

# Application Summary

We are pleased to present for your consideration the application for State of Good Repair for Federal Str. No. 1032. The following items are included in this application:

- Project Narrative
- Preliminary Plan and Elevation
- Preliminary Transverse Section
- Approximate Project Limits
- Cost Estimate Summary
  - PCES
- Existing Bridge Plans (only plan view and deck section shown due to CII-SII)
  - Latest Bridge Safety Inspection Report (not included due to CII-SII)

<p style="text-align: center;"><b>VIRGINIA DEPARTMENT OF TRANSPORTATION PROJECT REVIEW COMMENT AND RESOLUTION SHEET</b></p>				<p><b>REVIEWER CODES:</b>  <b>A. REQUIRED TO BE ADDRESSED. SIGNIFICANT ISSUE.</b>  <b>B. REQUIRED TO BE ADDRESSED. POTENTIAL SIGNIFICANT ISSUE.</b>  <b>C. SHOULD OR RECOMMENDED TO BE ADDRESSED.</b>  <b>D. GOOD PRACTICE. COULD BE ADDRESSED</b>  <b>E. BEST PRACTICE. COULD BE ADDRESSED</b></p>		
<p><b>SCOPE OF WORK: BRIDGE REPLACEMENT</b></p>		<p><b>UPC NUMBER: N/A</b></p>		<p><b>FEDERAL STRUCTURE ID: 1032</b></p>		<p><b>DATE: VARIES PER BELOW</b></p>
<p><b>DESCRIPTION: RTE. 159 OVER DUNLAP CREEK</b></p>		<p><b>REVIEW PHASE: PRE-SCOPING/FUNDING</b></p>		<p><b>DISCIPLINE: VARIOUS – SEE BELOW</b></p>		<p><b>REVIEW TYPE: QA REVIEW</b></p>
No.	DOCUMENT <sup>(1)(4)</sup>	REVIEWER / DATE / COMMENT <sup>(4)(5)</sup>	CODE <sup>(4)</sup>	DATE / RESPONSE <sup>(2)</sup>		
4	Prescoping Report	<p><b>Consultant Reviewer (2/1/2021):</b> The significant scope elements has not covered the items below. Please provide details on these scope elements.</p> <p>a. The report, indicates the proposed bridge configuration is two – 11-foot lanes with 4-foot shoulders (= 15'-0" each direction), however, the Plan and Transverse Section show 15'-1" each direction. Please verify and revise one accordingly.</p> <p><b>b. Approach Roadway – Please provide the Existing and proposed cross sections.</b></p> <p>c. Geotechnical - Please discuss Site Soils/Geology and how that impacts potential foundation options.</p> <p>d. Utility Impacts - Not included in the report.</p> <p>e. Stakeholders - Not included in the report.</p> <p>f. Complex project elements - Not included in the report.</p> <p><b>BMPPA (3/2/21)</b>                      The amount of approach roadway work to be determined during pre-scoping and project selection. It appears that a minimal amount of work is needed to tie the exiting bridge into the existing approach roadway (say 150 ft). Also, the new bridge is skewed differently than the existing bridge which could cause an alignment shift. Please clarify why this is needed. Please clarify.</p> <p>IIM-LD-260/IIM-IID-11 requires that “All assumptions for the project cost estimate shall be clearly documented” and that “all items assumed to be covered by the cost estimate shall be included in the stated assumptions.” Further requirements for SGR bridge projects were specifically outlined on the SGR bridge webpage.</p>	A	<p><b>PM/Designer (2/3/2021):</b> Although there is no specific section titled “Significant scope elements” in the report, the cost estimate accounted for the following items</p> <p>a). The Plan and Transverse section are correct.</p> <p><b>b). Existing and proposed approach roadway cross sections will be prepared during the scoping phase.</b></p> <p>c). From as-built drawings and information from site visit, it is obvious that the bridge foundation will be shallow. See pictures in the project narrative.</p> <p>d). The RW phase estimate provided by district RW&amp;UT section incorporate costs for potential utility relocation.</p> <p>e). Not applicable at pre-scoping stage. This will be addressed during the public involvement stage of project development process</p> <p>f). Not applicable to this project.</p>		

(1) Indicate document reviewed or use “G” for general comment.  
 (2) To be filled out by Project Manager in conjunction with Designer.  
 (3) To be filled out by Reviewer based on review by Project Manager and Reviewer (list date resolved).

(4) To be filled out by Reviewer.  
 (5) Provide name of reviewer and the date of the comment.  
 Mutual resolution requires concurrence by BOTH the Project Manager and the Reviewer.

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7	Cost Estimate	<p><b>Consultant Reviewer (2/1/2021):</b> Per the IID, the earliest PE start date for funding is for FY26 so please revise the date to be July 1, 2025. Also revise the PE Phase length, according to the VDOT Project Development schedule templates. RW and CN dates need to be updated accordingly.</p> <p><b>BMPA (3/2/21):</b> Please include SGR team program manager so that we can provide the full context of the situation to State Bridge Engineer. We will review your program with you to determine what is possible. If not possible, we will require an estimate with the PE phase that accommodates funding availability. Challenges are below.</p> <ul style="list-style-type: none"> <li>• Program deficit of \$1.46M between previous all the way to FY24 due to the impacts from COVID-19 on Revenues.</li> <li>• Budget increases of \$11.8M per below                             <ul style="list-style-type: none"> <li>○ UPC 13285 (Fed ID 16026): \$986,060 budget increase CN start in FY21</li> <li>○ UPC 104182 (Fed ID 16985): \$466,375 budget increase with CN start in FY21</li> <li>○ UPCs 104177/113487 (Fed IDs 20443/20441): \$10,368,110 budget increase with CN start in FY22</li> </ul> </li> </ul>	A	<p><b>PM/Designer (2/3/2021):</b> This is a posted structure with Fracture Critical elements, high economic impact, and political inquiries. The project has brought to the State Bridge Engineer’s attention. Therefore, the PE, RW &amp; CN dates were customized for this project.</p>			
9	Cost Estimate	<p><b>Consultant Reviewer (2/1/2021) Comment:</b> Please revise the inflation computation to reflect more accurate duration for each PE, RW and CN, based on the revised dates mentioned above.</p>	A	<p><b>PM/Designer (2/4/2021):</b> The dates for the PE, RW, and CN phases were intentionally modified. See response to comment 7. The inflation costs were computed using realistic durations for each phase.</p>			

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15	Prescoping Report	<b>Consultant Reviewer (2/1/2021):</b> Discuss pedestrian-bicycle needs. VA 159 is identified as a bicycle corridor in the 2006 rural bicycle plan.	D	<b>PM/Designer (2/4/2021):</b> Per IIM-S&B-95, bridge widening to accommodate bicycle or pedestrian facilities do not qualify for SGR funds since the approach roadway do not have such facilities.			
16	Prescoping Report	<b>Consultant Reviewer (2/1/2021):</b> There are driveways immediately north and south of the exiting bridge. Explain how access will be maintained during construction.	D	<b>PM/Designer (2/4/2021):</b> Temporary signals will be installed to maintain access during construction.			
18	Prescoping Report (Design Criteria)	<b>Consultant Reviewer (2/1/2021):</b> For GS-3 the ADT range is 400 to 2000, not 400 to 1500 as indicated in the report.	D	<b>PM/Designer (2/4/2021):</b> Accepted			
19	Narrative	<b>S&amp;B Reviewer (1/29/2021):</b> The proposed multi girder bridge would force dropping the low chord or a profile raise and hence applicability of a HERS category should be verified or full H&HA analysis will be required	A	<b>PM/Designer (2/4/2021):</b> Based on preliminary design of the girders, the total SSD neither drop the low chord nor raise the finish grade. Thus, HERS is warranted. Minor hydraulic analysis will be conducted for the temporary bridge.			
20	Cost estimate	<b>S&amp;B Reviewer (1/29/2021):</b> Please adjust cost related to profile raise if applicable	A	<b>PM/Designer (2/4/2021):</b> Not applicable.			
21	Cost estimate	<b>S&amp;B Reviewer (1/29/2021):</b> CN costs should reflect temporary substructure and foundation costs related to the use of a temporary bridge although owned by VDOT	A	<b>PM/Designer (2/4/2021):</b> The lump sum price for bid item 60125 NS Bridge (Temp Bridge) includes erection and dismantle of VDOT owned Maybey bridge as well as installation & removal of temporary abutments made of reinforced soil fill. The cost is based on a similar project currently under construction.			
22	Narrative	<b>Matteo (3/8/21):</b> The narrative states the project is eligible for federal funding due to the sufficiency rating. As an FYI, the sufficiency rating is no longer used or applicable for federal funds availability. No response expected or required.	FYI				

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Date: 12/15/2020

## PROJECT NARRATIVE

### PURPOSE:

The purpose of this project is to replace an existing posted, structurally deficient bridge consisting of Fracture Critical elements without added capacity on Route 159 over Dunlap Creek (Virginia Structure No. 1039, Fed ID. 1032). The project is located in Allegheny County approximately 1.4 miles from Route 311 and 0.95 to Route 717. Route 159 is a primary state highway that serves the southwestern part of Allegheny County. The area immediately adjacent to the project location is populated with residential properties. In 2018 the traffic count for Route 159 showed an ADT of 673 vehicles per day with 9% truck traffic.



### DESCRIPTION OF EXISTING TRANSPORTATION ELEMENTS:

The width of Route 159 approach roadway to the bridge is predominately 20' and it has a 55 mph speed limit. The approach alignment has minor vertical curve variations and relatively straight horizontal alignment. The existing Route 159 Bridge was built in 1928. It is a 95'-0" long, single-span, 23.95 foot wide Thru-Truss structure with CIP concrete deck built on a 30 degree skew (RHB). See existing plans for additional information.

