



ADDENDUM NO. 2

TO: Interested Parties

FROM: Jessica Spring, Project Manager
Division of Engineering

DATE: Thursday, May 20, 2021

PROJECT: **Frog Eye Road Bridge Replacement**
County Contract No. BR-FE-225-14

Acknowledge receipt of this **Addendum No. 2** by signing in the space provided below and returning with your Bid.

Failure to sign and return with your Bid may subject the Bidder to disqualification. This **Addendum No. 2** forms a part of the Bid Documents, it supplements and modifies them as outlined herein.

This **Addendum No. 2** consists of **twenty-four (24) pages**, including this page.

I hereby acknowledge receipt of **Addendum No. 2**:

By: _____ Date _____
Signed Name

Typed Name

Title

For (Firm): _____

Phone Number: _____

ADDENDUM NO. 2
Page 1 of 24

ADDENDUM NO. 2

FROG EYE ROAD
BRIDGE REPLACEMENT

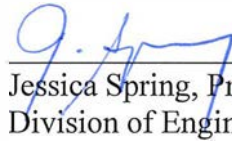
COUNTY CONTRACT NO. BR-FE-225-14

Date Issued: Thursday, May 20, 2021

Bids Due: Wednesday, May 26, 2021
11:00 a.m., Local Time

The following addendum material is hereby made a part of the Bid Documents.

Please note the following changes, information, and/or instructions in connection with the proposed work and submit proposals accordingly.



Jessica Spring, Project Manager
Division of Engineering

By Authority of:
Board of County Commissioners
Washington County, Maryland



Scott Hobbs, P.E., Director
Division of Engineering

BID FORMS

FROG EYE ROAD BRIDGE REPLACEMENT

CONTRACT NO. BR-FE-225-14

PROJECT NO. 14-225

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
101		LUMP SUM	L.S.	CLEARING AND GRUBBING	_____	—	_____	—
102		LUMP SUM	L.S.	MOBILIZATION	_____	—	_____	—
103		LUMP SUM	L.S.	MAINTENANCE OF TRAFFIC	_____	—	_____	—
104		200	S.F.	TEMPORARY TRAFFIC SIGNS	_____	—	_____	—
105		168	L.F.	TEMPORARY CONCRETE TRAFFIC BARRIERS FOR MAINTENANCE OF TRAFFIC	_____	—	_____	—
106		2	EA.	TYPE III BARRICADE FOR MAINTENANCE OF TRAFFIC	_____	—	_____	—
107		LUMP SUM	L.S.	CONSTRUCTION STAKEOUT	_____	—	_____	—
108		300	L.F.	CONTINGENT: TEMPORARY ORANGE CONSTRUCTION FENCE	_____	—	_____	—
109		25	EA.	DRUMS FOR MAINTENANCE OF TRAFFIC	_____	—	_____	—
<p>End Category 100 Contract No. BR-FE-225-14</p>				<p>Total This Sheet</p>			_____	—

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
201		1300	C.Y.	UNCLASSIFIED EXCAVATION	_____	—	_____	—
202		300	C.Y.	CONTINGENT UNSUITABLE MATERIAL EXCAVATION	_____	—	_____	—
203		450	C.Y.	COMMON BORROW	_____	—	_____	—
204		475	C.Y.	SELECTED BACKFILL	_____	—	_____	—
205		675	S.Y.	REMOVAL OF EXISTING PAVEMENT	_____	—	_____	—
<p>End Category 200 Contract No. BR-FE-225-14</p>				<p>Total This Sheet</p>			_____	—

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
301		1	EA.	STABILIZED CONSTRUCTION ENTRANCE	_____	—	_____	—
302		LUMP SUM	LS.	STREAM DIVERSION	_____	—	_____	—
303		475	L.F.	FILTER LOG – 12 INCH DIAMETER	_____	—	_____	—
304		200	S.Y.	CLASS II RIPRAP	_____	—	_____	—
305		1	EA.	SUMP PIT	_____	—	_____	—
306		2	EA.	FILTER BAG	_____	—	_____	—
					_____	—	_____	—
<p>End Category 300 Contract No. BR-FE-225-14</p>				<p>Total This Sheet</p>			_____	—

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
401		LUMP SUM	L.S.	REMOVAL OF EXISTING STRUCTURE	_____	—	_____	—
402		LUMP SUM	L.S.	REINFORCED CONCRETE BOX CULVERTS (3 EACH) 18FT x 7FT	_____	—	_____	—
403		70	C.Y.	REINFORCED CONCRETE MIX NO. 3 FOR ENDWALL FOOTINGS	_____	—	_____	—
404		LUMP SUM	L.S.	TRAFFIC BARRIER W-BEAM AT STRUCTURE	_____	—	_____	—
405		35	C.Y.	REINFORCED CONCRETE MIX NO. 6 FOR ENDWALL STEMS	_____	—	_____	—
End Category 400 Contract No. BR-FE-225-14				Total This Sheet			_____	—

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
501		880	S.Y.	6 INCH GRADED AGGREGATE BASE	_____	—	_____	—
502		125	TON	HOT MIX ASPHALT SUPERPAVE SURFACE, 9.5mm (PG64-22)	_____	—	_____	—
503		250	TON	HOT MIX ASPHALT SUPERPAVE BASE, 19.0mm (PG64-22)	_____	—	_____	—
504		30	L.F.	SAW CUTTING	_____	—	_____	—
505		620	L.F.	5 INCH WHITE PAINT PAVEMENT MARKINGS	_____	—	_____	—
506		620	L.F.	5 INCH YELLOW PAINT PAVEMENT MARKINGS	_____	—	_____	—
<p>End Category 500 Contract No. BR-FE-225-14</p>				<p>Total This Sheet</p>			_____	—

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
601		50	L.F.	REMOVE AND DISPOSE EXISTING TRAFFIC BARRIER	_____	—	_____	—
602		125	L.F.	TRAFFIC BARRIER W-BEAM	_____	—	_____	—
603		4	EA.	TRAFFIC BARRIER END TREATMENT (TYPE C)	_____	—	_____	—
<p>End Category 600 Contract No. BR-FE-225-14</p>					<p>Total This Sheet</p>		_____	—

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
701		1575	S.Y.	PLACING FURNISHED TOPSOIL, 4 INCH DEPTH	_____	—	_____	—
702		1575	S.Y.	TEMPORARY SEED AND MULCH	_____	—	_____	—
703		750	S.Y.	TURFGRASS ESTABLISHMENT	_____	—	_____	—
704		240	S.Y.	TYPE A SOIL STABILIZATION MATTING	_____	—	_____	—
705		14	EA.	BLACK WALNUT TREE (JUGLANS NIGRA)	_____	—	_____	—
706		11	EA.	WILLOW OAK TREE (QUERCUS PHELLOS)	_____	—	_____	—
<p>End Category 700 Contract No. BR-FE-225-14</p>				<p>Total This Sheet</p>			_____	—

ITEM	CODE	QUANTITY	UNIT	ITEM DESCRIPTION	UNIT PRICE		ITEM TOTAL	
801		12	S.F.	PERMANENT TRAFFIC SIGNS	_____	—	_____	—
<p>End Category 800 Contract No. BR-FE-225-14</p>				<p>Total This Sheet</p>			_____	—

ADDENDUM NO. 2

FROG EYE ROAD **BRIDGE REPLACEMENT**

COUNTY CONTRACT NO. BR-FE-225-14

TO: All prime Contractors and all others to whom specifications have been issued:

ITEM 2.01 **REVISED BID FORM – SCHEDULE OF PRICES:**

REPLACE Bid Form Pages BF-13 through BF-20 with REVISED Pages BF-13R through BF-20R attached. (Revisions are shown in bold print.)
Reference Item 2.04 below.

ITEM 2.02 **REVISED PLAN SHEETS:**

REPLACE plan sheets 2, 3, 7, 11 and 12 with REVISED sheets 2R, 3R, 7R, 11R, and 12R attached. (All changes have revision clouds.)
Reference Item 2.04 below.

ITEM 2.03 **REVISED SPECIAL PROVISIONS:**

REPLACE Special Provision Page SP-2 (Table of Contents) with REVISED Page SP-2R attached. *(Revisions are shown in bold print.)*

REPLACE Special Provision Item 403 – Reinforced Concrete Mix No. 3 for Endwalls with REVISED Special Provision Item 403R – Reinforced Concrete Mix No. 3 for Endwall Footings and ADDED Special Provision Item 405R - Reinforced Concrete Mix No. 6 for Endwall Stems. *(Revisions are shown in bold print.)*

REPLACE Special Provision Item 404 – Traffic Barrier W-Beam at Structure with REVISED Special Provision Item 404R – Traffic Barrier W-Beam at Structure.
(Revisions are shown in bold print.)

ITEM 2.04 **BID QUESTIONS:**

The following additional questions were submitted by the Friday, May 7, 2021 at 4:00 p.m. question deadline:

Q1: Is it possible to get a non-scanned PDF version of the plans for the subject project with better resolution? The legends and patterned areas are not clear on some sheets (e.g., sheet 2) such as the proposed pavement, pavement to be removed, and extents of the Class II Riprap.

R1: Yes. See Item 2.02 above.

ADDENDUM NO. 2

FROG EYE ROAD BRIDGE REPLACEMENT

COUNTY CONTRACT NO. BR-FE-225-14

Q2: What are the working hour restrictions for this project?

R2: The County observes a five-day work week, Monday through Friday. The normal number of working hours per day will be limited to nine daytime hours (e.g., 7am-4pm), unless otherwise specified or authorized by the Engineer in writing. Requests for working alternate hours or days (including evening, nighttime, and weekends) may be submitted to the Engineer for review. See also General Condition GC-1.03 Definitions, Item 30-Holidays, found on pages GC-5 and GC-6 of the Bid Document.

Q3: What are the heights of the sandbag/Barrier Diversions?

R3: The Contractor shall be responsible for determining the dimensions and locations of the stream diversions in accordance with the plans. Refer to Special Provision Item No. 302-Stream Diversion. Refer also to Construction Specifications Note 4. found on plan sheet no. 8; and Detail C-7 Temporary Barrier Diversion found on plan sheet no. 10.

Q4: Please confirm it is 2-inch asphalt milling. How many Square Yards and how many locations? Please provide a plan sheet with clearly marked areas to be milled.

R4: Yes, the 2-inch mill depth is correct as shown on the "Pavement Tie-In" detail included on plan sheet 3. Milling shall be performed at each end of the project where the roadway transitions back to and matches up with the existing pavement. The milling locations include from sta. 14+65 to 14+75; and from sta. 18+65 to 18+75, across the full pavement width as shown. Refer also to Q1/R1 above.

Q5: Please provide geotechnical report for this project.

R5: No geotechnical analysis was performed by or for the County on this project.

Q6: How is rock removal going to be paid if it is encountered during excavation?

R6: Refer to Special Provision Item No. 201 – Unclassified Excavation which states that *all excavation on this project shall be unclassified and shall include all material regardless of type.*

Q7: Can the quantities for the proposed pavement marking items (or the limits if not to be applied to entire project limits) be clarified? They appear to be low.

R7: Pavement Marking Paint shall be applied from Sta. 15+20 to Sta. 18+30. Refer to revised plan sheet 3R attached.

REVISE the bid quantity for Item 505 – 5 Inch White Paint Pavement Markings from 640 LF to 620 LF.

REVISE the quantity for Item 506 – 5 Inch Yellow Paint Pavement Markings from 200 LF to 620 LF.

ADDENDUM NO. 2

FROG EYE ROAD BRIDGE REPLACEMENT

COUNTY CONTRACT NO. BR-FE-225-14

Q8: Can the 39 SF quantity for item 801 (Permanent Traffic Signs) be clarified? Are there any proposed signs other than the object markers (OM-3L & OM-3R)? Where are the bridge signs indicated near STA 15+75 on sheet 2 as “to be removed and relocated as shown” proposed to be relocated? Are these to be new signs included in item 801 or just relocate the existing signs?

R8: REVISE the bid quantity for Item 801 from 39 SF to 12 SF to account for the four (4) new object marker (OM) signs at the box culvert.

The four (4) existing object marker (OM) signs currently located at the bridge shall be removed by the contractor. All work required for existing OM sign removal shall be inclusive to Bid Item 401 – Removal of Existing Structure.

Any other signage which may require temporary relocation and resetting during construction (e.g., “One Lane Bridge/15 M.P.H.” sign) shall be incidental to Bid Item 103 – Maintenance of Traffic. Temporary relocation shall be reviewed on site with the project engineer.

Q9: Can the 50’ quantity for item 602 (Traffic Barrier W-Beam) be clarified? Based on the pay limit of item 404 across the structure, this quantity seems to be closer to 100’ as measured on the plan.

R9: REVISE the bid quantity for Item 602 – Traffic Barrier W-Beam from 50 LF to 125 LF.

Regarding Item 603-Traffic Barrier End Treatment, Type C, please see detail MD 605.03 on plan sheet 11, note 2 which states “an effective length of need of 34-ft shall be included in the end treatment payment”.

Q10: Will all non-LS items such as those above be paid according to the actual quantities placed if different than estimated on the bid form?

R10: Non-LS items which have been reviewed and approved by the County for construction will be measured and paid based on the actual quantity placed. Refer also to General Condition GC-2.03 Interpretation of Quantities in Bid Schedule provided on page GC-12 of the Bid Document.

Q11: Is any temporary barrier required after traffic is shifted to the new structure and the existing is being demolished (prior to the installation of the final proposed w-beam)?

R11: Yes, Item 105 – Temporary Concrete Traffic Barrier (TCTB) for MOT shall be used. See added note 10 on revised plan sheet 12R, attached. All temporary concrete traffic barriers for MOT must include reflective barrier markers. The quantity for this item has been increased from 48 LF to 168 LF.

ADDENDUM NO. 2

FROG EYE ROAD BRIDGE REPLACEMENT

COUNTY CONTRACT NO. BR-FE-225-14

Q12: Is the proposed wearing surface on the culverts to be the same 2" HMA Superpave surface as the full depth paving? Is the varying depth included in the surface item?

R12: The variable depth pavement section across the culverts will be taken up by adjustments to the compacted depth of the Graded Aggregate Base (GAB) to be placed across the structure. The depth of the surface and base HMA placement across the structure will stay consistent with the paving detail shown on plan sheet no. 3 and will not vary in depth.

The mix for the HMA Superpave materials placed on top of the culverts shall be the same mixes used for Item 502- Hot Mix Asphalt Superpave Surface, 9.5mm; and for Item 503 – Hot Mix Asphalt Superpave Base, 19.0mm.

Q13: What are the limits of the proposed class II riprap shown on the detail on sheet 8?

R13: Refer to Q1/R1 above. The Class II riprap shown on plan sheet 8 shall be placed from Sta. 16+/-55 to Sta. 17+/-55, both upstream and downstream of the box culvert; and/or as directed in the field by the Engineer. Refer also to plan sheet 3, detail "Streambank Section At Existing Bridge". The quantity for this item has been increased from 180 SY to 200 SY to account for additional riprap at the streambank slopes to help stabilize the area once the existing bridge is removed.

Q14: What is required for the regular surveillance performed by the traffic manager under GC-7.08 (m)? Is there a specified frequency and any report, etc. to be submitted?

R14: Upon implementation and during maintenance of the Traffic Control Plan, the Traffic Manager (TM) shall make daily on-site inspections of the area affected by the work and be available for consultation by the Engineer as needed. The TM shall maintain a log of each inspection and include the date, time, hours worked, condition of the maintenance of traffic, and any corrective action taken. Copies of the daily log shall be furnished to the County upon request.

