

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: STP00-00(473)(475)(519)(520) **OFFICE:** Program Delivery
 Colquitt, Dougherty, Worth
 PI Nos. 0000473/0000475/0000519/0000520
 SR 133 Widening

FROM: Bobby Hilliard, PE, State Program Delivery Engineer *B.H.* **DATE:** July 21, 2011

TO: Ronald E. Wishon, State Project Review Engineer
 Attn.: Lisa Myers

SUBJECT: Value Engineering Implementation Reversal Request

The Office of Program Delivery requests a Value Engineering Study Implementation Reversal on the above noted project. The VE Implementation letter was distributed on June 24, 2010.

Request To Reverse Implementation of VE Study Alternatives from “Yes” to “No”:

Recommendations for Implementation of the Value Engineering Study Alternatives were approved by letter dated June 24, 2010. Upon further study, two of the original alternatives have been reevaluated and are being recommended to be reversed, changed from “Yes” to “No”. Please see the original implementation Alternative Number and Description and the proposed Reason for Reversal below. Your review and concurrence of these recommendations is requested.

ALT No.	Description	Reason for Reversal – From “Yes” to “No”
A-1.1	Follow existing SR 133 alignment and construct new at-grade crossings in lieu of grade separations at SR 33 and the railroad.	We met with Georgia / Florida Railway who gave preliminary, not in writing, approval to upgrade the existing at grade crossing in-lieu of grade separation. Upon further investigation, it was discovered that Georgia / Florida Railway leases the railway from Norfolk Southern, who is the owner of the railway. Norfolk Southern will not approve constructing a new at-grade crossing in lieu of a grade separation. The SR 133 grade separation will be required over the railroad but it is not required to grade separate SR 133 over SR 33 because now Alternate A-1 can be implemented (see page 2).
B-2.1	Eliminate the SR 133 bridge over the Georgia/Florida Railway track and construct an at-grade crossing.	We met with Georgia / Florida Railway who gave preliminary, not in writing, approval to upgrade the existing at grade crossing in-lieu of grade separation. Upon further investigation, it was discovered that Georgia / Florida Railway leases the railway from Norfolk Southern, who is the owner of the railway. Norfolk Southern will not approve constructing a new at-grade crossing in lieu of a grade separation.

This office recommends the reversal of the above implemented alternatives.

Reversal of Alternative A-1.1

Concur: Ronald E. Wiseman Date: 7-22-11
State Project Review Engineer

Concur: Bill R. McMillin Date: 7-26-11
Director of Engineering

Approve: Dee Miller Date: 8-2-11
Chief Engineer

Reversal of Alternative B-2.1

Concur: Ronald E. Wiseman Date: 7-22-11
State Project Review Engineer

Concur: Bill R. McMillin Date: 7-26-11
Director of Engineering

Approve: Dee Miller Date: 8-2-11
Chief Engineer

The Office of Program Delivery requests a Value Engineering Study Implementation Reversal on the above noted project. The VE Implementation letter was distributed on June 24, 2010.

Request To Reverse Implementation of VE Study Alternatives from "No" to "Yes":

This office requests to reverse the implementation of alternative A-1 from "No" to "Yes". The alternative as described in the VE Study would reduce the amount of the northerly shift in the SR 133 alignment to eliminate the need to grade separate SR 33 while keeping the railroad grade separation. The proposed savings was estimated to be \$1,838,000 in the VE Report.

The original VE responses indicated that this cannot be done because Alternate A-1.1 was being implemented. Alternate A-1.1 is not being implemented because Norfolk Southern will not accept a new at-grade railroad crossing in lieu of a grade separation.

Approved: Ronald E. Wishon Date: 7-22-11
Ronald E. Wishon, State Project Review Engineer

Approved: Russell R. McMurry Date: 7-26-11
Russell McMurry, PE, Director of Engineering

Approved: Gerald M. Ross Date: 8-4-11
Gerald M. Ross, PE, Chief Engineer

Finally, due to the proposed revisions requested above, we reexamined ALT. B-2 "Reverse the girder direction (make perpendicular to the RR alignment) of the SR 133 bridge over the Georgia/Florida Railway" to see if it could be implemented. The design consultant performed further analysis and the original "No" response still remains as "No". Please see attached supporting documentation.

If you need additional information, please contact the Project Manager, Douglas Fadool, at 404-308-1353.

BH:DF

Attachments:

VE implementation letter

ALT B-2 Supporting Documentation



Hatch Mott MacDonald
2550 Heritage Court, SE, Suite 250
Atlanta, GA 30339
T 770.952.1022
www.hatchmott.com

June 13, 2011

RE: Value Engineering Study Alternatives for SR 133 Widening , Dougherty, Worth and Colquitt Counties, P.I. No. STP-0000-00(520)

Hatch Mott MacDonald has received the Value Engineering Study Alternatives from MACTEC for the above mentioned project. Below are the recommendations along with Hatch Mott MacDonald responses.