The Sufficiency Rating of the bridge is 45.1 on a scale from 0 to 99. Considering the condition of fracture critical members, the superstructure received a rating of 4 and the substructure rated 4 on a scale of 0 to 9. The structure classified as structurally deficient and posted for weight limits. The current facility has a scour rating of 8, indicating the site is not susceptible to scour. Refer to the current

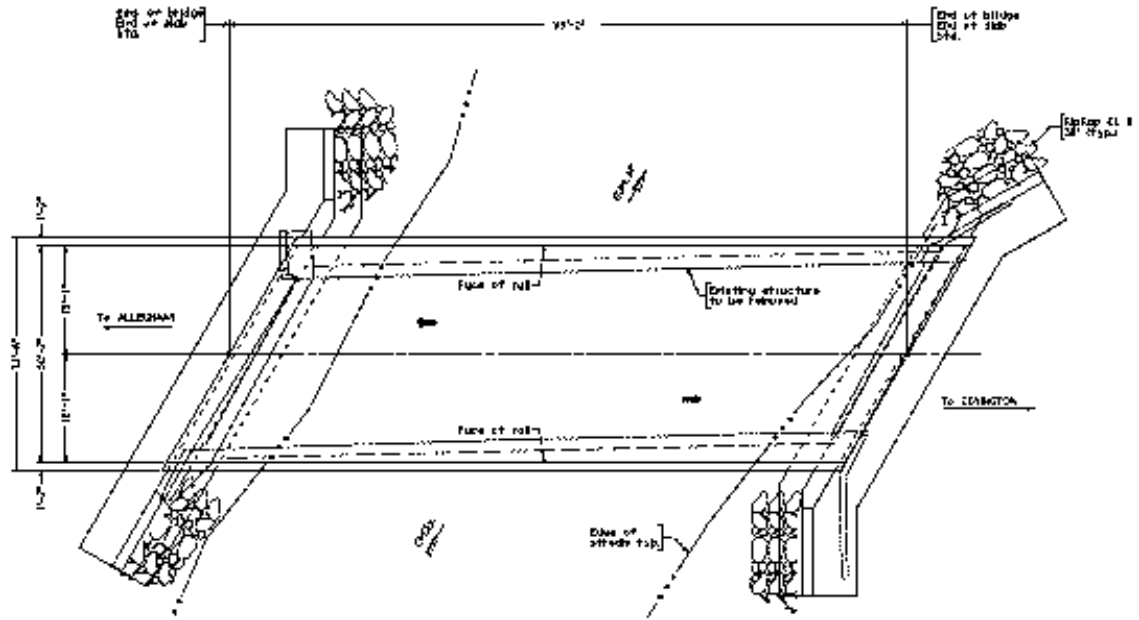
inspection report for more information. The condition of the existing bridge qualifies the structure as a candidate for Federal funds for replacement or rehab.



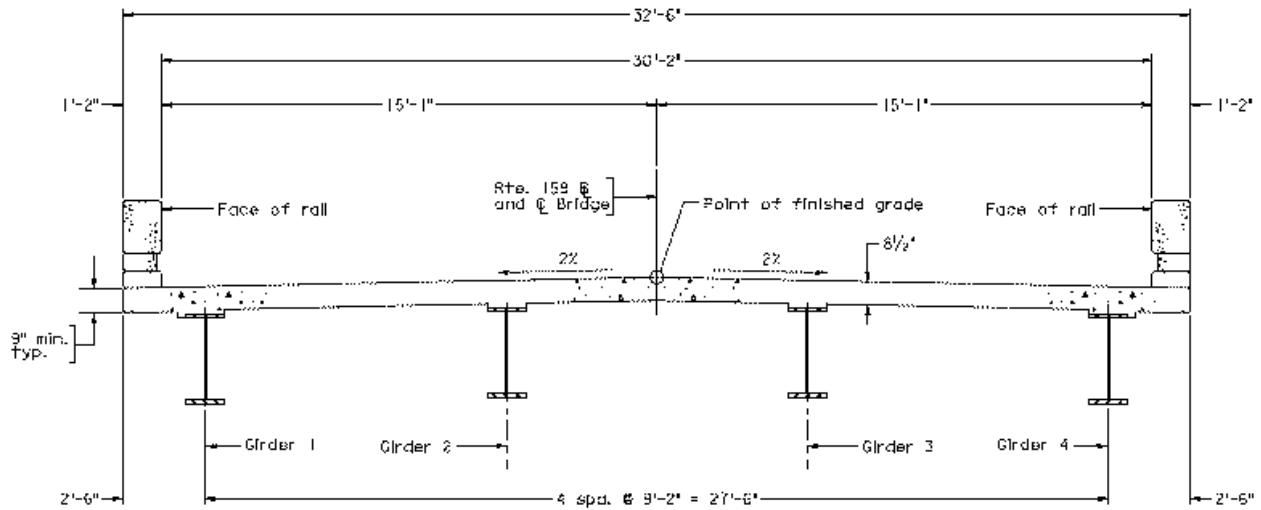
#### DESIGN CRITERIA:

This project will be designed using AASHTO Geometric Design Guidelines for Rural Collector Road System (GS-3) with  $(400 < ADT < 2,000)$  vehicles per day. The location meets the criteria contained in the design guide regarding traffic volume and roadway classification

The AASHTO LRFD Bridge Design Specifications, Eight Edition, 2017, will be used in the design of replacement structure. The proposed bridge will have 2 - 11 foot lanes with 4'-1" shoulder. The new bridge will be 32'-6" wide (out-to out) and 93'-0" long. The superstructure consists of steel plate girders with CIP concrete deck. The substructures will be semi-integral abutments on spread footing. Based on information from as-built drawings and site visit, there are exposed competent bedrocks (see pictures below) to support the bridge foundation. This will be further evaluated through subsurface exploration during the PE phase. The current horizontal alignment will be maintained. All scope elements are eligible for SGR per IIM-S&B-95. Also, waiver of the requirements in IIM-S&B-95 are not required.



PLAN



TRANSVERSE SECTION

Scale: 3/8" = 1'-0"





**MAINTENANCE OF TRAFFIC (MOT):**

During construction, the existing Route 159 traffic will be maintained at all times. A temporary diversion will be constructed allowing single lane of traffic to be maintained during the construction of



this project. A 120 foot long, single lane VDOT owned MABEY Bridge will be constructed west or downstream of the existing bridge in order to maintain the required traffic flow. Portion of an existing private road will be upgraded and utilized. Pre-scoping level of coordination has been done with the residency engineers. The work zone will be marked and signed appropriately to allow for existing traffic to follow the temporary detoured traffic pattern. There are no commercial entrances impacted by this project.



#### PROJECT VALUE:

This project replaces an existing substandard, structurally deficient, fracture critical bridge with weight limit on it on a primary State route that serves both town and county residents along with local business concerns. If not replaced the existing bridge will continue to deteriorate and would eventually have to be closed to vehicular traffic.

#### ALTERNATIVE ANALYSIS:

Although a complete alternatives analysis as outlined in Chapter 32 of the Manual of the S&B Division is required for SGR Bridge applications, this project meets one of the mitigating factors listed on file No. 32.02-1. Therefore, we recommend a replacement since this can be justified than rehabilitating fracture critical bridge.

#### RISK ASSESMNET:

During the pre-scoping phase, some activities such as survey, hydraulic analysis, defining the bridge geometry and preliminary analysis etc have been done to well define the scope of the project and minimize the risk level. In addition, information obtained from available resources such as as-built plans and site visit utilized to alleviate uncertainties in bridge foundation. However, this information cannot guarantee depth to rock and it could be a potential risk that leads to cost overrun. Although property owners adjacent to the bridge site are in favor of the project, upgrading portion of the existing private road and use it as temporary detour may be another risk factor. Given these uncertainties, a medium risk

level is assigned to the RW and CN phases of this project while low risk is assumed for the PE phase. As such, appropriate contingencies have been applied to the total estimate.

**PROPOSED SMART FLAG:**

Given the fact that the existing structure is a truss bridge, a DRF-1 (Design Redundancy) Smart Flag was used in this project. The latest inspection report shows that the Fracture Critical elements are in Poor condition.

**CONSTRUCTION AND FINANCING:**

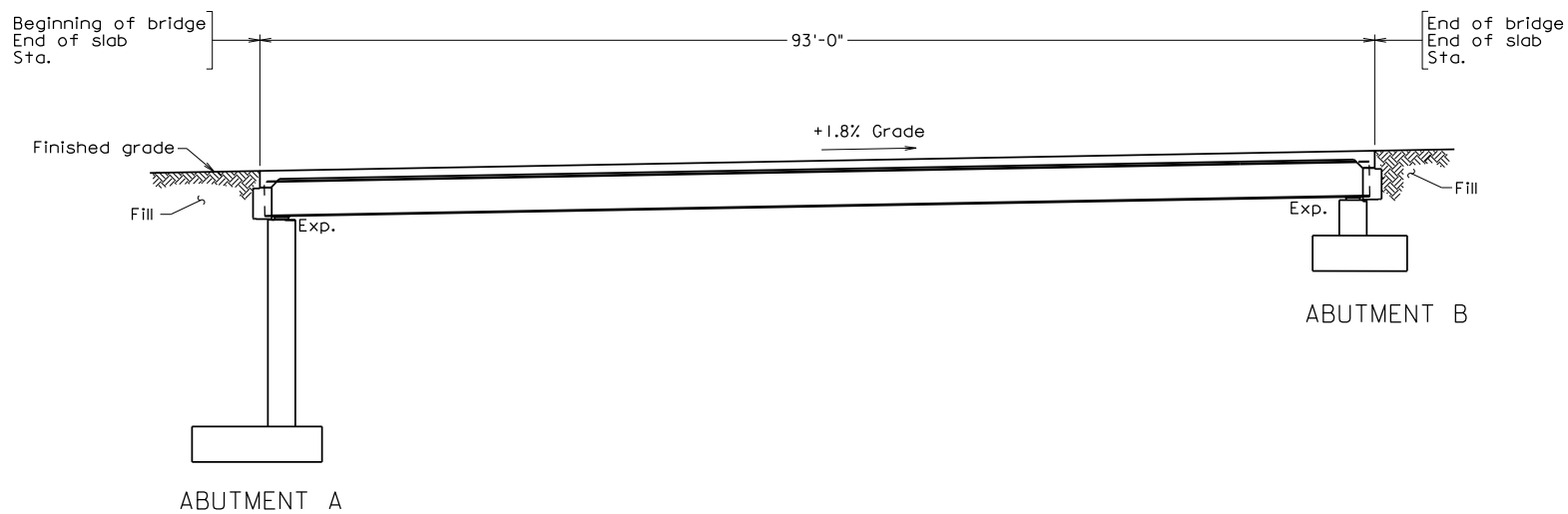
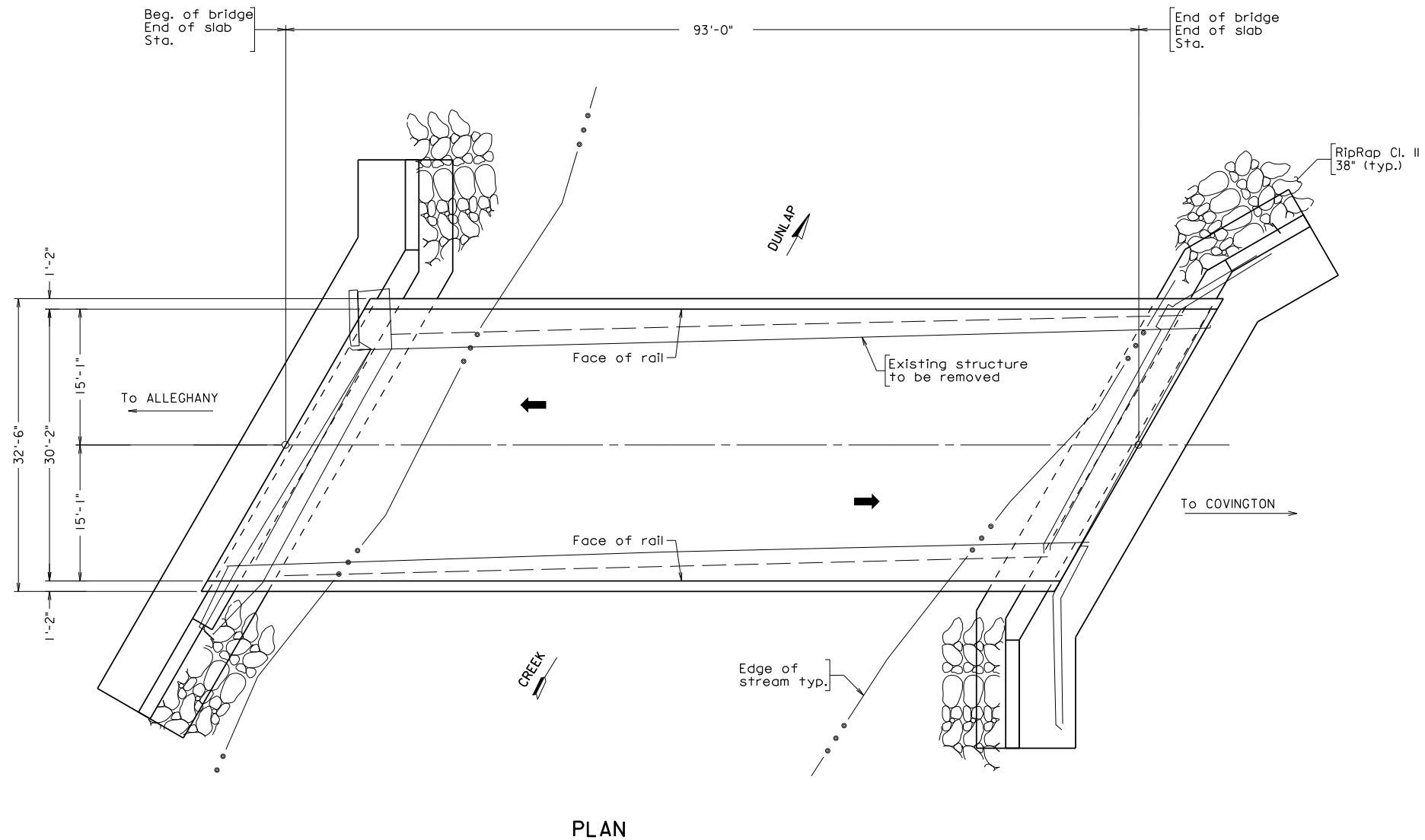
Assumed construction advertisement date is: Summer 2028. **SYIP 2022-2027**

