4. The scheduling of aggregate installation for shoulder renovation shall accommodate forecasted weather conditions per section 315 of the VDOT Road and Bridge Specifications.
5. The Contractor shall return any associated site grass/landscaping to its original condition prior to the conclusion of construction.
6. The Contractor shall maintain a 6:1 wedge at the edge of pavement/shoulder at all times during construction.
7. The Contractor is responsible for placement and maintenance of all temporary pavement markings, signage, portable temporary rumble strips, etc. that are required or implied in the suggested Temporary Traffic Control on the sheets that follow. The cost of these items shall be incidental to the price for other maintenance of traffic items as noted in the overall summary of quantities. The Contractor is responsible for providing all traffic control devices, signage, equipment, personnel, including certified traffic control personnel, etc. to control traffic during construction within VDOT Right-of-Way.

TABLE OF CONTENTS

Part 1Vicinity Map

Part 2Item and Quantity Summary

Part 3Detailed Site Analyses and Straight-Line Diagrams

PART 1:
VICINITY MAP

Hampton Roads District Guardrail Vicinity Map No. 1 of 4



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

Hampton Roads District Guardrail Vicinity Map No. 2 of 4



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

Hampton Roads District Guardrail Vicinity Map No. 3 of 4



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767
Hampton Roads District Guardrail Vicinity Map No. 4 of 4



PART 2:
ITEM AND QUANTITY SUMMARY

Concrete Overlay Phase IV Item and Quantity Summary															
Item Code	Unit	Item	1	2	3	5	6	20167	20179	23946	31318	34946	38598	66284	TOTAL
505SD20-0011	LF	Guardrail GR-MGS1	262.5	825	1887.5	675	687.5	12.5	875	300	137.5	150	250	662.5	6,725.0
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2	2	2	2	2	1	2	2	1	1	1	2	20
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	0	0	0	0	0	1	0	0	1	1	1	0	4
505SD20-0053	EA	Fixed Object Attachment, GR-FOA-2, Ty. I (Run on)	0	0	0	0	0	1	0	0	1	1	1	0	4
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1	2	1	1	2	0	0	1	0	0	0	1	9
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1	0	1	1	0	0	2	1	1	1	1	0	9
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	0	0	0	0	0	1	0	0	0	0	0	1	2
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	41	12	41	41	12	45	70	41	35	90	80	21	529
305SP20-0005	LF	Machining Shoulders	0	0	0	0	0	0	0	0	0	215	315	0	530
510SX20-0040	EA	Remove Existing Guardrail Terminal	0	0	0	0	0	0	1	1	0	1	1	1	5
505SD20-0073	LF	Remove Existing Guardrail	0	0	0	0	0	125	500	200	50	175	162.5	475	1,688
601SD20-0001	AC	Selective Tree Removal Trim and Clean	0	0	0.4	0	0	0	0	0	0	0	0	0	0.4
520SX20-0013	HR	NS Utilities Hand Dig and Install Guardrail Post	See Overall Quantity												675

NOTE: These quantities are for information, only. Refer to the overall quantity summary.

PART 3:
**DETAILED SITE ANALYSES AND STRAIGHT-LINE
DIAGRAMS**

Site #:	1
Action:	INSTALL
Begin Coordinates:	37.42197° N -76.88558° W
Mile Marker:	223.75

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating₂:	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	See	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	Instructions		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:
 Approximately 15 feet downstream of #9517 driveway, install a GR-MGS2 terminal. Install 262.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at a 5-foot offset. Provide 6-foot minor site preparation at the run-on terminal and 6-foot moderate site preparation at the run-off terminal.

 Additionally, the Contractor shall relocate the existing "Buckle Up" ground mounted sign, reference signing plans for more information.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	252 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	48 ft	Run-on
	135 ft	Run-off	Steep Slope		119 ft	Run-off

Run-on: The maximum allowable length-of-need has already been provided. The upstream driveway prevents the installation of additional guardrail. Run-off: The maximum allowable length-of-need has already been provided. The downstream property prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

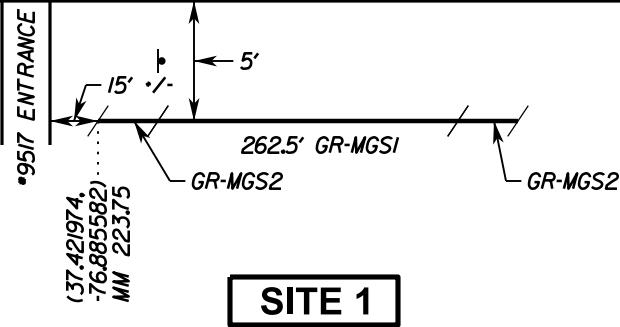
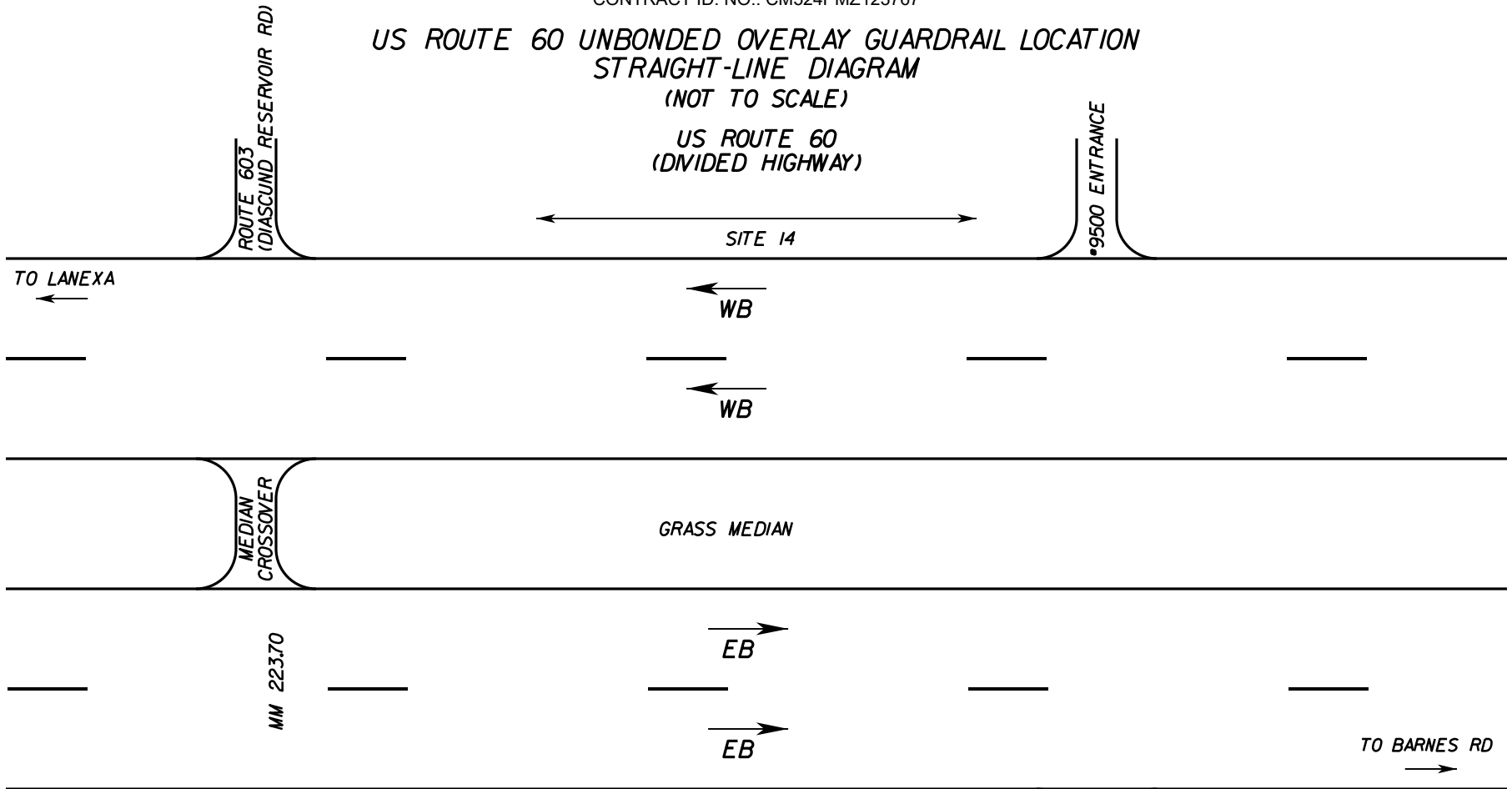
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 1

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	262.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	41

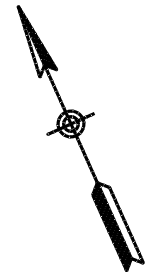
US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



SITE 1

▴ INDICATES SIGN TO BE RELOCATED. REFERENCE SIGNING PLANS FOR MORE INFORMATION.



Site #:	2
Action:	INSTALL
Begin Coordinates:	37.41863° N -76.87886° W
Mile Marker:	224.19

Route: **60**
 Direction: **Eastbound**
 County: **James City**
 Side: **Right**
 ADT (2021): **11,000**
 Classification: **US Route**
 Speed Limit **55** MPH
 Funct. Rating₂: **N/A**

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot, MINOR	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Approximately 100 feet downstream of #9427 driveway, install a GR-MGS2 terminal. Install 825 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at a 5-foot offset. Provide 6-foot minor site preparation for both terminals.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	252 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	108 ft	Run-on
	135 ft	Run-off	Steep Slope		66 ft	Run-off

Run-on: The maximum allowable length-of-need has already been provided. The upstream property prevents the installation of additional guardrail. Run-off: While it appears that the length of need has not been met, the adjacent cut slope prevents an errant vehicle from reaching the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #:

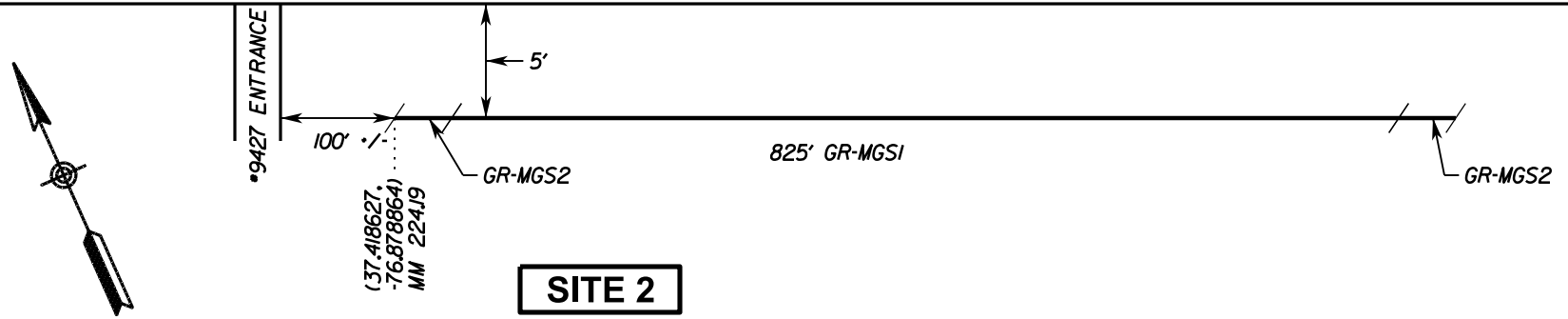
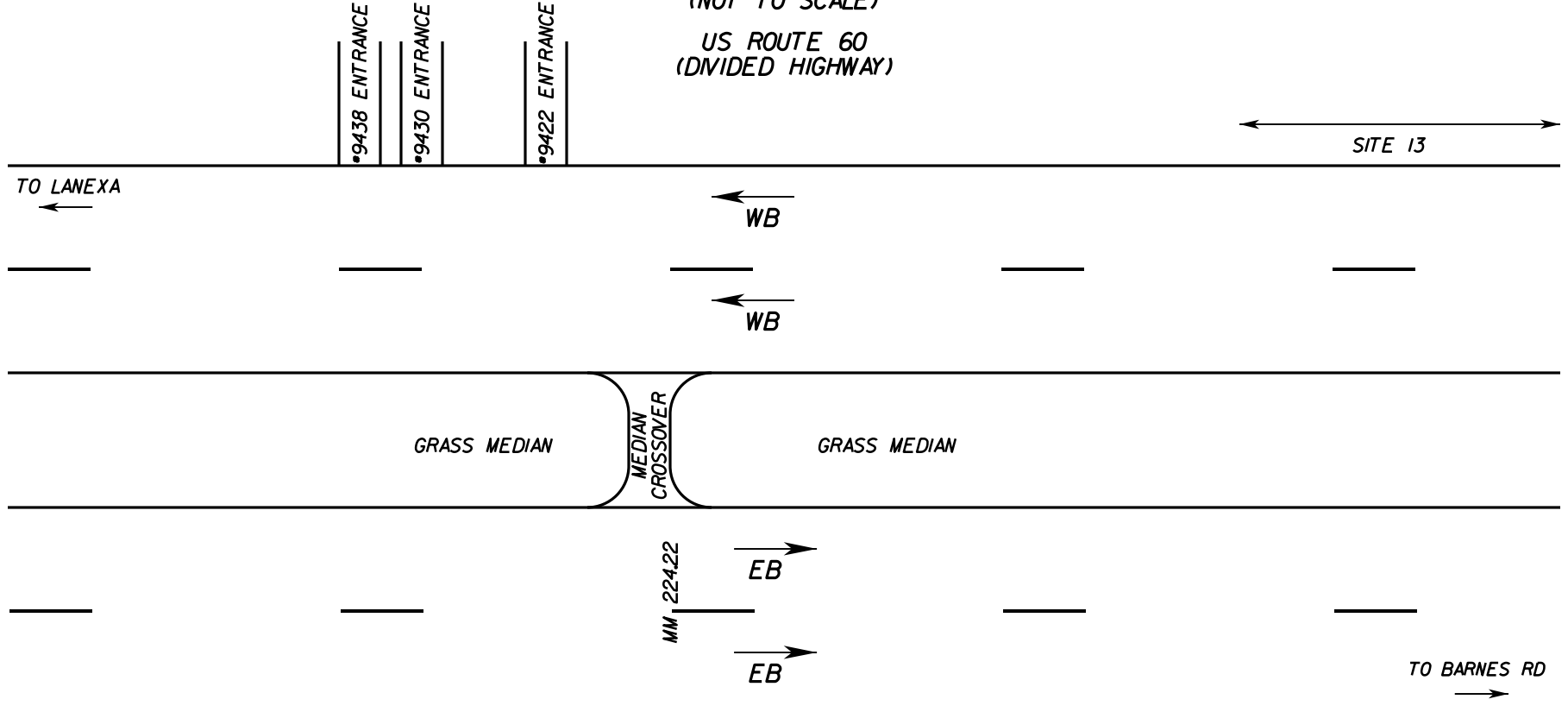
2

CONTRACT ID NO.: CM524PMZ123767

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	825
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	2
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	12

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
STRAIGHT-LINE DIAGRAM
(NOT TO SCALE)

US ROUTE 60
(DIVIDED HIGHWAY)



Site #:	3
Action:	INSTALL
Begin Coordinates:	37.40837° N -76.85607° W
Mile Marker:	225.75

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	See	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	Instructions		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Approximately 25 feet downstream of #9099 driveway, install a GR-MGS2 terminal. Install 1887.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at a 5-foot offset. Provide 6-foot minor site preparation at the run-on terminal and 6-foot moderate site preparation at the run-off terminal.

 The Contractor shall perform selective tree removal, trimming, and clearing within the site area.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	252 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	75 ft	Run-on
	135 ft	Run-off	Steep Slope		0 ft	Run-off

Run-on: The maximum allowable length-of-need has already been provided. The upstream driveway prevents the installation of additional guardrail. Run-off: The maximum allowable length-of-need has already been provided. The downstream driveway prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #:

3

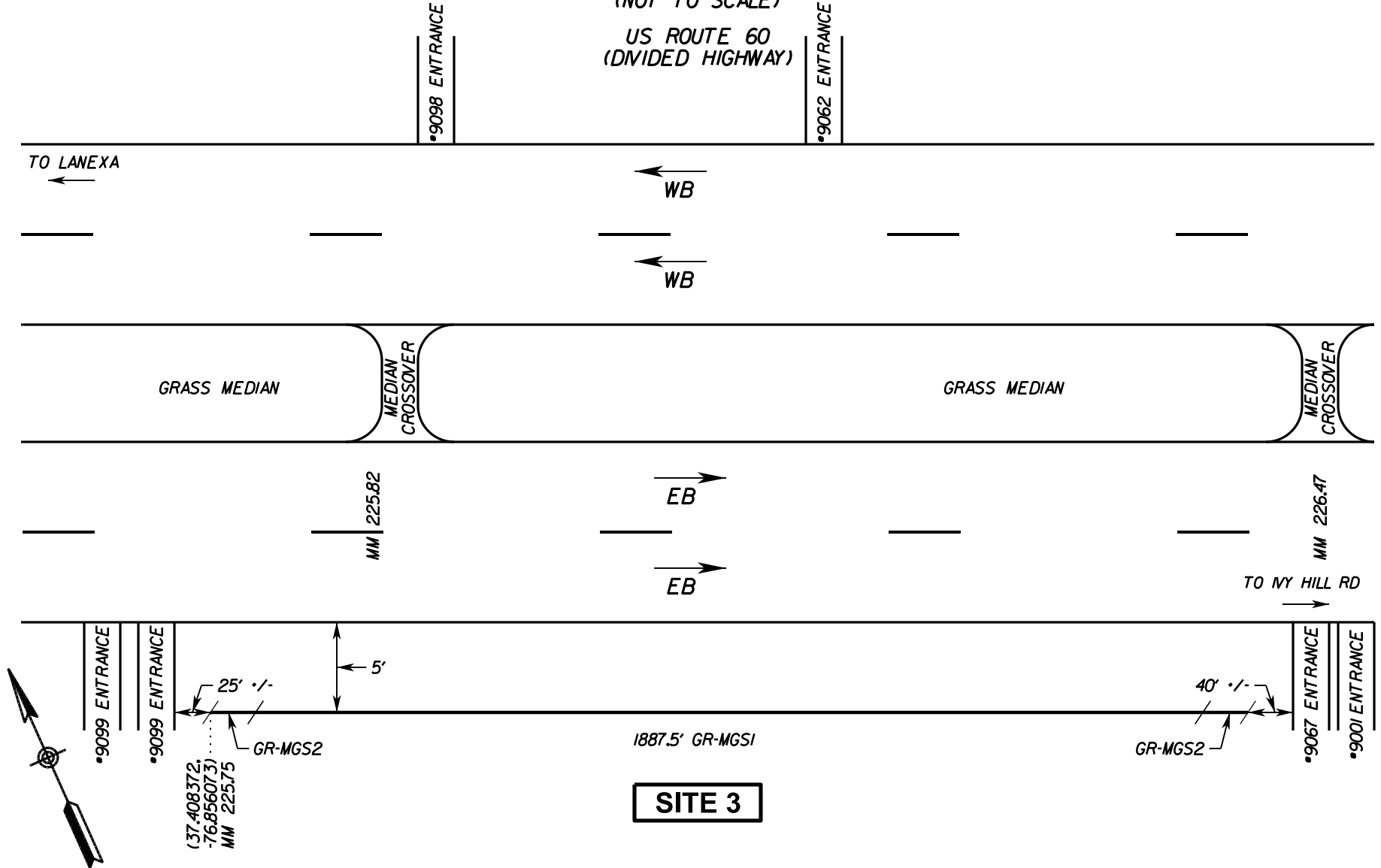
CONTRACT ID NO.: CM524PMZ123767

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	1887.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	41
601SD20-0001	AC	Selective Tree Removal Trim and Clean	0.4

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM

(NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



SITE 3

COUNTY JAMES CITY COUNTY	US ROUTE 60	DIRECTION EB	SITE NO. SITE 3
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Site #:	5
Action:	INSTALL
Begin Coordinates:	37.40512° N -76.84876° W
Mile Marker:	226.5

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating₂:	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	See	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	Instructions		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:

Approximately 325 feet downstream of #9001 driveway, install a GR-MGS2 terminal. Install 675 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at an 8-foot offset. Provide 6-foot moderate site preparation at the run-on terminal and 4-foot minor site preparation at the run-off terminal.

Approximately 475 ft downstream of the run-on terminal, the Contractor shall taper the guardrail from an 8-foot offset to a 5-foot offset, over 100 feet of GR-MGS1 guardrail installed.