BRIDGES

1. Idea B-2: Reverse the girder direction (make perpendicular to the RR alignment) of the SR 133 Bridge over the Georgia/Florida Railway at Station 1670.

VE Team Savings: \$418,000.

No, will not implement. The VE recommendation proposes that constructing the bridge with the beams perpendicular to the railroad is a cheaper alternative however the estimated cost used to compare the options are somewhat inaccurate and incomplete. For example the average cost for the dual bridges is closer to \$95/sq. ft. instead of the \$110/ sq. ft. used in the comparison. Additionally the VE bridge does not show the cost of the actual wall and additional asphalt required on the roadway. The bridge cost themselves are close (approximately \$36k difference) that the cost of the wall, additional embankment, and required asphalt makes the VE bridge considerable more expensive (attached are the comparative calculations)

Revised cost increase: \$1,500,000.

DEVELOPMENT AND RECOMMENDATION PHASE

SR 133 Widening – Dougherty, Worth and Colquitt Counties

IDEA No.: B-2	Sheet No.: 1 of 5	CREATIVE IDEA: Reverse the girder direction (make perpendicular to the RR alignment) of the SR 133 Bridge over the Georgia/Florida Railway at Station 1670.
-------------------------	-----------------------------	--

Comp By: AS Date: 1/21/2010 Checked By: KB Date: 1/26/2010

Original Concept:

The current design includes dual 3-span (110 ft x 140 ft x 110 ft) bridges over the Georgia / Florida Railway track at Station 1670. The current design has the bridge beam alignment parallel to the SR 133 alignment which requires the use of Bulb Tee 74" and Bulb Tee 63" beams. The current design also provides 25 feet 3 inches of minimum vertical clearance and adequate horizontal clearance for a future second track.

Proposed Change:

This recommendation would construct a single SR 133 Bridge over the Georgia/Florida Railway by reversing the direction of beams (make perpendicular to the railroad alignment). This concept would result in a new bridge that is 79 feet wide and 404.54 feet long. It would be constructed partly on MSE wall pile end bents and partly on concrete intermediate bents.

Justification:

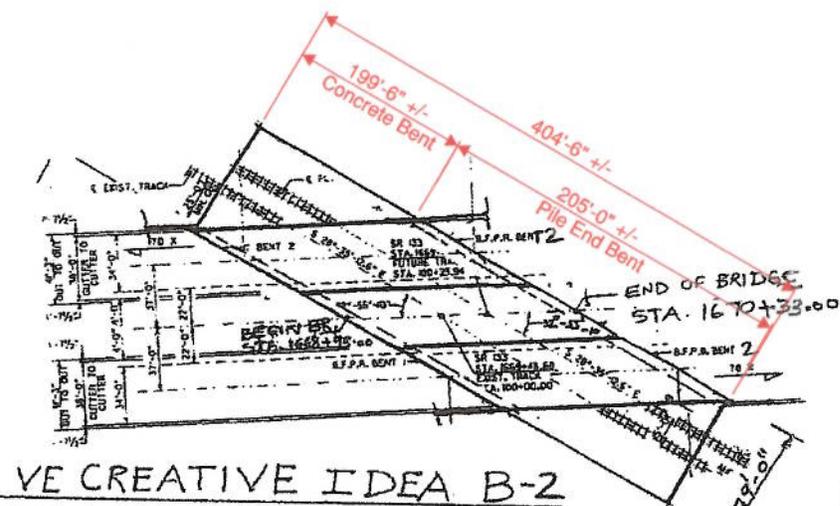
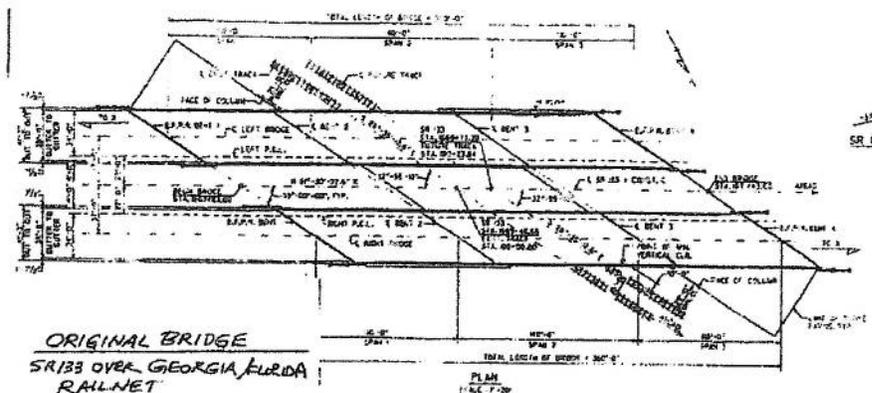
This concept results in a smaller overall deck section and shorter beams. The shorter beams would allow Type III AASHTO prestressed concrete beams to be used instead of Bulb Tee 74" and Bulb Tee 63". The use of the smaller Type III beams would also reduce the overall height of the roadway over the railroad. Construction using smaller beams would be simpler and quicker with less impact to the railroad.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	TOTAL COST
INITIAL COST: - Original	\$3,364,000		
- Proposed	\$2,946,000		
- Savings	\$418,000		\$418,000
FUTURE COST: - Savings			
TOTAL PRESENT WORTH SAVINGS			\$418,000