The project cost is estimated as follows:

PE     \$784,249  
 RW     \$357,172  
 CN     \$6,547,845  
 Total = **\$7,689,266**

See supporting documents for detail breakdown of the above estimate and pertinent assumptions.

<b>SYIP Total Project Cost Estimate Summary</b>				
<b>Phase</b>	<b>Base (\$) *</b>	<b>Contingency (\$) *</b>	<b>Inflation (\$) **</b>	<b>Total ***</b>
<b>PE Phase Estimate</b>	\$615,000	\$61,500	\$107,749	\$784,249
<b>RW Phase Estimate</b>	\$237,000	\$71,100	\$49,072	\$357,172
<b>CN Phase Estimate</b>	\$4,054,544	\$1,159,810	\$1,333,491	\$6,547,845
<b>Total Estimate</b>	\$4,906,544	\$1,292,410	\$1,490,312	\$7,689,266
* Use combined Base and Contingency Costs into SMART Portal or PCES workbook. ** Obtain Inflation costs from SMART Portal or PCES workbook and enter into highlighted cells. *** Total Costs shall match with total costs in SMART Portal or PCES.				



**PRE-SCOPING PLANS**  
 THESE PLANS NOT TO BE USED  
 FOR CONSTRUCTION

Scale: 1/8" = 1'-0"

STATE	FEDERAL AID		STATE	SHEET NO.
VA.	ROUTE	PROJECT	ROUTE	PROJECT
	—	I	159	0159-003-1039, BXXX
NBIS Number: 000000000XXXXX			UPC No.	XXXXX
Federal Oversight Code: N/A			FHWA Construction and Scour Code:	X071-S8

**DESIGN EXCEPTION(S):**

None

**GENERAL NOTES:**

- Width: 30'-2" face-to-face of rail.
- Span layout: 93'-0" Single span steel plate girders or steel rolled beams.
- Capacity: HL-93 loading.
- Drainage area: sq. mi.
- Specifications:
  - Construction: Virginia Department of Transportation Road and Bridge Specifications, 2016.
  - Design: ASHTO LRFD Bridge Design Specifications, 8th Edition, 2017; and VDOT Modifications.
  - Standards: Virginia Department of Transportation Road and Bridge Standards, 2016; including all current revisions.

These plans are incomplete unless accompanied by the Supplemental Specifications and Special Provisions included in the contract documents.

This project is to be constructed in accordance with the Virginia Department of Transportation Work Area Protection Manual, August 2011 and latest revisions.

Design loading includes 20 psf allowance for construction tolerances and construction methods.

All structural steel, including bearings and anchor bolts, shall be ASTM A709 Grade 50W and shall be unpainted.

Concrete in superstructure, rails, terminal walls, and integral backwalls shall be Low Shrinkage Class A4 Modified Lightweight in accordance with Section 217.12; in abutments, Class A3.

All reinforcing steel shall be deformed and shall conform to ASTM A615, Grade 60 except for steels noted as Corrosion Resistant Reinforcing (CRR) which shall conform to Section 223 of the Specifications. All reinforcing bar dimensions on the detailed drawings are to centers of bars except where otherwise noted and are subject to fabrication and construction tolerances.

CRR steels shall conform to one or more of the three Classes listed in Section 223 of the Specifications. The Class(es) of CRR steel(s) required on this project is/are noted on plan sheets and in the reinforcing steel schedule. CRR Steel, Class II or Class III may be substituted for Class I. CRR Steel, Class III, may be substituted for Class II.

Bridge No. of existing bridge is 1032. Plan No..

B.M.: See road plan.

General Notes continued on next sheet



**COMMONWEALTH OF VIRGINIA**  
**DEPARTMENT OF TRANSPORTATION**  
 PROPOSED BRIDGE ON  
 RTE. 159 (DUNLAP CREEK ROAD) OVER DUNLAP CREEK  
 ALLEGHANY CO. -1.4 MI. TO RTE. 311 &  
 0.95 MI TO RTE. 717  
 PROJ. 0159-003-1039, BXXX

Recommended for Approval: \_\_\_\_\_ Date \_\_\_\_\_  
 District Project Development Engineer

Approved: \_\_\_\_\_ Date \_\_\_\_\_  
 District Administrator

ORIGINAL SIGNATURES ON TITLE SHEET OF ROAD PLANS

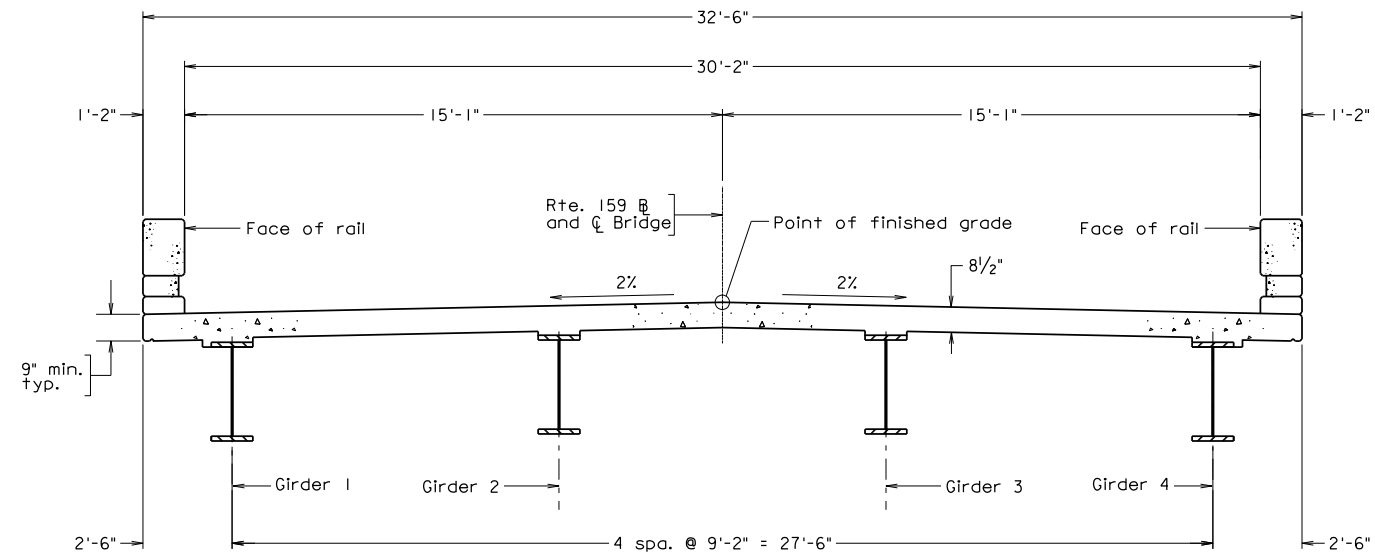
Date: \_\_\_\_\_ © 2019, Commonwealth of Virginia Sheet 1 of X

No.	Description	Date
REVISIONS		
For Table of Revisions, see Sheet 2.		