Q15: To follow up on the PB-15, Q3 related to the SHA qualified materials—does this apply only to those items specifically called out in the project specific special provisions (such as pavement markings), or is any material used on the project to come from the SHA QPLs? For example, SHA has temporary and turfgrass seed mixes that must come from the QPL and the plans show different mixes to be used, but the response to this question was materials and material suppliers shall be SHA qualified. Will source of supply info need to be submitted?

R15: Yes, material and material sources shall be submitted to the Engineer for review and approval for all materials used to build the project. In instances where a contract item differs from the SHA QPL, the County will consider alternate sources and materials.

ADDENDUM NO. 2

FROG EYE ROAD **BRIDGE REPLACEMENT**

COUNTY CONTRACT NO. BR-FE-225-14

Q16: Some of the precast culvert manufacturers have expressed concerns with the project timeline based on their current lead times—what duration should we assume for review & approval of the shops and calculations for this project in our schedule?

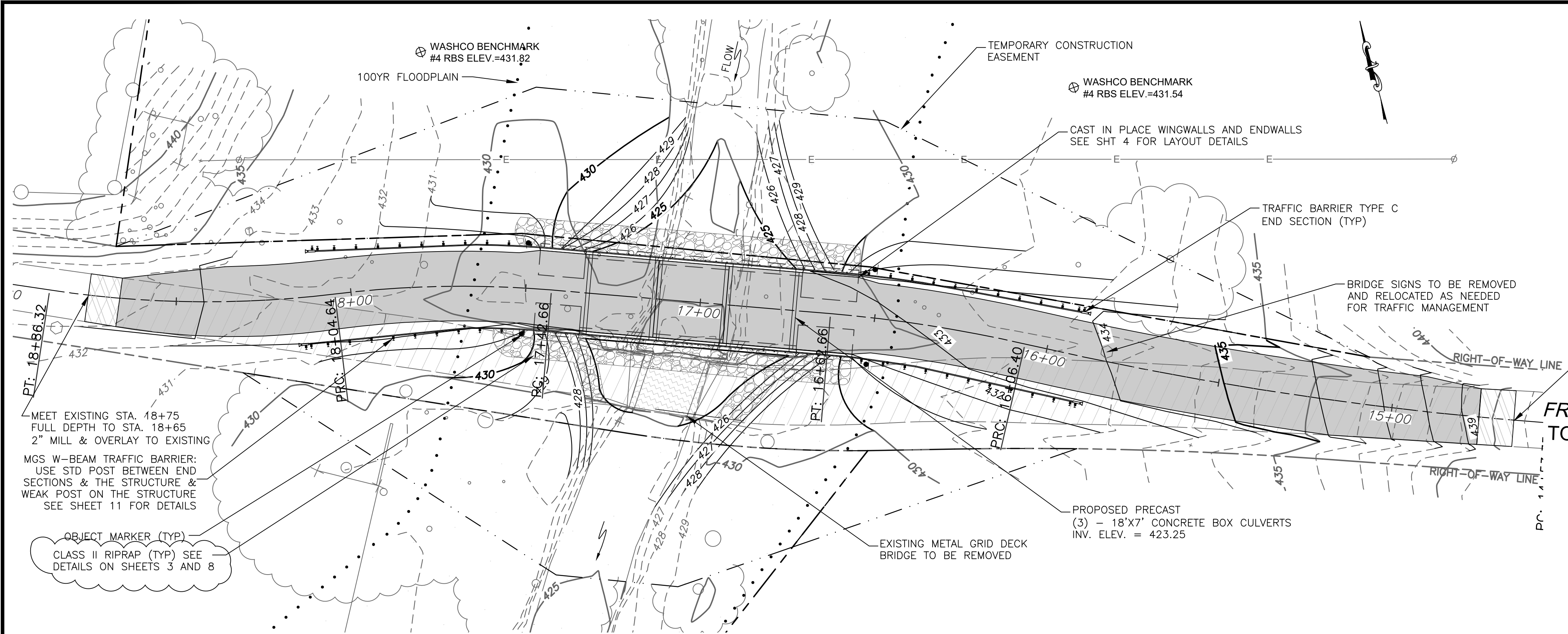
R16: All shop drawings and submittals will be reviewed by the Engineer and returned to the contractor within two-weeks from date of receipt by the Engineer. See also General Condition GC-5.14, Shop Drawings.

ITEM 2.05 **BID FORMS/PREPARATION OF BID:**

Bids shall be executed on the *separate, detached* set of Bid Forms provided with the bid document; in addition to any *revised* Bid Form pages issued via addenda. Refer also to the Bid Document, paragraph ITB 1.03 – Preparation of Bid. In addition, each submitted bid shall include the signed cover page of each issued addendum.

Attachments: REVISED Bid Form Pages BF-13R through BF-20R (8 total pages)
REVISED Plan Sheet No. 2R (1 page)
REVISED Plan Sheet No. 3R (1 page)
REVISED Plan Sheet No. 7R (1 page)
REVISED Plan Sheet No. 11R (1 page)
REVISED Plan Sheet No. 12R (1 page)
REVISED Special Provision Table of Contents Page SP-2R (1 page)
REVISED Special Provision Item 403R – Reinforced Concrete Mix No. 3 for Endwall Footings; ADDED Special Provision Item 405R - Reinforced Concrete Mix No. 6 for Endwall Stems; and REVISED Special Provision Item 404R – Traffic Barrier W-Beam at Structure (3 total pages)

END OF ADDENDUM NO. 2



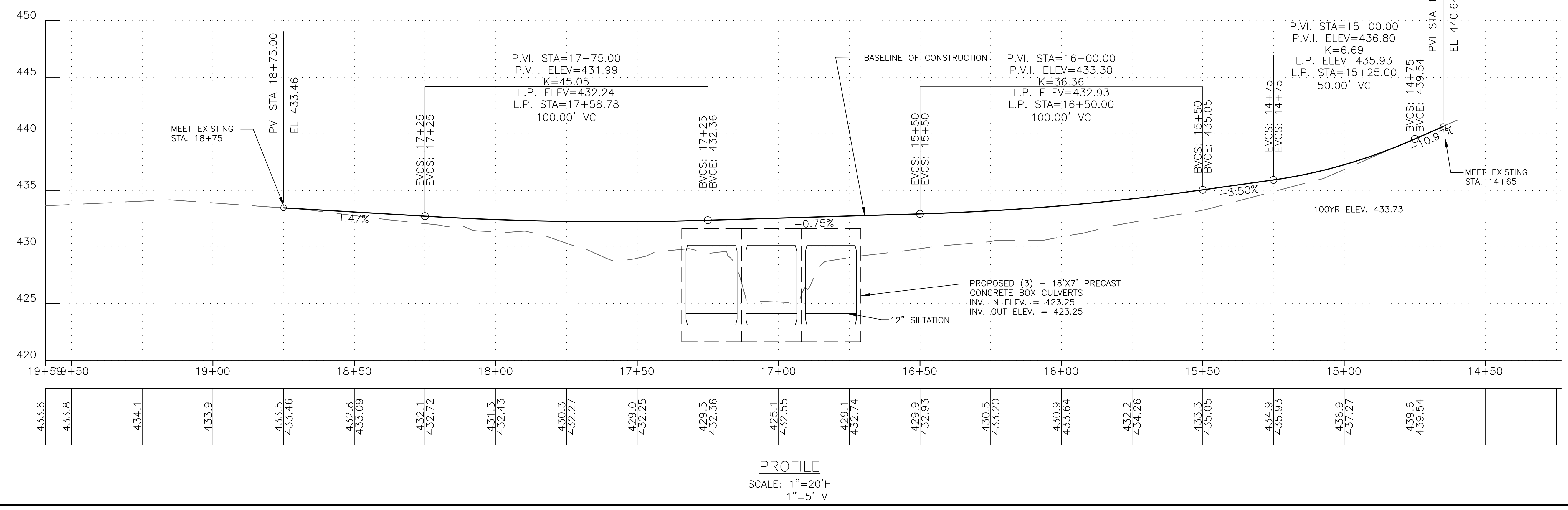
LEGEND

EX. CONTOURS	--- 100 ---
PROP. CONTOURS	— 100 —
APPROX. EDGE OF STREAM
EX. RIGHT-OF-WAY LINE	-----
EX. PROPERTY LINE	-----
EX. EDGE OF PAVEMENT	-----
EXISTING ELECTRIC LINE	-----
PROPOSED CLASS II RIPRAP	[Pattern]

- [Pattern] FULL DEPTH PAVEMENT SECTION REFER TO PAVEMENT SECTION SHOWN ON SHEET 3
- [Pattern] 2" DEPTH MILLING AND RESURFACING REFER TO SHEET 3
- [Pattern] REMOVAL OF EXISTING PAVEMENT
- [Symbol] PROPOSED OBJECT MARKER SIGN
- [Symbol] EXISTING UTILITY POLE

NOTES:

- W.S.ELEV. = 426.13 WATER SURFACE ELEVATION MEASURED AND OBSERVED ON MARCH, 2020. THIS IS NO INDICATION OF THE ACTUAL ELEVATION TO BE EXPECTED DURING CONSTRUCTION.
- ALL DIMENSIONS AFFECTED BY THE GEOMETRICS AND/OR LOCATION OF THE EXISTING STRUCTURE SHALL BE CHECKED IN THE FIELD BY THE CONTRACTOR BEFORE ANY CONSTRUCTION BEGINS, AND BEFORE ANY PRODUCTS ARE ORDERED OR FABRICATED. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO SUPPLY THE ENGINEER WITH ALL FIELD DIMENSIONS REQUIRED TO CHECK DETAILED SHOP DRAWINGS.



NO.	REVISION DESCRIPTION	DATE
1	PER ADDENDUM #2	5/20/21

WASHINGTON COUNTY, MARYLAND
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building
80 W. Baltimore St., Hagerstown, MD 21740
Phone: 240-313-2460 Fax: 240-313-2401

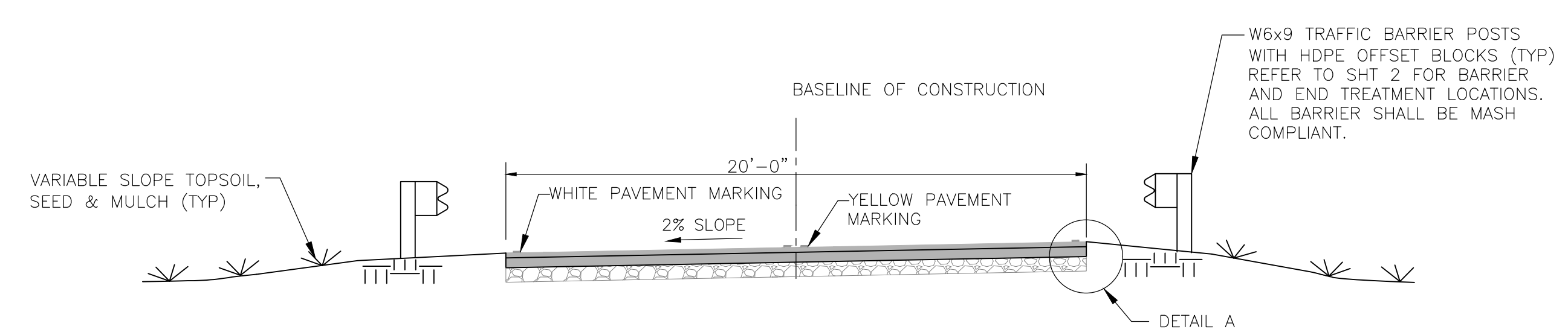
**FROG EYE ROAD
BRIDGE REPLACEMENT
PLAN AND PROFILE**



SCALE
AS SHOWN

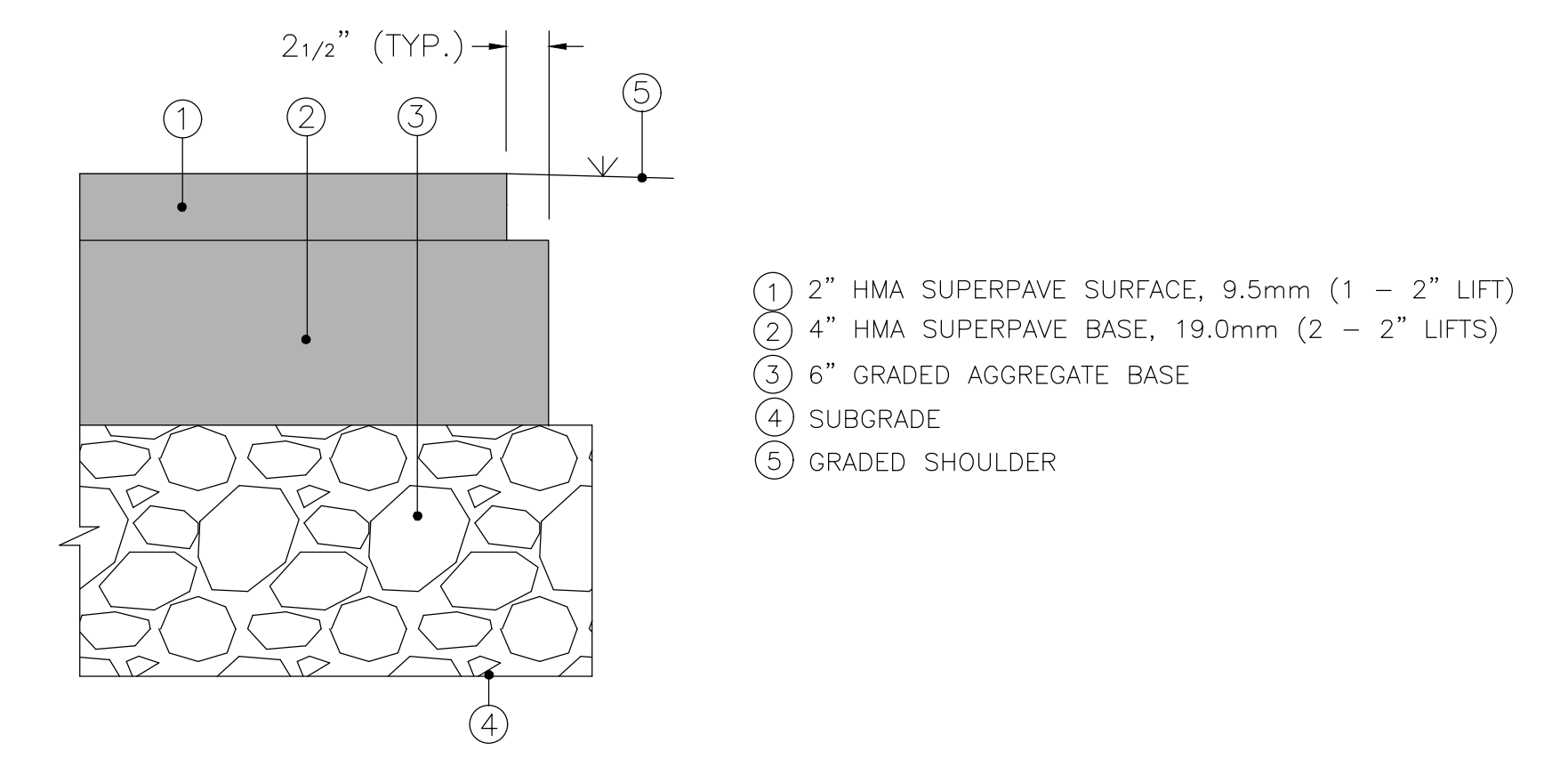
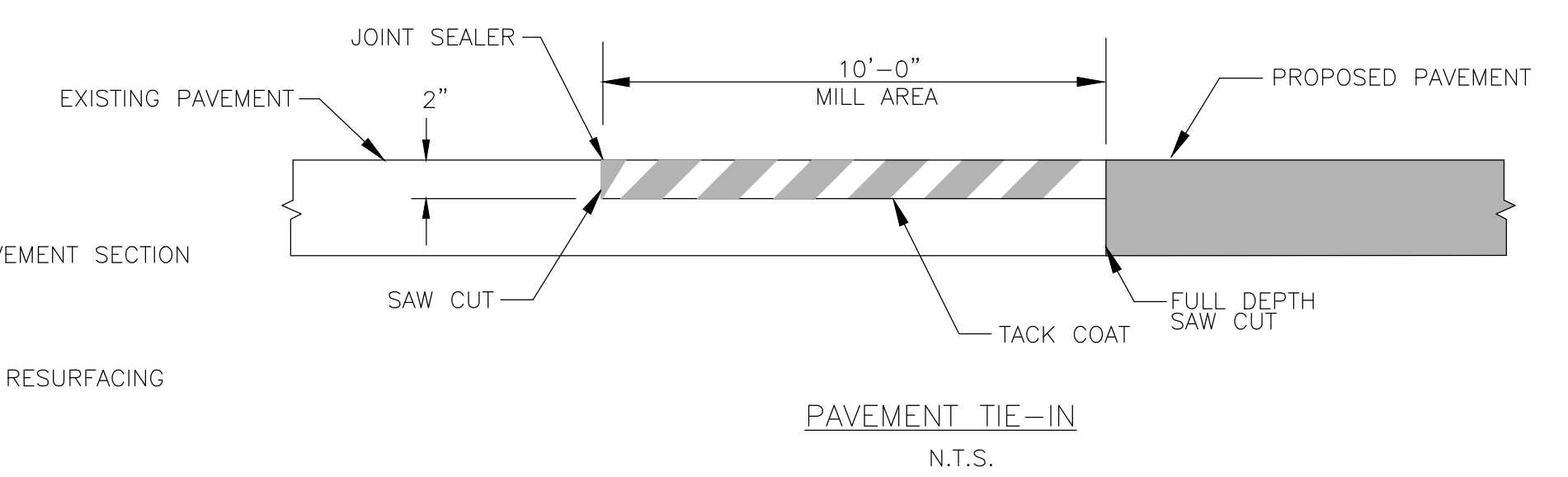
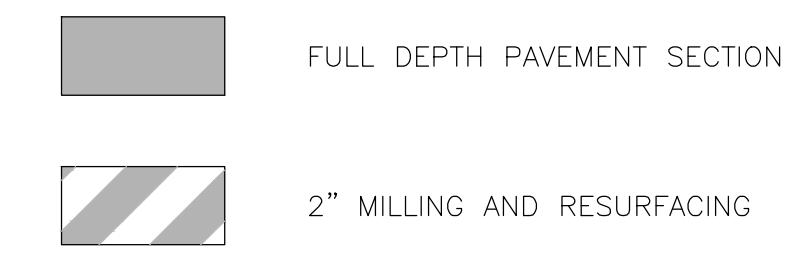
SHEET NO.
2R