Additionally, the Contractor shall relocate the existing "Adopt a Highway" ground mounted sign, reference signing plans for more information.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	223 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	93 ft	Run-on
	135 ft	Run-off	Steep Slope		101 ft	Run-off

Run-on: While it appears that the length of need has not been met, the adjacent cut slope prevents an errant vehicle from reaching the hazard. Run-off: While it appears that the length of need has not been met, the adjacent cut slope prevents an errant vehicle from reaching the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**

This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

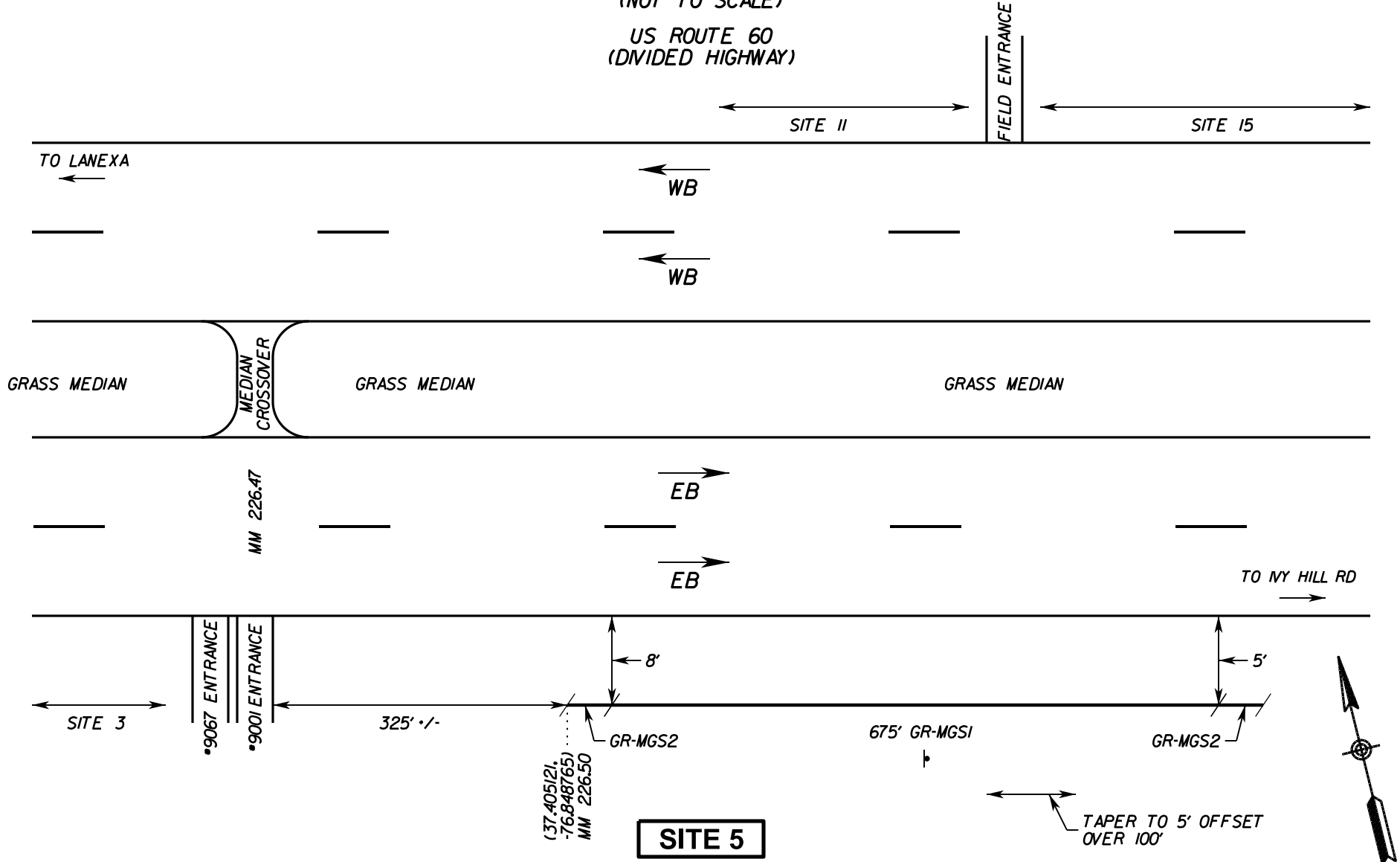
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 5

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	675
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	41

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



‡ INDICATES SIGN TO BE RELOCATED. REFERENCE SIGNING PLANS FOR MORE INFORMATION.

COUNTY JAMES CITY COUNTY	US ROUTE 60	DIRECTION EB	SITE NO. SITE 5
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Site #:	6
Action:	INSTALL
Begin Coordinates:	37.40432° N -76.8439° W
Mile Marker:	226.58

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating₂:	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot, MINOR	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Approximately 480 feet upstream of the middle of the median crossover, install a GR-MGS2 terminal. Install 687.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot minor site preparation at both terminals.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	232 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	88 ft	Run-on
	116 ft	Run-off	Steep Slope		128 ft	Run-off

Run-on: While it appears that the length of need has not been met, the adjacent cut slope prevents an errant vehicle from reaching the hazard. Run-off: The length of need has been satisfied.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

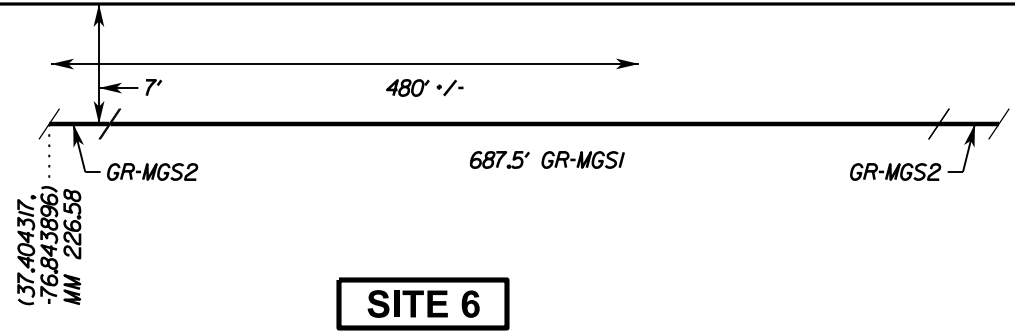
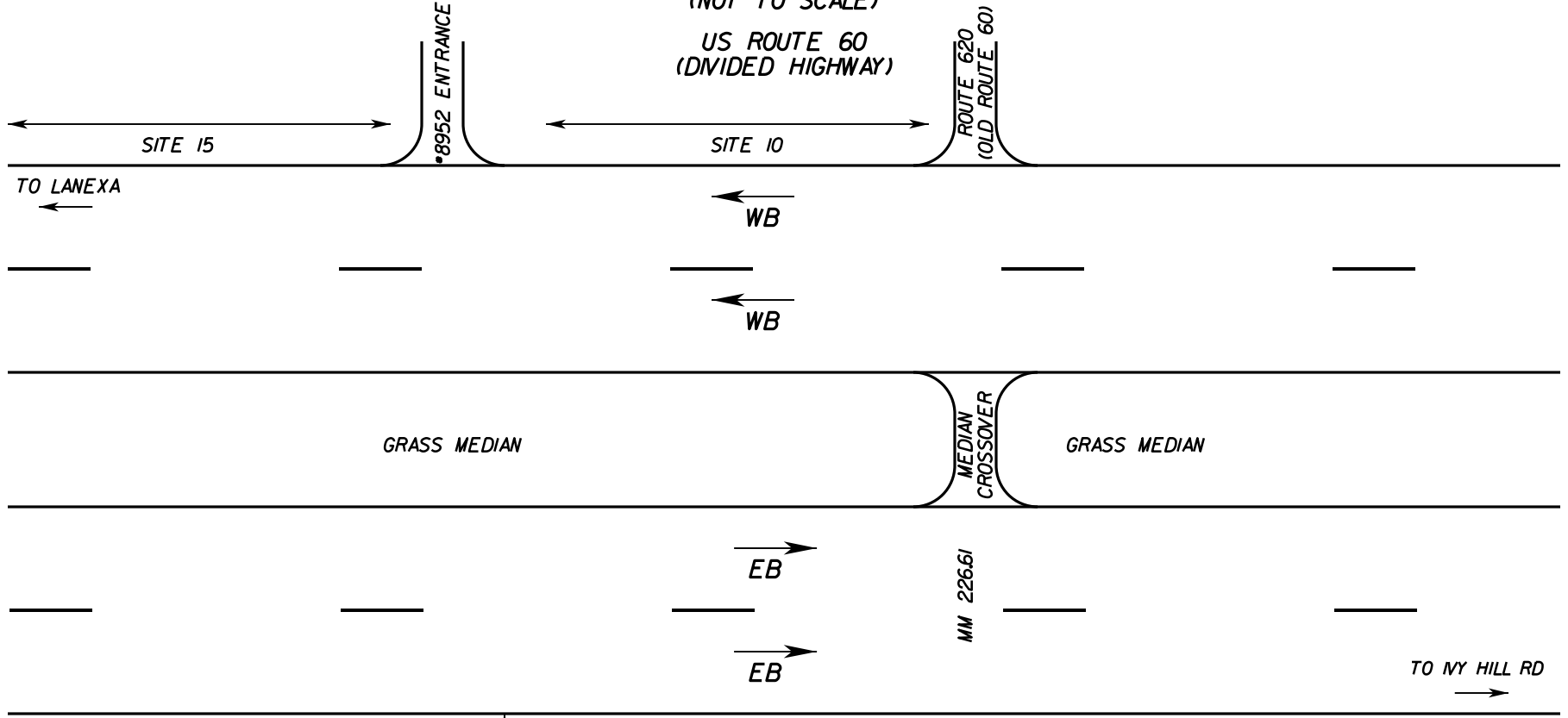
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 6

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	687.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	2
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	12

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



SITE 6

COUNTY JAMES CITY COUNTY	US ROUTE 60	DIRECTION EB	SITE NO. SITE 6
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Site #:	20167
Action:	REPLACE
Begin Coordinates:	37.42404° N -76.89244° W
Mile Marker:	223.32

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	C

Guardrail Installation Instructions

Run-on Terminal:	FOA-2	End-Terminal Site:	4-foot,	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Remove the existing guardrail in its entirety, including the existing terminals. Install a GR-FOA-2, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 12.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at an 8-foot offset. Provide 4-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	106 ft	Run-off	Steep Slope		84 ft	Run-off

Run-on: The FOA and the upstream bridge fully protect the hazard. Run-off: While it appears that the length-of-need has not been satisfied, site constraints prevent an errant vehicle from reaching the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

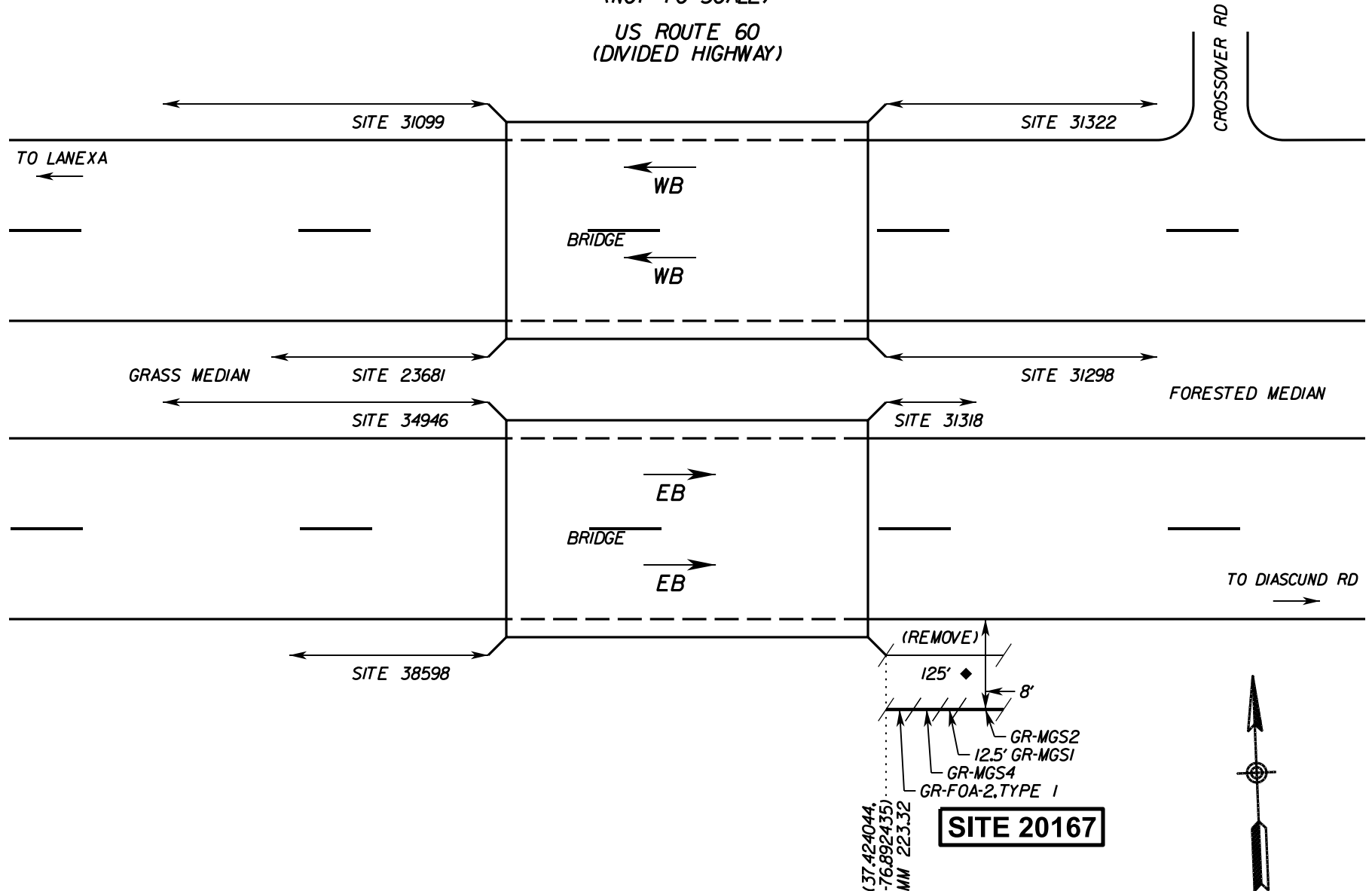
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 20167

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	12.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0053	EA	Fixed Object Attachment, GR-FOA-2, Ty. I (Run on)	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	45
505SD20-0073	LF	Remove Existing Guardrail	125

**US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)**

**US ROUTE 60
 (DIVIDED HIGHWAY)**



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	20179
Action:	REPLACE
Begin Coordinates:	37.40285° N -76.81979° W
Mile Marker:	227.71

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Remove the existing guardrail in its entirety, including the existing terminals. Approximately 175 feet upstream of the existing GR-9 terminal, or 150 feet downstream of the median crossover, install a GR-MGS2 terminal. Install 875 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at a 5-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	252 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	263 ft	Run-on
	252 ft	Run-off	Steep Slope		263 ft	Run-off

Run-on: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need. Run-off: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

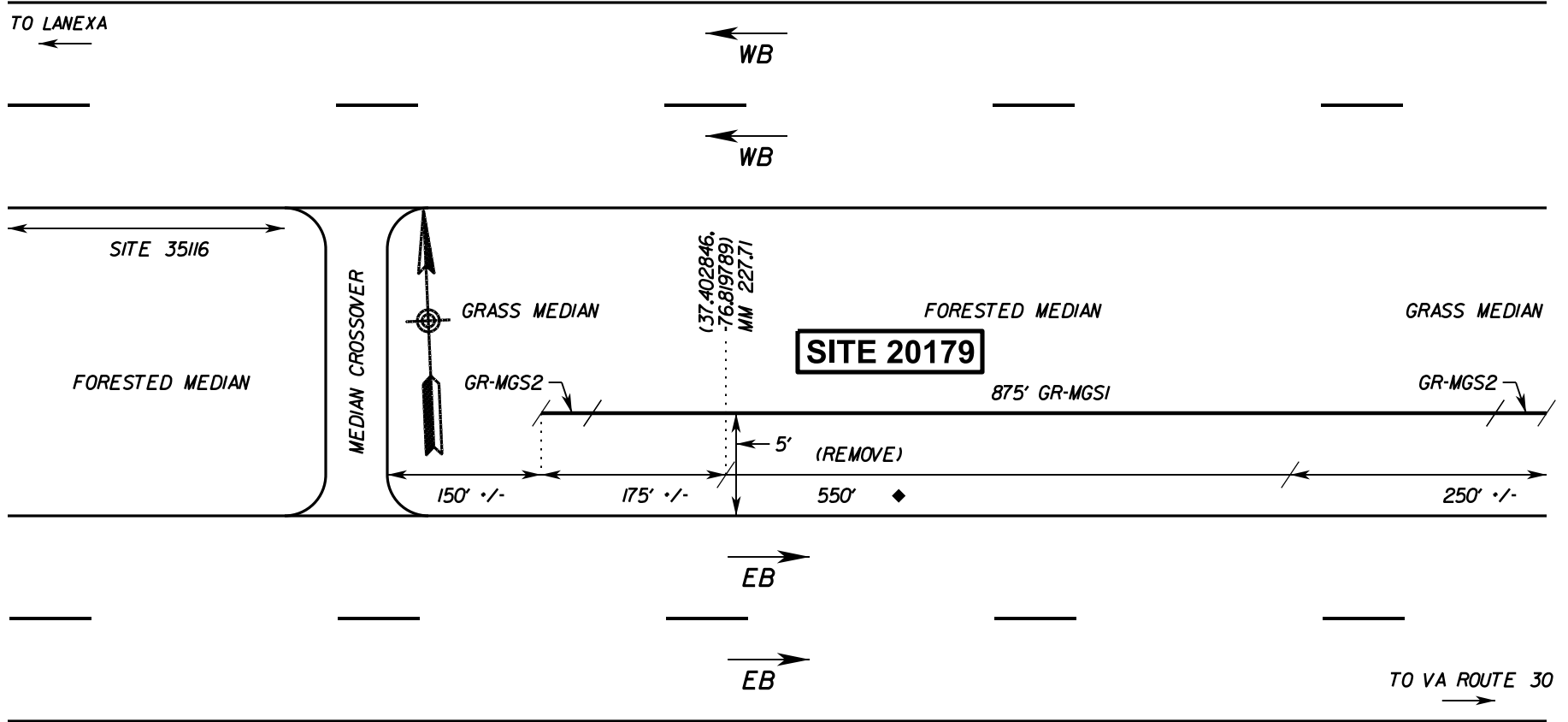
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 20179

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	875
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	2
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	70
510SX20-0040	EA	Remove Existing Guardrail Terminal	1
505SD20-0073	LF	Remove Existing Guardrail	500

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	23946
Action:	REPLACE
Begin Coordinates:	37.41055° N -76.86029° W
Mile Marker:	225.38

ADT (2021):	11,000
Direction: Eastbound	Classification: US Route
County: James City	Speed Limit 55 MPH
Side: Right	Funct. Rating ₂ : B

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	See	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	Instructions		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Remove the existing guardrail in its entirety, including the existing terminals. Approximately 19 feet upstream of the existing GR-7 terminal, or immediately downstream of driveway #9155, install a GR-MGS2 terminal. Install 300 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at an 8-foot offset. The run-on guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot minor site preparation at the run-on terminal and 6-foot moderate site preparation at the run-off terminal.

 Following the run-on GR-MGS2 terminal, the Contractor shall taper the guardrail from a 7-foot offset to an 8-foot offset, over the first 25 feet of GR-MGS1 guardrail installed.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	223 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	19 ft	Run-on
	106 ft	Run-off	Steep Slope		61 ft	Run-off

Run-on: The maximum allowable length-of-need has already been provided. The upstream driveway prevents the installation of additional guardrail. Run-off: While it appears that the length of need has not been met, the adjacent cut slope prevents an errant vehicle from reaching the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

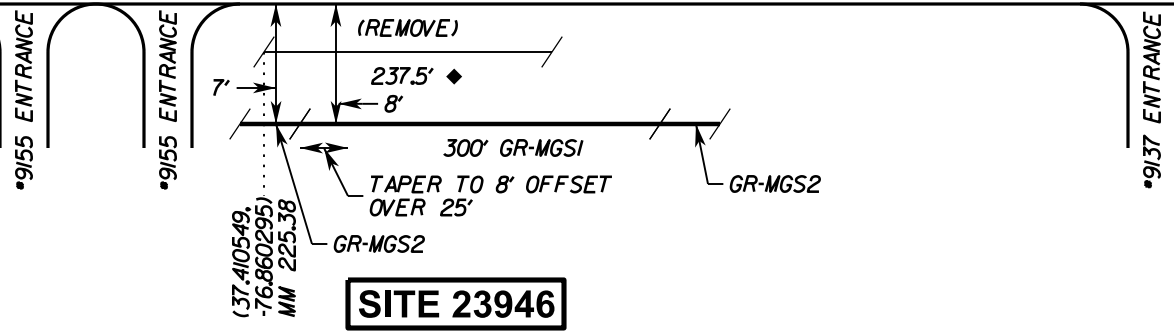
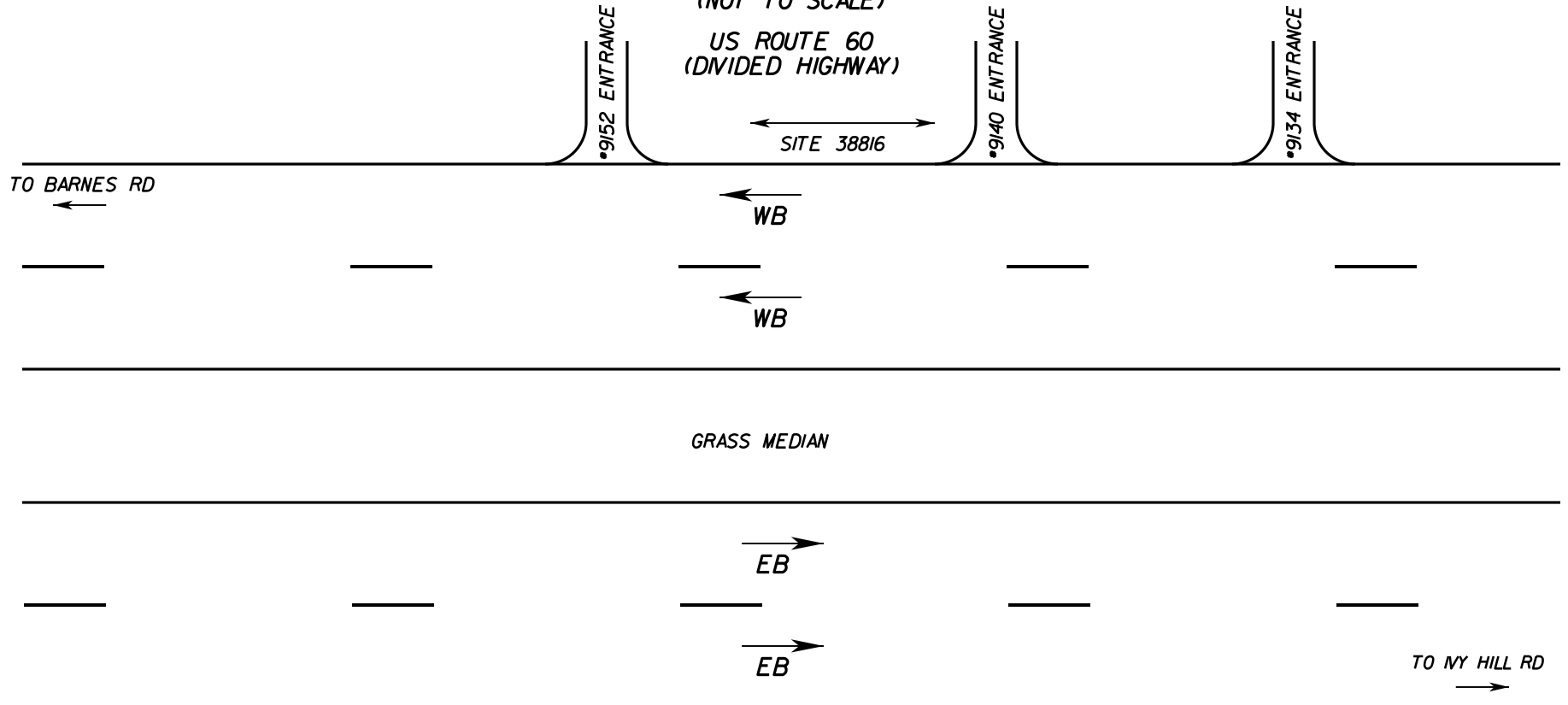
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **23946**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	300
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	41
510SX20-0040	EA	Remove Existing Guardrail Terminal	1
505SD20-0073	LF	Remove Existing Guardrail	200

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	31318
Action:	REPLACE
Begin Coordinates:	37.42416° N -76.89244° W
Mile Marker:	223.33

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	C

Guardrail Installation Instructions

Run-on Terminal:	FOA-2	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Remove the existing guardrail in its entirety, including the existing terminals. Install a GR-FOA-2, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 137.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot site preparation.