XXX-XX-01.dgn

VDOT S&B DIVISION STAUNTON, VA STRUCTURAL ENGINEER
PLANS BY: Staunton District S&B
SUPERVISED: Eulogia A. Javier II, P.E.
DESIGNED: Amedebrhan M. Asfaw
DRAWN: Amedebrhan M. Asfaw
CHECKED:

STATE	FEDERAL AID		STATE		SHEET
ROUTE	PROJECT		ROUTE	PROJECT	NO.
VA.			159	0159-003-1039, Bxxx	



**TRANSVERSE SECTION**

Scale:  $\frac{3}{8}'' = 1'-0''$

**PRE-SCOPING PLANS**

THESE PLANS NOT TO BE USED FOR CONSTRUCTION

1039\_workingfile.dgn

VDOT S&B DIVISION  
STAUNTON, VA  
STRUCTURAL ENGINEER

Scale: as shown

© 2019, Commonwealth of Virginia

COMMONWEALTH OF VIRGINIA DEPARTMENT OF TRANSPORTATION			
STRUCTURE AND BRIDGE DIVISION			
<b>TRANSVERSE SECTION</b>			
No.	Description	Date	Designed: AMA..... Drawn: .....AMA..... Checked: .....
		Nov. 2019	Plan No. X of X
Revisions			





**SYIP PROJECTS**  
**DETAILED PROJECT COST ESTIMATE SUMMARY**  
 (Version: 1/21/2020 - CTS Modified)

Portal ID:		Project UPC:	NA
Prepared By:	AMA	Milestone	Creation/Pre Scope
Reviewed By:		Date:	12/15/2020
County/City/Town:	Alleghany County (03)	Tier Level	1

**Preliminary Engineering**

Project Estimate Component		Proposed Project Cost Estimate (\$)		
Discipline	Source	Base (\$)	Contingency (%)	Total
Roadway	Profess. Judgement	\$ 210,000	10.00%	\$231,000
Hydraulics	Profess. Judgement	\$ 25,000	10.00%	\$27,500
In-plan Utilities	Profess. Judgement	\$ 15,000	10.00%	\$16,500
Traffic	Profess. Judgement	\$ 30,000	10.00%	\$33,000
Structures/Bridges	Profess. Judgement	\$ 230,000	10.00%	\$253,000
Materials/Geotech	Profess. Judgement	\$ 50,000	10.00%	\$55,000
Survey	Profess. Judgement	\$ 15,000	10.00%	\$16,500
Environmental	Profess. Judgement	\$ 20,000	10.00%	\$22,000
Right of Way	Profess. Judgement	\$ 20,000	10.00%	\$22,000
Other	Profess. Judgement			\$0
VDOT Oversight Costs				\$0
Total PE Phase Estimate		\$ 615,000	10.00%	\$676,500
PE Base Estimate Date (12/15/2020)				
PE Phase Dates (XX/XX/XXXX)	Start Date	7/15/2022	End Date	7/15/2025

**Right-of-Way & Utilities**

Discipline	Source	Base (\$)	Contingency (%)	Total
Right-of-Way	Pre-Scoping Plans	\$87,000	30.00%	\$113,100
Out-of-Plan Utilities (power, cable, gas, etc.)	Pre-Scoping Plans	\$150,000	30.00%	\$195,000
VDOT Oversight Costs				\$0
Total RW Phase Estimate		\$237,000	30.00%	\$308,100
RW Base Estimate Date (XX/XX/XXXX)				
RW Phase Dates (XX/XX/XXXX)	Start Date	7/15/2025	End Date	7/15/2026

**Construction**

Discipline	Source	Base (\$)	Contingency (%)	Total
Mobilization	Norms	\$203,779	40.00%	\$285,291
MOT			40.00%	\$0
Roadway	Pre-Scoping Plans	\$1,038,406	40.00%	\$1,453,768
Hydraulics			40.00%	\$0
In-plan Utilities			40.00%	\$0
Traffic			40.00%	\$0
Structures/Bridges	Pre-Scoping Plans	\$1,657,340	40.00%	\$2,320,276
Materials/Geotech			40.00%	\$0
Soundwalls				\$0
Other	Profess. Judgement	\$103,841	0.00%	\$103,841
Total Bid Items		\$3,003,366	38.62%	\$4,163,176
Incidental-Claims & Work Orders (Percentage of Bid Items)	5% to 10% max	150,168		150,168
Railroad Flagging/Coordination				0
State Forces				0
State Police				0
Contract Requirements (Incentive/Disincentive)	5%	300,337		300,337
Construction Engineering (Inspection)	Environmental Inspection (\$)	60,067		60,067
	VDOT or Locality (\$)			0
	VDOT Oversight (\$)	540,606		540,606
	Total CEI			600,673
Total CN Phase Estimate		\$4,054,544	28.61%	\$5,214,354
CN Base Estimate Date (XX/XX/XXXX)		12/15/2020		
CN Phase Start Date (XX/XX/XXXX)		11/15/2026		
CN Phase End Date (XX/XX/XXXX)		6/15/2028		
Total Project Cost Estimate				\$6,198,954

# Notes / Assumption / Documentation

Preliminary Engineering	Creation / Pre-scope (prior to project initiation)	Final Scopi
Roadway		
Hydraulics		
In-plan Utilities		
Traffic		
Structures/Bridges		
Materials/Geotech		
Survey		
Environmental		
Right of Way		
Other		
Contingencies	12% assuming low risk level	

Right-of-Way & Utilities		
Right-of-Way		
Out-of-Plan Utilities (power, cable, gas, etc.)		
Contingencies	30% assuming low risk level	

Construction		
Mobilization		
MOT		
Roadway		
Hydraulics		
In-plan Utilities		
Traffic		
Structures/Bridges		
Materials/Geotech		
Soundwalls		
Other		
contingencies	40% assuming medium risk level	



# Project Cost Estimating System

## SUMMARY PAGE

<b>DISTRICT</b>	<b>STAUNTON</b>		
<b>PROJECT NUMBER</b>	<b>PE18968442</b>		
<b>CONSTRUCTION END YEAR</b>	<b>FY2030</b>	<b>UPC</b>	<b>111098</b>
<b>AD YEAR</b>	<b>FY2027</b>	<b>RATE OF INFLATION TO AD</b>	<b>18.25%</b>
<b>ESTIMATE YEAR</b>	<b>FY2021</b>	<b>INFLATION RATE DURING CN</b>	<b>4.64%</b>
Date of previous estimate	12/16/20		
<b>PROJECT MANAGER / DESIGNER</b>	<b>Eulogio.Javier</b>		
Preliminary Engineering Estimate:	<b>MANUAL</b>		
Construction Estimate:	<b>MANUAL</b>		
Right-of-Way Estimate:	<b>MANUAL</b>		
Utilities Estimate:	<b>MANUAL</b>		
<b>DATE</b>	<b>8/11/2021</b>		

THE FOLLOWING DATA WILL BE PROVIDED UPON COMPLETION OF THE REMAINDER OF THE WORKBOOK, WHICH IS ACCESSED BY SELECTING THE CONST, RW, & UTIL TABS BELOW

Bridge PE ESTIMATE	<b>\$0</b>
Bridge CN ESTIMATE	<b>\$0</b>
Bridge RW ESTIMATE	<b>\$0</b>
PRELIMINARY ENGINEERING ESTIMATE (excluding Bridge PE)	<b>\$676,500</b>
CONSTRUCTION ESTIMATE (excluding Bridge CN)	<b>\$6,457,712</b>
RIGHT-OF-WAY & UTILITIES ESTIMATE(excluding Bridge RW)	<b>\$325,500</b>
<b>TOTAL PROJECT ESTIMATE (excluding Bridge estimate)</b>	<b>\$7,459,712</b>

Project No. **PE18968442**

Interstate Project ?

Route Number

	CONST-1	CONST-2	Total
Geometric Standard	<input type="text"/>	<input type="text"/>	<input type="text"/>
Construction Base	\$0	\$0	\$0
Bridge Removal	<input type="text"/>	<input type="text"/>	<input type="text"/>
	<input type="text"/>	<input type="text"/>	<input type="text"/>
To AdYear Inflation	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mid-point construction Inflation	<input type="text"/>	<input type="text"/>	<input type="text"/>
Total Construction Estimate	<input type="text"/>	<input type="text"/>	<input type="text"/>

### CONSTRUCTION & PE TOTALS

Total Construction Estimate **\$6,457,712** **Manual**  
 (Roadway plus Bridge)

Total Preliminary Engineering Estimate **\$676,500** **Manual**  
 (Roadway plus Bridge)



Project Cost Estimating System  
CONSTRUCTION / BRIDGE / PE



Project No. PE18968442

Interstate Project ?  \*

Maintenance Project ?  \*

Route Number  \*

Geometric Standard  \*

Ad Date

Design Year ADT  \*

OR

Current (Recent) ADT  \*

Select / Enter Data into All Applicable White Boxes (in order from Top to Bottom)

Project Terrain

Box Must Be Empty

Box Must Be Empty

Box Must Be Empty

Design Speed =

Project Length (mi.)	<input type="text"/>	*	Number of Additional Lanes:	<input type="text" value="None"/>	Length of Add'l. Lanes (mi.):	<input type="text"/>
Total Length - Adding or Building <u>Two Lanes</u> (mi.)	<input type="text"/>	*		<input type="text" value="None"/>		<input type="text"/>
Total Length - Adding or Building <u>Four Lanes</u> (mi.)	<input type="text"/>	*		<input type="text" value="None"/>		<input type="text"/>
Total Length - Building <u>Ramps and Loops</u> (mi.)	<input type="text"/>	*		<input type="text" value="None"/>		<input type="text"/>
Shoulder or Curb & Gutter ? (Select S or C&G)	<input type="text"/>	*	Enter Lane Width (ft) >	<input type="text"/>		
Median Type - Graded, Raised, or None ?	<input type="text"/>	*	Normal Lane Width(ft)	<input type="text" value="0"/>		
Number of Crossovers (Divided Highways ONLY)	<input type="text"/>	*				
Length - Curb & Gutter - Left PLUS Right Side (ft.)	<input type="text"/>					
Length - Sidewalk - Left PLUS Right Side (ft.)	<input type="text"/>					
Bike / Pedestrian Type	<input type="text" value="None"/>					

Total Length - Raised Median (ft.)