PROJECT NO.
14-225



TYPICAL PROPOSED ROADWAY SECTION (LOOKING WEST)
SCALE: 1/4" = 1'

LEGEND:



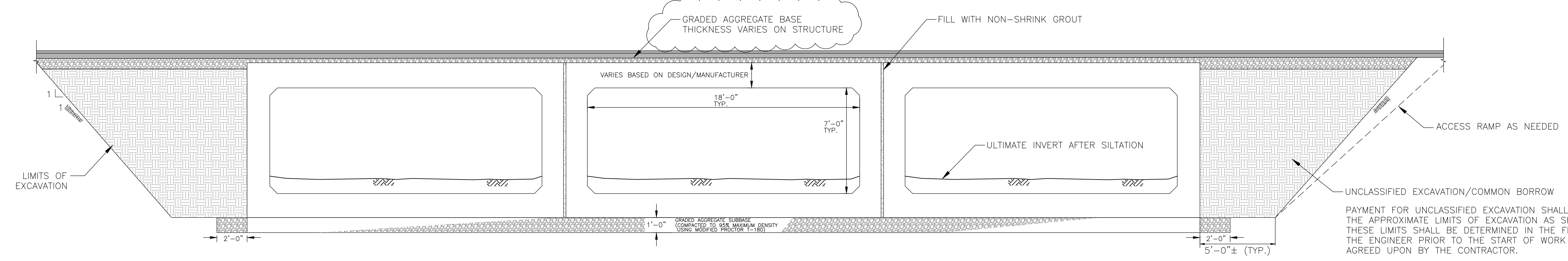
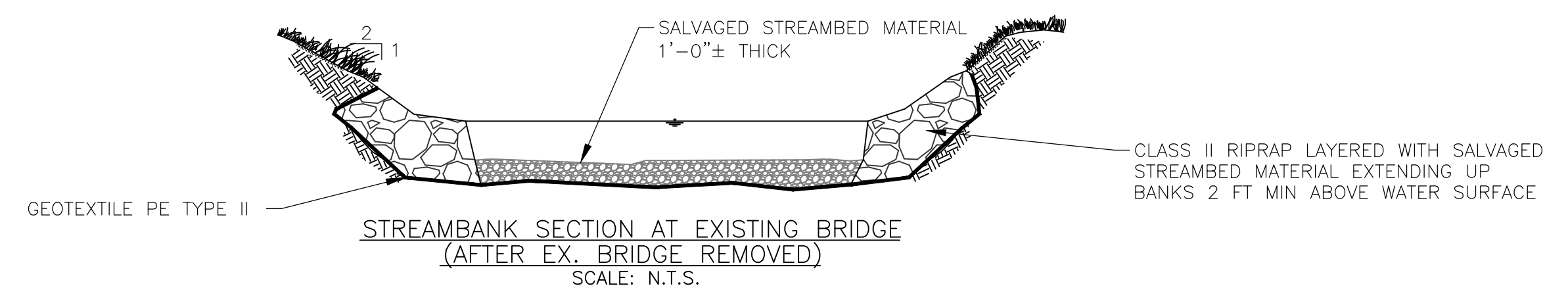
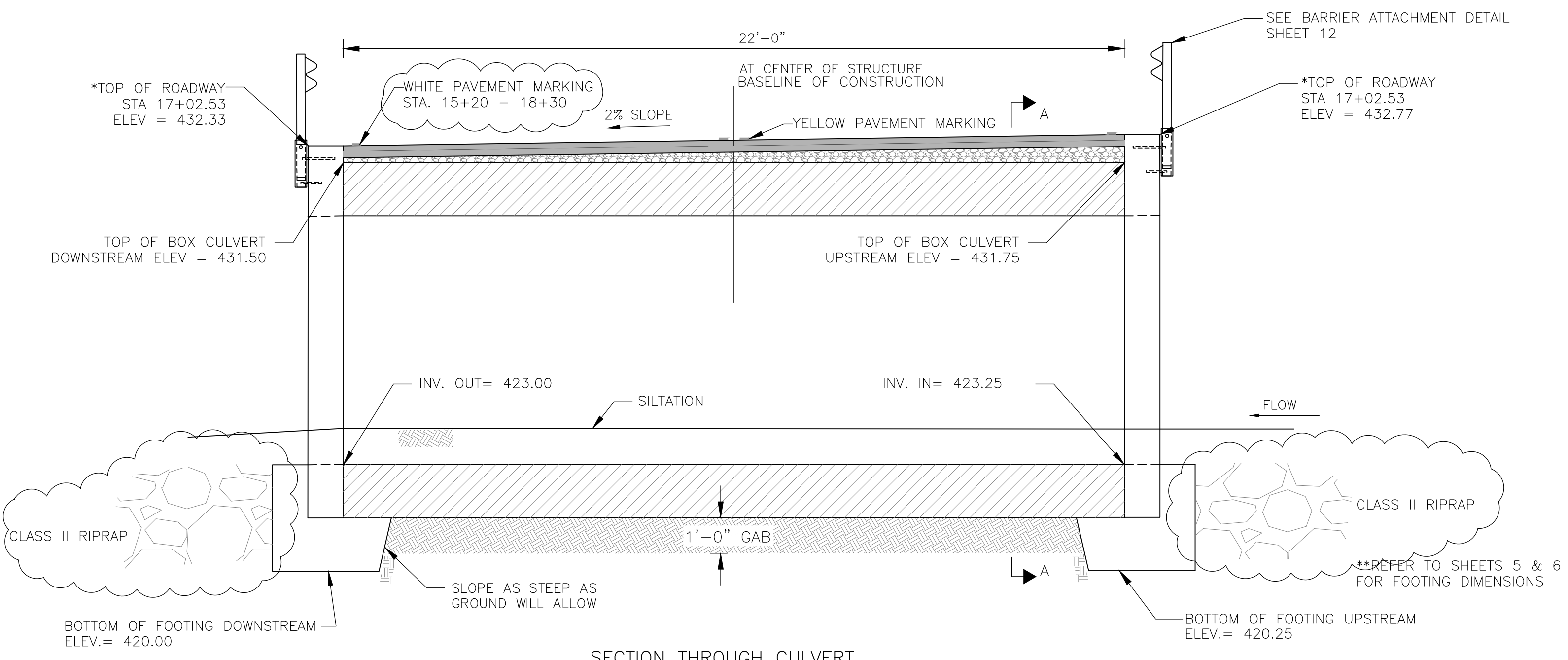
NOTES:

- NEW PAVEMENT SECTIONS SHALL CLOSELY MATCH EXISTING ELEVATIONS AND PROFILE AS SHOWN ON SHEET 2.
- SAWCUTS SHALL BE PROVIDED AT TIE-INS TO EXISTING PAVEMENT. REFER TO TIE-IN DETAIL ON THIS SHEET.
- MILLING THE EXISTING PAVEMENT IS INCIDENTAL TO PAY ITEM HOT MIX ASPHALT SUPERPAVE SURFACE.
- REFER TO SPECIFICATIONS FOR BACKFILL AND COMPACTION REQUIREMENTS.
- REFER TO SHEET 7 FOR REINFORCING DETAILS.

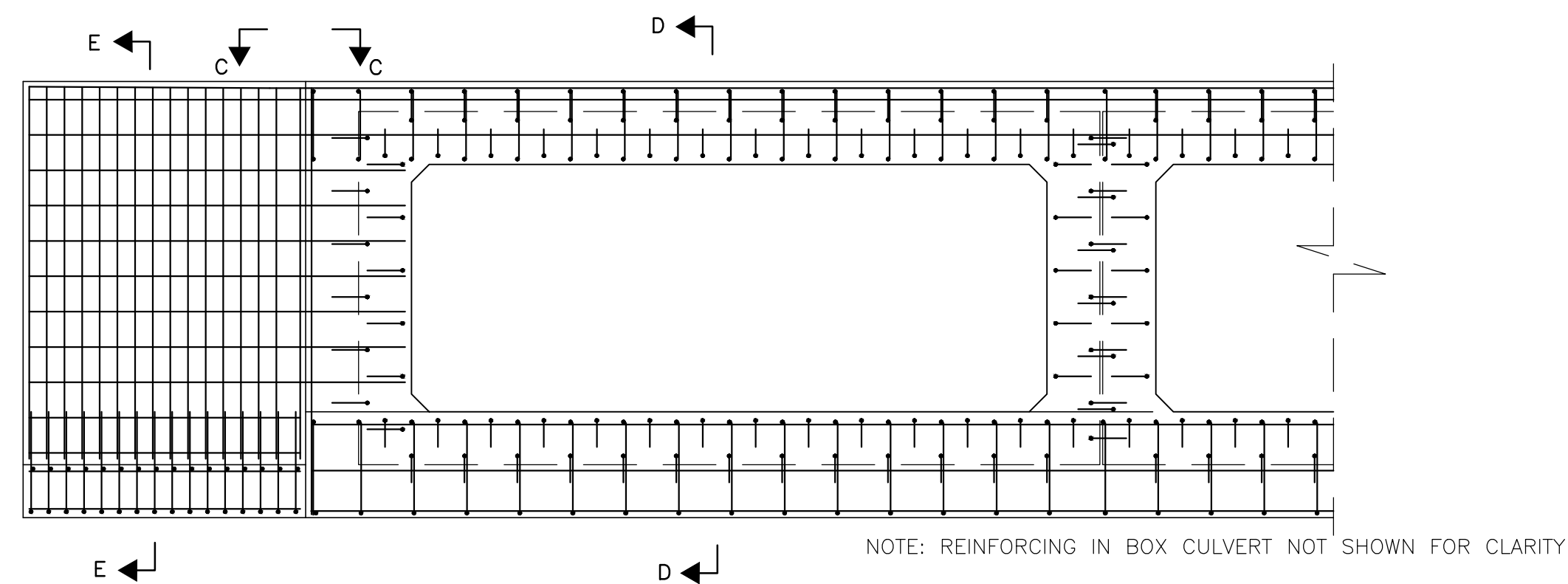
* TOP OF ROADWAY VARIES ALONG THE BRIDGE. REFER TO STATION ELEVATIONS ON THIS SHEET AND ENDWALL SHEETS. PAVEMENT SHALL BE ADJUSTED IN THE FIELD BY THE PAVING CONTRACTOR

CULVERT DIMENSIONS SHOWN ARE THOSE FOUND IN ASTM C850 AND AASHTO M273 WHERE APPLICABLE. THE CONTRACTOR MAY USE PRECAST SECTIONS WITH OTHER DIMENSIONS PROVIDING THE WATERWAY OPENING REMAINS THE SAME. THE ROADWAY SURFACE OVERLAY IS ADEQUATE, AND ALL DETAILS AFFECTED BY THIS CHANGE ARE ADJUSTED ACCORDINGLY.