 Following the GR-MGS4 height-transition, the Contractor shall taper the guardrail from a 10-foot offset to a 7-foot offset, over the first 75 feet of GR-MGS1 guardrail installed.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	N/A	Run-on	Noted Hazard:	Provided Length-of-Need:	N/A	Run-on
	232 ft	Run-off	Steep Slope		234 ft	Run-off

Run-on: The FOA and the upstream bridge fully protect the hazard. Run-off: The length of need has been satisfied.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

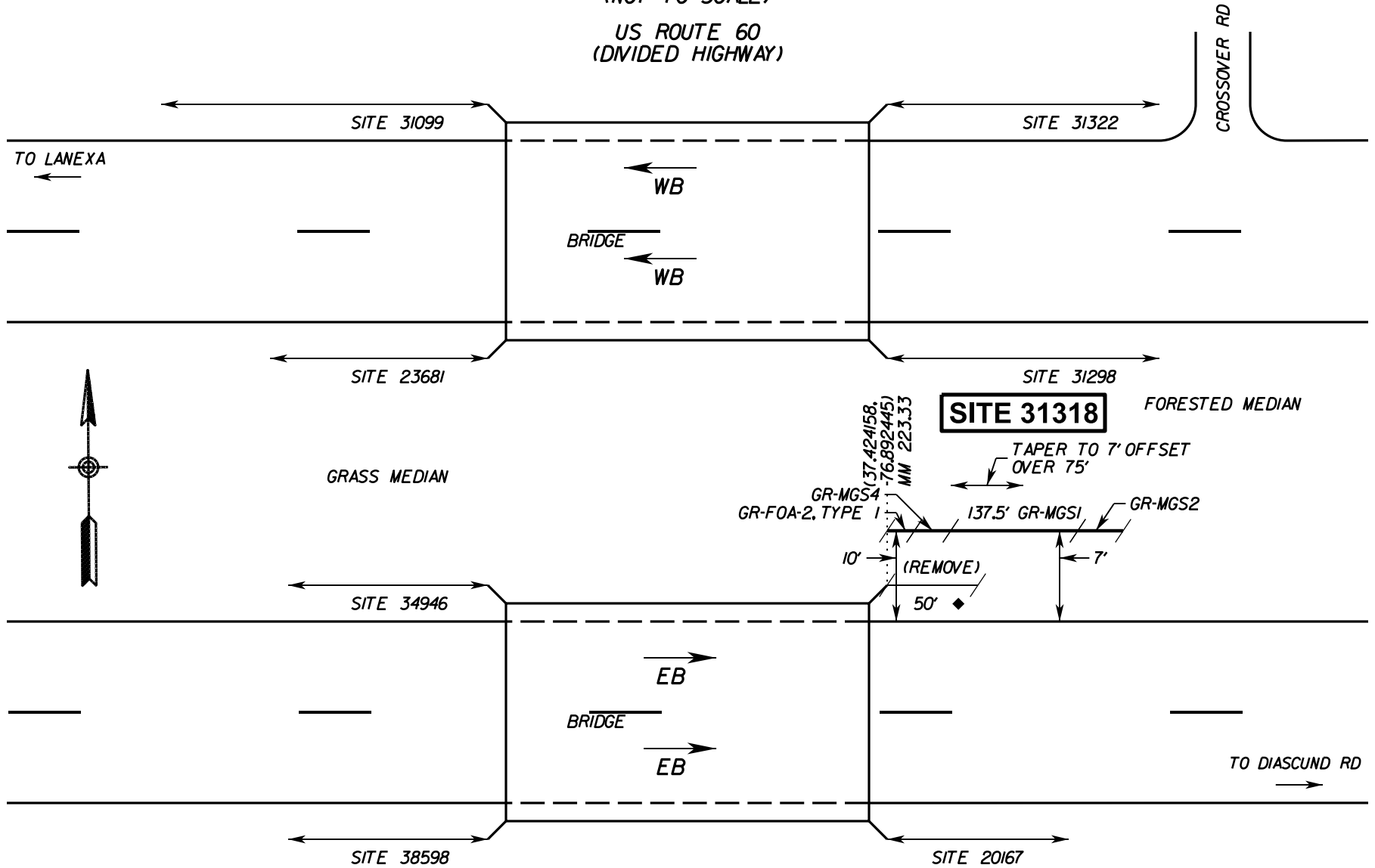
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **31318**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	137.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0053	EA	Fixed Object Attachment, GR-FOA-2, Ty. I (Run on)	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35
505SD20-0073	LF	Remove Existing Guardrail	50

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	34946
Action:	REPLACE
Begin Coordinates:	37.42413° N -76.89328° W
Mile Marker:	223.27

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	New Kent
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	D

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	6-foot,	Run-off Terminal:	FOA-2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:
 Remove the existing guardrail in its entirety, including the existing terminals. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-FOA-2, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 150 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot site preparation.

 Following the GR-MGS4 height-transition, the Contractor shall taper the guardrail from a 10.5-foot offset to a 7-foot offset, over the first 75 feet of GR-MGS1 guardrail installed.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	232 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	234 ft	Run-on
	N/A	Run-off	Bridge End		N/A	Run-off

Run-on: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need. Run-off: The FOA and the downstream bridge fully protect the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

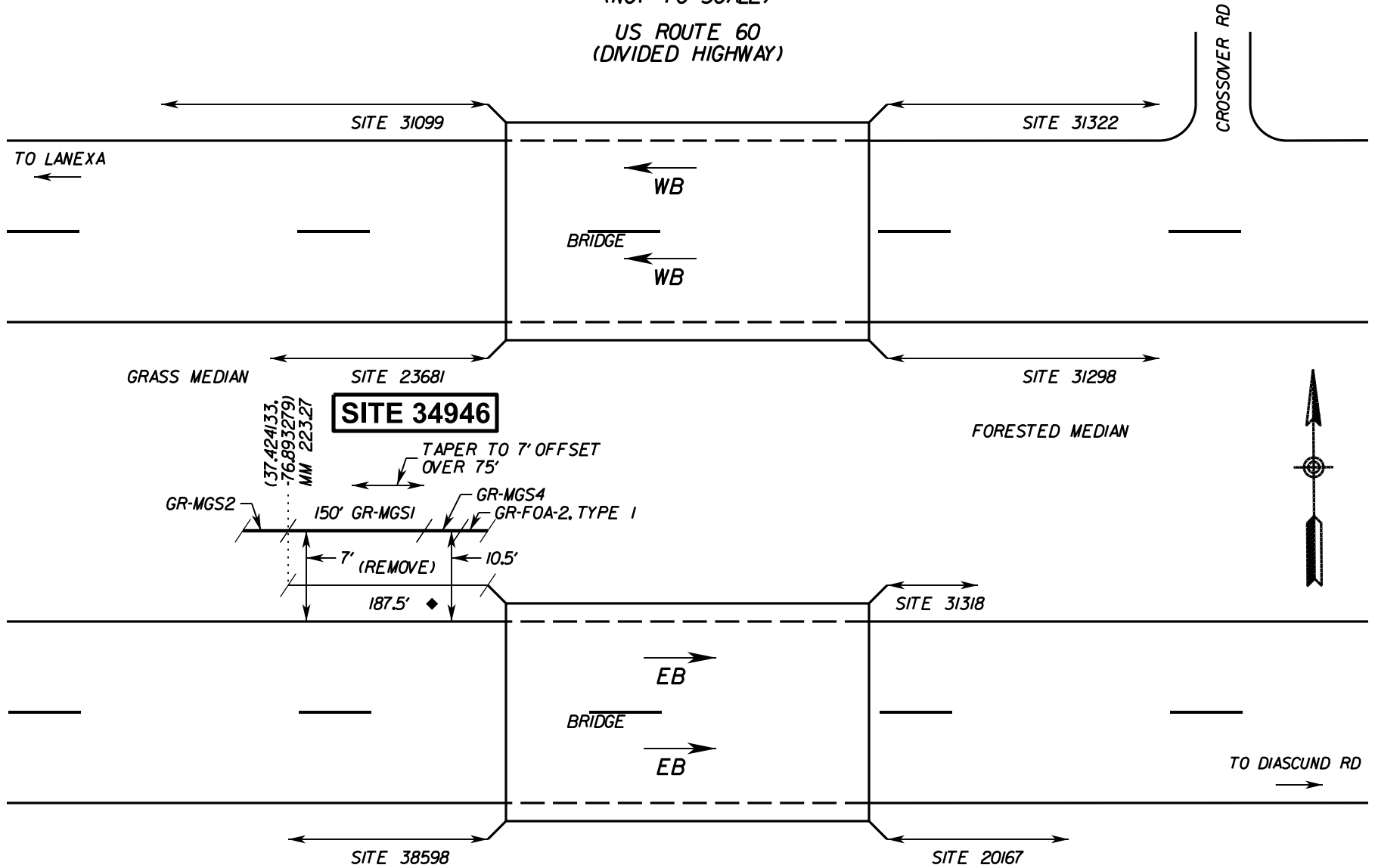
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **34946**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	150
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0053	EA	Fixed Object Attachment, GR-FOA-2, Ty. I (Run on)	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	90
305SP20-0005	LF	Machining Shoulders	215
510SX20-0040	EA	Remove Existing Guardrail Terminal	1
505SD20-0073	LF	Remove Existing Guardrail	175

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	38598
Action:	REPLACE
Begin Coordinates:	37.42397° N -76.89362° W
Mile Marker:	223.26

ADT (2021):	11,000
Direction:	Eastbound
Classification:	US Route
County:	New Kent
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	D

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	6-foot,	Run-off Terminal:	FOA-2
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:

Remove the existing guardrail in its entirety, including the existing terminals. Restore the shoulder for the portion of shoulder where rail was removed, and where rail is to be installed. Install a GR-FOA-2, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 250 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at a 9.5-foot offset. Provide 6-foot site preparation.

Following the GR-MGS4 height-transition, the Contractor shall taper the guardrail from an 8-foot offset to a 9.5-foot offset, over the first 75 feet of GR-MGS1 guardrail installed.

Additionally, the Contractor shall relocate the existing folded ground mounted sign, reference signing plans for more information.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	208 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	109 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

Run-on: The maximum allowable length-of-need has already been provided. The upstream utility junction box prevents the installation of additional guardrail. Run-off: The FOA and the downstream bridge fully protect the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**

This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

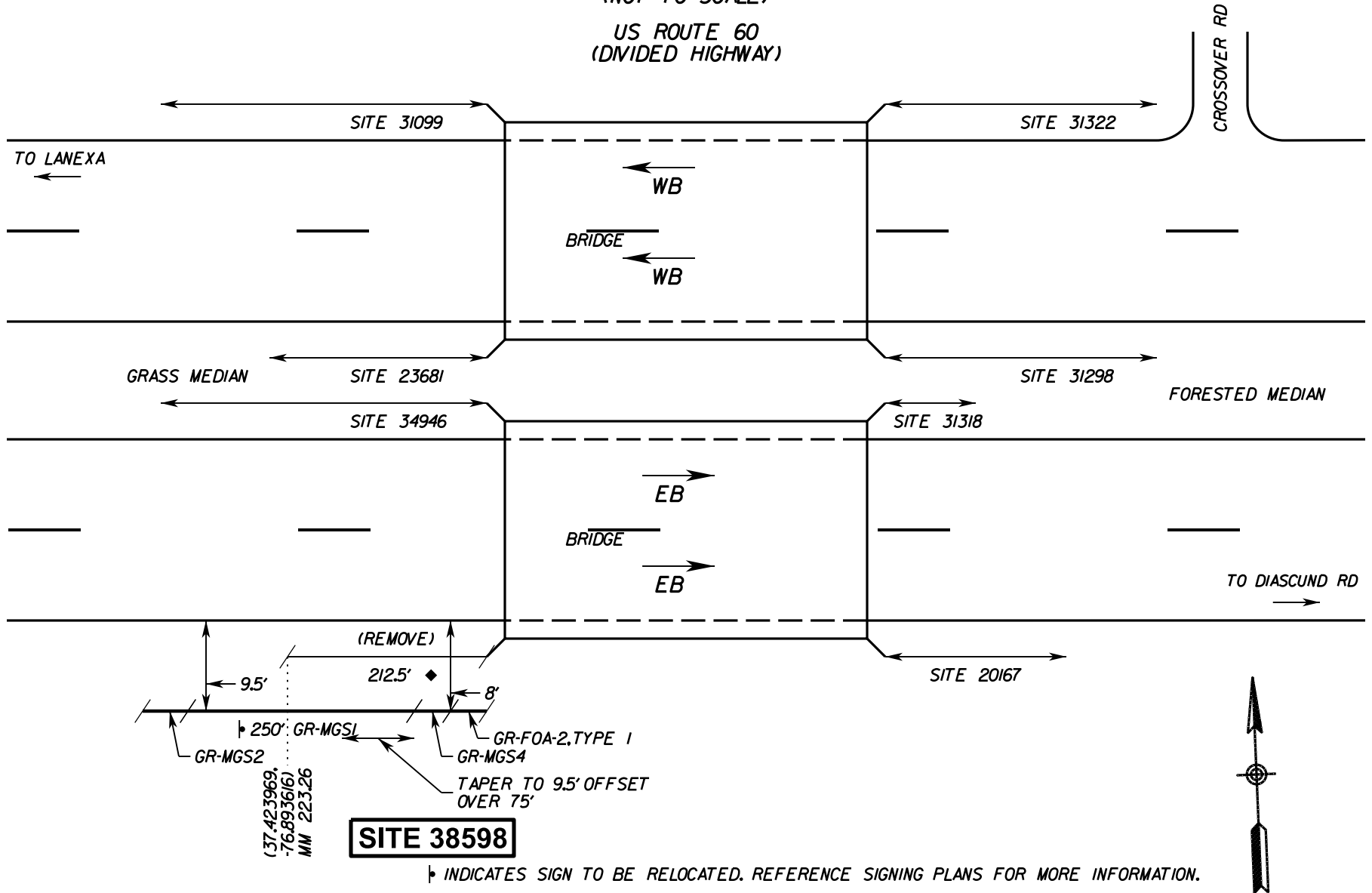
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 38598

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	250
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0053	EA	Fixed Object Attachment, GR-FOA-2, Ty. I (Run on)	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	80
305SP20-0005	LF	Machining Shoulders	315
510SX20-0040	EA	Remove Existing Guardrail Terminal	1
505SD20-0073	LF	Remove Existing Guardrail	162.5

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	66284
Action:	REPLACE
Begin Coordinates:	37.40196° N -76.8116° W
Mile Marker:	228.17

ADT (2021):	11,000
Direction: Eastbound	Classification: US Route
County: James City	Speed Limit 55 MPH
Side: Right	Funct. Rating ₂ : D

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	See	Run-off Terminal:	GR-MGS2
GR Type:	GR-MGS1	Preparation Type:	Instructions		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Remove the existing run of guardrail in its entirety. Approximately 200 feet upstream of the existing run-on terminal, or 35 feet downstream of driveway #8589, install a GR-MGS2 terminal. Install 662.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. Guardrail shall be installed at a 3-foot offset. Provide 4-foot minor site preparation at the run-on terminal and 4-foot moderate site preparation at the run-off terminal.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	271 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	275 ft	Run-on
	155 ft	Run-off	Steep Slope		0 ft	Run-off

Run-on: The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need. Run-off: The maximum allowable length-of-need has already been provided. The downstream turn lane prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Guardrail shall be installed at the same offset as the existing guardrail. Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

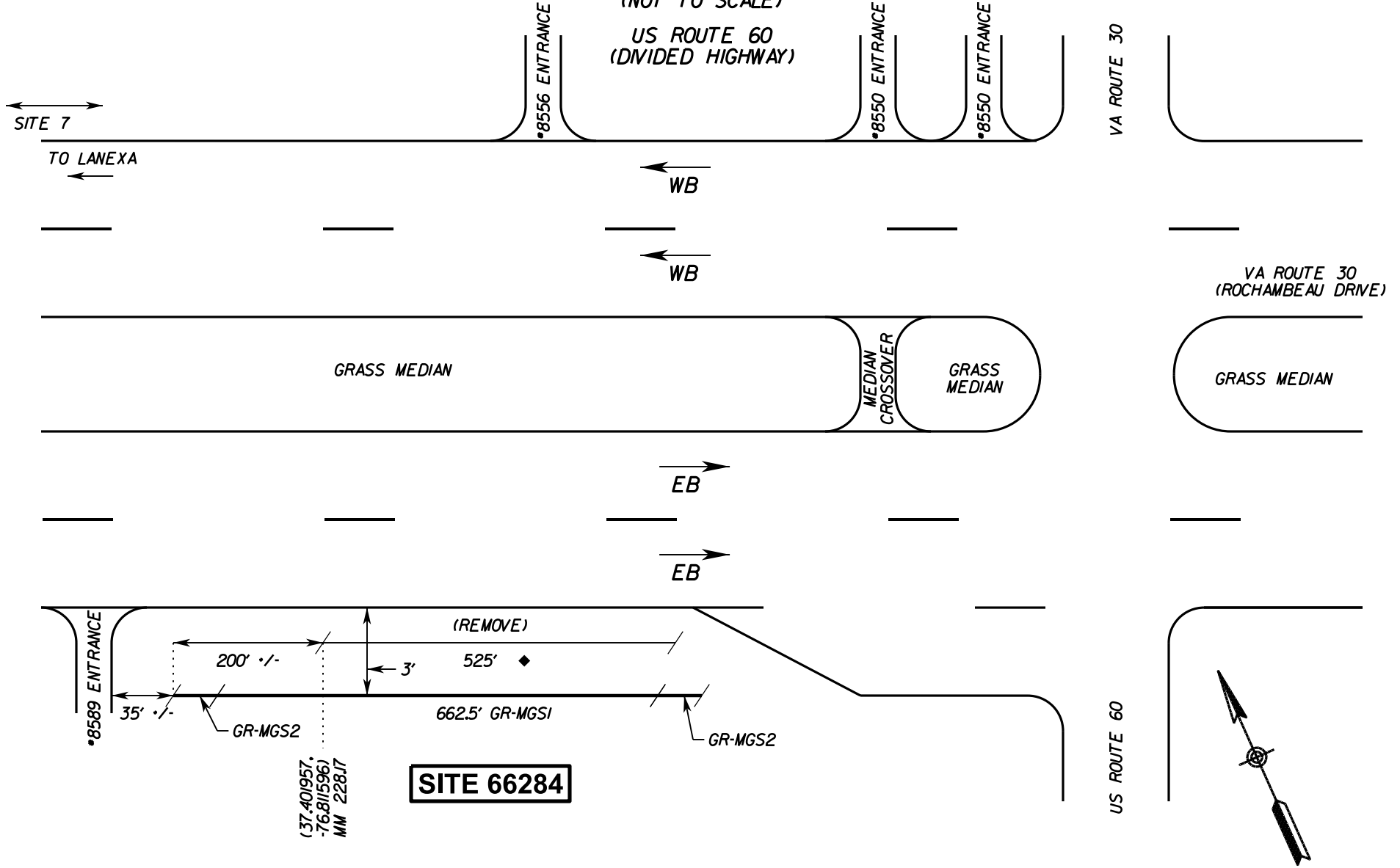
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **66284**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	662.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	21
510SX20-0040	EA	Remove Existing Guardrail Terminal	1
505SD20-0073	LF	Remove Existing Guardrail	475

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

PHASE VI GUARDRAIL



COMMONWEALTH of VIRGINIA
TRAFFIC ENGINEERING DIVISION:

MASH GUARDRAIL UPGRADE

HAMPTON ROADS DISTRICT

James City County US Route 60 Unbonded Overlay

Phase VI – Westbound

October 17, 2023

PREPARED BY:



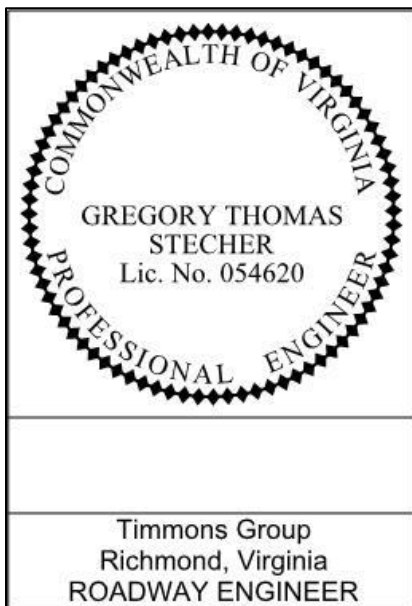
TIMMONS GROUP
YOUR VISION ACHIEVED THROUGH OURS.

ENGINEER'S CERTIFICATION OF DELIVERABLES

The engineer is responsible only for the material supplied in this package. The engineer has provided solutions to the best of his ability based on information provided from field exploration, experience, and other research. The solutions detailed in this report may not be all-encompassing due to the possibility of unknown standard/guideline limitations, unknown site conditions, or other factors.