Number of Right Turn Lanes - Left PLUS Right Side  \*

Number of Left Turn Lanes - (Undivided Only)  \*

90% **STAUNTON**  
Cost Factor used

Signals, ITS, Signs and Lighting Costs\*

Cost of Large Drainage Structures

In-Plan Utility Costs\*

Adjustment for Unusual Construction Costs

Construction Costs

---

Base #1	<input type="text" value="\$0"/>
Base #2	<input type="text" value="\$0"/>
Enter Const CE Cost >	<input type="text" value="\$0"/>
CE	<input type="text" value="\$0"/>
Estimate (2021)	<input type="text" value="\$0"/>

\* Totals include district factor calculations

Additional (or Unusual) P. E. Costs



Select % of PE to be performed by Consultants

PE Cost

Note: Do Not Include Bridge P. E. Costs Here

Roadway P. E. / Roadway Const. = 0.0%



Project Cost Estimating System  
CONSTRUCTION / BRIDGE / PE



Project No. PE18968442

Interstate Project ?  \*

Route Number  \*

Geometric Standard  \*

Ad Date

Design Year ADT  \*

OR

Current (Recent) ADT  \*

*Box Must Be Empty*

*Box Must Be Empty*

*Box Must Be Empty*

Project Length (mi.)  \*

Total Length - Adding or Building Two Lanes (mi.)  \*

Total Length - Adding or Building Four Lanes (mi.)  \*

Total Length - Building Ramps and Loops (mi.)  \*

Shoulder or Curb & Gutter ? (Select S or C&G)  \*

Median Type - Graded, Raised, or None ?  \*

Number of Crossovers(Divided Highways ONLY)  \*

Length - Curb & Gutter - Left PLUS Right Side (ft.)

Length - Sidewalk - Left PLUS Right Side (ft.)

*Bike / Pedestrian Type*

Total Length - Raised Median (ft.)

Number of Right Turn Lanes - Left PLUS Right Side  \*

Number of Left Turn Lanes - (Undivided Only)  \*

Select / Enter Data into All Applicable White Boxes (in order from Top to Bottom)

Project Terrain

Design Speed =

Number of Additional Lanes:



Length of Add'l. Lanes (mi.):

Enter Lane Width (ft.)

Normal Lane Width (ft.)

Construction Costs

Base #2

 Project Cost Estimating System  
Miscellaneous Cost Estimates 

COST OF LARGE DRAINAGE STRUCTURES

Job#	Description	Cost ()
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
		<input type="text" value="\$0"/>

ADJUSTMENT FOR UNUSUAL CONSTRUCTION COSTS

Type	Description	Cost ()
<input type="text"/>	Unsuitable Material Excavation / Backfill	<input type="text"/>
<input type="text"/>	MOT / Concrete Barrier / Temporary Pavement	<input type="text"/>
<input type="text"/>	Soundwalls	<input type="text"/>
<input type="text"/>	Retaining Walls / MSE Walls	<input type="text"/>
<input type="text"/>	Unusual Borrow / Fill (Anything over 3ft of cut/fill)	<input type="text"/>
<input type="text"/>	Wetlands / Stream relocation / Nutrient Credits	<input type="text"/>
<input type="text"/>	Stormwater Management Costs	<input type="text"/>
<input type="text"/>	Unusual Risks / Contingency for unknowns	<input type="text"/>
<input type="text"/>	Railway Flagger	<input type="text"/>
<input type="text"/>	Pavement Resurfacing / Buildup	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	<input type="text"/>
		<input type="text" value="\$0"/>

Project Cost Estimating System  
MANUAL ESTIMATE

	DATE	PE	RW	CN
<b>EXPENDITURES</b>	09/17/20	\$578,933		\$0
<b>RUMS</b>	12/16/20			\$0
<b>TRNS*PORT</b>				\$0
<b>AWARD</b>	12/16/20			\$0
<b>PROJECTION</b>	12/16/20			\$0

**ESTIMATE YEAR**

FY2021
\$676,500
\$325,500
\$5,219,145
\$6,221,145

18.25%

**AD YEAR**

FY2027
\$676,500
\$325,500
\$6,171,651
\$7,173,651

PE

RW

CN

**TOTAL**

Job #	Phase	Comment	Estimate
<input type="text"/>	PE	Use combined base and contingency costs from the workbook	\$676,500
<input type="text"/>	RW	Use combined base and contingency costs from the workbook	\$325,500
<input type="text"/>	CN	Use combined base and contingency costs from the workbook	\$5,219,145
<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="text"/>	<input type="text"/>		<input type="text"/>
<input type="text"/>	<input type="text"/>		<input type="text"/>





# PROJECT COST ESTIMATE

PROJ.: 0159-003-1039  
SITE: Alleghany County

PROJ.: 0159-003-1039  
SITE: Alleghany County

ITEM	ITEM DESCRIPTION	UNITS	QUAN.	UNIT PRICE	AMOUNT	Locked
101	CONSTRUCTION SURVEYING (CONSTR.)	LS	1	15000	\$ 15,000.00	Locked
25506	FIELD OFFICE TY.II	MO	18	\$2,100.00	\$ 37,800.00	Locked
25565	PROGRESS SCHEDULE BASELINE	LS	1	10000	\$ 10,000.00	Locked
25567	PROGRESS SCHEDULE UPDATES	EA	17	\$740.40	\$ 12,586.80	Locked
60125	NS BRIDGE (ERECT AND REMOVE TEMP BRIDGE)	LS	1	\$250,000.00	\$ 250,000.00	Locked
60411	CONC. CLASS A4 MOD. LIGHTWEIGHT LOW SHRINKAGE	CY	110	\$1,400.00	\$ 154,000.00	Locked
60490	BRIDGE DECK GROOVING	SY	317	\$25.00	\$ 7,925.00	Locked
60495	COVER DEPTH SURVEY	SY	317	\$15.00	\$ 4,755.00	Locked
61711	CORROSION RESISTANT REINF.STEEL CL. I	LB	20000	\$3.52	\$ 70,400.00	Locked
61812	STR.ST.PLATE GIRDER ASTM A709 GR.50W	LS	81100	\$3.10	\$ 251,409.99	Locked
62032	RAILING,KANSAS CORRAL 32" W/CURB	LF	190	\$451.87	\$ 85,855.30	Locked
62534	NS BRIDGE SUPERSTRUCTURE (EPS)	SY	15	\$177.34	\$ 2,660.10	Locked
62535	NS BRIDGE SUPERSTRUCTURE (LOW PROFILE BEARING)	EA	14	\$2,500.00	\$ 35,000.00	Locked
62536	NS BRIDGE SUPERSTRUCTURE (TEMP SHORING)	LS	1	\$30,000.00	\$ 30,000.00	Locked
64011	STRUCTURE EXCAVATION	CY	1420	\$50.00	\$ 71,000.00	Locked
64015	SELECT BACKFILL (ABUTMENT ZONE)	TON	2500	\$35.00	\$ 87,500.00	Locked
64032	GEOCOMPOSITE WALL DRAIN	SY	76	\$62.40	\$ 4,742.40	Locked
64036	PIPE UNDERDRAIN 6"	LF	100	\$25.00	\$ 2,500.00	Locked
65013	CONCRETE CLASS A3	CY	350	\$900.00	\$ 315,000.00	Locked
65095	NS CONCRETE	CY	25	\$500.00	\$ 12,500.00	Locked
65200	REINF. STEEL	LB	20000	\$2.00	\$ 40,000.00	Locked
66115	TEMP. CAUSEWAY	LS	1	\$10,000.00	\$ 10,000.00	Locked
66120	COFFERDAM	EA	2	\$20,000.00	\$ 40,000.00	Locked
66239	DRY RIPRAP CL.II 38"	TON	80	\$107.10	\$ 8,568.00	Locked
67400	DECK DRAINAGE SYSTEM	LS	1	\$15,000.00	\$ 15,000.00	Locked
67900	NS DISM.& REM. EXIST. STR.	LS	1	\$60,000.00	\$ 60,000.00	Locked
68476	NS ENV.& WORKER PROTECT.	LS	1	\$16,626.55	\$ 16,626.55	Locked
68492	NS MATERIAL DISPOSAL	LS	1	\$6,509.76	\$ 6,509.76	Locked

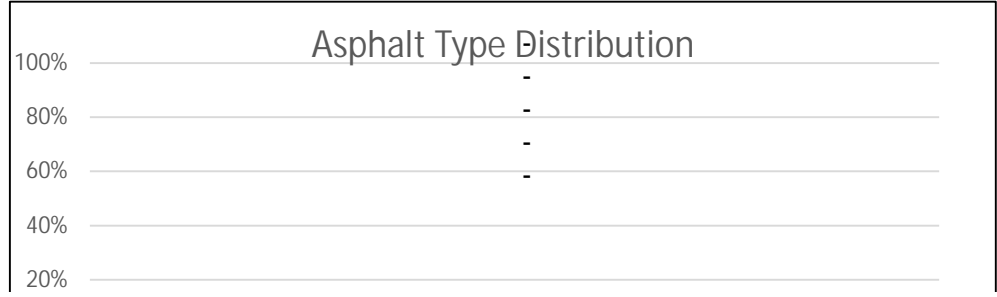
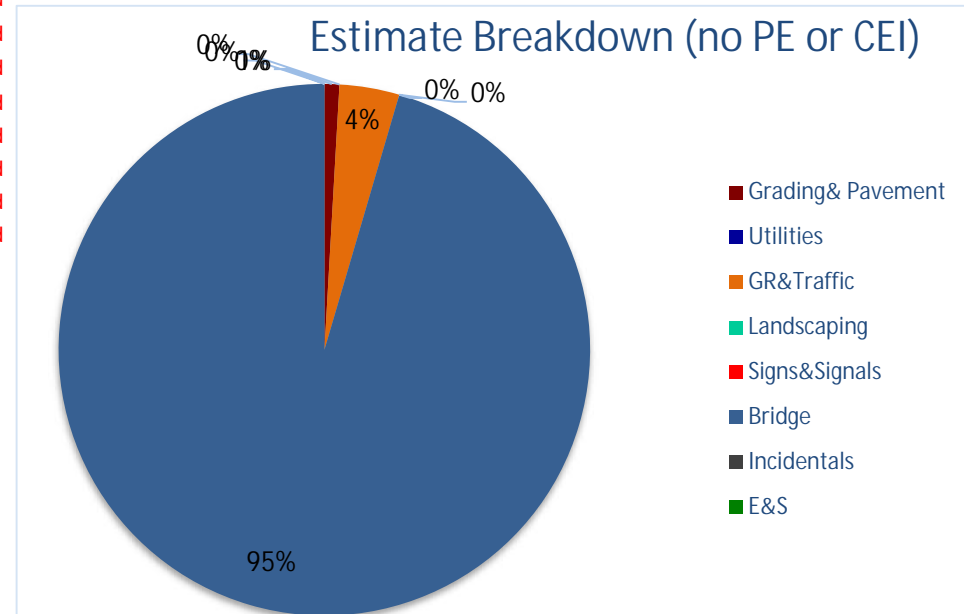
<b>MOBILIZATION</b>	\$	112,866.95	= \$80,000 + 5% OF (THE SUM OF BID ITEMS - \$1 MILLION)
<b>SUBTOTAL</b>	\$	1,770,205.85	\$ 1,657,338.90
<b>ENGINEERING</b>	\$	177,020.58	10.0% OF SUBTOTAL
<b>CONTINGENCIES</b>	\$	354,041.17	20.0% OF SUBTOTAL
<b>TOTAL</b>	\$	2,301,267.60	