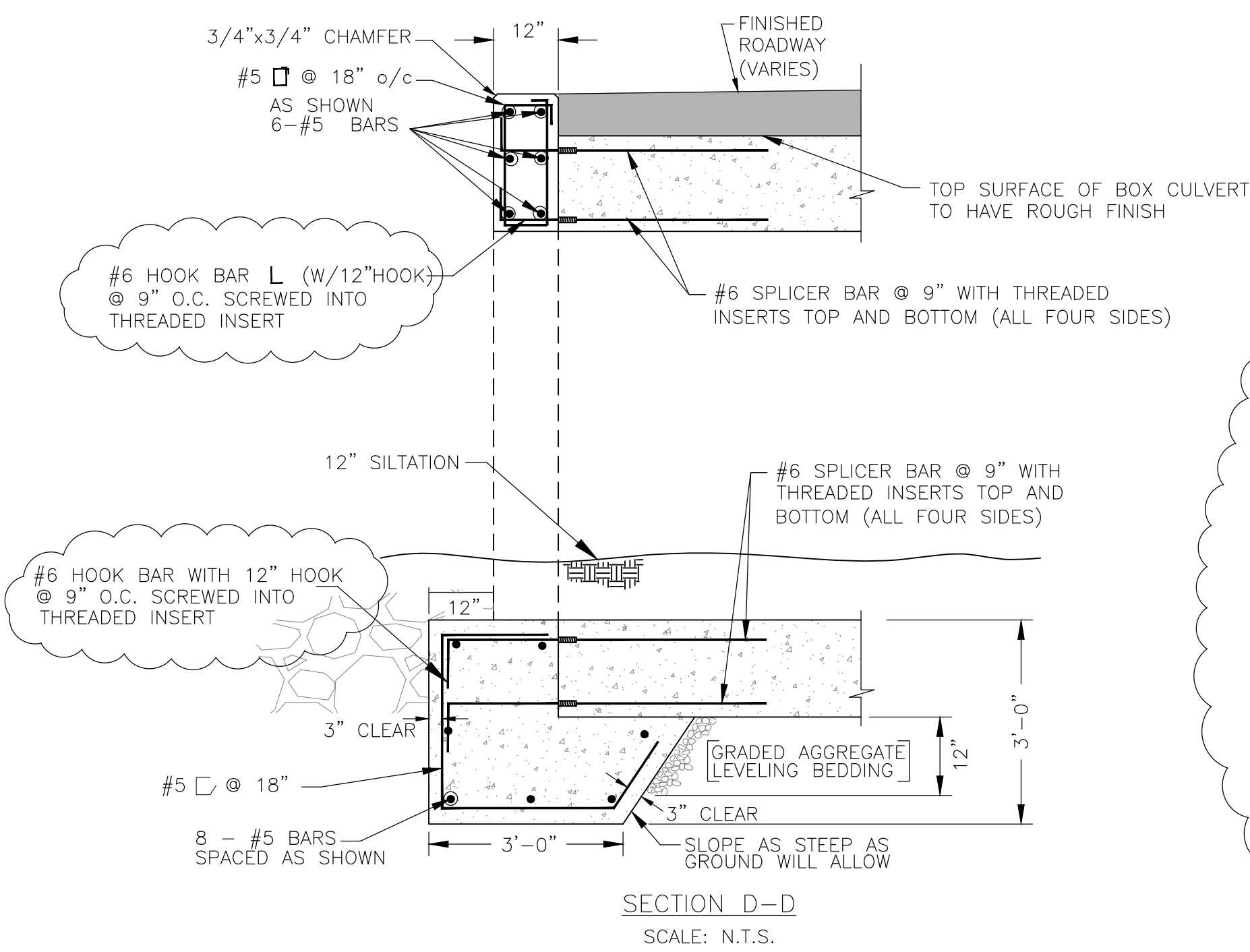
THE PRE-CAST SECTIONS AND REINFORCING ARE SHOWN FOR GRAPHICAL REPRESENTATION ONLY.



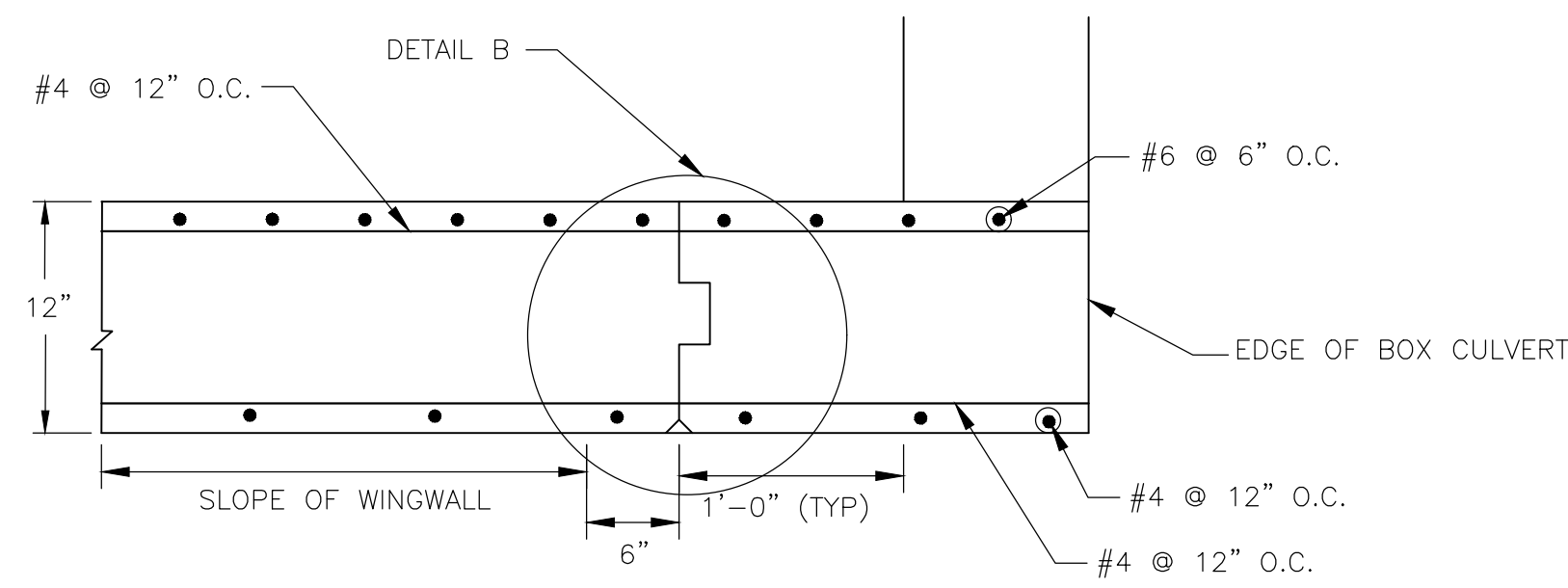
DATE	5/20/21
BY	
REVISION DESCRIPTION	
NO.	1
PER ADDENDUM #2	
DESIGNED BY	SH
DRAWN BY	BM
CHECKED BY	SH
DATE	3/29/2021
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING	
Washington County Administrative Annex, Building 80 W. Baltimore St., Hagerstown, MD 21740 Phone: 240-313-2460 Fax: 240-313-2401	
FROG EYE ROAD BRIDGE REPLACEMENT	
TYPICAL SECTIONS	
SCALE AS SHOWN	
SHEET NO. 3R	
PROJECT NO. 14-225	



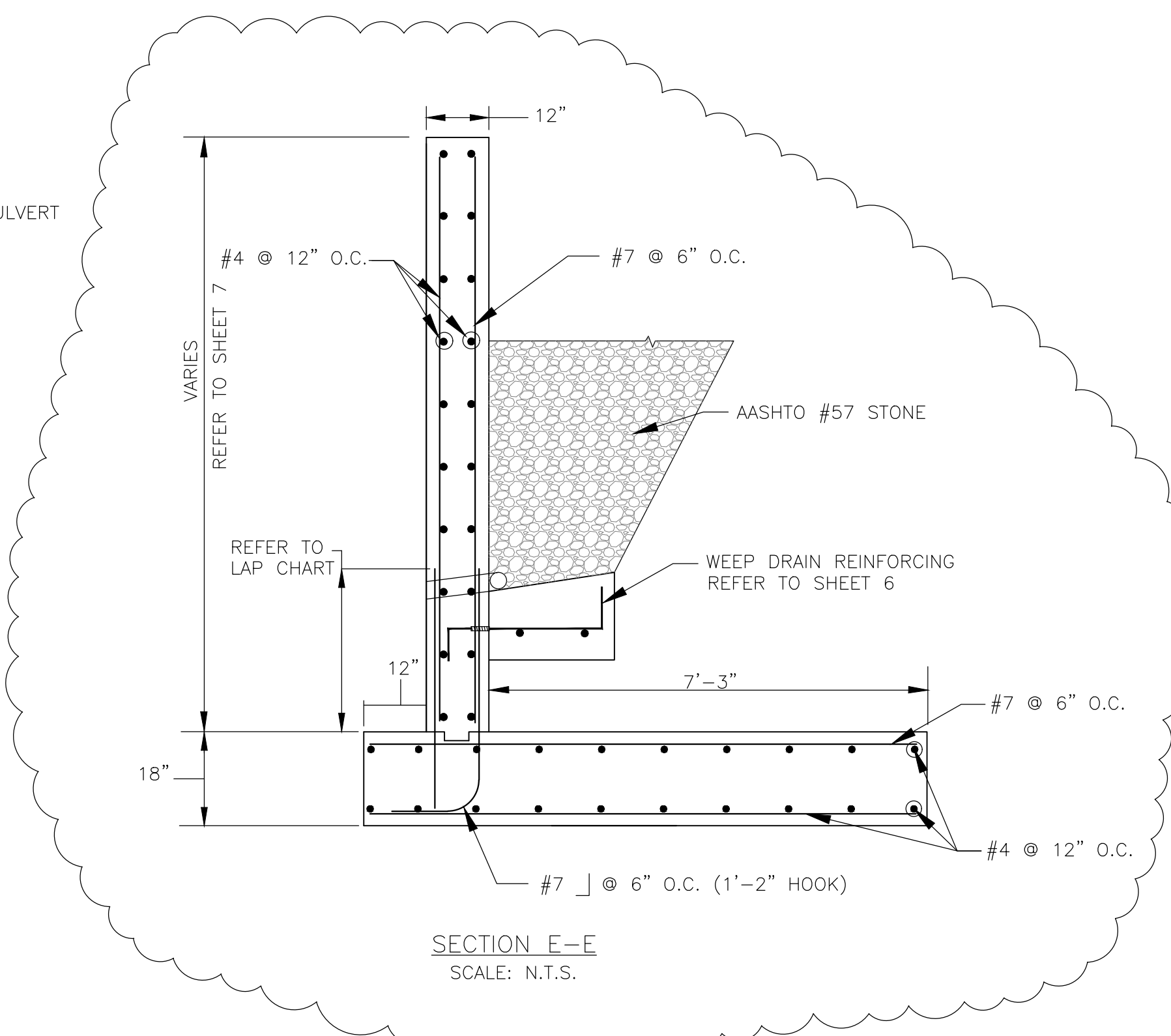
TYPICAL ELEVATION - UPSTREAM ENDWALL SHOWN
SCALE: N.T.S.



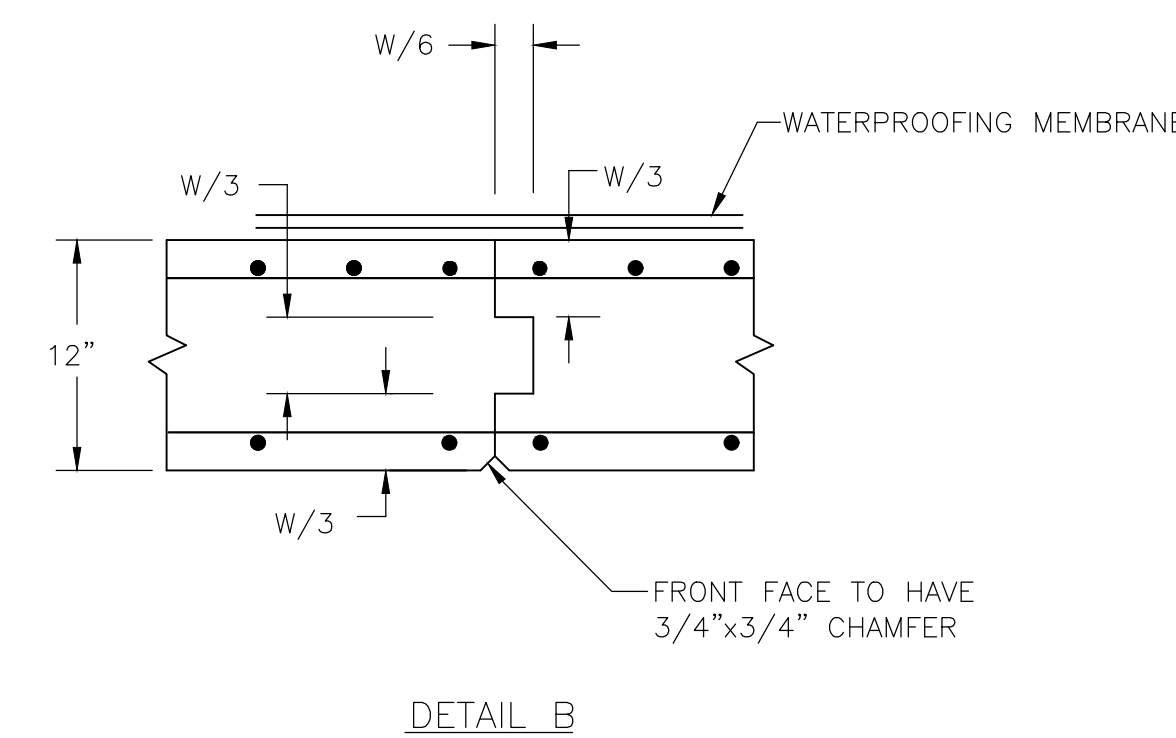
SECTION D-D
SCALE: N.T.S.



SECTION C-C
N.T.S.



SECTION E-E
SCALE: N.T.S.



DETAIL B

NOTES:

DESIGN SPECIFICATIONS: AASHTO LOAD AND RESISTANCE FACTOR DESIGN (LRFD) BRIDGE DESIGN SPECIFICATIONS, LATEST EDITION.

DESIGN/LOADING: STRUCTURAL DESIGN OF PRECAST CONCRETE BOX SHALL MEET OR EXCEED AASHTO HL-93 LOADING.

PRECAST CONCRETE: ALL CONCRETE FOR THE PRECAST BOX CULVERT UNITS SHALL BE 5,000 PSI MIN. AT 28 DAYS.

CULVERT SLAB THICKNESSES, WALL DIMENSIONS, AND REINFORCING DESIGNED TO MEET LOADING REQUIREMENTS MAY VARY FROM THOSE FOUND IN ASTM AND AASHTO SPECIFICATIONS.

REFER TO ASTM C1433/AASHTO M259 AND AASHTO M273 (FORMERLY ASTM C789/AASHTO M259 FOR CULVERTS WITH FILL HEIGHTS OF 2 FEET OR GREATER AND ASTM C850/AASHTO M273 FOR CULVERTS WITH FILL HEIGHTS OF LESS THAN 2 FEET).

ALL CONCRETE EDGES SHALL BE CHAMFERED 3/4" x 3/4".

LIFTING EYES/HOLES SHALL BE PROVIDED IN EACH SECTION FOR HANDLING. THEY SHALL BE FILLED AS DIRECTED BY THE MANUFACTURER AFTER THE BOX SECTIONS ARE IN PLACE.

AN APPROVED BUTYL RUBBER, FLEXIBLE FOAM, OR BITUMINOUS MASTIC FROM THE MANUFACTURER SHALL BE PROVIDED IN EACH JOINT TO PROVIDE A WATERTIGHT SEAL.

ALL SIDES OF THE BOX CULVERT SHALL BE DAMPROOFED WITH AN APPROVED ASPHALT BASED PAINT/PRIMER.

ALL BOX SECTIONS SHALL BE MARKED AS FOLLOWS IN ACCORDANCE WITH AASHTO M273 BY INDENTATION OR WATERPROOF PAINT: 1.) SECTION RISE, SPAN AND SPECIFICATION DESIGNATION, 2.) DATE OF MANUFACTURE, 3.) NAME OR TRADEMARK OF MANUFACTURER, 4.) PLANT IDENTIFICATION, 5.) MARKED BY INDENTATION ON INSIDE OR OUTSIDE SO THAT THE LOCATION OF THE TOP WILL BE EVIDENT IMMEDIATELY AFTER THE FORMS ARE STRIPPED.

THE MANUFACTURER/ENGINEER SHALL SUBMIT SHOP DRAWINGS OF THE CULVERT TO THE WASHINGTON COUNTY ENGINEERING DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE MANUFACTURE OF THE STRUCTURE.