It should be noted that a detailed survey (using electronic methods) of existing conditions was not completed for this project. The Contractor or Construction Inspector shall notify the engineer of any site conditions that differ substantially from what is shown in this package. The Contractor or Construction Inspector shall also notify the engineer of any site conditions or proposed installations that would present unsafe guardrail installations.

The engineer has only certified this package in coordination with the Virginia Department of Transportation (VDOT). The information in this package is a collective effort made by VDOT, Timmons Group (multiple professional engineers), and other outside sources who have expertise in the details of guardrail upgrade and development. Installation details described in this package may not always satisfy new-installation criteria, as detailed in VDOT manuals and guides. The installation details are intended to represent betterments to existing conditions. This approach is substantiated by guidance found in the AASHTO Roadside Design Guide, section 8.3.3.2.



Contract Notes

General

1. This project to be constructed in accordance with the 2020 VDOT Road and Bridge Specifications, 2016 Road and Bridge Standards, 2011 Work Area Protection Manual (Revision 2.1, November 2020), the Manual for Uniform Traffic Control Devices, the Guardrail Installation Training Manual (GRIT, revised August 2019), all VDOT permits, and the plans.
2. The Contractor shall provide the Engineer with the manufacturer's installation instructions and drawings of all terminal end sections prior to installation.
3. All unused guardrail post holes shall be back filled to existing ground level with approved materials placed in layers not more than 4" in height. Each layer shall be compacted by tamping. This cost will be considered incidental to the guardrail or guardrail terminal pay item.
4. The Contractor shall call Miss Utility at least 72 hours prior to the start of excavation. Contractor shall verify location and elevation of all underground utilities in the area of construction prior to starting work. The Contractor shall contact the engineer immediately if there is an expected conflict with what is shown in this package, including the straight-line diagrams.
5. VDOT is to receive written notification two weeks prior to commencing with initial construction activities.
6. The latitude / longitude coordinates provided in this package (for each site begin and end location) are approximate only and are not intended to represent actual installation locations. The coordinates represent a general guide for installation; actual location should be determined from the installation instructions and (if provided) the straight-line diagrams. The Contractor shall contact the Engineer if questions exist regarding the precise locations of the guardrail.
7. The distances listed (on the detailed analyses and/or the straight-line diagrams) from adjacent driveways, connecting roads, or other site features are approximate and shall be field-verified prior to installing guardrail. The Contractor shall contact the Engineer if distances appear inaccurate and/or if the distances as noted would result in a guardrail installation materially different from what is required in the plans.
8. Existing signs may exist near or adjacent to the existing guardrail. Signs shall not be disturbed; if they are disturbed, they shall be returned to their original condition at the Contractor's expense.
9. All construction debris, materials, etc. shall be located outside the roadway prism whenever possible. The Contractor shall keep the roadway clear of dirt and debris whenever possible, cleaning the roadway at the end of each work day.
10. Existing pavement markings and/or rumble strips/rumble stripes shall not be disturbed during construction. If pavement markings or rumble strips/rumble stripes are damaged during the course of guardrail installation, they shall be restored to their original condition at the Contractor's expense.

Technical

1. If coring of asphalt is required for guardrail installation, the coring, backfill, and compaction shall be incidental to guardrail and/or guardrail terminals.
2. Delineators shall be incidental to guardrail and/or guardrail terminals.
3. Offsets to proposed guardrail, as shown on the straight line diagrams, are approximate and shall be field-verified prior to construction.
4. The scheduling of aggregate installation for shoulder renovation shall accommodate forecasted weather conditions per section 315 of the VDOT Road and Bridge Specifications.
5. The Contractor shall return any associated site grass/landscaping to its original condition prior to the conclusion of construction.
6. The Contractor shall maintain a 6:1 wedge at the edge of pavement/shoulder at all times during construction.
7. The Contractor is responsible for placement and maintenance of all temporary pavement markings, signage, portable temporary rumble strips, etc. that are required or implied in the suggested Temporary Traffic Control on the sheets that follow. The cost of these items shall be incidental to the price for other maintenance of traffic items as noted in the overall summary of quantities. The Contractor is responsible for providing all traffic control devices, signage, equipment, personnel, including certified traffic control personnel, etc. to control traffic during construction within VDOT Right-of-Way.

TABLE OF CONTENTS

Part 1Vicinity Map

Part 2Item and Quantity Summary

Part 3Detailed Site Analyses and Straight-Line Diagrams

PART 1:
VICINITY MAP

Hampton Roads District Guardrail Vicinity Map No. 1 of 4



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

Hampton Roads District Guardrail Vicinity Map No. 2 of 4

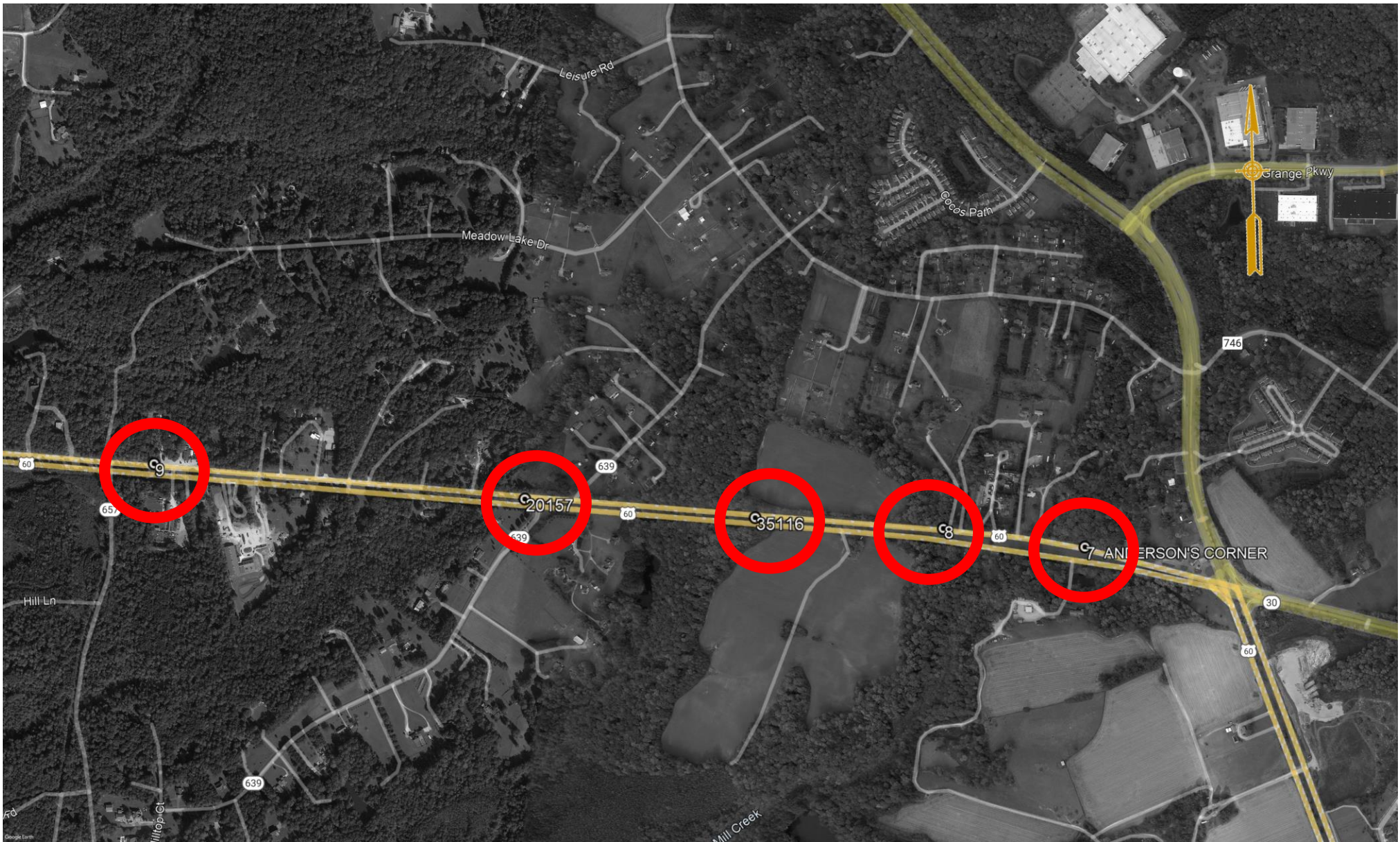


Hampton Roads District Guardrail Vicinity Map No. 3 of 4



ORDER NO.: K92
CONTRACT ID. NO.: CM524PMZ123767

Hampton Roads District Guardrail Vicinity Map No. 4 of 4



PART 2:
ITEM AND QUANTITY SUMMARY

Concrete Overlay Phase VI Item and Quantity Summary																	
Item Code	Unit	Item	7	8	9	10	11	12	13	15	20157	31298	31322	35116	38816	66283	TOTAL
505SD20-0011	LF	Guardrail GR-MGS1	250	87.5	237.5	300	137.5	137.5	425	737.5	875	100	87.5	1037.5	150	712.5	5,275.0
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1	1	1	1	1	1	1	1	1	0	0	1	1	1	12
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
505SD20-0047	EA	Fixed Object Attachment, GR-FOA-3, Ty. I (Run On)	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	0	1	1	0	1	1	0	0	0	0	1	0	0	0	5
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1	0	0	1	0	0	1	1	1	0	0	0	1	1	7
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35	6	5	35	6	6	35	35	35	15	6	15	35	35	304
510SX20-0040	EA	Remove Existing Guardrail Terminal	0	0	0	0	0	0	0	0	2	1	1	2	2	2	10
505SD20-0073	LF	Remove Existing Guardrail	0	0	0	0	0	0	0	0	1025	150	150	1250	125	550	3,250
520SX20-0013	HR	NS Utilities Hand Dig and Install Guardrail Post	See Overall Quantity														500

NOTE: These quantities are for information, only. Refer to the overall quantity summary.

PART 3:
**DETAILED SITE ANALYSES AND STRAIGHT-LINE
DIAGRAMS**

Site #:	7
Action:	INSTALL
Begin Coordinates:	37.40238° N -76.81208° W
Mile Marker:	228.13

ADT (2021): **11,000**
 Classification: **US Route**
 Direction: **Westbound**
 County: **James City**
 Side: **Right**
 Speed Limit **55** MPH
 Funct. Rating₂: **N/A**

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:

Approximately 375 feet upstream of the perpendicular edge of #8596 driveway, install a GR-MGS2 terminal. Install 250 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. Guardrail shall be installed at a 7-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	232 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	88 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

While it appears that the length of need has not been met, the adjacent cut slope prevents an errant vehicle from reaching the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

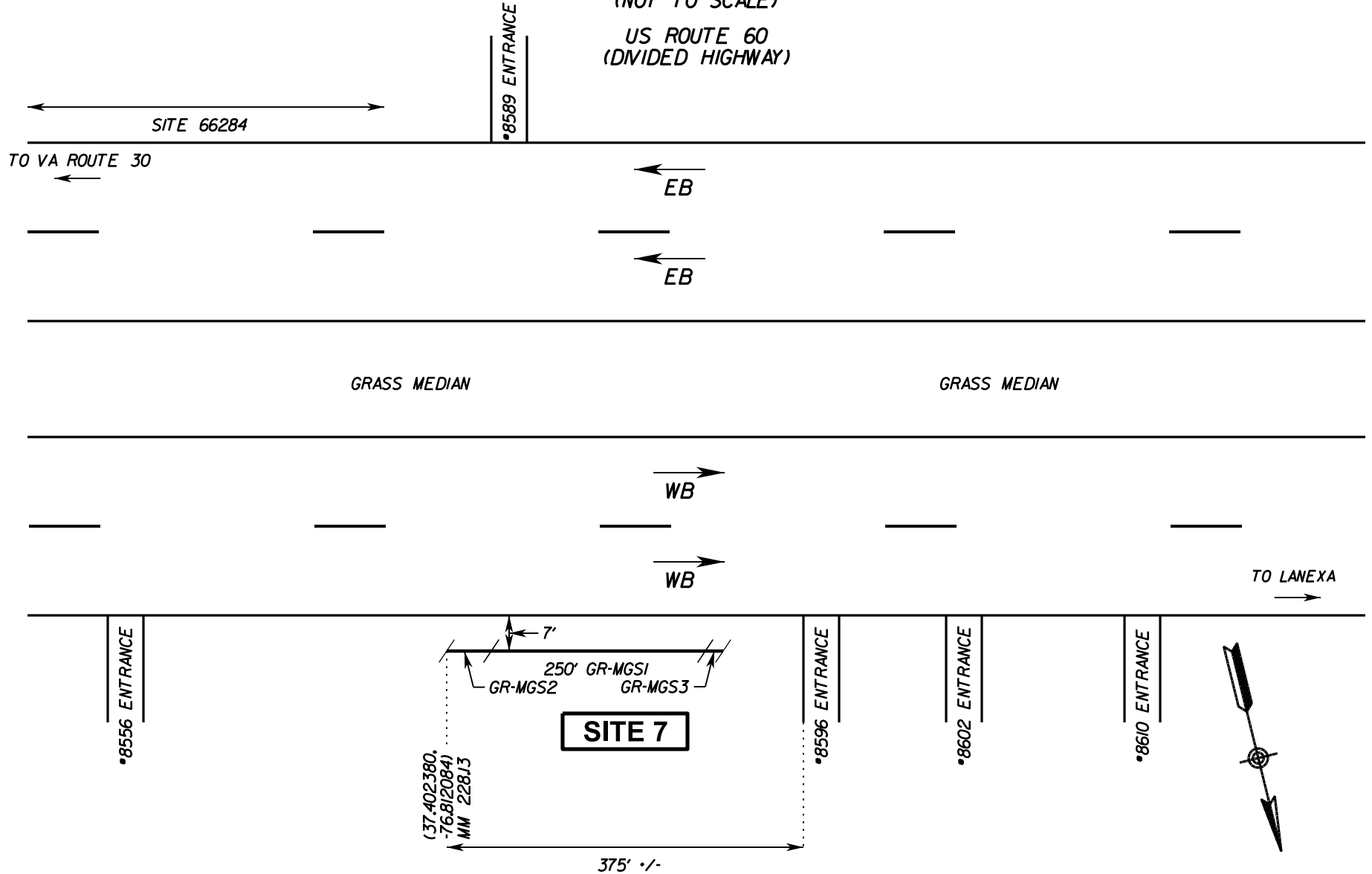
Site #:

7

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	250
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
STRAIGHT-LINE DIAGRAM
(NOT TO SCALE)

US ROUTE 60
(DIVIDED HIGHWAY)



COUNTY JAMES CITY COUNTY	US ROUTE 60	DIRECTION WB	SITE NO. SITE 7
------------------------------------	-----------------------	------------------------	---------------------------

Site #:	8
Action:	INSTALL
Begin Coordinates:	37.40279° N -76.81592° W
Mile Marker:	227.94

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot, MINOR	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:

Approximately 28 feet downstream of #8636 mailbox, install a GR-MGS2 terminal. Install 87.5 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. The guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	232 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	0 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The maximum allowable length-of-need has already been provided. The upstream driveway prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure:	N/A
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.	

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

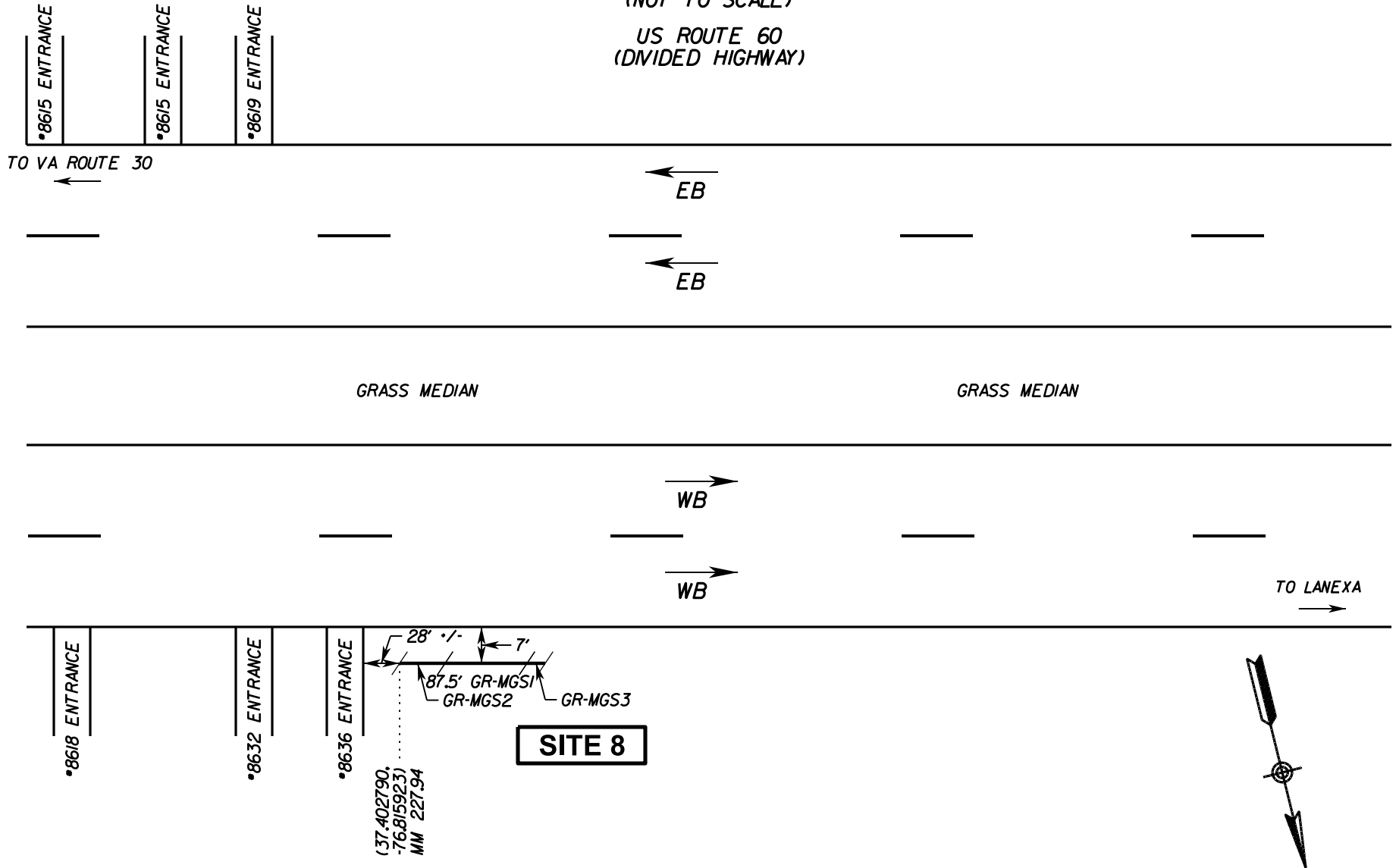
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 8

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	87.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	6

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
STRAIGHT-LINE DIAGRAM
(NOT TO SCALE)

US ROUTE 60
(DIVIDED HIGHWAY)



Site #:	9
Action:	INSTALL
Begin Coordinates:	37.40419° N -76.83739° W
Mile Marker:	226.74

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	4-foot, MINOR	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Approximately 25 feet downstream of #8856 entrance, install a GR-MGS2 terminal. Install 237.5 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. The guardrail terminal shall be installed at a 5-foot offset. Provide 4-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	252 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	0 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The maximum allowable length-of-need has already been provided. The upstream driveway prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #:

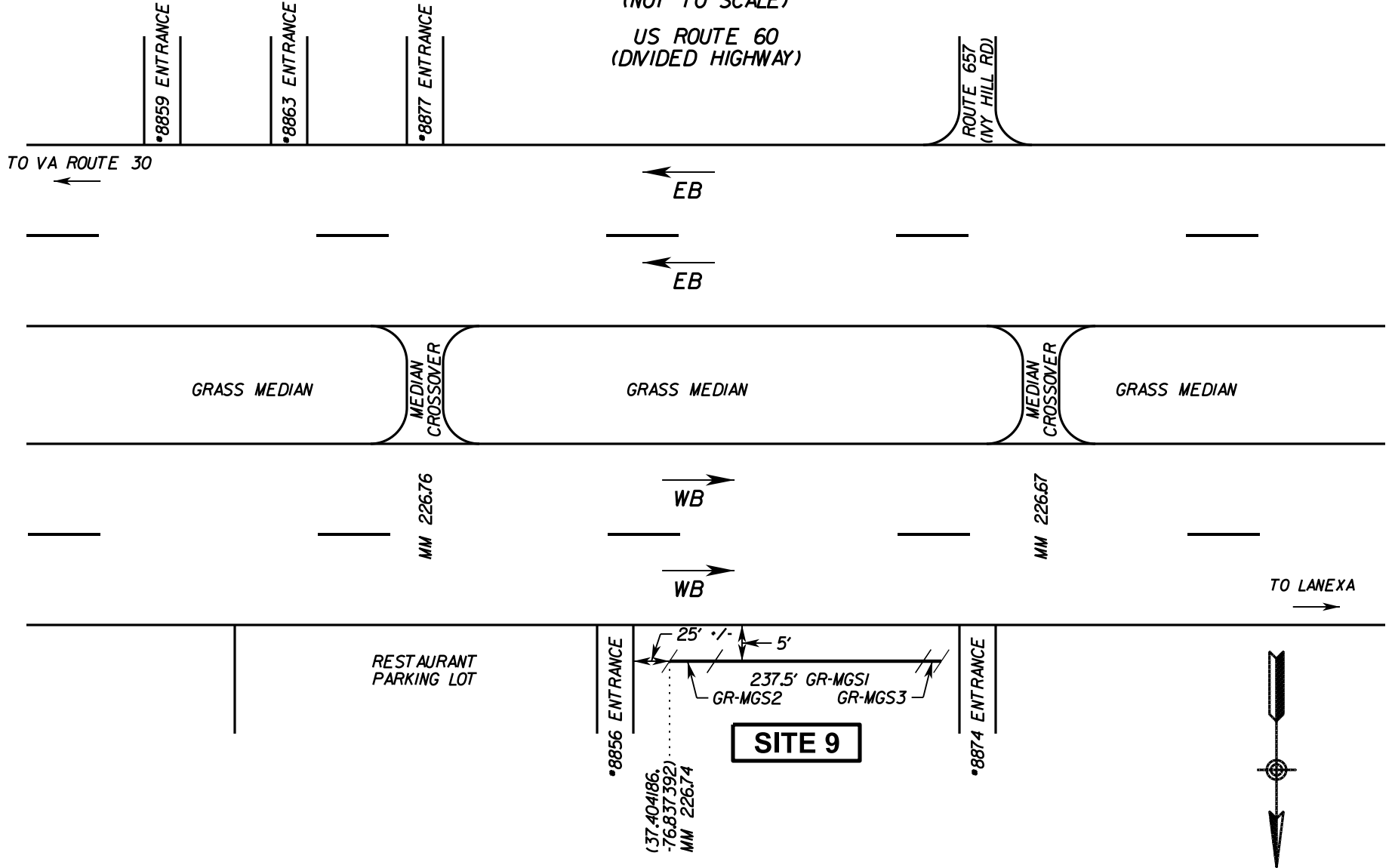
9

CONTRACT ID NO.: CM524PMZ123767

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	237.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	5