Regression Model: **Non-Linear**  
 District: **Staunton**  
 Pricing Model Date: **11/2/2020** *Current To 10/2020 Letting*

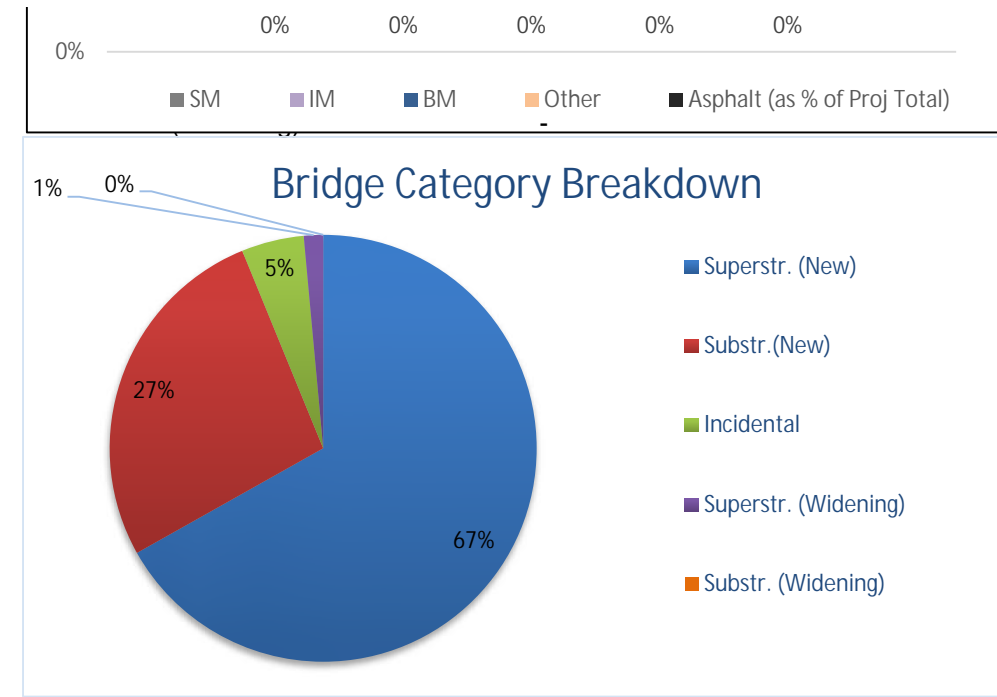
*Enter % based on Proj. specific conditions & requirements*

**Network Version**

**Total Number of Bid items = 28**



# PROJECT COST ESTIMATE





**PAVEMENT SUMMARY**

Project No. 0623-034-882, M501	Sheet No.	ASPHALT CONCRETE TY. BM-25.0A	ASPHALT CONCRETE TY. SM-9.5A	FLEXIBLE PAVE PLANNING 6" 0'-2'	AGGR. BASE MATL. TY. 1 NO. 21B	RESAH/CUT ASPH CONC.	DEMOLITION OF PAVEMENT												
		TON	TON	SF	TON	LF	SF												
Rt 159		140.67	385.00	1778.00	222.22	1556.00	140.00												
Rt 159 Diversion		244.44	195.56				511.11												
Temp																			
Total		391.11	580.56	1778.00	617.28	1556.00	651.11												

P Denotes Item(s) to be paid for on the basis of plan quantities in accordance with current road and bridge specifications  
X Denotes Item(s) to be included in the price bid of other items  
S Denotes Subtotal, add to other subtotals of the same item for total Quantity

**INCIDENTAL SUMMARY**

Project No.	Sheet No.	REGULAR EXCAVATION	BORROW EXCAVATION	CONSTRUCTION SURVEY	Guardrail Terminal Gr. MISSZ	FIXED OBJECT ATTACH. GR. FDA-1 TY. 1													
		CY	CY	LS	EA	EA													
Rt 159				1.00	4.00	4.00													
Rt 159 Diversion		1318.00	9400.00																
Temp																			
Total		1318.00	9400.00	1.00	4.00	4.00													

**TEMPORARY TRAFFIC CONTROL AND DRAINAGE SUMMARY**

Project No.	Sheet No.	UNDERDRAIN UD-1	6" PIPE	STORM SEWER PIPE 15"	GROUP 2 CHANNELIZING DEVICES	CONSTRUCTION SIGNS	TYPE III BARRICADE 6'	FLAGGER SERVICE	TY. A PAVEMENT LINE MARKING 6"	ERAD. OF EXIST PAVE MARKING	Temporary Signalization	Misc Seeding, EASC Drainage							
		LF	LF	LF	DAY	SF	EA	HR	LF	LF	EA	LS							
Rt 159		30	30	30	3200	320	4	240	2400	1860	4	1							
Rt 159 Diversion		15	45	25					2660										
Temp																			
Total		35	75	60	3200	320	4	240	5060	1860	4	1							

			Phase I	Phase II	Phase III	Phase IV	Phase V					
			Duration	6 MONTH	5 MONTH	2.5 MONTH	0.5 MONTH	2.5 MONTH	TOTAL	1 month =	30 days	
										Flagger team =	3 guys	8 hr days
24160	Temporary Signs	SF					4	60	360			
	Truck Mounted Attenuator	HR							60			
24278	Group 2 Channelizing Devices	Day	8	240	16	2400	25	1875	25	375	25	1875
24282	Flagger Service	HR	25 days	600			10	240	840			
24290	Traffic Barrier Ser. Conc.	LF			310		545	130	985			
54524	CONSTR.PAVE.MARK.(TY.D.CL.II)24"	LF			24				24			
54512	CONSTR.PAVE.MARK.(TY.D.CL.II)4"	LF			252				200			
54020	TY. A PAVEMENT LINE MARKING 4"	LF			280		272		200			
54028	TY. A PAVE. LINE MARKING 24"	LF			32				12			
54024	TY. A PAVEMENT LINE MARKING 8"	LF										
54105	eradicate paint	LF			400				200			
24152	Type III barricade 8'	EA			6				6			
	Stone	Tons		514								
54516	CONSTR.PAVE.MARK.(TY.D.CL.II)8"	LF										

\*Extra excavation For PHASE I on Route 1308  
Calcs in profile drawing 396 cy

Construction Signs size	each	Total
3x3	24	216
4x2	6	48
2x3	5	30

294

STAGE 1

stage 2

24160	Temporary Signs	SF	280				280	
	Truck Mounted Attenuator	HR						
24278	Group 2 Channelizing Devices	Day	22	33				
24282	Flagger Service	HR						
24290	Traffic Barrier Ser. Conc.	LF						



# Project Cost Estimating System

## SUMMARY PAGE

<b>DISTRICT</b>	<b>STAUNTON</b>		
<b>PROJECT NUMBER</b>	<b>PE18968442</b>		
<b>CONSTRUCTION END YEAR</b>	<b>FY2020</b>	<b>UPC</b>	<b>111098</b>
<b>AD YEAR</b>	<b>FY2020</b>	<small>RATE OF INFLATION TO AD</small>	<b>N/A</b>
<b>ESTIMATE YEAR</b>	<b>FY2020</b>	<small>INFLATION RATE DURING CN</small>	<b>N/A</b>

Date of previous estimate 12/05/19

**PROJECT MANAGER / DESIGNER** **Eulogio.Javier**

Preliminary Engineering Estimate:	<b>PCES</b>
Construction Estimate:	<b>PCES</b>
Right-of-Way Estimate:	<b>PCES</b>
Utilities Estimate:	<b>PCES</b>

**DATE** 8/11/2021

THE FOLLOWING DATA WILL BE PROVIDED UPON COMPLETION OF THE REMAINDER OF THE WORKBOOK, WHICH IS ACCESSED BY SELECTING THE CONST, RW, & UTIL TABS BELOW

Bridge PE ESTIMATE	\$0
Bridge CN ESTIMATE	\$0
Bridge RW ESTIMATE	\$0
PRELIMINARY ENGINEERING ESTIMATE (excluding Bridge PE)	\$0
CONSTRUCTION ESTIMATE (excluding Bridge CN)	\$0
RIGHT-OF-WAY & UTILITIES ESTIMATE(excluding Bridge RW)	\$236,967
<b>TOTAL PROJECT ESTIMATE (excluding Bridge estimate)</b>	<b>\$236,967</b>



Project Cost Estimating System  
RIGHT-OF-WAY ESTIMATE



Project No.: **PE18968442**

VDOT Construction District : **STAUNTON**

# **8**

Select Project Area Real Estate Costs :

Define Project Land Use Characteristics :

<b>Agricultural :</b>	
<b>Residential :</b>	
<b>Industrial :</b>	
<b>Commercial :</b>	

100%

Instructions: Please fill-in all applicable White Boxes or make a choice from the Drop-down Lists

Enter the Approximate Number of Parcels on the Project :

**1. LAND VALUE**

Prop. Right-of-Way  
Temp. Ease.  
Perm. & Util. Ease.

Total Right-of-Way Project Length (ML + Connections)		ft	Computed RW Cost per sq ft =	<b>\$0.27</b>
Average width of Existing RW		ft	Enter Right-of-Way Estimator's Right-of-Way Cost	
Average width of Proposed RW		ft	per sq ft :	
Total area of all additional Prop. Right-of-Way		sf	Enter total sq ft (override calculation):	
			0 sq ft =	0.000 Ac.
Approx. % of Prop. CL within		ft	of Exist. CL	
Approx. % of Prop. CL between		ft	& ft of Exist. CL	
Approx. % of Prop. CL greater than		ft	from Exist. CL	

Average Width of parallel Temporary Easements Left		ft	Comp. Temp. Ease. Cost / sq ft =	<b>\$0.07</b>
Total Length of parallel Temporary Easements Left		ft	Enter Right-of-Way Estimator's Temp. Ease. Cost	
Average Width of parallel Temporary Easements Right		ft	per sq ft :	
Total Length of parallel Temporary Easements Right		ft	Enter total sq ft (override calculation):	
			16,000 sq ft =	0.367 Ac.

Total Area of All Replacement Utility Easements AND Select % of RW Cost for Util. Ease.		sf	Comp. Utility Ease. Cost / sq ft =	<b>\$0.07</b>
			RW Est's. Utility Ease. Cost per sq ft :	
			15,000 sq ft =	0.344 Ac.
<i>This Box Must Be Empty &gt;</i>		ea	Comp. Perm. Ease. Cost / sq ft =	<b>\$0.22</b>
			RW Est's. Perm. Ease. Cost per sq ft :	
Total area of All Permanent Easements		sf	18,000 sq ft =	0.413 Ac.