CAST-IN-PLACE CONCRETE: CONCRETE FOR HEADWALL AND WINGWALL STEMS SHALL BE MSHA MIX NO. 6 (4,500 PSI MIN.). FOOTINGS SHALL BE MSHA MIX NO. 3 (3,500 PSI MIN.).

ALL EXPOSED CORNERS OF CONCRETE SHALL BE CHAMFERED WITH 3/4" x 3/4" MILLED CHAMFER STRIPS.

DAMP-PROOFING SHALL BE APPLIED TO ALL CONCRETE SURFACES COMING IN CONTACT WITH BACKFILL. WATERPROOFING MEMBRANE SHALL BE 2-PLY AND 16" MIN. WIDTH CENTERED ON THE CONSTRUCTION JOINTS.

REINFORCING STEEL: REINFORCING STEEL FOR THE PRECAST BOX CULVERT SHALL BE WELDED WIRE FABRIC (WWF) WITH DEFORMED WIRES PER AASHTO M221 AND M225 (MIN. F_y=65,000 PSI) OR DEFORMED REBAR CONFORMING TO ASTM A615, GRADE 60 (MIN. F_y=60,000 PSI). SPLICES SHALL BE LAPPED ACCORDING TO AASHTO REQUIREMENTS OR BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR IN THE PRECAST BOX CULVERT SHALL BE 1".

ALL REINFORCING STEEL IN THE TOP SLAB OF THE PRECAST CULVERT UNITS AND IN THE CAST-IN-PLACE HEADWALLS SHALL BE EPOXY COATED.

REINFORCING STEEL FOR CAST-IN-PLACE HEADWALLS AND WINGWALLS SHALL CONFORM TO ASTM 615, GRADE 60. SPLICES NOT SHOWN SHALL BE LAPPED ACCORDING TO AASHTO REQUIREMENTS OR BAR LAP CHARTS. MINIMUM COVER FOR ANY BAR SHALL BE 2 INCHES, UNLESS OTHERWISE NOTED, WITH THE EXCEPTION OF BARS AT THE BOTTOM OF ALL FOOTINGS, WHICH SHALL HAVE 3 INCH MINIMUM COVER.

FOR TIES AND STIRRUPS: STANDARD ACI BENDING TOLERANCES ARE MODIFIED TO PLUS (+) ZERO INCHES, MINUS (-) NORMAL ACI BENDING TOLERANCES.

BAR LAP DIMENSIONS FOR
GRADE 60 REINFORCING STEEL

BAR SIZE	* LOCATION CATEGORY			
	NON-EPOXY		EPOXY COATED	
	A	B	A	B
#4	2'-5"	1'-10"	2'-10"	2'-2"
#5	3'-0"	2'-4"	3'-7"	2'-9"
#6	3'-7"	2'-9"	4'-8"	4'-1"
#7	4'-2"	3'-2"	5'-5"	4'-9"
#8	4'-9"	3'-8"	6'-2"	5'-5"
#9	5'-10"	4'-6"	7'-8"	6'-9"
#10	7'-2"	5'-7"	9'-5"	8'-4"
#11	8'-8"	6'-8"	11'-4"	10'-0"

BAR SIZE	* LOCATION CATEGORY			
	NON-EPOXY		EPOXY COATED	
	A	B	A	B
#4	2'-1"	1'-7"	2'-6"	1'-11"
#5	2'-7"	2'-0"	3'-1"	2'-5"
#6	3'-1"	2'-5"	4'-0"	3'-7"
#7	3'-7"	2'-9"	4'-8"	4'-2"
#8	4'-1"	3'-2"	5'-4"	4'-9"
#9	5'-1"	3'-11"	6'-7"	5'-10"
#10	6'-3"	4'-10"	8'-2"	7'-2"
#11	7'-6"	5'-9"	9'-9"	8'-8"

END HOOKS

BAR SIZE	FINISHED BEND DIAMETER	90° HOOKS
#4	3"	8"
#5	3-3/4"	10"
#6	4-1/2"	11-0"
#7	5-1/4"	11-2"
#8	6"	11-4"
#9	9-1/2"	11-6"
#10	10-3/4"	11-8"
#11	11-0"	11-10"

MIX NO. 3 (3,500psi) CONCRETE

MIX NO. 6 (4,500psi) CONCRETE

* LOCATION CATEGORY
A - BARS IN HORIZONTAL LAYERS IN TOP OF POUR WITH 12" OR MORE OF CONCRETE BELOW THEM SUCH AS IN FOOTINGS, PIER CAPS, ETC.
B - ALL BARS NOT IN CATEGORY A

NOTE:
1. WHEN BAR LAP IS NOT SPECIFIED ON THE PLANS, THE ABOVE DIMENSIONS SHALL BE USED.
2. FOR CENTER TO CENTER SPACING <6" SEE MD DOT O.O.S. DETAILS FOR REBAR-BL-101 AND BL-103.

REVISION NO.	DATE
1	5/20/21
REVISION DESCRIPTION	
PER ADDENDUM #2	
DESIGNED BY	
DRAWN BY	
CHECKED BY	
DATE	3/23/2021

WASHINGTON COUNTY, MARYLAND
DIVISION OF ENGINEERING

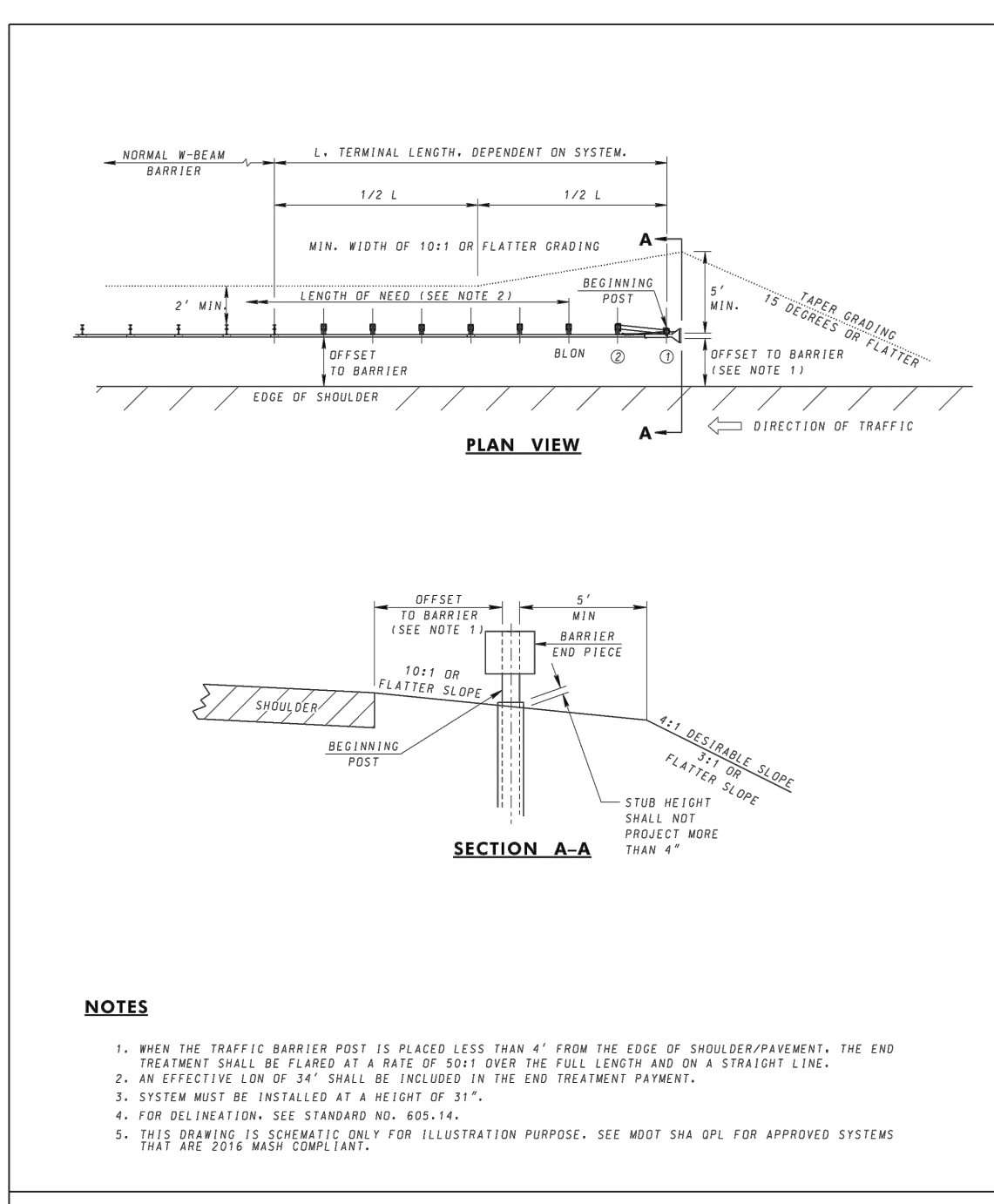
Washington County Administrative Annex, Building
80 W. Baltimore St., Hagerstown, MD 21740
Phone: 240-313-2460 Fax: 240-313-2401