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION STRAIGHT-LINE DIAGRAM (NOT TO SCALE)

US ROUTE 60
(DIVIDED HIGHWAY)



Site #:	10
Action:	INSTALL
Begin Coordinates:	37.40452° N -76.84253° W
Mile Marker:	226.61

Route: **60**
 Direction: **Westbound**
 County: **James City**
 Side: **Right**
 ADT (2021): **11,000**
 Classification: **US Route**
 Speed Limit **55** MPH
 Funct. Rating₂: **N/A**

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:

Approximately 15 feet downstream of the Route 620 (Old Route 60) intersection, install a GR-MGS2 terminal. Install 300 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. The guardrail terminal shall be installed at a 6-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	242 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	58 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The maximum allowable length-of-need has already been provided. The upstream intersection prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

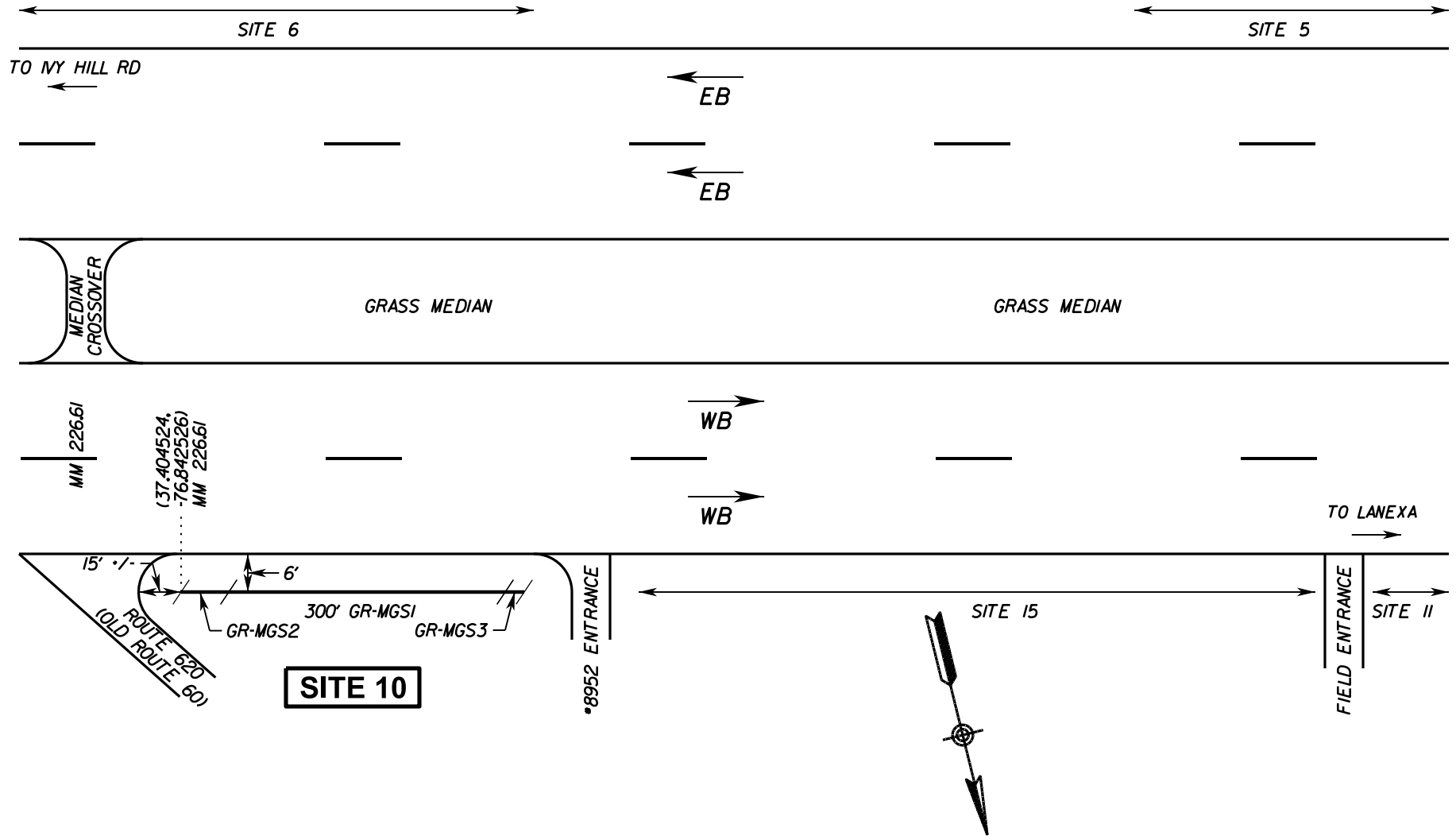
Site #:

10

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	300
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



Site #:	11
Action:	INSTALL
Begin Coordinates:	37.40511° N -76.84745° W
Mile Marker:	226.52

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot, MINOR	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Approximately 15 feet downstream of the field entrance, install a GR-MGS2 terminal. Install 137.5 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. The guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	232 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	0 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The maximum allowable length-of-need has already been provided. The upstream entrance prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

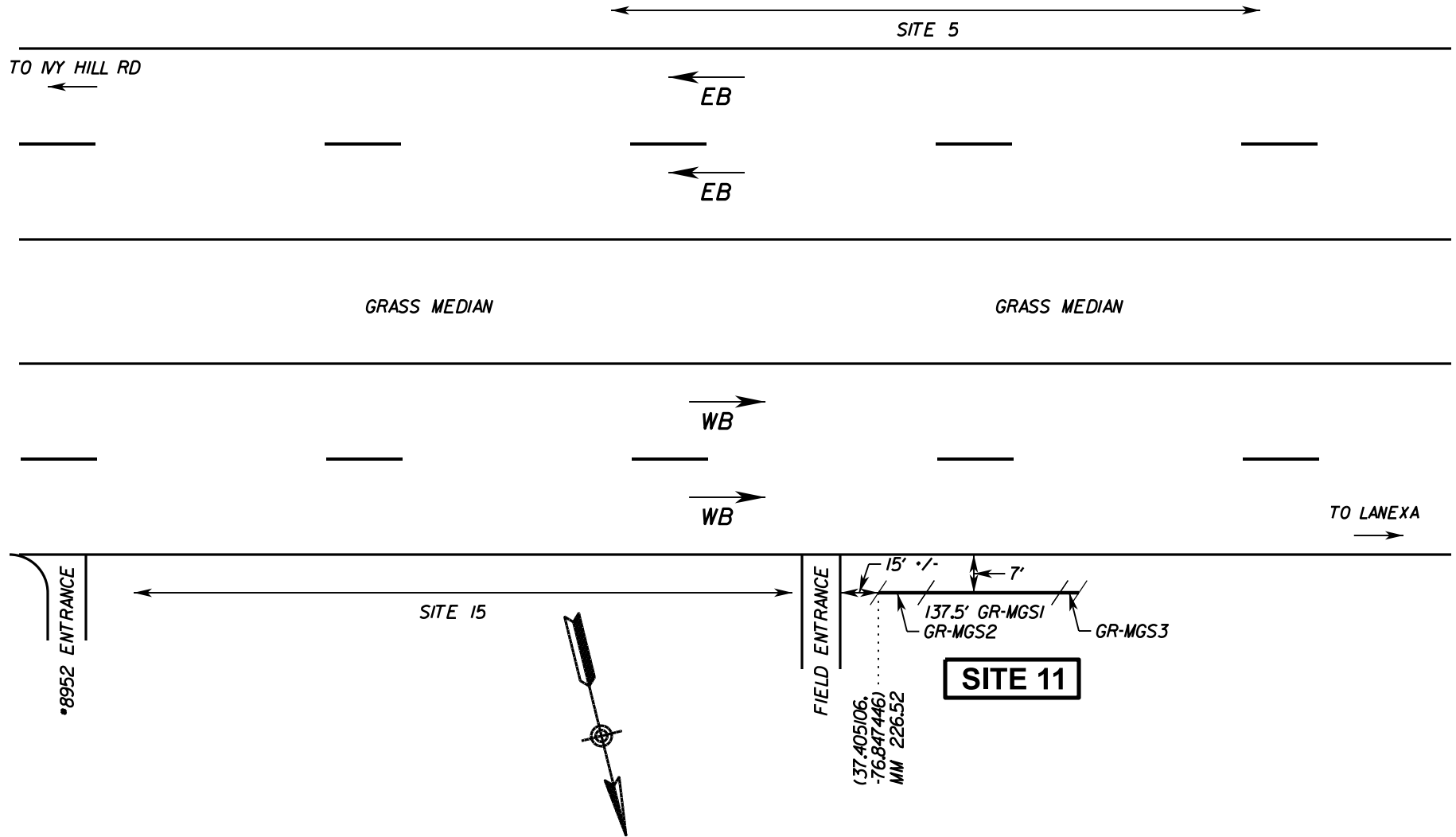
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 11

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	137.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	6

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
STRAIGHT-LINE DIAGRAM
(NOT TO SCALE)

US ROUTE 60
(DIVIDED HIGHWAY)



Site #:	12
Action:	INSTALL
Begin Coordinates:	37.41645° N -76.87483° W
Mile Marker:	224.47

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot, MINOR	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Approximately 190 feet upstream of large median tree, install a GR-MGS2 terminal. Install 137.5 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. The guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	232 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	78 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

While it appears that the length of need has not been met, the adjacent cut slope prevents an errant vehicle from reaching the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **12**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	137.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	6

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
STRAIGHT-LINE DIAGRAM
(NOT TO SCALE)

US ROUTE 60
(DIVIDED HIGHWAY)

TO VA ROUTE 30
←

←
EB

←
EB

GRASS MEDIAN

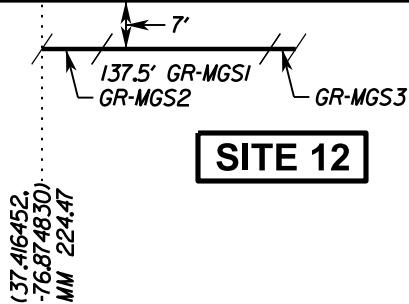
190' +/- → LARGE TREE

GRASS MEDIAN

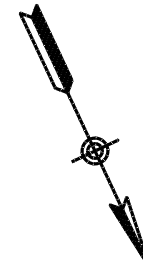
→
WB

→
WB

→
TO LANEXA



← SITE 13 →



Site #:	13
Action:	INSTALL
Begin Coordinates:	37.41771° N -76.87647° W
Mile Marker:	224.34

Route: **60**
 Direction: **Westbound**
 County: **James City**
 Side: **Right**
 ADT (2021): **11,000**
 Classification: **US Route**
 Speed Limit **55** MPH
 Funct. Rating₂: **N/A**

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:

Approximately 665 feet upstream of #9422 entrance, install a GR-MGS2 terminal. Install 425 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. The guardrail terminal shall be installed at an 8-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	223 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	231 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The length of need has been satisfied.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

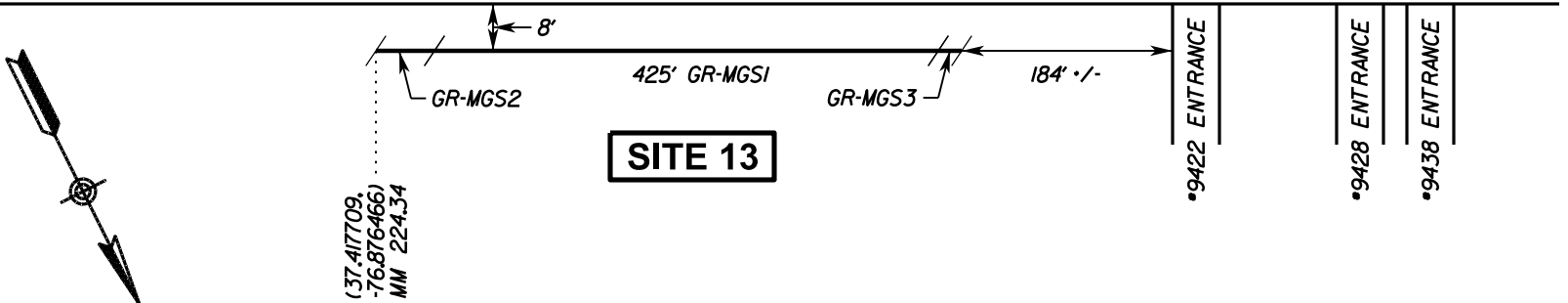
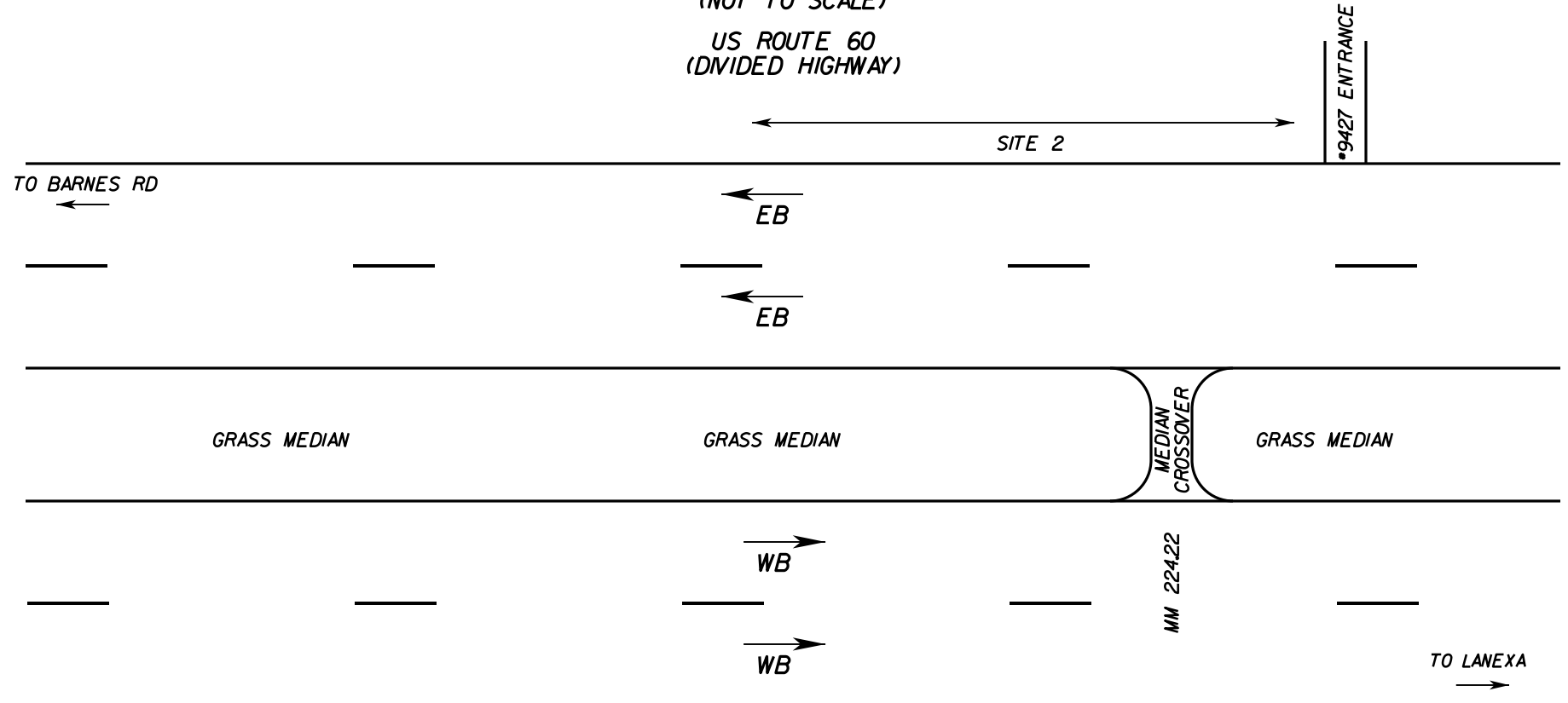
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 13

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	425
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



(37.417709,
 -76.876466)
 MM 224.34

SITE 13

Site #:	15
Action:	INSTALL
Begin Coordinates:	37.40466° N -76.84453° W
Mile Marker:	226.57

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	N/A

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
 Approximately 50 feet downstream of #8952 driveway, install a GR-MGS2 terminal. Install 737.5 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. The guardrail terminal shall be installed at a 7-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	232 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	78 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The maximum allowable length-of-need has already been provided. The upstream driveway prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
 This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

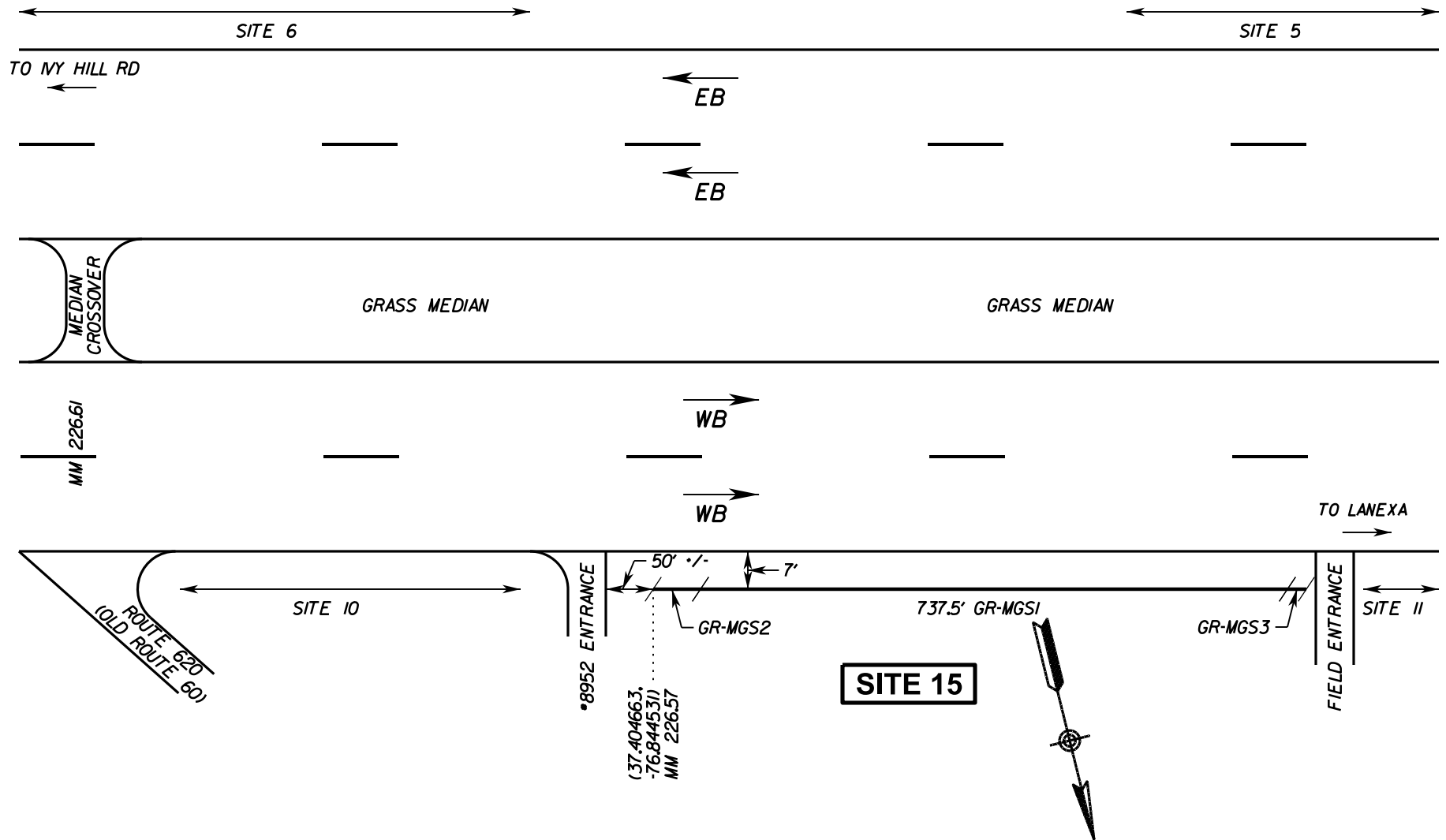
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **15**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	737.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



Site #:	20157
Action:	REPLACE
Begin Coordinates:	37.40342° N -76.82731° W
Mile Marker:	227.29

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:

Remove the existing guardrail in its entirety, including the existing terminals. Approximately 75 feet upstream of the existing GR-9 terminal, install a GR-MGS2 terminal. Install 875 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. Guardrail shall be installed at a 5-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	252 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	188 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The maximum allowable length-of-need has already been provided. The upstream median crossover prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure:	N/A
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.	