**COST OF LAND (Item # 1) \$5,967**

**2. BUILDING VALUE**

Based upon comparison to similar, occupied <b>Residential Dwellings</b> in the Project Area, enter the Number of:		Computed:
A. Low Cost Residential Dwellings :		\$0
B. Moderately Low Cost Dwellings :		\$0
C. Average Cost Residential Dwellings :		\$0
D. Moderately High Cost Dwellings :		\$0
E. High Cost Residential Dwellings :		\$0
<b>Computed Total Residential Dwelling Costs :</b>		<b>\$0</b>
<b>Estimator's Total Residential Dwelling Costs :</b>		

Enter the total estimated cost of ALL **COMMERCIAL & INDUSTRIAL BUILDINGS** to be taken:

**Note: No Computed Costs Available. Use User Defined Costs Below:**

**Estimator's Total Commercial / Industrial Buildings Costs :**

**3. OTHER IMPROVEMENTS**

Enter the estimated cost of ALL **OTHER IMPROVEMENTS** on the Project:

**Computed Total Other Improvements Costs :** **\$597**

**Estimator's Total Other Improvements Costs :**

**4. DAMAGES**

Anticipated % of Parcels Affected by Damages to Remainder :	
Anticipated Relative Cost Impact of Damages to Remainder :	
Approximate Number of Parcels Affected :	<b>3</b>
<b>Computed Cost of Damages to Remainder :</b>	<b>\$7,040</b>
<b>Estimator's Total Cost of Damages to Remainder :</b>	<b>\$7,500</b>

**TOTAL ACQUISITIONS (Items # 1 - 4) \$21,967**

**5. ADMINISTRATIVE SETTLEMENTS**

Anticipated % of Parcels Affected by Administrative Settlements :	60%
Anticipated Relative Cost Impact of Administrative Settlements :	Low
Approximate Number of Parcels Affected :	3
Computed Cost of Administrative Settlements :	\$11,734
<b>Estimator's Total Cost of Administrative Settlements :</b>	<b>\$12,500</b>

**6. CONDEMNATION INCREASES**

Anticipated % of Parcels Affected by Condemnation Increases :	20%
Anticipated Relative Cost Impact of Condemnation Increases :	Moderate
Approximate Number of Parcels Affected :	1
Computed Cost of Condemnation Increases :	\$21,121
<b>Estimator's Total Cost of Condemnation Increases :</b>	<b>\$20,000</b>

**7. ADMINISTRATIVE COSTS & INCIDENTAL EXPENSES**

Anticipated Relative Cost Impact of Admin. Costs & Incidental Expenses :	Very High
Computed Administrative Costs & Incidental Expenses :	\$19,946
<b>Estimator's Total Administrative Costs &amp; Incidental Expenses :</b>	<b>\$32,500</b>

**8. DEMOLITION CONTRACTS**

Anticipated Relative Cost Impact of Demolition Contracts :	
Computed Costs of Demolition Contracts :	\$0
<b>Estimator's Total Cost of Demolition Contracts :</b>	<b>\$0</b>

**9. HAZARDOUS MATERIALS REMOVAL**

Anticipated Number of Demolished Buildings Requiring Asbestos Removal :	
Anticipated Relative Cost of Asbestos Removal from Demolished Buildings :	
Anticipated Number of Other Hazardous Materials Removal Sites :	
Anticipated Relative Cost Impact of Other Hazardous Materials Removal :	
Computed Cost of Hazardous Materials Removal :	\$0
<b>Estimator's Total Costs of Hazardous Materials Removal :</b>	<b>\$0</b>

**10. PROPERTY MANAGEMENT**

Anticipated Relative Cost Impact of Property Management :	
Computed Costs of Property Management :	\$0
<b>Estimator's Total Cost of Property Management :</b>	<b>\$0</b>

**TOTAL OTHER ITEMS (Items # 5 - 10) \$65,000**

**11. RELOCATION ASSISTANCE****Residential Relocation Costs:**

Anticipated Relative Cost Impact of Residential Relocation Expenses :	
Computed Residential Relocation Costs :	\$0
<b>Estimator's Total Residential Relocation Costs :</b>	<b>\$0</b>

**Commercial Relocation Costs:**

Note: No Computed Costs Available. Use User Defined Costs Below:

<b>Estimator's Total Comm/Indust Relocation Costs :</b>	<b>\$0</b>
---	------------

Total Displacements:

Farms:

Families:

Non-Profit:

Businesses:

Personal Property Only:

**TOTAL RELOCATION ASSISTANCE (Item # 11) \$0**



**12. YEAR OF RIGHT-OF-WAY AUTHORIZATION** **FY2020**

**13. MANUAL INFLATION RATE**

		<i>Today's Cost</i>	<i>Factor</i>	<i>Inflated Cost</i>
<b>SUB-TOTAL RIGHT-OF-WAY COSTS</b>		<b>\$86,967</b>	<b>N/A</b>	<b>\$86,967</b>
<b>UTILITY COSTS TO RIGHT-OF-WAY PROJECT *</b>	<i>(PCES)</i>	<b>\$150,000</b>	<b>N/A</b>	<b>\$150,000</b>
<b>TOTAL RIGHT-OF-WAY COSTS</b>	<i>(PCES)</i>	<b>\$236,967</b>		<b>\$236,967</b>

\* Utility Data display requires completion of Utilities Estimate Worksheet (tab below)

**COMMENTS:**

Proposed acquisition areas calculated and provided by PM. Grave, 4-Board Horse Fencing, Various Mature Trees, IP's.  
Assumptions: No Total Takes; No well / septic impacts; All parcels to retain reasonable access; Condemnation elevated due to recent attorney involvement. [DWL]

**RW-238 Data :**

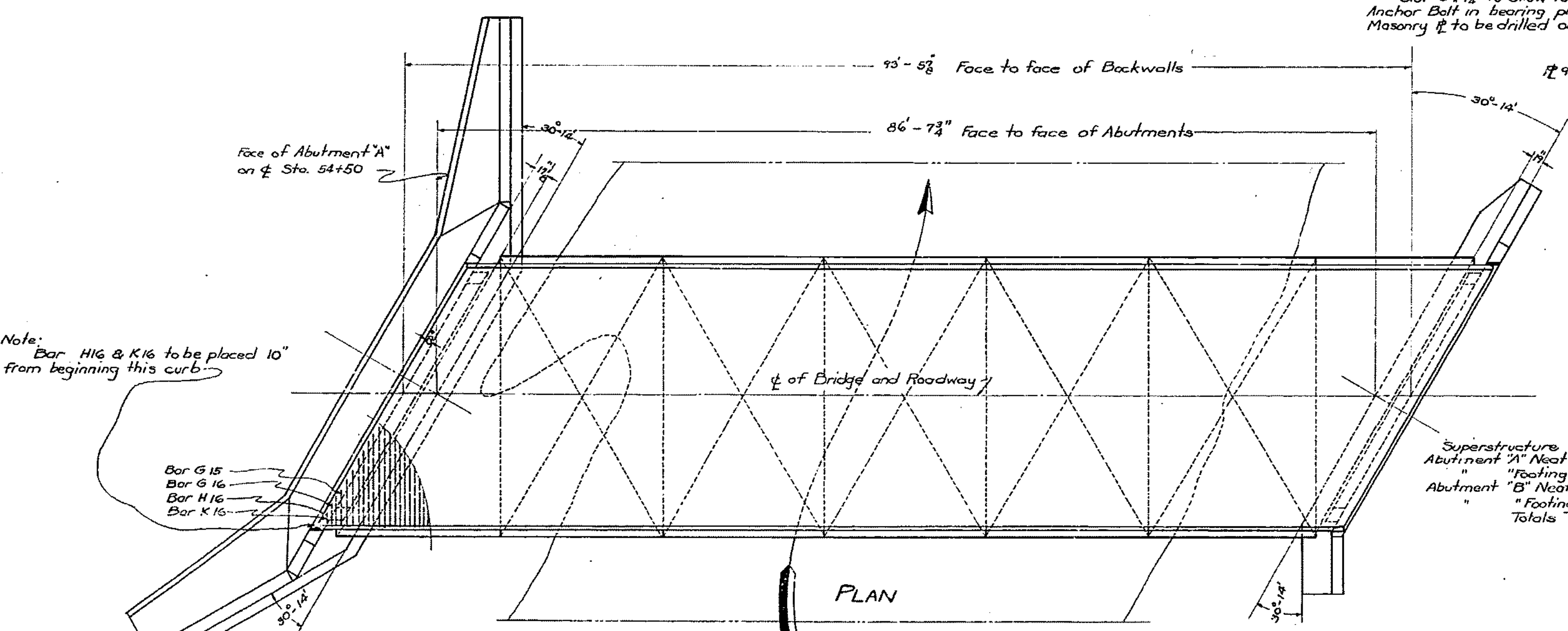
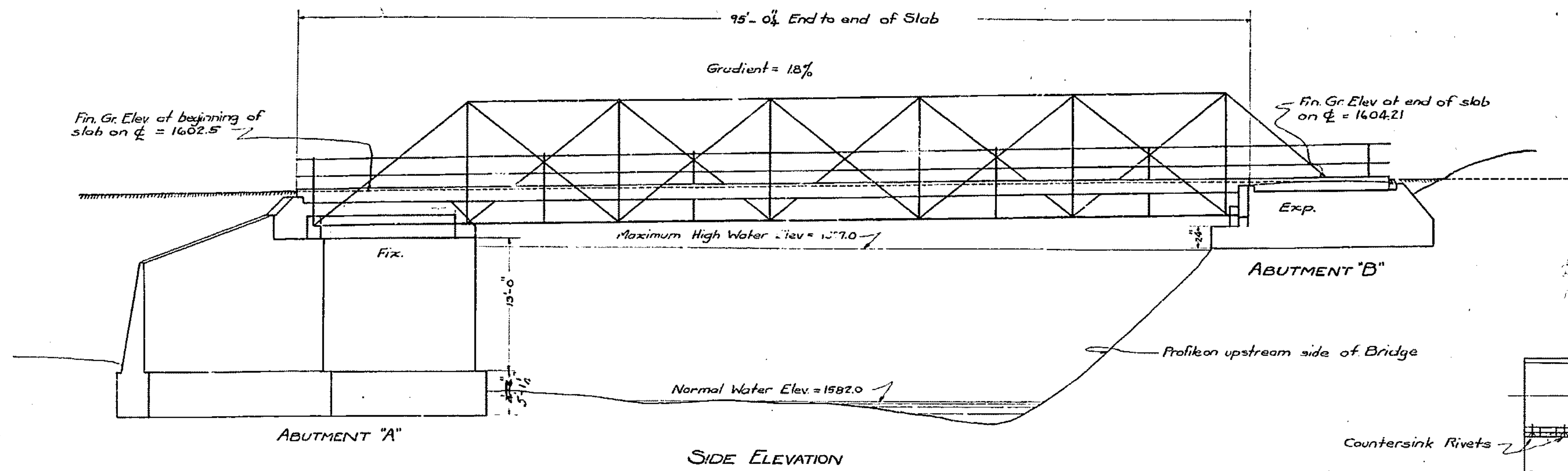
Right-of-Way Estimate Date :