FROG EYE ROAD
BRIDGE REPLACEMENT
REINFORCING

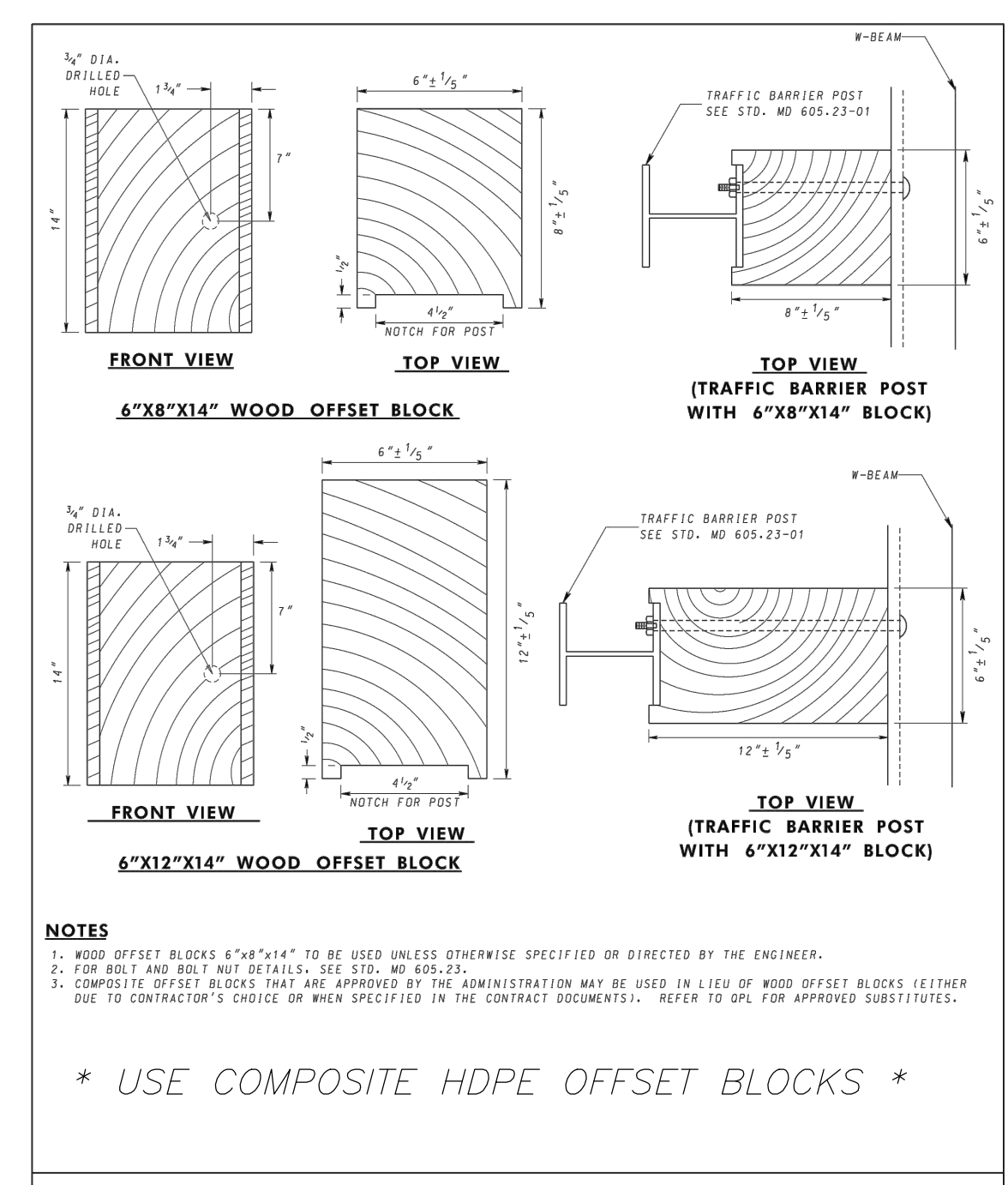
SCALE
AS SHOWN

SHEET NO.
7R

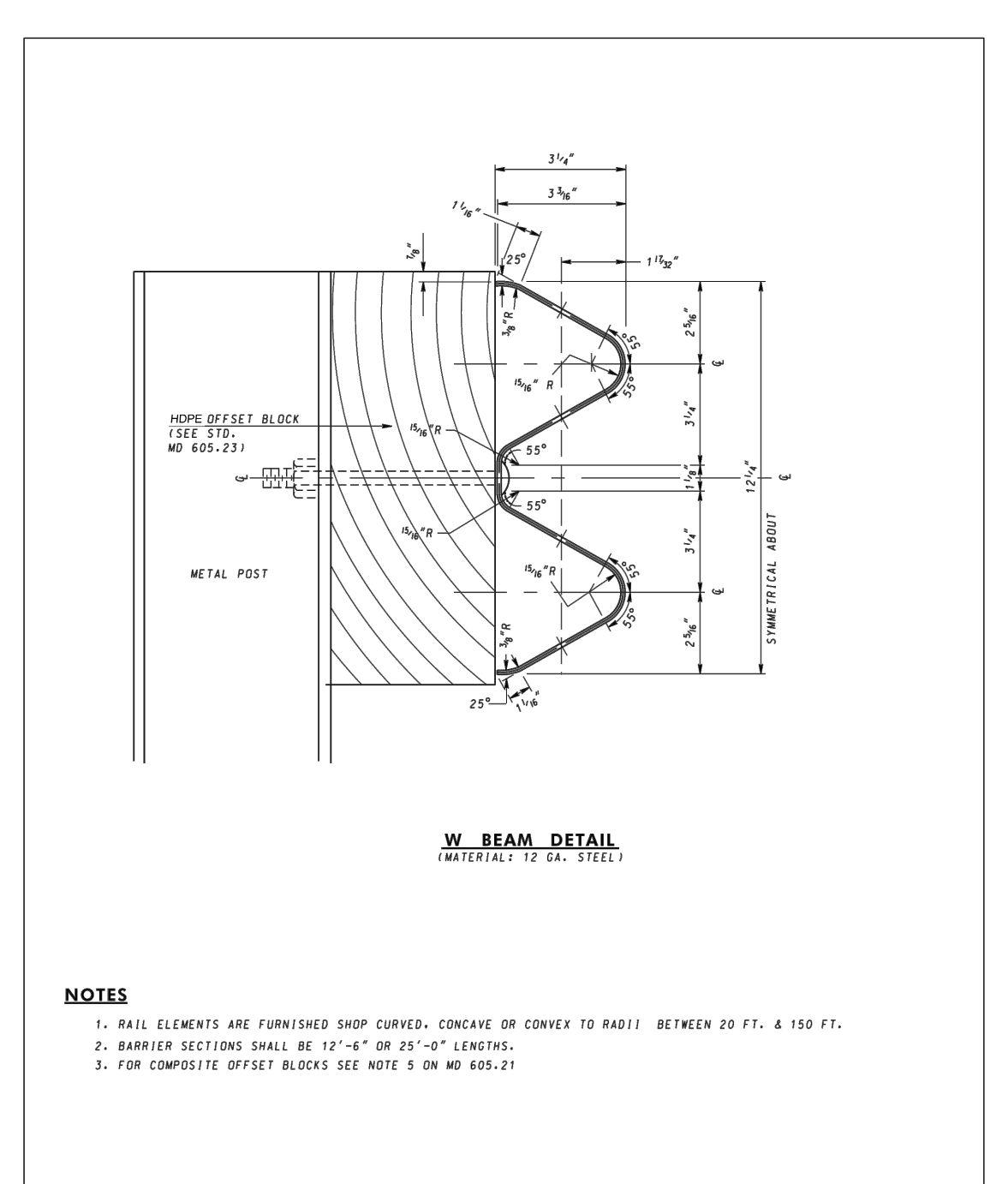
PROJECT NO.
14-225



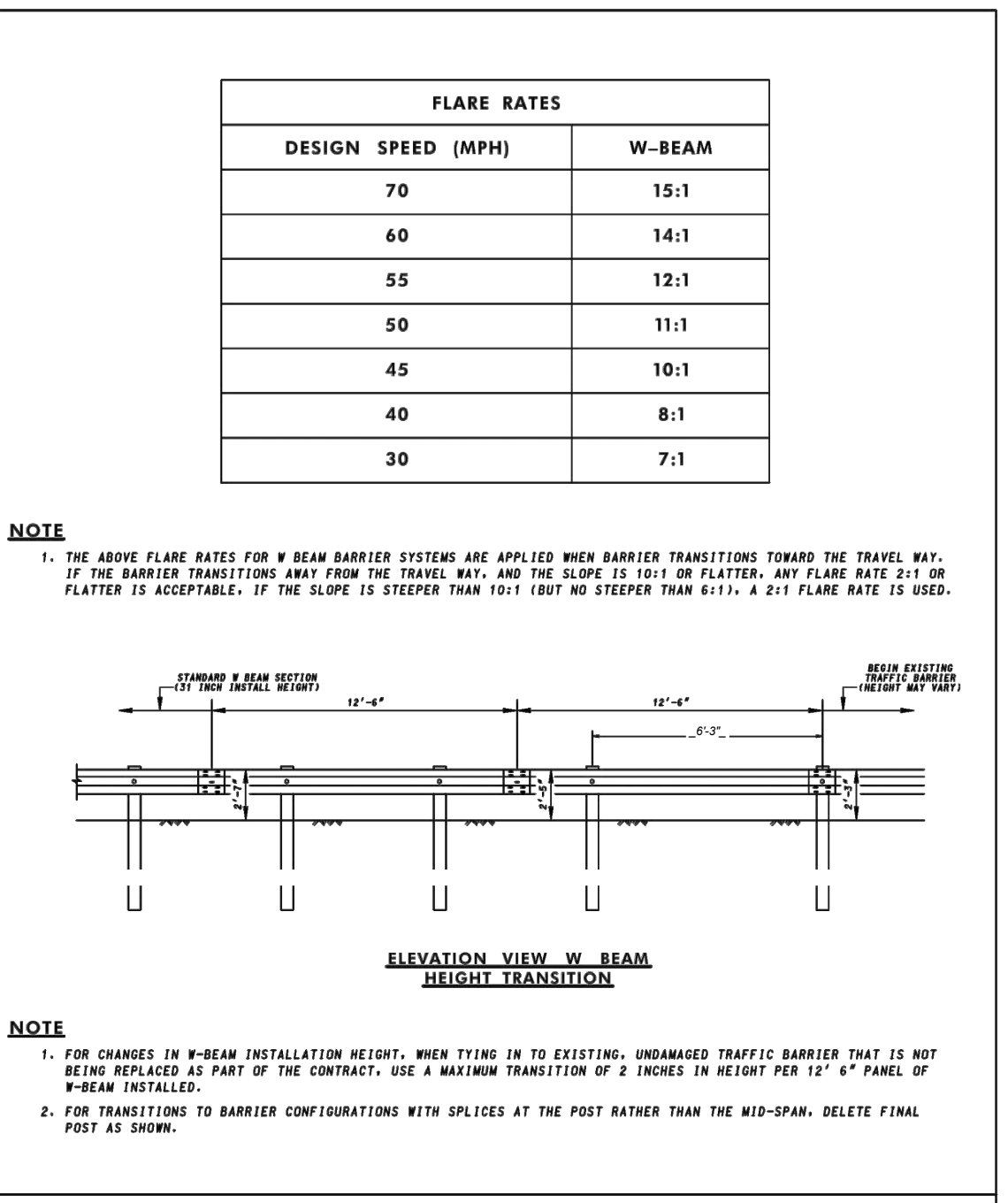
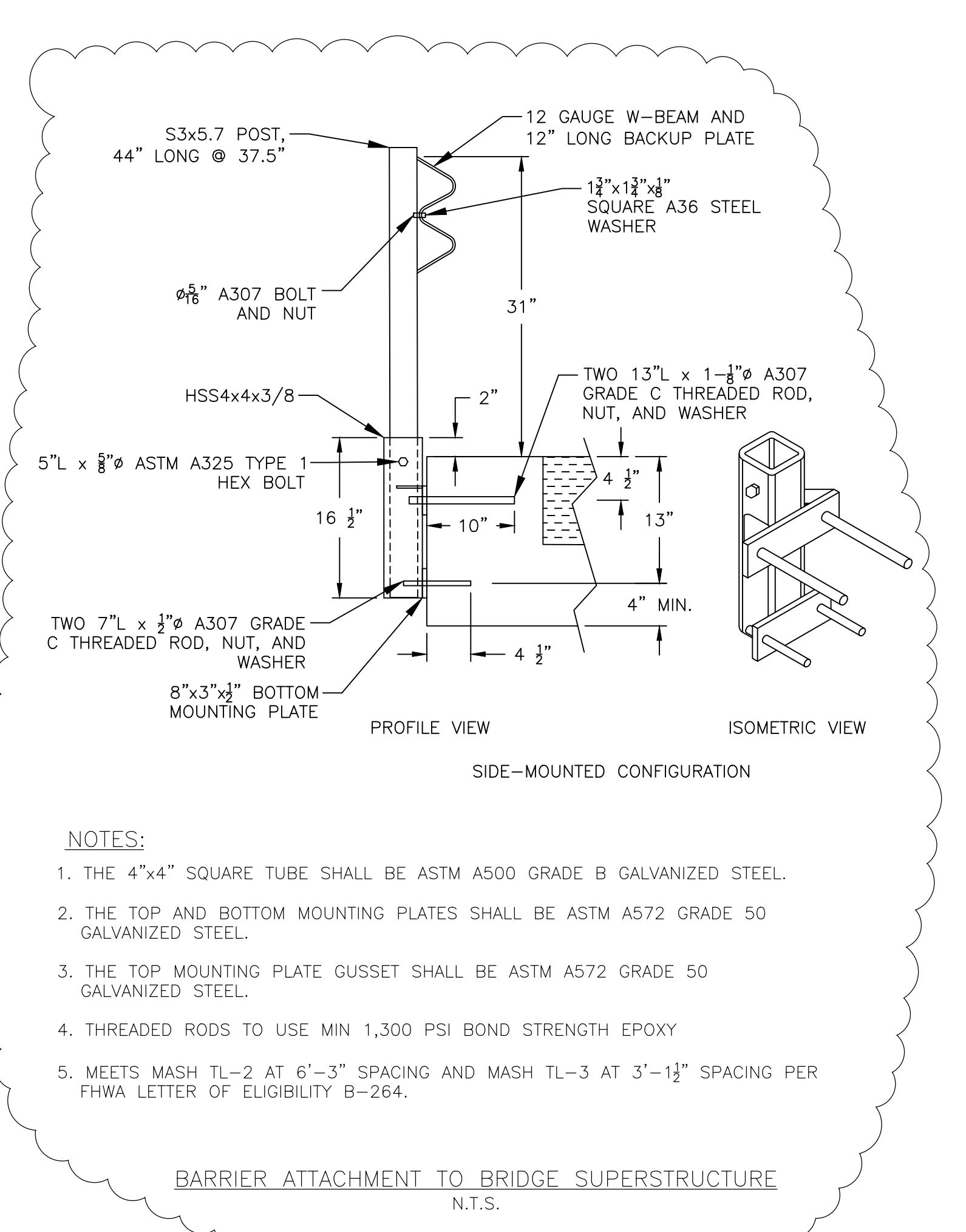
SPECIFICATION	CATEGORY CODE ITEMS	MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES TRAFFIC BARRIER W-BEAM ONE-SIDED PARALLEL END TREATMENT (TYPE C) STANDARD NO. MD 605.03
APPROVED	DIRECTOR: OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	



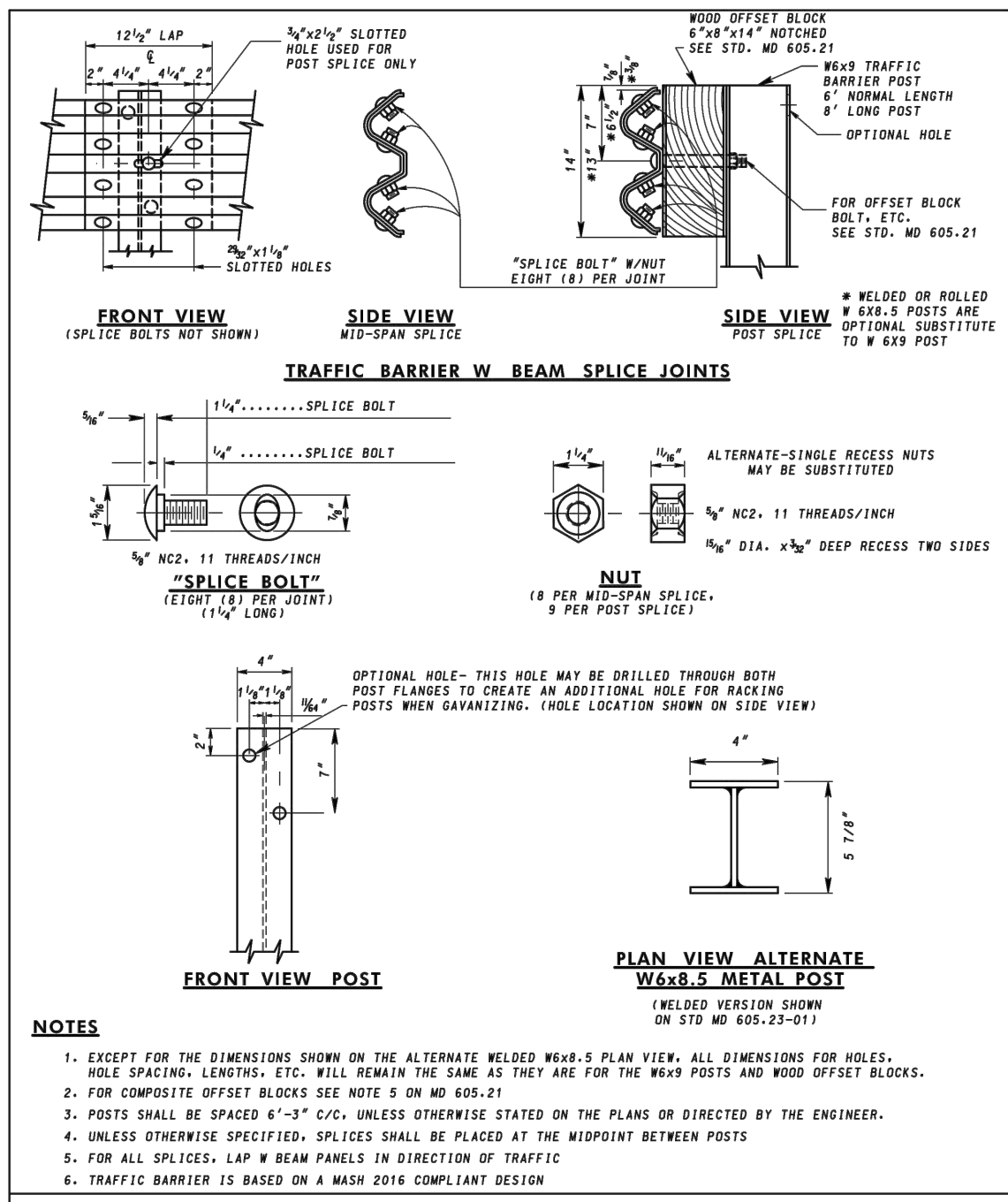
SPECIFICATION	CATEGORY CODE ITEMS	MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES WOOD OFFSET BLOCK STANDARD NO. MD 605.21
APPROVED	DIRECTOR: OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	



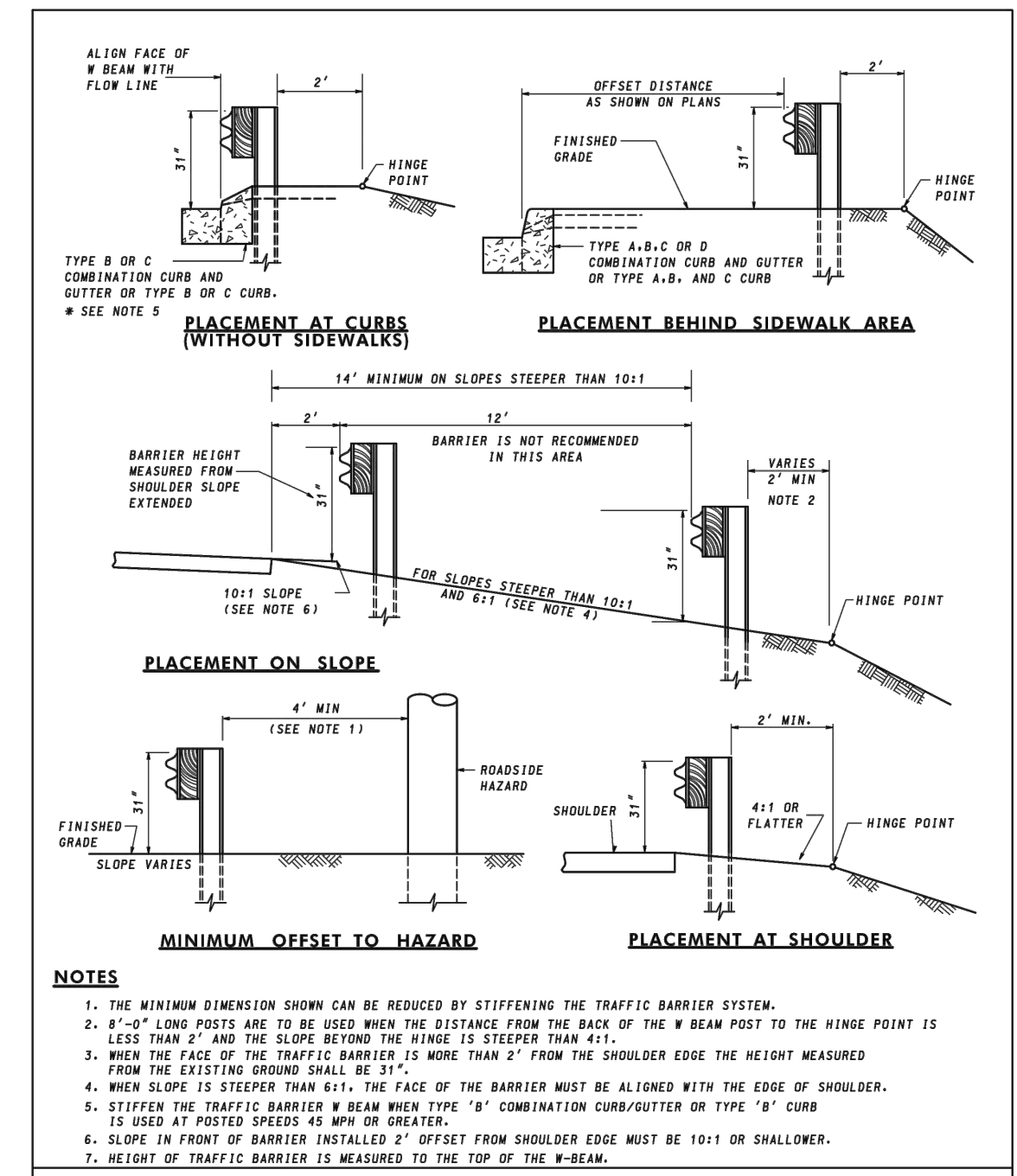
SPECIFICATION	CATEGORY CODE ITEMS	MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES TRAFFIC BARRIER W-BEAM SINGLE FACE STANDARD NO. MD 605.22
APPROVED	DIRECTOR: OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	