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

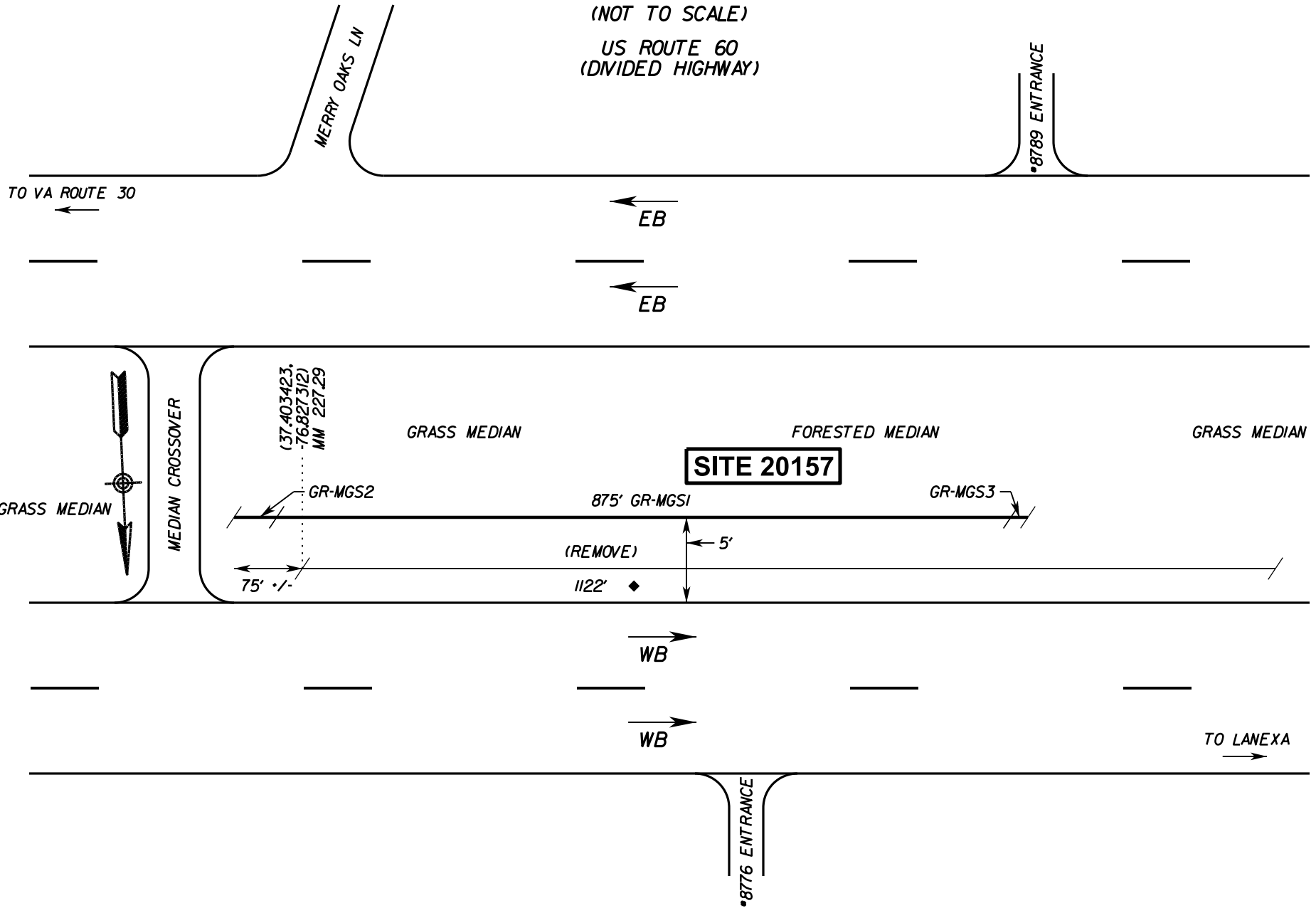
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: 20157

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	875
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35
510SX20-0040	EA	Remove Existing Guardrail Terminal	2
505SD20-0073	LF	Remove Existing Guardrail	1025

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	31298
Action:	REPLACE
Begin Coordinates:	37.42423° N -76.89169° W
Mile Marker:	223.36

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	4-foot,	Run-off Terminal:	FOA-3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:

Remove the existing guardrail in its entirety, including the existing terminals. Install a GR-FOA-3, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 100 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at a 6-foot offset. Provide 4-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	242 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	188 ft	Run-on
	N/A	Run-off	Bridge End		N/A	Run-off

Run-on: While it appears that the length-of-need has not been satisfied, site constraints prevent an errant vehicle from reaching the hazard. Run-off: The FOA and the upstream bridge fully protect the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure:	N/A
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.	

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

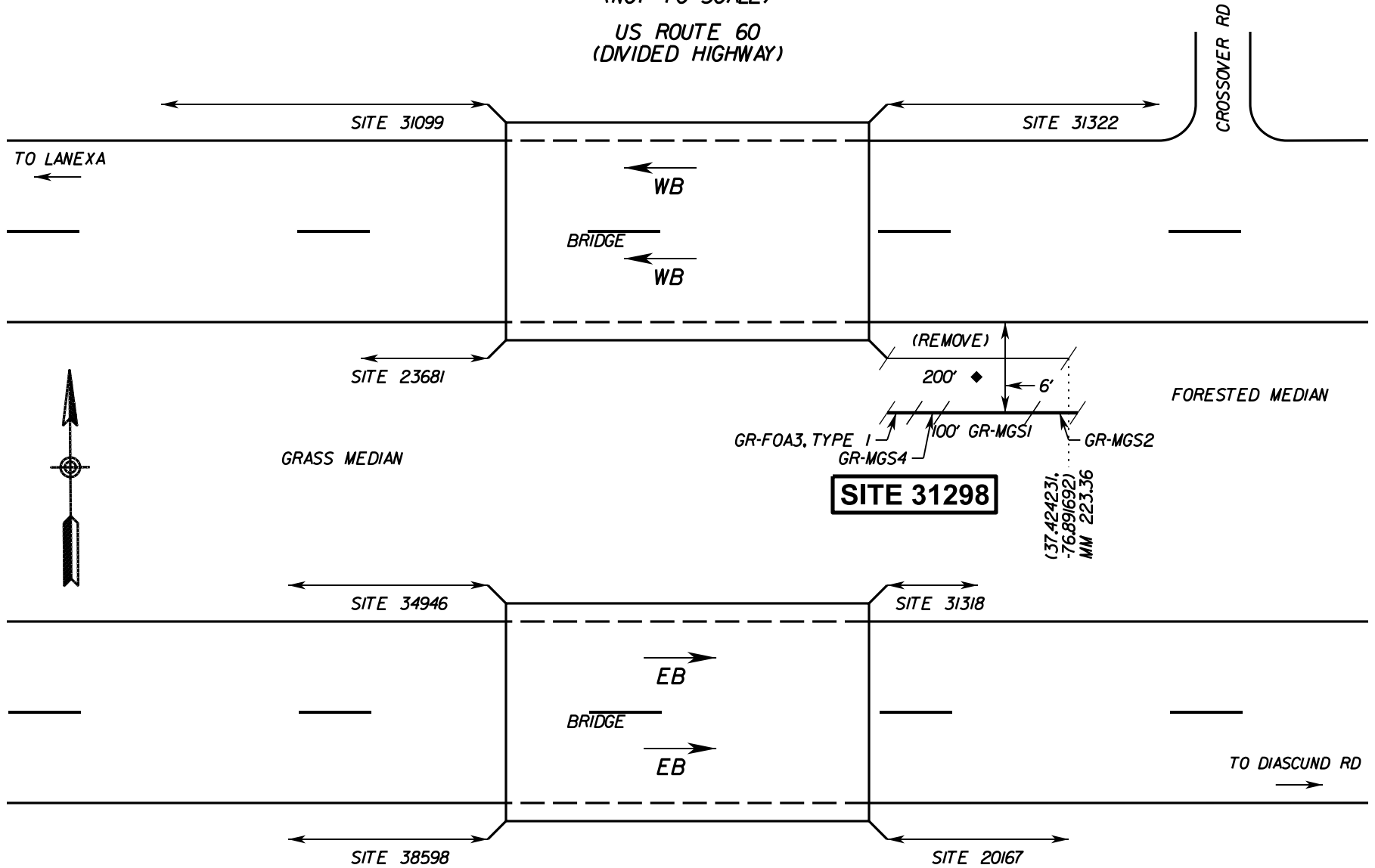
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **31298**

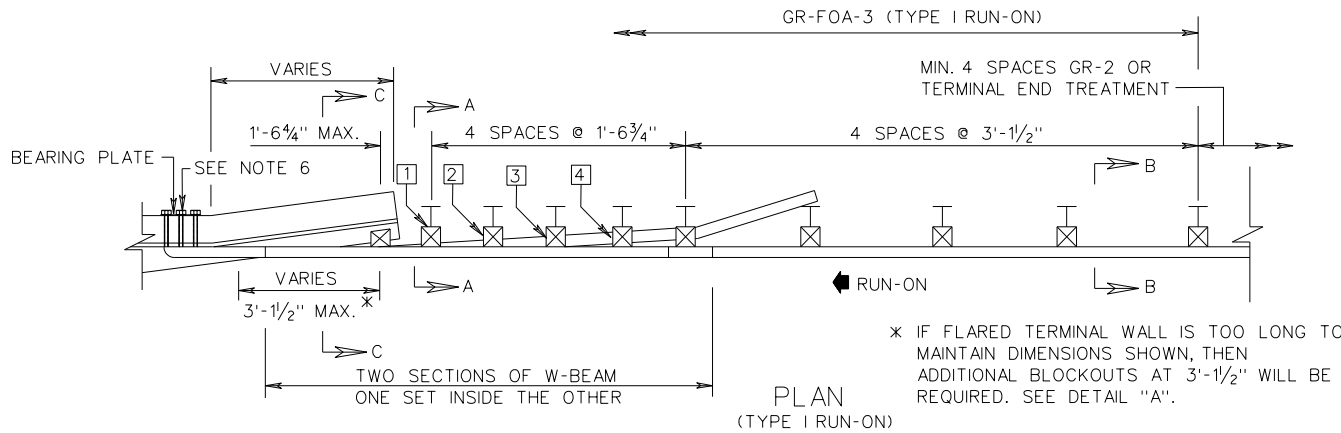
Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	100
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0047	EA	Fixed Object Attachment, GR-FOA-3, Ty. I (Run on)	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	15
510SX20-0040	EA	Remove Existing Guardrail Terminal	1
505SD20-0073	LF	Remove Existing Guardrail	150

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

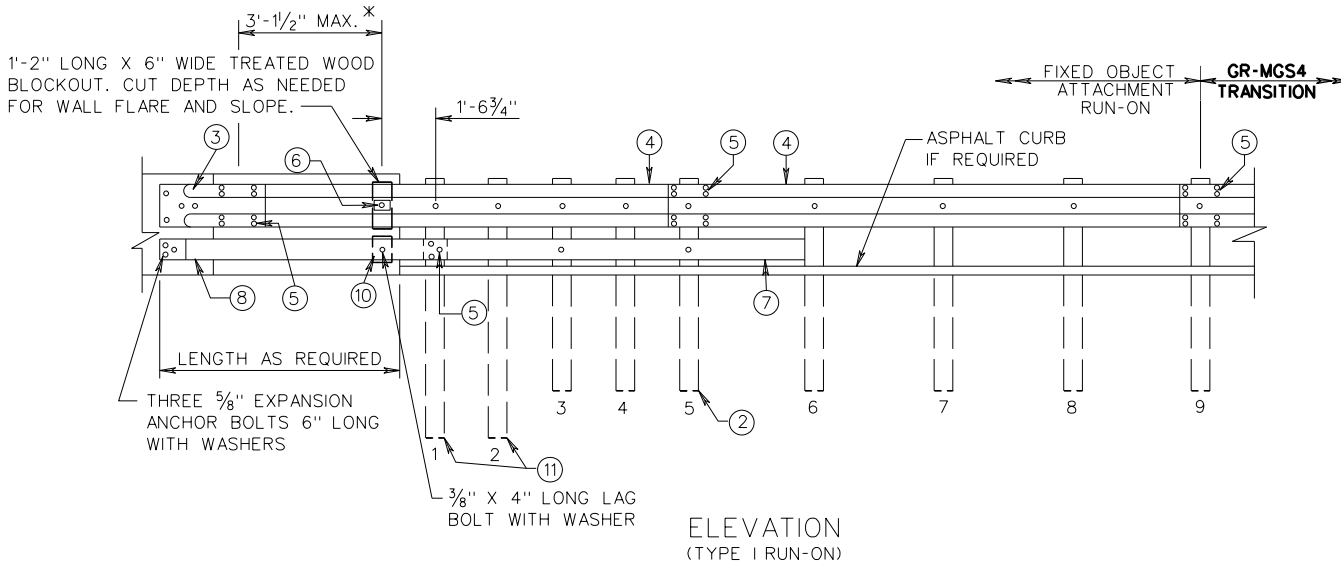
US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.



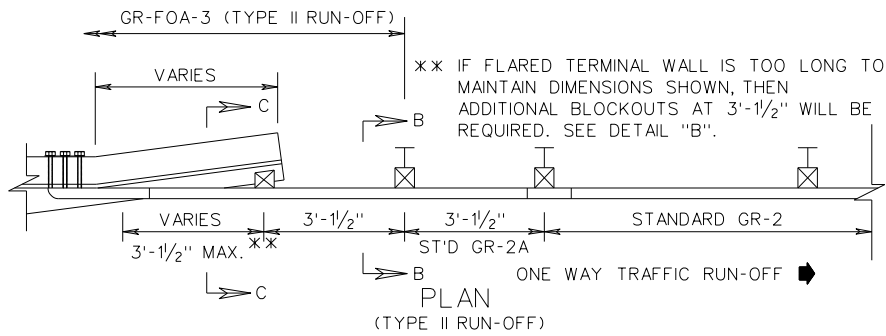
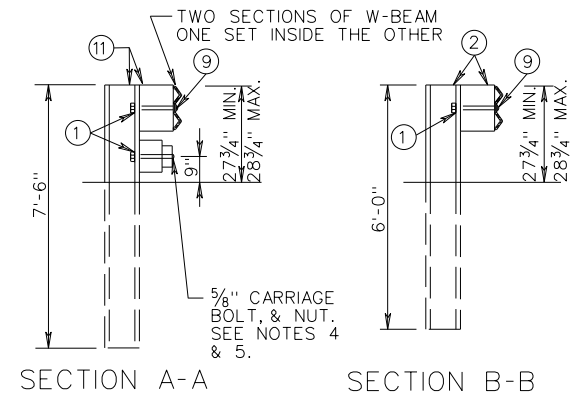
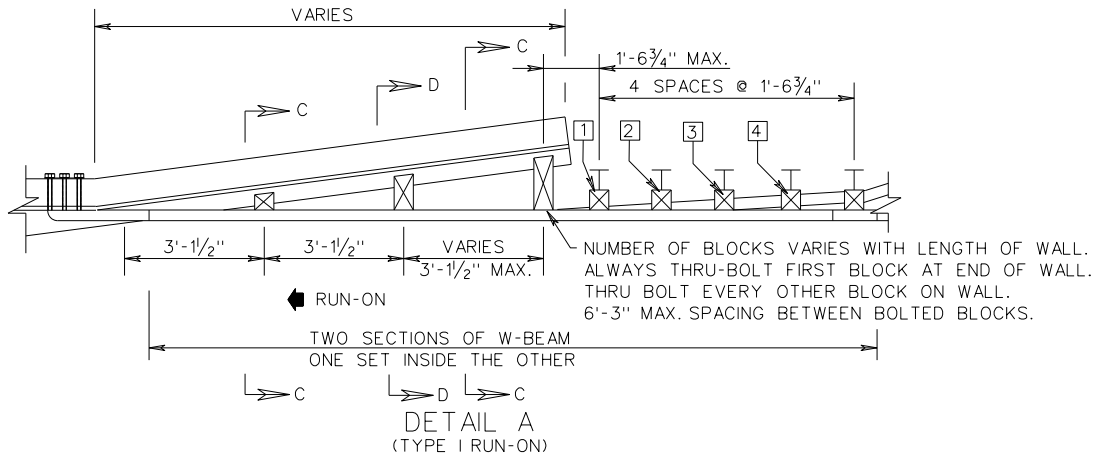
- NOTES:
1. FIXED OBJECTS MAY CONSIST OF SAFETY SHAPED BRIDGE PARAPETS OR CONCRETE BARRIERS.
 2. BRIDGE RAIL ENDS AND BRIDGE PARAPETS MUST BE OF ADEQUATE STRENGTH TO ACCEPT FULL IMPACT LOADING.
 3. GUARDRAIL COMPONENTS SHALL BE IN ACCORDANCE WITH VDOT ROAD AND BRIDGE STANDARDS.
 4. POSTS 1, 2, 3, 4, AND 5 REQUIRE AN ADDITIONAL HOLE TO ATTACH LOWER BLOCKS AND/OR RUBRAIL. RUBRAIL IS NOT BOLTED TO POSTS 2 AND 4.
 5. BOTTOM WOOD BLOCKS LOCATED ON POSTS 1 THROUGH 4, ARE CENTER DRILLED AND SECURED WITH $\frac{5}{8}$ " CARRIAGE BOLTS. (LENGTH AS REQUIRED).
 6. APPROPRIATE LENGTH $\frac{7}{8}$ " ASTM A449 HEX BOLTS WITH WASHERS MUST BE USED WITH THRU DRILLED HOLES WITH A $\frac{5}{8}$ " BEARING PLATE ON THE BACK SIDE OF THE BRIDGE PARAPET OR CONCRETE BARRIER.



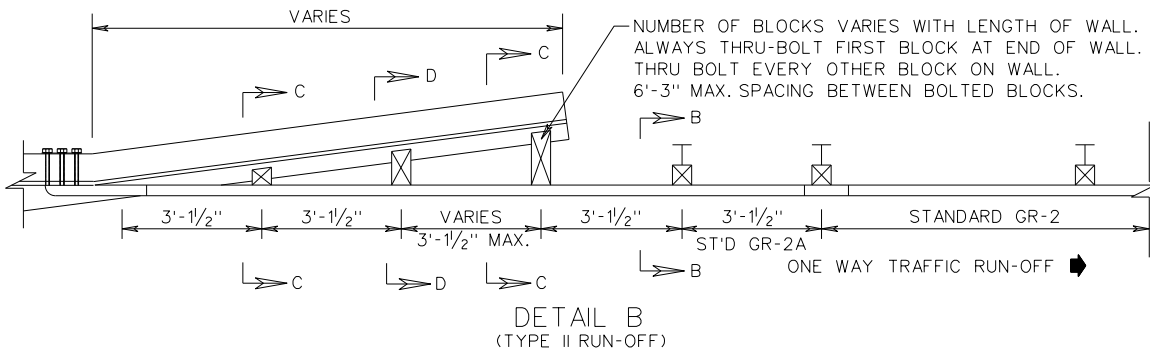
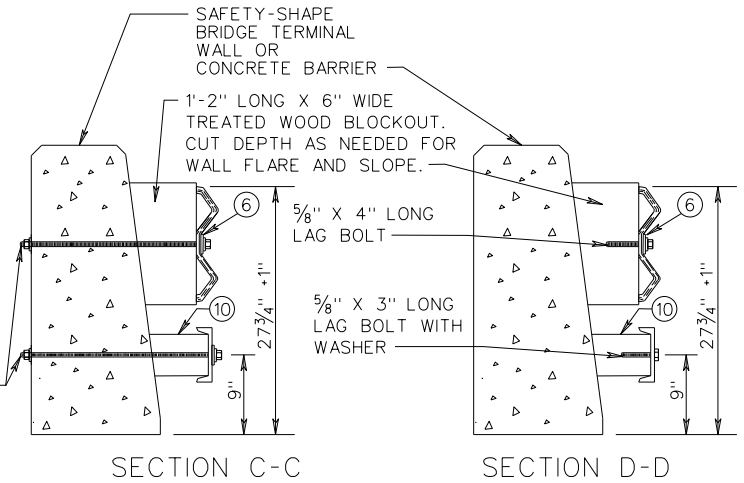
ITEM	MATERIAL/SPECIFICATIONS/NOTES
①	WASHER FOR $\frac{5}{8}$ " BOLT
②	ST'D. W6 X 8.5 OR W6 X 9 STEEL POST W/ ST'D. 6" X 8" X 14" LG. TREATED PINE BLOCK OR RECYCLED MATERIAL
③	STANDARD W-BEAM TERMINAL CONNECTOR
④	STANDARD W-BEAM RAIL
⑤	$\frac{5}{8}$ " X 2" LONG GUARDRAIL BOLT & RECESSED NUT. (SEE STANDARD GR-HDW)
⑥	RECTANGULAR PLATE RUBRAIL WASHER (SEE STANDARD GR-HDW)
⑦	BENT PLATE RUBRAIL. CAN BE FIELD CUT AND BENT USING HEAT.
⑧	C6 X 8.2 RUBRAIL. CAN BE FIELD CUT AND BENT USING HEAT.
⑨	$\frac{5}{8}$ " X 10" LG. GUARDRAIL BOLT & RECESSED NUT
⑩	WOOD BLOCKOUT FOR RUBRAIL SIZE AS REQUIRED
⑪	W8 X 13 X 7'-6" LG. STEEL POST WITH STD. 6" X 8" X 14" LG. TREATED PINE OR RECYCLED MATERIAL BLOCK.

VDOT
 VIRGINIA DEPARTMENT
 OF
 TRANSPORTATION

REVISION DATE	SPECIAL DESIGN SECTION DRAWING NO.	SHEET 1 OF 3
01/14	IISA47	



5/8" THREADED ROD WITH NUT AND LOCK WASHER ON EACH END. CUT ROD FLUSH WITH NUT ON TRAFFIC SIDE.