Based on Approved / Unapproved Plans ? :

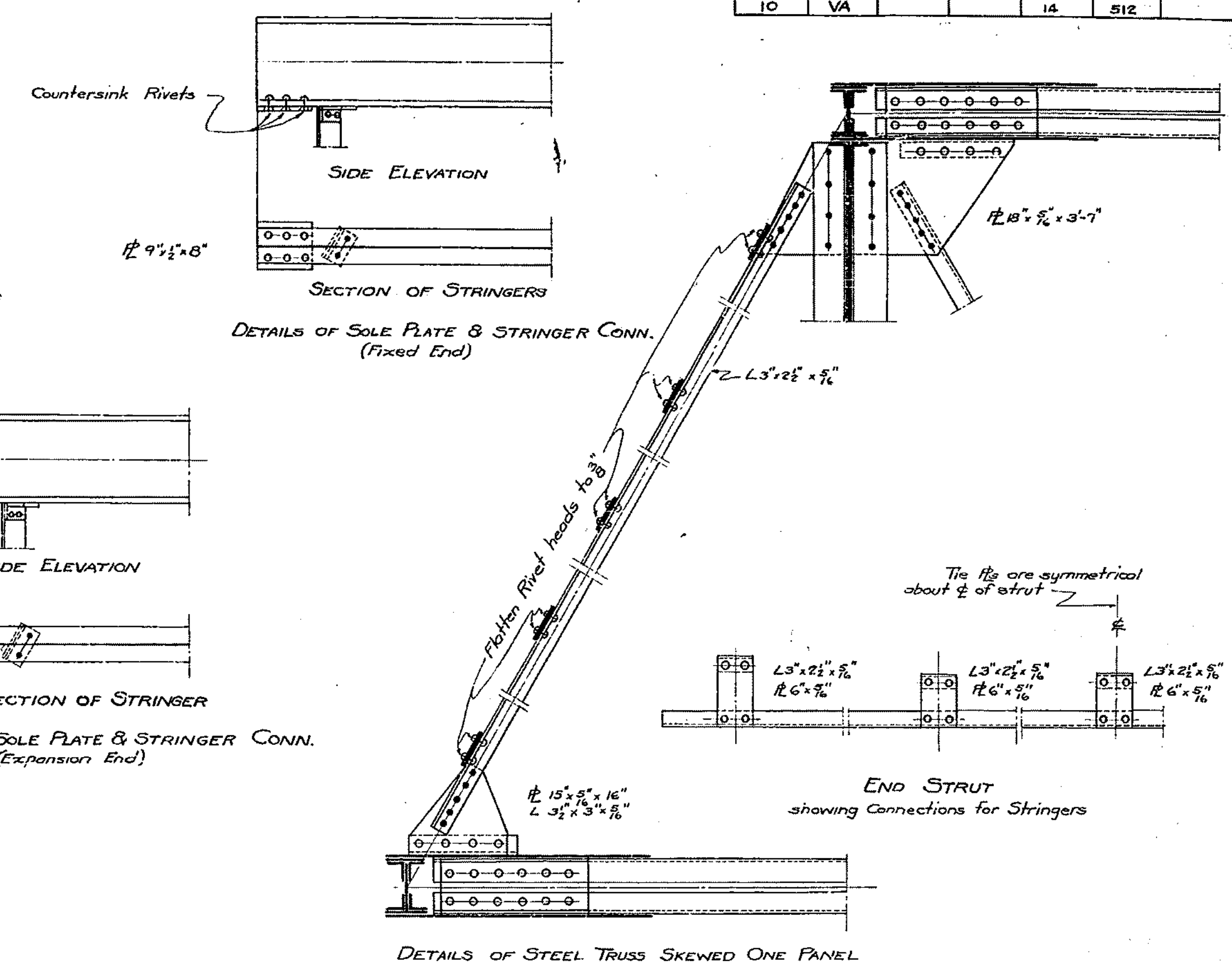
Participating Cost / Non-Participating Cost ? :

Today's Date : **08/11/21**

FED. ROAD DIST. NO.	STATE	B. P. R. ROUTE NO.	STATE	ROUTE NO.	NO. OF SHEETS	TOTAL NO. OF SHEETS
10	VA	14	14	512		



Note: Bar H16 & K16 to be placed 10" from beginning this curb.

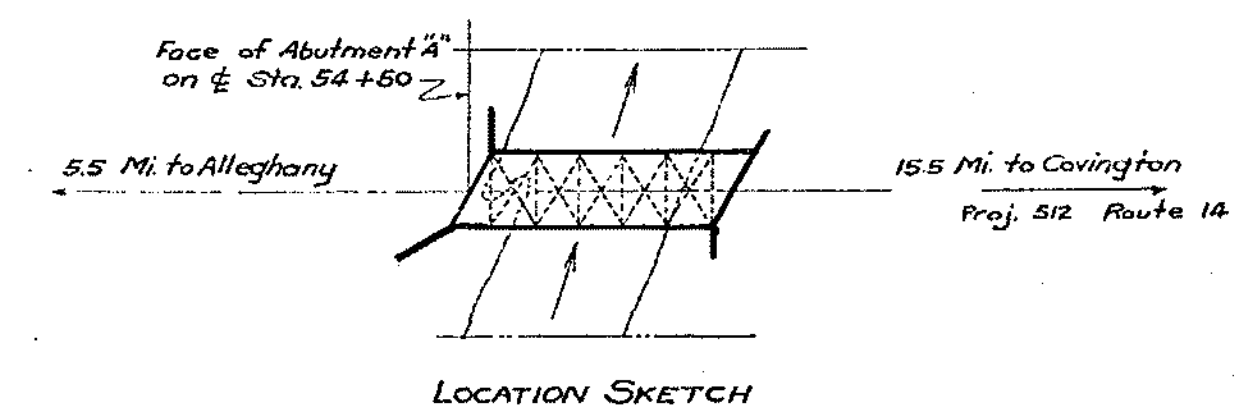


ESTIMATED QUANTITIES:-

Concrete	Cu. Yds.	Reinforcing Steel Lbs.	Structural Steel Lbs.	Excavation Cu. Yds.	Dry	Wet
Class 'A'	58.4	145.7	97,000			
Class 'B'	8.6	222.3	12,035	30	43	56
Abutment 'A' Neat Footing	67.0	63.9		60		
Abutment 'B' Neat Footing		305.9		40		
Totals						

GENERAL NOTE  
 Roadway 24 feet; Capacity 2-15 ton trucks passing.  
 Specifications - Virginia State Highway Commission, 1926.  
 All footings shall extend to solid rock and foundations shall be approved by the Engineer. Depths of footings shown are approximate only.  
 All concrete in Superstructure & Abut. B, neat to be Class 'A'. All other concrete to be Class 'B'.  
 All Excavation above Elevation 1582.0 shall be classified as Dry, below as Wet.  
 For further details of Superstructure see Standard Plan SC 24-90 BM Neat in roof of 10" Sycamore 68 ft. Lt. of Station 53+50 Elevation = 1588.60.

STEEL IN SUPERSTRUCTURE					BENDING DIAGRAM				
Mark	No.	Size	Length	Location	BENDING DIAGRAM				
A	113	5/8"	24'-8"	Slab	Cut 2-B Bars for G1				
AI	113	5/8"	26'-5"	"	Cut 2-B Bars for G2 & G16				
B	114	5/8"	28'-0"	"	Cut 2-B Bars for G3 & G15				
C	45	5/8"	33'-9"	"	Cut 2-B Bars for G4 & G14				
D	192	5/8"	4'-0"	"	Cut 2-B Bars for G5 & G13				
STEEL IN ABUTMENT 'A'					BENDING DIAGRAM				
Mark	No.	Size	Length	Location	BENDING DIAGRAM				
AV	37	1/2"	5'-3"	End wall	Cut 2-A Bars for G6 & G12				
AH	2	1/2"	39'-9"	"	Cut 2-B Bars for G7 & G11				
AH1	1	1/2"	36'-8"	"	Cut 2-B Bars for G8 & G10				
AH2	1	1/2"	33'-7"	"	Cut 1-B Bar for G9				
STEEL IN ABUTMENT 'B'					BENDING DIAGRAM				
Mark	No.	Size	Length	Location	BENDING DIAGRAM				
AV	32	1/2"	5'-3"	End wall	Cut 2-A1 Bars for K1-K16				
BH	2	1/2"	40'-9"	"	Cut 2-A1 Bars for K2-K15				
BH1	1	1/2"	37'-11"	"	Cut 2-A1 Bars for K3-K14				
BH2	1	1/2"	34'-1"	"	Cut 2-A1 Bars for K4-K13				
					Cut 2-A1 Bars for K5-K12				
					Cut 2-A1 Bars for K6-K11				
					Cut 2-A1 Bars for K7-K10				
					Cut 2-A1 Bars for K8-K9				



PROPOSED BRIDGE  
 OVER DUNLAP CREEK 55 MI. FROM ALLEGHANY  
 STA. 54+50 PROJ. 512 RT. 14 ALLEGHANY CO.  
 1-90'-0" STEEL TRUSS SPAN  
 VIRGINIA STATE HIGHWAY COMMISSION  
 RICHMOND, VA.

Recommended for Approval: \_\_\_\_\_  
 Bridge Engineer  
 Approved: \_\_\_\_\_  
 Chief Engineer

Drawn by: [Signature]  
 Traced by: [Signature]  
 Checked by: [Signature]

All bends to be made with a radius of 2 1/2 diam, unless otherwise shown.  
 All Bars not shown in Bending Diagram are straight.

Scale: - 1/8" = 1'-0"  
 Revised: March 21, 1926. August 23, 1927. Final Posted Oct. 12, 1928. Sheet 1 of 3 XXXIII-19

3-1-9

Note the full Bridge Safety Inspection Report was included in the application. Due to CII, this report has not been included in this public sample application.