SPECIFICATION	CATEGORY CODE ITEMS	MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES TRAFFIC BARRIER W-BEAM FLARE RATES AND HEIGHT TRANSITION STANDARD NO. MD 605.32
APPROVED	DIRECTOR: OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	



SPECIFICATION	CATEGORY CODE ITEMS	MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES TRAFFIC BARRIER W-BEAM, W-BEAM SPLICES, AND WOOD OFFSET BLOCK STANDARD NO. MD 605.23
APPROVED	DIRECTOR: OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	



SPECIFICATION	CATEGORY CODE ITEMS	MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES TRAFFIC BARRIER W-BEAM PLACEMENT DETAILS STANDARD NO. MD 605.31
APPROVED	DIRECTOR: OFFICE OF HIGHWAY DEVELOPMENT	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	
APPROVAL	APPROVAL	
REVISIONS	REVISIONS	

DESIGNED BY:	DATE
SH	5/20/21
DRAWN BY:	
BM	
CHECKED BY:	
SH	
DATE:	
3/23/2021	

NO.	REVISION DESCRIPTION
1	PER ADDENDUM #2

WASHINGTON COUNTY, MARYLAND
DIVISION OF ENGINEERING

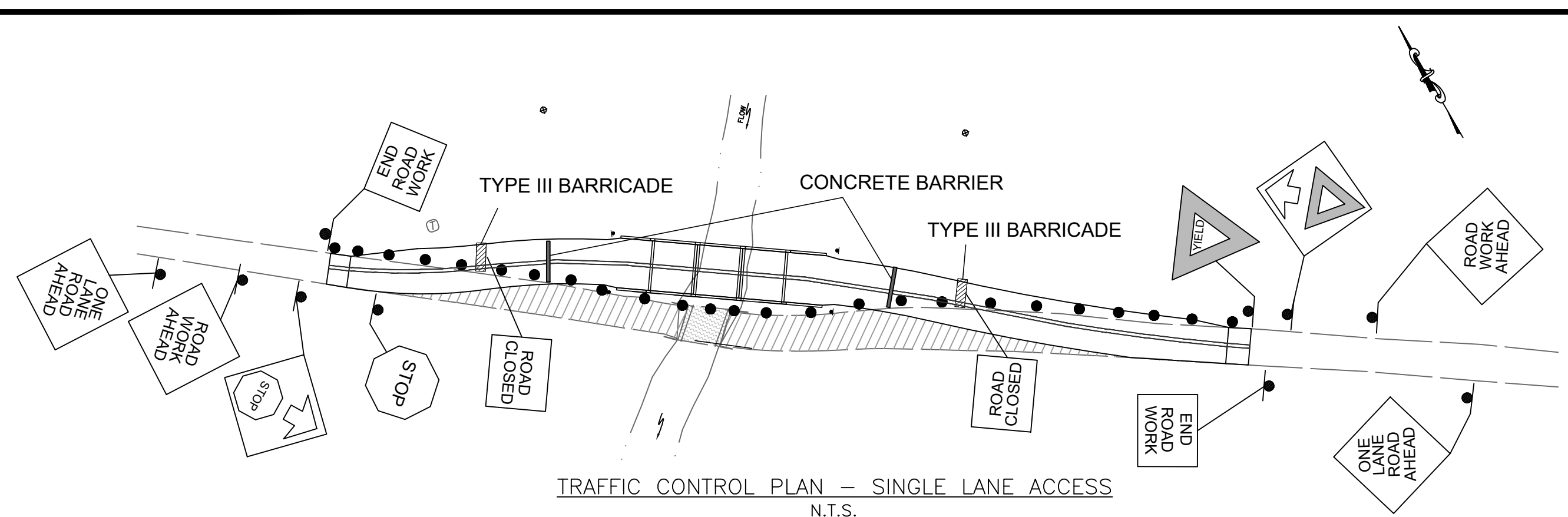
Washington County Administrative Annex, Building
80 W. Baltimore St., Hagerstown, MD 21740
Phone: 240-313-2460 Fax: 240-313-2401

STATE OF MARYLAND
JOHN SCOTT BOGGS, GOV.
31173
REGIONAL ENGINEER

SCALE
AS SHOWN

SHEET NO.
11R

PROJECT NO.
14-225



NOTES:

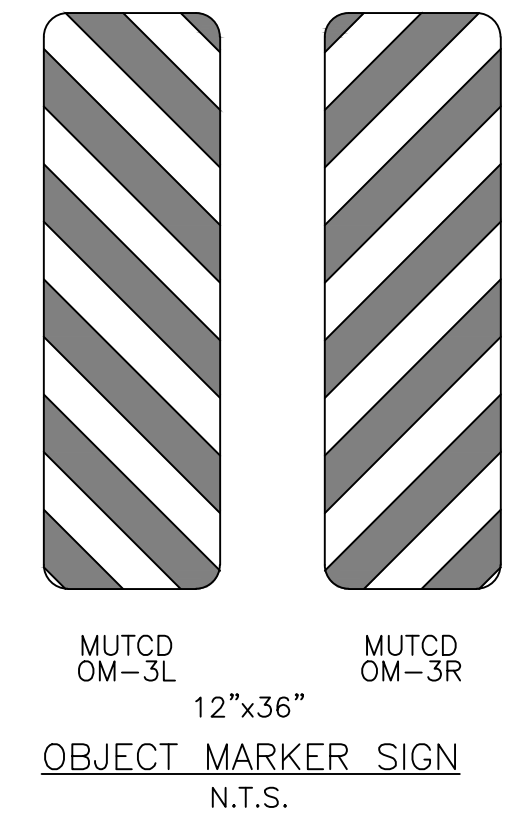
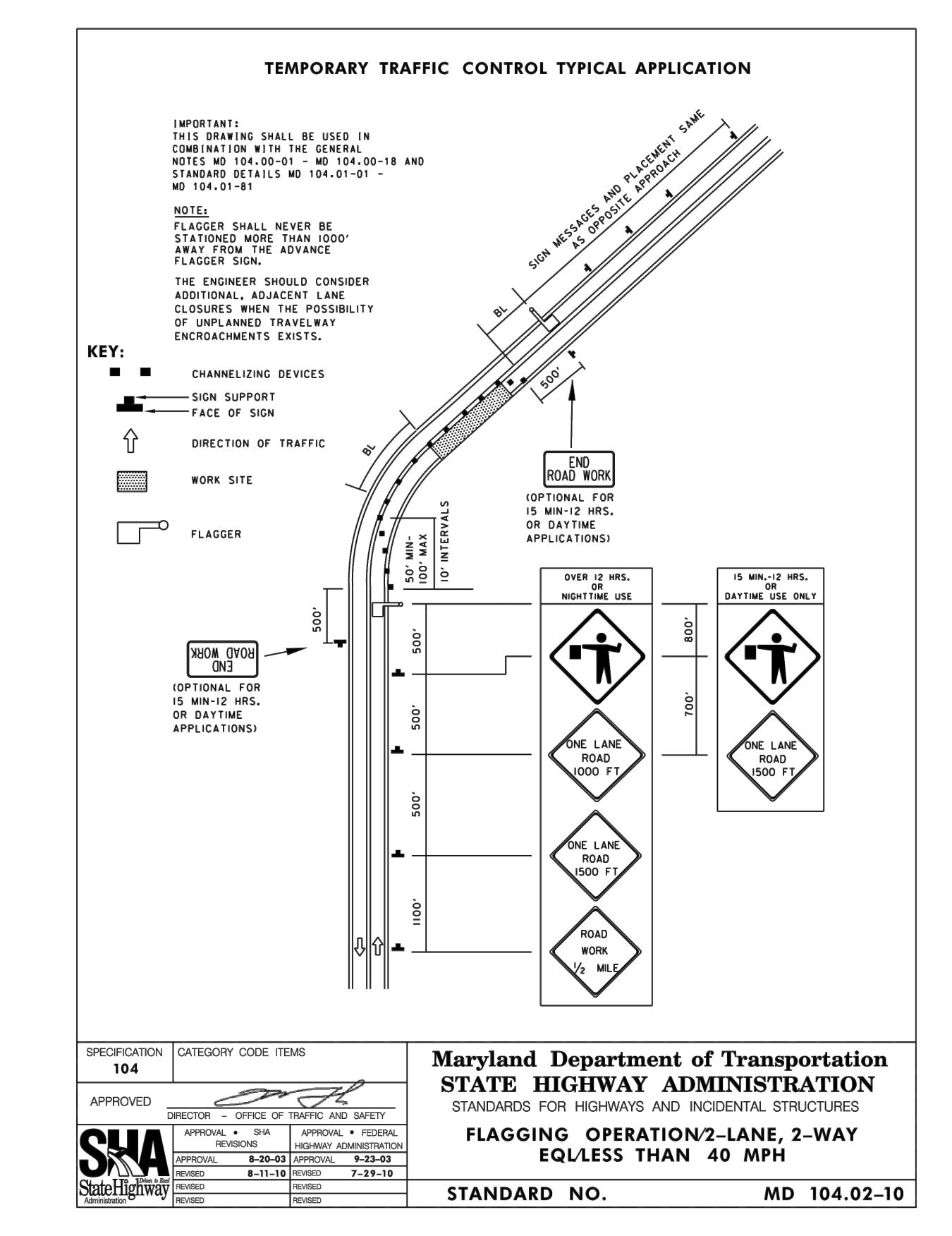
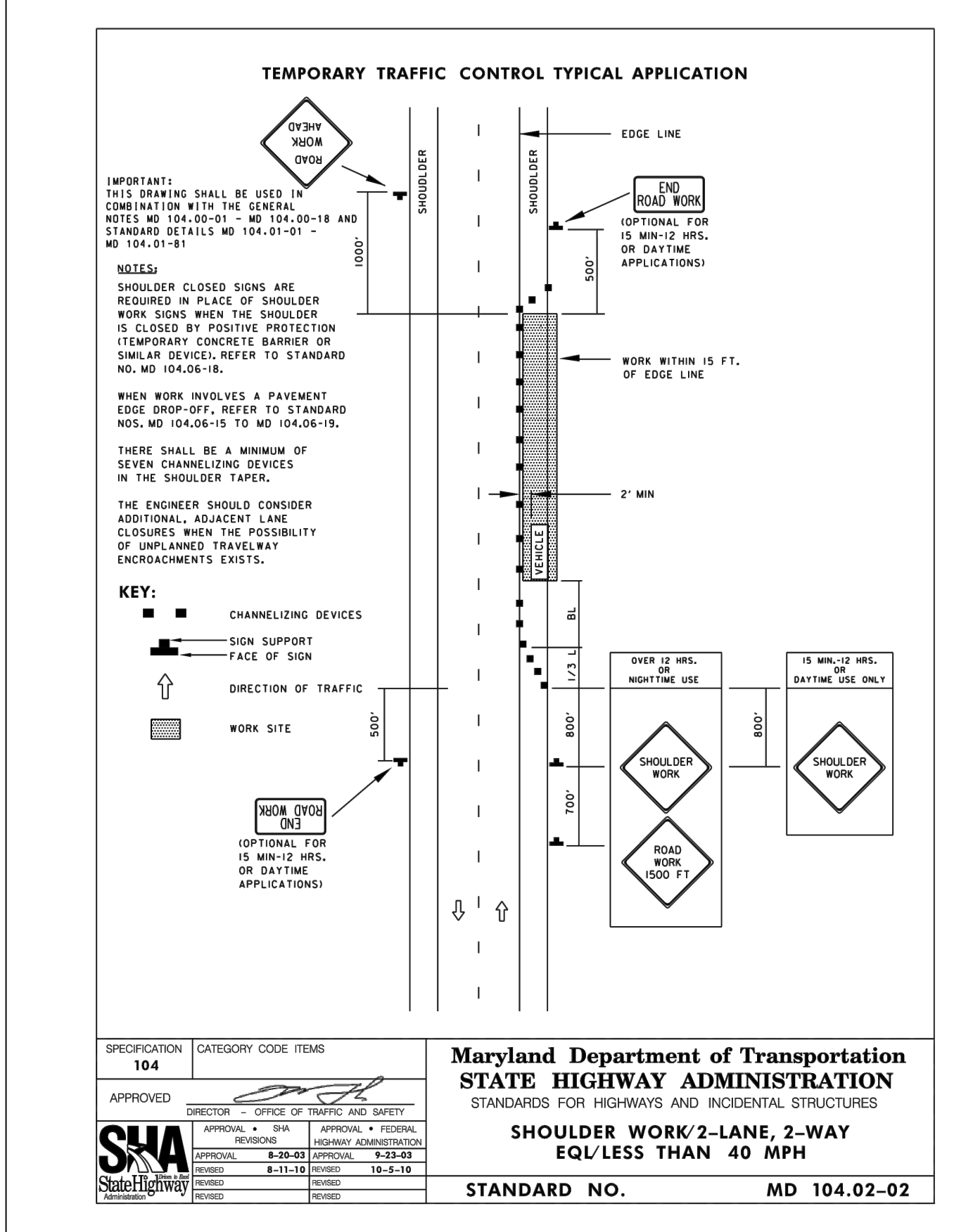
1. THE TRAFFIC CONTROL PLAN INDICATED IS FOR A PARTIAL ROAD CLOSURE.
2. ALL TRAFFIC CONTROL DEVICES, METHODS, AND MATERIALS USED SHALL CONFORM TO THE APPLICABLE SPECIFICATIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.
3. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION OF THE WORK AND SAFETY OF THE PUBLIC, ALL AS INDICATED IN THE MUTCD.
4. THE TRAFFIC CONTROL PLAN DEPICTS THE MINIMUM TRAFFIC CONTROL REQUIRED DURING WORK TO PROVIDE A PARTIAL ROAD CLOSURE. THE ENGINEER MAY DIRECT ADJUSTMENT OF THE LOCATION OF THE TRAFFIC CONTROL DEVICES AT NO ADDITIONAL COST TO THE COUNTY.
5. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED AT THE INCEPTION OF THE WORK DESCRIBED AND SHALL BE PROPERLY MAINTAINED AND OPERATED. UPON COMPLETION OF THE WORK, THE DEVICES SHALL BE REMOVED AND ALL SALVAGED MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR.
6. TEMPORARY PRECAST CONCRETE JERSEY BARRIERS SHALL BE REMOVED AND RESET DAILY AS REQUIRED FOR PROTECTION AGAINST ANY OPEN CUTS IN THE ROADWAY.
7. WEEDS, SHRUBBERY, CONSTRUCTION MATERIALS OR EQUIPMENT, SPOIL, ETC. SHALL NOT BE ALLOWED TO OBSCURE ANY TRAFFIC CONTROL DEVICE.
8. ALL EQUIPMENT AND MATERIALS SHALL BE STORED OUTSIDE OF THE ROADWAY CLEAR ZONE AND WITHIN THE EXISTING RIGHT OF WAY.
9. THE CONTRACTOR SHALL MAINTAIN INGRESS/EGRESS TO ALL DRIVEWAYS AND PROPERTIES AT ALL TIMES.
10. ADDITIONAL TEMP CONCRETE TRAFFIC BARRIER SHALL BE USED ON BOTH SIDES OF THE NEW STRUCTURE WHEN TRAFFIC IS DIRECTED ACROSS AND PRIOR TO PERMANENT TRAFFIC BARRIER INSTALLATION.