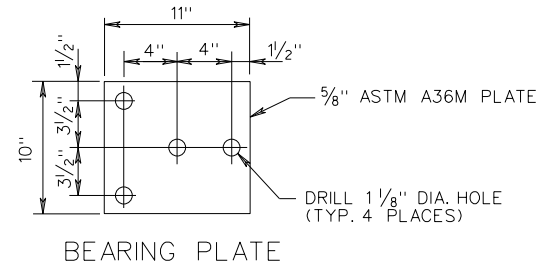
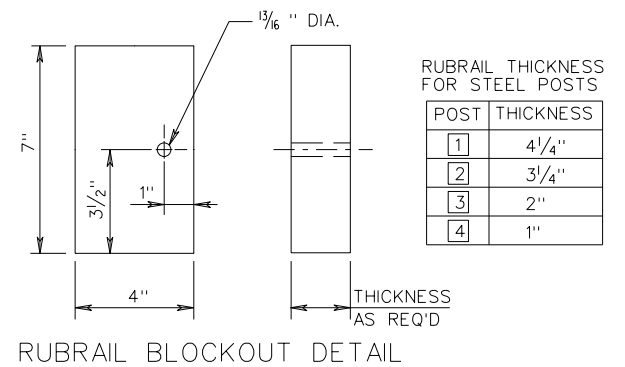
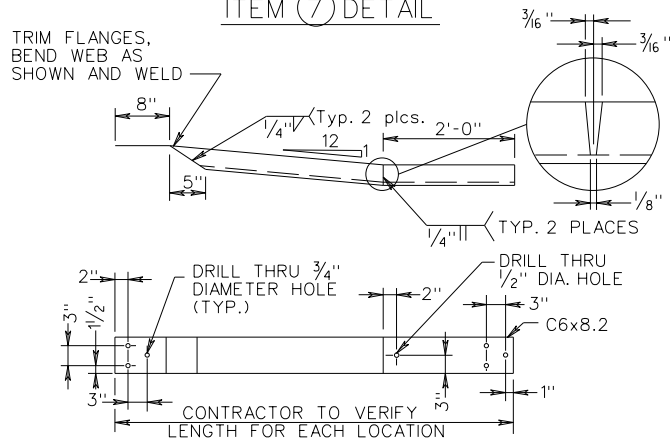
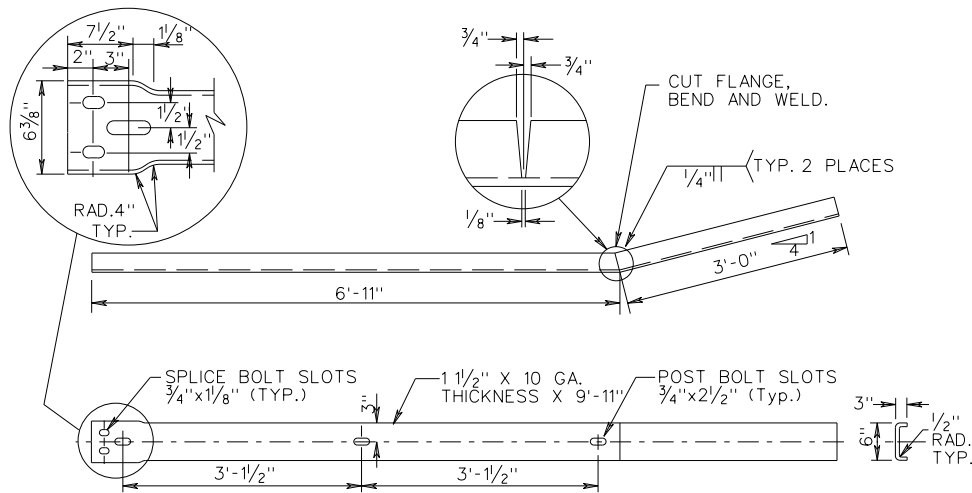


GR-FOA-3 W-BEAM GUARDRAIL INSTALLATION CRITERIA
 FIXED OBJECT ATTACHMENT METHODS WITH RUBRAIL AND HARDWARE DETAILS

A COPY OF THE SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.




REVISION DATE	SPECIAL DESIGN SECTION DRAWING NO.	SHEET 2 OF 3
01/14	IISA47	



GR-FOA-3 W-BEAM GUARDRAIL INSTALLATION CRITERIA
 FIXED OBJECT ATTACHMENT METHODS WITH RUBRAIL AND HARDWARE DETAILS

A COPY OF THE SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.



VIRGINIA DEPARTMENT OF TRANSPORTATION

REVISION DATE	SPECIAL DESIGN SECTION DRAWING NO.	SHEET 3 OF 3
01/14	IISA47	

Site #:	31322
Action:	REPLACE
Begin Coordinates:	37.42435° N -76.89168° W
Mile Marker:	223.36

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	D

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site	6-foot, MINOR	Run-off Terminal:	FOA-3
GR Type:	GR-MGS1	Preparation Type:			
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Remove the existing guardrail in its entirety, including the existing terminals. Install a GR-FOA-3, Type I, to the existing bridge parapet wall. Install a GR-MGS4 height-transition. Install 87.5 feet of GR-MGS1 guardrail. Install a GR-MGS2 terminal. The guardrail terminal shall be installed at a 10-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	203 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	184 ft	Run-on
	N/A	Run-off	Bridge End		N/A	Run-off

Run-on: The maximum allowable length-of-need has already been provided. The upstream utility junction box prevents the installation of additional guardrail. Run-off: The FOA and the downstream bridge fully protect the hazard.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

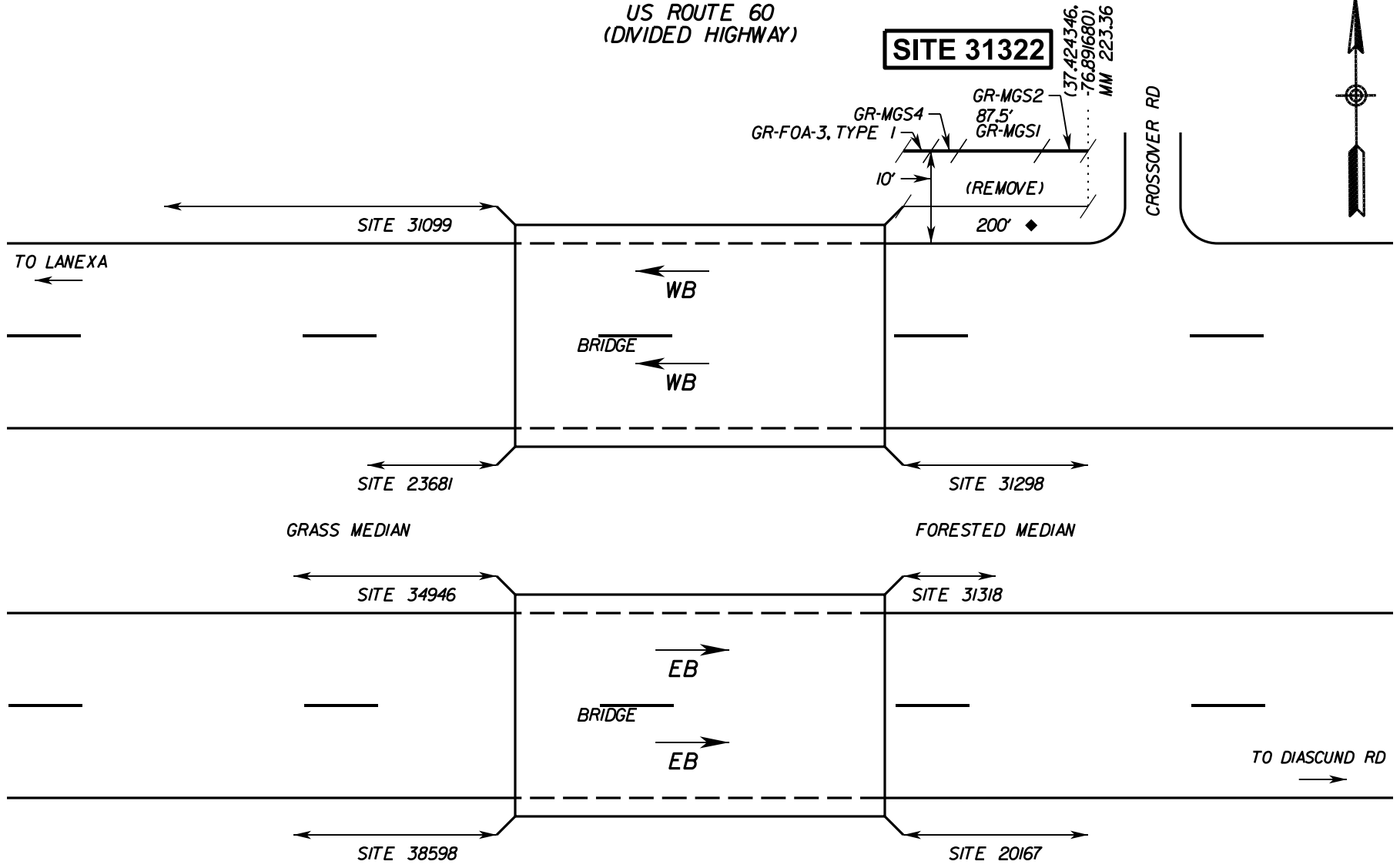
Site #: **31322**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	87.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0019	EA	Guardrail Height Transition GR-MGS4	1
505SD20-0047	EA	Fixed Object Attachment, GR-FOA-3, Ty. I (Run on)	1
505SX20-0058	EA	NS GR Terminal Site Preparation, Minor	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	6
510SX20-0040	EA	Remove Existing Guardrail Terminal	1
505SD20-0073	LF	Remove Existing Guardrail	150

**US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)**

US ROUTE 60
 (DIVIDED HIGHWAY)

SITE 31322



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	35116
Action:	REPLACE
Begin Coordinates:	37.40302° N -76.82105° W
Mile Marker:	227.64

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Left
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	4-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:		Multiple Improvements			

Special Instructions:

Remove the existing guardrail in its entirety, including the existing terminals. At the approximate location of the existing GR-9 terminal, install a GR-MGS2 terminal. Install 1037.5 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. Guardrail shall be installed at a 6-foot offset. Provide 4-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	242 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	588 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The length-of-need has been satisfied.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure:	N/A
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.	

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

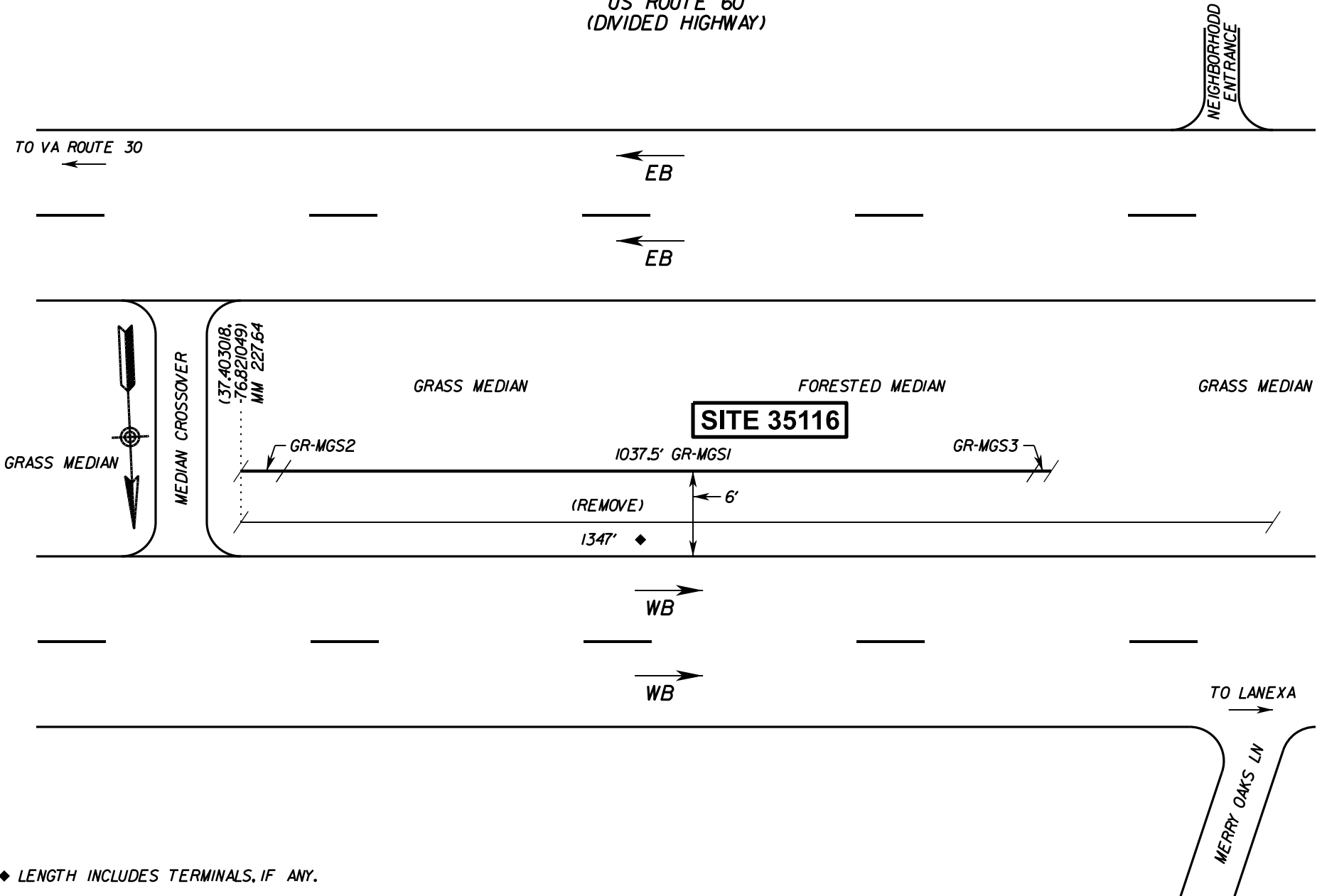
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **35116**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	1037.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 4' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	15
510SX20-0040	EA	Remove Existing Guardrail Terminal	2
505SD20-0073	LF	Remove Existing Guardrail	1250

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	38816
Action:	REPLACE
Begin Coordinates:	37.41047° N -76.85924° W
Mile Marker:	225.44

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	B

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Remove the existing guardrail in its entirety, including the existing terminals. At the approximate location of the existing GR-7 terminal, install a GR-MGS2 terminal. Install 150 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. Guardrail shall be installed at an 8-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	223 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	38 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The maximum allowable length-of-need has already been provided. The upstream driveway prevents the installation of additional guardrail.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

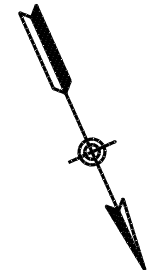
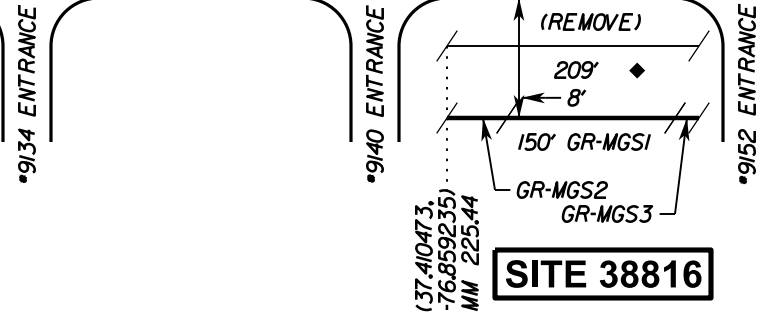
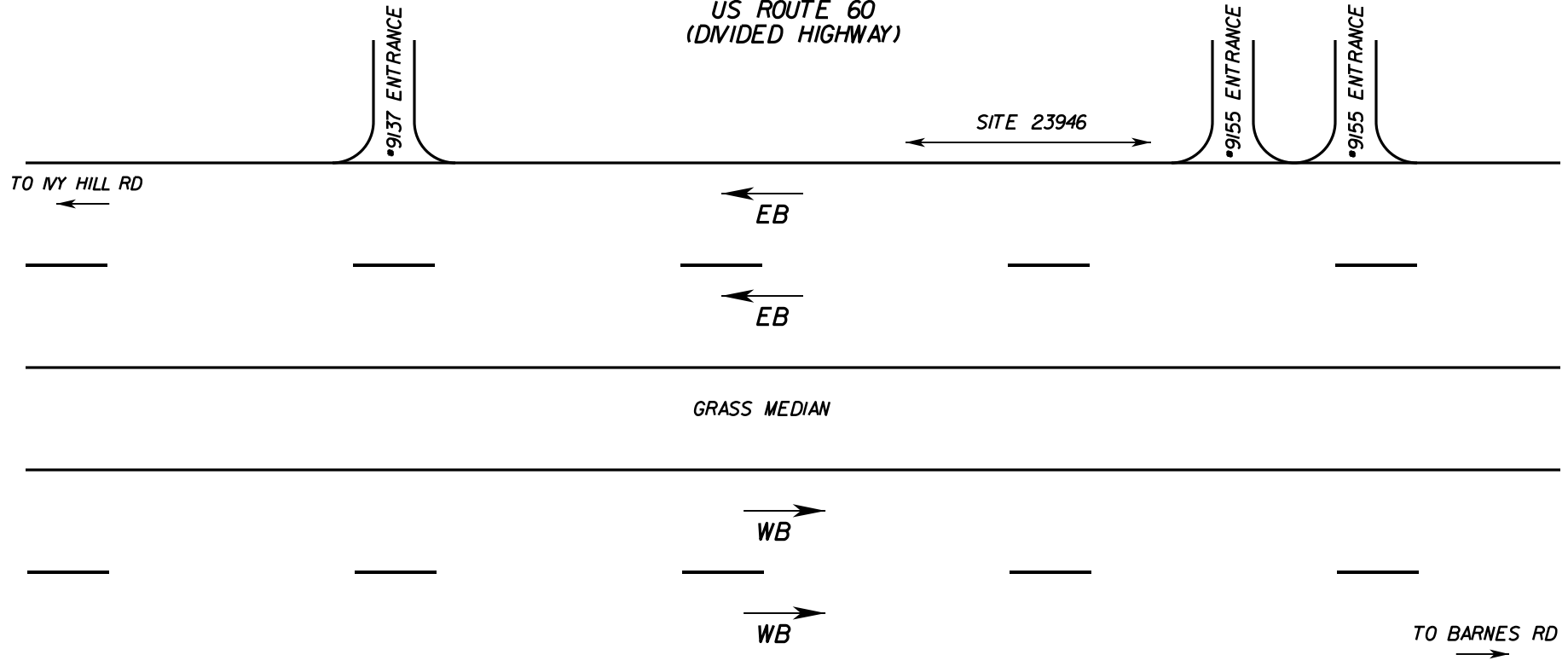
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **38816**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	150
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35
510SX20-0040	EA	Remove Existing Guardrail Terminal	2
505SD20-0073	LF	Remove Existing Guardrail	125

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

Site #:	66283
Action:	REPLACE
Begin Coordinates:	37.41155° N -76.86427° W
Mile Marker:	225.14

ADT (2021):	11,000
Direction:	Westbound
Classification:	US Route
County:	James City
Speed Limit:	55 MPH
Side:	Right
Funct. Rating ₂ :	D

Guardrail Installation Instructions

Run-on Terminal:	GR-MGS2	End-Terminal Site:	6-foot,	Run-off Terminal:	GR-MGS3
GR Type:	GR-MGS1	Preparation Type:	MODERATE		
Primary Reason for Guardrail Upgrade:			Multiple Improvements		

Special Instructions:
Remove the existing run of guardrail in its entirety. Approximately 250 feet upstream of the existing GR-9 terminal, install a GR-MGS2 terminal. Install 712.5 feet of GR-MGS1 guardrail. Install a GR-MGS3 trailing end terminal. Guardrail shall be installed at a 6-foot offset. Provide 6-foot site preparation.

Hazard and Length-of-Need₁ Information

Required Length-of-Need:	242 ft	Run-on	Noted Hazard:	Provided Length-of-Need:	250 ft	Run-on
	N/A	Run-off	Steep Slope		N/A	Run-off

The existing guardrail terminal provided an inadequate length of need. Addition of rail as shown, will adequately satisfy the length of need.

Maintenance of Traffic (MOT) Recommendations

Temporary Traffic Control (TTC) Measure: **N/A**
This site is intended to be installed when the adjacent roadway is closed to traffic. Refer to the overall Transportation Management Plan for more information.

General Notes

- Note that when installing GR-MGS2 terminals, there should be no flare; the flare of the existing GR-9 (if applicable), shall be removed.
- Unless otherwise noted, existing shoulder widths and types shall remain unchanged.
- Utilities shall be located by the Contractor prior to construction. Nominal quantities are included for hand-digging of posts.
- Unforeseen field adjustments may be necessary due to utility conflicts.
- The quantity for stone assumes 4-inches of aggregate placed within the graded shoulder, extending 2-feet behind the guardrail posts.
- The guardrail offset is measured from the face of guardrail to the center of the 4" pavement stripe.

Footnotes

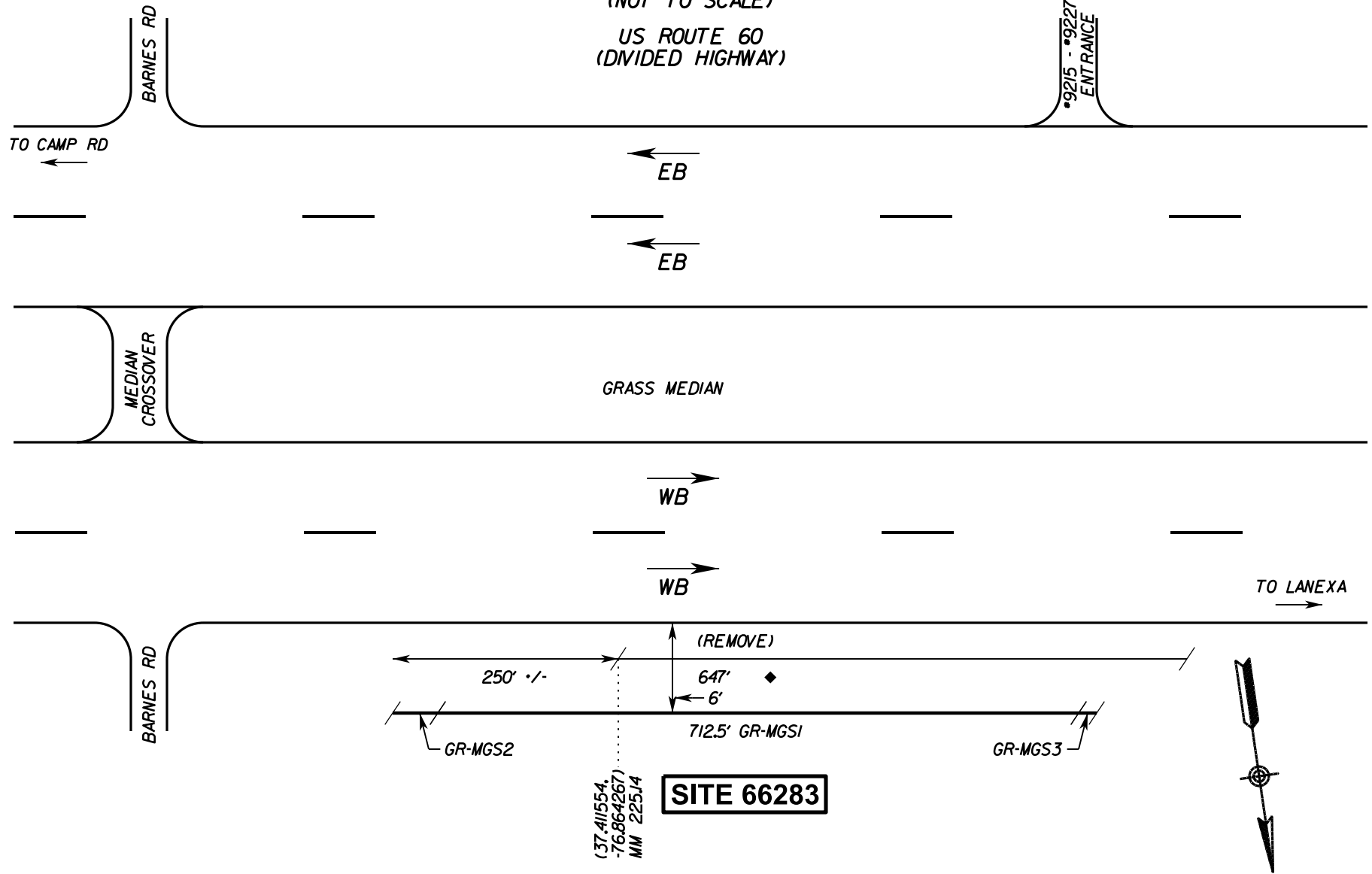
1. Calculated using the length-of-need formula from pg. 1-7 of the VDOT GRIT (revised 8/2019).
2. The run-on terminal functional-condition rating as determined from existing site conditions, based on VDOT TE-Memo. 366.4

Site #: **66283**

Summary of Estimated Quantities			
Item Code	Unit	Description	Quantity
505SD20-0011	LF	Guardrail GR-MGS1	712.5
505SD20-0017	EA	Guardrail Terminal GR-MGS2	1
505SD20-0018	EA	Guardrail End Anchorage GR-MGS3	1
505SX20-0058	EA	NS GR-MGS2 End Terminal Site Preparation, 6' MODERATE	1
305SP20-0003	TON	Aggregate Base Material Type I or II, No. 21A or 21B	35
510SX20-0040	EA	Remove Existing Guardrail Terminal	2
505SD20-0073	LF	Remove Existing Guardrail	550

US ROUTE 60 UNBONDED OVERLAY GUARDRAIL LOCATION
 STRAIGHT-LINE DIAGRAM
 (NOT TO SCALE)

US ROUTE 60
 (DIVIDED HIGHWAY)



◆ LENGTH INCLUDES TERMINALS, IF ANY.

SIGN SCHEDULE

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
1	LEFT	228.2587	2X2	1	36	12				
				2	24	24				
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		14	TYP. B	1	R6-1		36"	12"	3
	IN. 10 GA.				2	R3-2		36"	36"	9
					3					
					4					
TOTAL			14	TOTAL			12			
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
2	LEFT	228.2335	2X2	1	36	12					
				2	24	24					
				3							
				4							
NEW INSTALATION											
POST STRUCTURE			SIGN PANEL								
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		14	TYP. B	2	R6-1		36'	12"	3	
	IN. 10 GA.				3	R3-2		36"	36"	9	
					4						
TOTAL			TOTAL								
<u>WORK CODE</u>		14	NOTES FOR CONTRACT:						12		

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
3	RIGHT	227.3186	2X2	1	30	30				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	R5-1		36'	36"	9
	IN. 12				2					
	GA.				3					
					4					
TOTAL			13	TOTAL						9
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION											
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
4			4x4	1							
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14 GA.				2						
					3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL							
5	RIGHT	227.3186	4X4	1	24	30					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		13	TYP. A	1	R2-1		30"	36"	7.5	
	IN. 12				2						
	GA.				3						
					4						
TOTAL			13	TOTAL						7.5	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE							
6	LEFT	228.1944 3	4X4	1	24	30				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	R2-1		30'	36"	7.5
	IN. 12				2					
	GA.				3					
					4					
TOTAL			13	TOTAL						7.5
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
7	RIGHT	227.6506	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14 GA.				2					
					3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
8	LEFT	227.3696	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36'	12"	3	
	14 GA.				2						
					3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL							
9	RIGHT	227.0312	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE			SIGN PANEL								
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
10	LEFT	227.0078	2X2	1	36	24					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	*		13.5	TYP. B	1	R5-1a		42"	30"	8.75	
					2	R6-1		36"	12"	3	
					3	R6-1		36"	12"	3	
					4						
TOTAL			13.5	TOTAL				14.75			
<u>WORK CODE</u>			NOTES FOR CONTRACT: *2 1/2 IN. 10 GA WITH 2 3/16 IN 10 GA. INNER POST								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
11	LEFT	227.0078	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
					1					
					2					
					3					
					4					
TOTAL			13.5	TOTAL						14.75
<u>WORK CODE</u>			NOTES FOR CONTRACT: SEE SHEET 10							

Order NO:

CONTRACT ID. NO:



EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
12	LEFT	226.8071	4X4	1	30	30					
				2	36	12					
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		14	TYP. B	1	R5-1		36"	36"	9	
	IN. 10				2	R6-1		36"	12"	3	
	GA.				3						
					4						
TOTAL		14		TOTAL					12		
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
13	LEFT	226.6945	2X2	1	24	30					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		13	TYP. A	1	R2-1		30"	36"	7.5	
	IN. 12				2						
	GA.				3						
					4						
TOTAL			13	TOTAL							7.5
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
14	RIGHT	226.6933	2X2	1	24	30				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	R2-1		30"	36"	7.5
	IN. 12				2					
	GA.				3					
					4					
TOTAL		13		TOTAL				7.5		
<u>WORK CODE</u>		NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL							
15	RIGHT	226.6064	2X2	1	36	36					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE			SIGN PANEL								
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	*		14	TYP. B	1	R1-1		36"	36"	9	
					2	M1-V3a		24"	9"	1.5	
					3	M1-V3a		24"	9"	1.5	
					4						
TOTAL			14	TOTAL						12	
<u>WORK CODE</u>			NOTES FOR CONTRACT: *2 1/2 IN. 10 GA WITH 2 3/16 IN 10 GA. INNER POST								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL							
16	RIGHT	226.4796	4X4	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE			SIGN PANEL								
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
17	LEFT	225.8890	2X2	1	24	30					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		13	TYP. A	1	R2-1		30'	36"	7.5	
	IN. 12				2						
	GA.				3						
					4						
TOTAL			13	TOTAL							7.5
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST		FAIL							
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
18	RIGHT	225.5496	4X4	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2 IN. 12 GA.		11.75	TYP. A	1	R6-1		36'	12"	3	
					2	M1-V3a		24'	9"	1.5	
					3						
					4						
TOTAL			11.75	TOTAL						4.5	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:

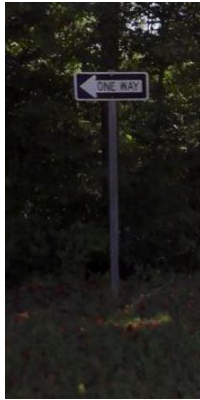


CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
19	RIGHT	225.2400	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN		11	TYP. A	1	R6-1		36"	12"	3
	14				2					
	GA.				3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
20	RIGHT	224.6196	4X4	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14 GA.				2					
					3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
21	LEFT	224.2531	2X2	1	21	15				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	W1-2R		36"	36"	9
	IN. 12				2					
	GA.				3					
					4					
TOTAL			13	TOTAL						9
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WESY									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL							
22	RIGHT	224.217	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE			SIGN PANEL								
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN		11	TYP. A	1	R6-1		36"	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
23	RIGHT	224.2535	4X4	1	21	15				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	W1-2R		36"	36"	9
	IN. 12				2					
	GA.				3					
					4					
TOTAL			13	TOTAL			9			
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL							
24	RIGHT	224.0806	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36'	12"	3	
	14 GA.				2						
					3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
25	RIGHT	223.8562	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL					3		
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
26	RIGHT	223.8333	2X2	1	24	24				
				2	24	18				
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	*		14.5	TYP. B	1	M1-V2a		36"	36"	9
					2	M6-1		30"	21"	4.38
					3					
					4					
TOTAL			14.5	TOTAL						13.38
<u>WORK CODE</u>			NOTES FOR CONTRACT: *2 1/2 IN. 10 GA WITH 2 3/16 IN 10 GA. INNER POST							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
27	LEFT	223.8420	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14				2					
	GA.				3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
28	LEFT	223.6660	4X4	1	24	36				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	R2-1		30"	36"	7.5
	IN. 12				2					
	GA.				3					
					4					
TOTAL			13	TOTAL						7.5
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
29	RIGHT	223.3888	2X2	1	30	30				
				2	36	24				
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	*		15.5	TYP. B	1	R5-1		36"	36"	9
					2	R5-1a		42"	30"	8.75
					3					
					4					
TOTAL			15.5	TOTAL						17.75
<u>WORK CODE</u>			NOTES FOR CONTRACT: *2 1/2 IN. 10 GA WITH 2 3/16 IN 10 GA. INNER POST							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		WEST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
30	LEFT	223.3696	2X2	1	24	18					
				2	24	24					
				3	24	18					
				4	36	12					
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		17.25	TYP. B	1	M3-4		36"	18"	4.5	
STP-1	IN 10		17.25		2	M1-4		36"	36"	9	
	GA				3	M6-1		30"	21"	4.38	
					4	R6-1		36"	12"	3	
TOTAL			34.5	TOTAL					20.88		
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
31	LEFT	223.1896	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14 GA.				2					
					3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:

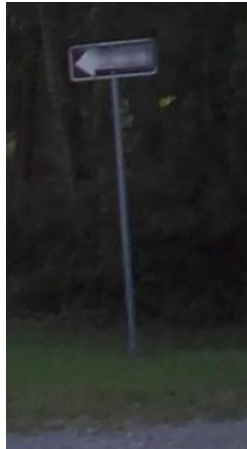


CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		WEST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE			FAIL				
32	RIGHT	222.9806	4X4	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14				2					
	GA.				3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
33	RIGHT		2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
34	RIGHT	222.9860	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14				2					
	GA.				3					
					4					
TOTAL			11	TOTAL			3			
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
35	RIGHT	223.1396	4X4	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		11.75	TYP. A	1	R6-1		36"	12"	3
	IN. 12				2	M1-V3a		24"	9"	1.5
	GA.				3					
					4					
TOTAL			11.75	TOTAL						4.5
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
36	RIGHT	224.6196	4X4	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14 GA.				2					
					3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
37	RIGHT	224.7980	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14 GA.				2						
					3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
38	LEFT	225.2831	2X2	1	24	24				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	S3-1		36"	36"	9
	IN. 12				2					
	GA.				3					
					4					
TOTAL			13	TOTAL						9
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
39	RIGHT	225.2965	2X2	1	24	24					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		13	TYP. A	1	S3-1		36"	36"	9	
	IN. 12				2						
	GA.				3						
					4						
TOTAL			13	TOTAL							9
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL							
40	RIGHT	225.5486	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE			SIGN PANEL								
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14 GA.				2						
					3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
41	RIGHT	225.8256	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14 GA.				2					
					3					
					4					
TOTAL		11		TOTAL				3		
<u>WORK CODE</u>		NOTES FOR CONTRACT:								

Order NO:

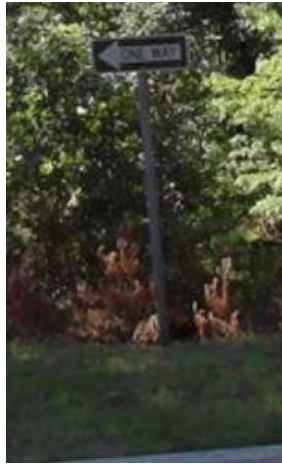


CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
42	RIGHT	226.4703	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36'	12"	3	
	14 GA.				2						
					3						
					4						
TOTAL			11	TOTAL						3	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
43	RIGHT	226.6096	4X4	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36'	12"	3
	14 GA.				2					
					3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
44	RIGHT	226.6696	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36'	12"	3
	14 GA.				2					
					3					
					4					
TOTAL			11	TOTAL			3			
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
45	LEFT	226.6945	4X4	1	24	36				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		13	TYP. A	1	R2-1		30"	36"	7.5
	IN. 1				2					
	GA.				3					
					4					
TOTAL			13	TOTAL						7.5
<u>WORK CODE</u>		NOTES FOR CONTRACT: SEE SHEET 10								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
46	RIGHT	226.8869	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14				2					
	GA.				3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
47	RIGHT	227.0247	4X4	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL				3			
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
48	RIGHT	227.3073	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36'	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL					3		
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
49	RIGHT	227.6552	4X4	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14 GA.				2						
					3						
					4						
TOTAL			11	TOTAL					3		
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
50	LEFT	227.9833	6X6	1	36	36				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 1/2		12.5	TYP. A	1	W3-3		30"	30"	6.25
	IN. 12				2					
	GA.				3					
					4					
TOTAL			12.5	TOTAL						6.25
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
51	RIGHT	228.1780	6X6	1	VAR	18					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	*		13	TYP. B	1	D1-2		126"	36"	31.5	
					2						
					3						
					4						
TOTAL		26		TOTAL				31.5			
<u>WORK CODE</u>		NOTES FOR CONTRACT: SEE GUIDESIGN DETAIL * TWO POST 2 1/2 INCH 10 GA. WITH 2 3/16 IN 10 GA. INNER POST									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST									
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL				
52	RIGHT	228.2588	2X2	1	VAR	18					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	*		14	TYP. B	1	D3-V2		138"	48"	46	
					2						
					3						
					4						
TOTAL			42	TOTAL							46
<u>WORK CODE</u>		NOTES FOR CONTRACT: SEE GUIDESIGN DETAIL * THREE POST 2 1/2 INCH 10 GA. WITH 2 3/16 IN 10 GA. INNER POST									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST		FAIL							
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
53	RIGHT	228.2914	2X2	1	36	12					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3	
	14				2						
	GA.				3						
					4						
TOTAL			11	TOTAL							3
<u>WORK CODE</u>		NOTES FOR CONTRACT:									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
54	RIGHT	228.3068	4X4	1	36	24				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36"	12"	3
	14 GA.				2					
					3					
					4					
TOTAL			11	TOTAL						3
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
55	LEFT	228.3450	2X2	1	36	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
STP-1	2 IN.		11	TYP. A	1	R6-1		36'	12"	3
	14				2					
	GA.				3					
					4					
TOTAL			11	TOTAL			3			
<u>WORK CODE</u>			NOTES FOR CONTRACT:							

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST		FAIL							
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
56	RIGHT	228.3477	4X4	1	24	18					
				2	24	24					
				3	24	18					
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-2		2-POST	16.25	TYP. D	1	M4-5		36"	18"	4.5	
					2	M3-1		36"	18"	4.5	
					3	M3-3		36"	18"	4.5	
					4	M3-2		36"	18"	4.5	
TOTAL			32.5	TOTAL							
<u>WORK CODE</u>			NOTES FOR CONTRACT:								
			M1-1					36"	36"	9	
			M1-V1b					36"	36"	9	
			M1-V1b					36"	36"	9	
			M1-4					36"	36"	9	
			M6-1L					36"	21"	4.38	
			M6-1L					36"	21"	4.38	
			M6-3					36"	21"	4.38	
			M6-1R					36"	21"	4.38	

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST		FAIL							
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
57	LEFT	228.3559	2X2	1	24	24					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2		14	TYP. B	1	R6-1		36"	12"	3	
	IN. 10				2	R5-1		36"	36"	9	
	GA.				3						
					4						
TOTAL			14	TOTAL						12	
<u>WORK CODE</u>			NOTES FOR CONTRACT:								

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST		LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE	FAIL			
58	RIGHT	37.421901, -76.885440	2"x2" DOUBLE	1	54	54					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2 IN. 10 GA.		14	TYP. B	1	R0-V9		36	36	9	
					2						
					3						
					4						
TOTAL		14		TOTAL				9			
<u>WORK CODE</u>		NOTES FOR CONTRACT: INSTALL AT 9' OFFSET BEHIND GUARDRAIL									

Order NO:



CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS			
RTE		60			W	H					
DIRECTION		EAST		FAIL							
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE								
59	RIGHT	37.404781, -76.847340	2"x2"	1	36	24					
				2							
				3							
				4							
NEW INSTALATION											
POST STRUCTURE				SIGN PANEL							
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.	
STP-1	2 1/2 IN. 12 GA.		11	TYP. B	1	D14-V1		36"	24"	6	
					2						
					3						
					4						
TOTAL		14		TOTAL				6			
<u>WORK CODE</u>		NOTES FOR CONTRACT: INSTALL AT 9' OFFSET BEHIND GUARDRAIL INCLUDE "LIFEPOINTE CHRISTIAN CHURCH" TEXT ON SIGN									

Order NO:



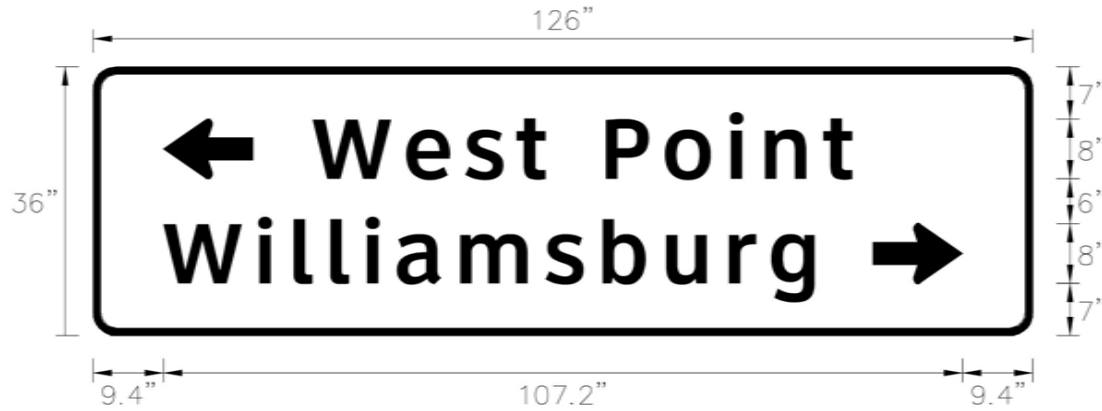
CONTRACT ID. NO:

EXISTING CONDITION:

CITY /CO		JAMES CITY COUNTY		PANEL # (TOP TO BOT)	SIZE PANEL (INCHES)		SIGN COND.	COMMENTS		
RTE		60			W	H				
DIRECTION		EAST								
LOC. #	SHLD.	MILE MARKER OR LOCATION	STR. TYPE				FAIL			
60	RIGHT	37.423960, -76.893732	4"x4" WOOD	1	12	12				
				2						
				3						
				4						
NEW INSTALATION										
POST STRUCTURE				SIGN PANEL						
STR. TYPE	SIZE	POST#	L.F.	MOUNT STD.	PANEL #	MESSAGE STD. #	COLOR COMB.	W	H	S.F.
N/A	N/A		N/A	N/A	1	N/A				
					2					
					3					
					4					
TOTAL		14		TOTAL				0		
<u>WORK CODE</u>		NOTES FOR CONTRACT: REMOVE SIGNPOST AND SIGN - NO REPLACEMENT NEEDED								

GUIDE SIGN DETAILS

SIGN DETAIL
 1:25



SIGN NUMBER	D1-2 Mod.
WIDTH x HGHT.	10'-6" x 3'-0"
BORDER WIDTH	1"
CORNER RADIUS	3"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: Reflective
	COLOR: White/White

SYMBOL	ROT	X	Y	WID	HT
AR_Type D	90	9.4	21	8	12
AR_Type D	270	104.6	7	8	12

Panel Style: D1-2 - Var. x 42.ssi
 Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)													LENGTH	SERIES/SIZE				
W	e	s	t		P	o	i	n	t									ClearviewHwy-5-W
29.4	42	49.9	56.8		68.7	76.6	85.3	90.1	97.8								72.3	8/6.5
W	i	l	l	i	a	m	s	b	u	r	g							ClearviewHwy-5-W
9.4	22.1	26.9	31.8	36.5	40.8	49.2	60.6	68.3	76.8	85.2	90.9						87.3	8/6.5

SIGN DETAIL
 1:25



SIGN NUMBER	D3-V2
WIDTH x HGHT.	11'-6" x 4'-0"
BORDER WIDTH	1.5"
CORNER RADIUS	6"
MOUNTING	Overhead
BACKGROUND	TYPE: Reflective COLOR: Green
LEGEND/BORDER	TYPE: Reflective COLOR: White/White

SYMBOL	ROT	X	Y	WID	HT
AR_Type D	90	6.9	33.5	8	12
AR_Type D	270	119.1	19.5	8	12

Panel Style: D3-V2 - Var. x 48.ssi
 Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)														LENGTH	SERIES/SIZE								
B	a	r	h	a	m	s	v	i	l	l	e		R	d							ClearviewHwy-5-W		
24.9	33.2	41.7	47.8	55.9	64.4	75.8	82.6	90.6	95.4	100.3	105		116.9	125.3							106.2	8/6.5	
R	i	c	h	m	o	n	d		R	d												ClearviewHwy-5-W	
29.7	38.2	42.7	50.4	59	70.8	79.7	88		99.9	108.3											84.4	8/6.5	
N	E	X	T		S	I	G	N	A	L												D 2000	
46.3	51.8	56.1	60.7		69.4	74.5	76.8	82.2	87.2	93.2												50.6	6