SIGN LEGEND				
SIGN	SIZE COLOR	QUANTITY	TOTAL S.F.	REMARKS
	W20-1 36"x36" (9 S.F.) BLACK ON ORANGE	2	18	ROAD WORK AHEAD
	W20-4 36"x36" (9 S.F.) BLACK ON ORANGE	2	18	ONE LANE ROAD AHEAD
	W3-1 36"x36" (9 S.F.) BLACK ON YELLOW	1	9	STOP AHEAD
	W3-2 36"x36" (9 S.F.) BLACK ON YELLOW	1	9	YIELD AHEAD
	R1-2 36"x36"x36" (4 S.F.) WHITE ON RED	1	4	YIELD
	R1-1 36"x36" (9 S.F.) BLACK ON YELLOW	1	9	STOP
	G20-2 36"x18" (4.5 S.F.) BLACK ON YELLOW	2	9	END ROAD WORK
	R11-2 48x30" (10 S.F.) BLACK ON WHITE	2	20	INSTALL ON TYPE III BARRICADES AS NOTED
	ALTERNATING ORANGE AND WHITE RETRO-REFLECTIVE STRIPES	2		TYPE III BARRICADE WITH WARNING LIGHTS
	12' LENGTHS (TYP.)	4		PRECAST CONCRETE JERSEY BARRIER

SIGN LEGEND DOES NOT INCLUDE SIGNS FOR FLAGGING OPERATION WHICH SHALL BE INCIDENTAL TO PAY ITEM "MAINTENANCE OF TRAFFIC"

SUMMARY OF QUANTITIES

ITEM NO.	DESCRIPTION	UNIT	EST. QUAN.
101	CLEARING AND GRUBBING	L.S.	L.S.
102	MOBILIZATION	L.S.	L.S.
103	MAINTENANCE OF TRAFFIC	L.S.	L.S.
104	TEMPORARY TRAFFIC SIGNS	S.F.	200
105	TEMPORARY CONCRETE TRAFFIC BARRIERS FOR MOT	L.F.	168
106	TYPE III BARRICADE FOR MAINTENANCE OF TRAFFIC	EA.	2
107	CONSTRUCTION STAKEOUT	L.S.	L.S.
108	CONTINGENT TEMPORARY ORANGE CONT. FENCE	L.F.	300
109	DRUMS FOR MAINTENANCE OF TRAFFIC	EA.	25
201	UNCLASSIFIED EXCAVATION	C.Y.	1300
202	CONTINGENT UNSUITABLE MATERIAL EXCAVATION	C.Y.	300
203	COMMON BORROW	C.Y.	450
204	SELECTED BACKFILL	C.Y.	475
205	REMOVAL OF EXISTING PAVEMENT	S.Y.	675
301	TEMPORARY CONSTRUCTION ENTRANCE	EA.	1
302	STREAM DIVERSION	L.S.	L.S.
303	FILTER LOG - 12 INCH DIAMETER	L.F.	475
304	CLASS II RIPRAP	S.Y.	200
305	SUMP PIT	EA.	1
306	FILTER BAG	EA.	2
401	REMOVAL OF EXISTING STRUCTURE	L.S.	L.S.
402	REINFORCED CONCRETE BOX CULVERTS(3 EA-18FTx7FT)	L.S.	L.S.
403	REINF. CONC. MIX NO. 3 FOR ENDWALL FOOTINGS	C.Y.	70
404	TRAFFIC BARRIER W-BEAM AT STRUCTURE	L.S.	L.S.
405	REINF. CONC. MIX NO. 6 FOR ENDWALL STEMS	C.Y.	35
501	6 INCH GRADED AGGREGATE BASE COURSE	S.Y.	880
502	HOT MIX ASPHALT SUPERPAVE SURFACE, 9.5mm	TON	125
503	HOT MIX ASPHALT SUPERPAVE BASE, 19.0mm	TON	250
504	SAW CUTTING	L.F.	30
505	5 INCH WHITE PAINT PAVEMENT MARKINGS	L.F.	620
506	5 INCH YELLOW PAINT PAVEMENT MARKINGS	L.F.	620
601	REMOVE AND DISPOSE EXISTING TRAFFIC BARRIER	L.F.	50
602	TRAFFIC BARRIER W-BEAM	L.F.	125
603	TRAFFIC BARRIER END TREATMENT (TYPE C)	EA.	4
701	PLACING FURNISHED TOPSOIL, 4 INCH DEPTH	S.Y.	1575
702	TEMPORARY SEEDING	S.Y.	1575
703	TURFGRASS ESTABLISHMENT	S.Y.	750
704	TYPE A SOIL STABILIZATION MATTING	S.Y.	240
705	BLACK WALNUT TREE (MIN. 1 INCH CALIPER)	EA.	14
706	BLACK WILLOW TREE (MIN. 1 INCH CALIPER)	EA.	11
801	PERMANENT TRAFFIC SIGNS	S.F.	12



DATE: 5/20/21

BY: [Signature]

REVISION DESCRIPTION:

NO. 1 PER ADDENDUM #2

RESERVED BY: SH, BM, SH, DATE: 3/23/2021

DRAWN BY: [Signature]

CHECKED BY: [Signature]

WASHINGTON COUNTY, MARYLAND
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building
80 W. Baltimore St., Hagerstown, MD 21740
Phone: 240-313-2460 Fax: 240-313-2401

FROG EYE ROAD
BRIDGE REPLACEMENT

QUANTITIES AND DETAILS

SCALE
AS SHOWN

SHEET NO.
12R

PROJECT NO.
14-225

SPECIFICATION 104 CATEGORY CODE ITEMS

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL: SHA STATE HIGHWAY ADMINISTRATION

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SHOULDER WORK/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.02-02

SPECIFICATION 104 CATEGORY CODE ITEMS

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL: SHA STATE HIGHWAY ADMINISTRATION

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

FLAGGING OPERATION/2-LANE, 2-WAY
EQL/LESS THAN 40 MPH

STANDARD NO. MD 104.02-10

Item 403, Reinforced Concrete Mix No. 3 for Endwall Footings.....	SP-27R-SP-28R
Item 405, Reinforced Concrete Mix No. 6 for Endwall Stems.....	SP-27R-SP-28R
Item 404, Traffic Barrier W-Beam at Structure.....	SP-29R
Item 501, 6” Graded Aggregate Base	SP-30
Item 502, Hot Mix Asphalt Superpave 9.5 mm (PG64-22).....	SP-31-SP-33
Item 503, Hot Mix Asphalt Superpave 19.0 mm (PG64-22).....	SP-31-SP-33
Item 504, Saw Cutting.....	SP-34
Item 505, 5 Inch White Paint Pavement Markings	SP-34-SP-35
Item 506, 5 Inch Yellow Paint Pavement Markings.....	SP-34-SP-35
Item 601, Remove and Dispose Existing Traffic Barrier	SP-36
Item 602, Traffic Barrier W-Beam	SP-36-SP-37
Item 603, Traffic Barrier End Treatment (Type C)	SP-36-SP-37
Item 701, Placing Furnished Topsoil, 4” Depth	SP-38
Item 702, Temporary Seed and Mulch	SP-38-SP-39
Item 703, Turfgrass Establishment	SP-39-SP-40
Item 704, Type A Soil Stabilization Matting	SP-40-SP-41
Item 705, Black Walnut Tree (Juglans Nigra)	SP-41-SP-42
Item 706, Black Willow Oak Tree (Quercus Phellos)	SP-41-SP-42
Item 801, Permanent Traffic Signs	SP-43

the culvert approaches below the top one-foot of roadway subgrade shall be compacted to not less than 95 percent of the maximum density. Testing all backfill material shall be in accordance with the requirements of AASHTO T180, Method C.

- .04 MEASUREMENT AND PAYMENT:** The precast Reinforced Concrete Box Culverts will not be measured for payment but will be paid for at the Contract unit price bid per lump sum. The payment will be full compensation for all engineering, design, installation, labor, materials, tools, concrete, reinforcement steel including epoxy coated reinforcement, threaded/dowel inserts, graded aggregate bedding, non-shrink grout, joint material, dampproofing, backfill and incidentals necessary to complete the work.

Item No. 403 - REINFORCED CONCRETE MIX NO. 3 FOR ENDWALL FOOTINGS

Item No. 405 - REINFORCED CONCRETE MIX NO. 6 FOR ENDWALL STEMS

- .01 DESCRIPTION:** This work shall consist of the construction of the reinforced concrete end walls and footings to the lines/grades as shown on the plans and/or as directed by the Engineer, including proportioning, mixing, placing, finishing, curing and protecting the concrete.

.02 MATERIALS:

Concrete	MDOT SHA Section 902.10.03, 915.03
Reinforcement	MDOT SHA Section 908
Weep Holes and Pipes	MDOT SHA Section 905
Mix No. 1 Concrete for Weep Drains	MDOT SHA Section 902.10.03, 915.03
Dampproofing	Absorptive tar (prime coat), tar seal (seal coat)
Waterproofing	Asphalt Membrane

.03 CONSTRUCTION:

- A. Cast-in-place concrete shall be **Mix No. 6 (4,500 psi min.) for headwall and wingwall stems and Mix No. 3 (3,500 psi minimum) for all footings.** Concrete for weep drains shall be Mix No. 1 (2,500 psi minimum). The Contractor will be required to provide as a minimum four (4) cylinders per pour for laboratory testing including delivery to the laboratory. The County shall approve the laboratory. Copy of all test results shall be provided to the Owner.
- B. The Contractor shall retain a Maryland licensed Geotechnical Engineer to verify the soil net bearing pressure prior to placement of the concrete footings. Should the actual allowable bearing pressure at the planned bottom of footing elevation be found to be less than assumed, the width or depth of the footing shall be adjusted at the direction of the Engineer. The Geotechnical Engineer must submit a report of the findings to the Engineer for review.
- C. Placing and Finishing Concrete
1. The concrete shall be formed and finished to the lines, limits, grades, and

elevations shown on the plans and/or as directed by the Engineer.

2. The concrete discharged from the truck shall be uniform in composition and consistency. If instructed by the Engineer, construction shall be supervised by a representative of the manufacturer of the concrete to ensure this.
3. The concrete shall have a smooth, ordinary surface, formed or troweled, finish with no surface irregularities.
4. The Contractor shall adhere to MDOT SHA 420.03.04(f), and 902.10 for applicable Temperature Controls of concrete.

D. Curing of Concrete

1. The Contractor shall adhere to MDOT SHA 420.03.08 Curing and 420.03.09 Curing Methods applicable conditions.

E. PVC weep drains shall be installed as shown on the plans and as directed by the Engineer. The cost of PVC weep drains and Mix No. 1 concrete for weep drains shall be incidental to this item.

F. Dampproofing shall be applied to all concrete surfaces that will be in contact with backfill. When dampproofing, apply two or more coats of absorptive tar (prime coat) and one coat of tar seal (seal coat). The material shall be applied in conformance with the manufacturer's recommendations and shall be submitted for approval prior to use.

G. Waterproofing shall be applied to all concrete joints as shown on the plans and as directed by the Engineer. Waterproofing membrane shall be applied to all joints for a width of 16" minimum centered on the joints in contact with the backfill, and located above the normal water surface. Joint materials shall be applied in conformance with the manufacturer's recommendations and shall be submitted for approval prior to use. Bituthene System 4000 Membrane / surface conditioner by W.R. Grace or equal is acceptable for use.

H. Refer to Section 420.03 and 421.03 of the MDOT SHA Specification Booklet for additional applicable conditions.

.04 MEASUREMENT AND PAYMENT: Reinforced Concrete Mix No. 3 and Mix No. 6 will be measured and paid for at the Contract unit price bid per cubic yard for each mix type. The price bid shall include all concrete, reinforcing steel, excavation, weep drains, dampproofing, waterproofing, concrete field and lab testing, delivery of cylinders to the laboratory, costs for a Geotechnical Engineer and report, labor, equipment, materials, tools, form work, and incidentals necessary to complete the work.

Item No. 404- TRAFFIC BARRIER W-BEAM AT STRUCTURE

- .01 DESCRIPTION:** This item of work shall include the furnishing, fabricating, erecting, and attaching of the traffic barrier w-beam and posts at the endwalls and wingwalls as shown on the plans and/or as directed by the Engineer.
- .02 MATERIALS:** Refer to Section 918 of the MDOT SHA Specification Booklet.
Side mounted, Weak Post 31" Midwest Guardrail System
(Text was removed.)
- .03 CONSTRUCTION:**
- A. The limit of work for this item is shown on the plans.
 - B. Use the detail shown on the plans which refers to FHWA eligibility letter B-264.
 - C. The side-mounted bracket assembly is anchored to the culvert headway and wingwall using two threaded **1 1/8 inch diameter 13 inch** long rods at the top of the bracket assembly and two threaded 1/2 inch diameter 7 inch long rods at the bottom of the bracket assembly. An epoxy with a minimum bond strength of 1,300 psi shall be used and secured with washers and nuts.
 - D. Spacing for the weak post side mount is to be 37 1/2 Inches. *(Text was removed.)*
 - E. A 75 inch spacing is recommended between the last weak post and the first standard traffic barrier w-beam post next to the culvert.
 - F. The first standard traffic barrier w-beam post should be placed a minimum of 12 inches from the culvert endwall and any wingwalls.
 - G. Refer to Section 605 of the MDOT SHA Specification Booklet for additional conditions.
- .04 MEASUREMENT AND PAYMENT:** Traffic Barrier W-Beam at Structure will not be measured for payment but will be paid for at the Contract lump sum bid. The payment will be full compensation for furnishing, fabricating, erecting, and attaching of the traffic barrier w-beam at the endwalls and wingwalls complete in-place, including casting of bolts and plates, nuts, washers and splices, concrete, as well as all labor, materials, equipment, galvanizing, and incidentals necessary to complete the work. This item of work does not include traffic barrier for approach roadways.