SKETCH

Project: SR 133 Widening – Dougherty, Worth and Colquitt Counties

Idea No.: B-2
Client: GDOT
Sheet 2 of 5



VE CREATIVE IDEA B-2
 USE BRIDGE GIRDERS PERPENDICULAR TO RAILROAD TRACKS. (USE TYPE III AASHTO PSC GIRDERS)
 SR 133 OVER GEORGIA/FLORIDA RAILNET

BRIDGE: SR 133 OVER GA/FL RAILNET
 COUNTY: DOUGHTERY
 PROJECT: STP-0000-00(520)



JOB NO: 31-4074
 DESIGNED BY: SHG
 DATE: 6/13/2011

MSE WALL OPTION

BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
211-0200	BRIDGE EXCAVATION, GRADE SEPARATION	CY	\$30.52	704	\$21,486
500-0100	GROOVED CONCRETE	SY	\$4.09	682	\$2,790
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	1052	\$929,284
500-2100	CONCRETE BARRIER	LF	\$43.88	155	\$6,801
500-3002	CLASS AA CONCRETE	CY	\$516.02	852	\$439,855
507-9003	PSC BEAMS, AASHTO TYPE III, BR NO -	LF	\$143.86	3950	\$568,247
511-1000	BAR REINF STEEL	LB	\$0.91	127860	\$116,353
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	263475	\$247,667
520-1147	PILING IN PLACE, STEEL H, HP 14 X 73	LF	\$61.88	7300	\$451,724
					\$2,784,207 = \$86 / SF

WALLS

211-0200	BRIDGE EXCAVATION, GRADE SEPARATION	CY	\$30.52	914	\$27,888.50
627-1010	MSE WALL FACE, 10 - 20 FT HT, WALL NO -	SF	\$55.35	14068	\$778,664
627-1100	COPING A, WALL NO -	LF	\$67.28	514	\$34,582
627-1180	ADDITIONAL MSE BACKFILL	CY	\$198.53	2342	\$464,869
					\$1,306,003

ASPHALT

206-0002	BORROW EXCAV, INCL MATL	CY	\$6.76	25462	\$172,125.00
310-5060	GR AGGR BASE CRS, 6 INCH, INCL MATL	SY	\$13.05	159	\$2,073.50
310-5120	GR AGGR BASE CRS, 12 INCH, INCL MATL	SY	\$21.11	636	\$13,416.58
402-3113	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM	TN	\$68.15	63	\$4,323.50
402-3125	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM	TN	\$64.37	254	\$16,331.18
402-3190	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM	TN	\$63.58	127	\$8,067.15
					\$216,337

Total Cost = \$4,306,548

BRIDGE: SR 133 OVER GA/FL RAILNET
 COUNTY: DOUGHTERY
 PROJECT: STP-0000-00(520)



JOB NO: 31-4074
 DESIGNED BY: SHG
 DATE: 6/13/2011

ORIGINAL SPAN CONFIGURATION

ITEM NUMBER	ITEM DESCRIPTION - LEFT BRIDGE	UNITS	UNIT PRICE	QUANTITY	COST
211-0200	BRIDGE EXCAVATION, GRADE SEPARATION	CY	\$30.52	176	\$5,372
441-0004	CONC SLOPE PAV, 4 IN	SY	\$45.77	1271	\$58,160
500-0100	GROOVED CONCRETE	SY	\$4.09	1440	\$5,890
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	531	\$469,635
500-2100	CONCRETE BARRIER	LF	\$43.88	710	\$31,155
500-3002	CLASS AA CONCRETE	CY	\$516.02	332	\$171,319
507-9031	PSC BEAMS, AASHTO, BULB TEE, 63 IN, BR NO -	LF	\$189.37	1080	\$204,520
507-9032	PSC BEAMS, AASHTO, BULB TEE, 72 IN, BR NO -	LF	\$190.68	690	\$131,569
511-1000	BAR REINF STEEL	LB	\$0.91	62450	\$56,830
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	133450	\$125,443
520-1147	PILING IN PLACE, STEEL H, HP 14 X 73	LF	\$61.88	2430	\$150,368

\$1,410,260 = \$95 / SF

ITEM NUMBER	ITEM DESCRIPTION - RIGHT BRIDGE	UNITS	UNIT PRICE	QUANTITY	COST
211-0200	BRIDGE EXCAVATION, GRADE SEPARATION	CY	\$30.52	176	\$5,372
441-0004	CONC SLOPE PAV, 4 IN	SY	\$45.77	1271	\$58,160
500-0100	GROOVED CONCRETE	SY	\$4.09	1440	\$5,890
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	531	\$469,635
500-2100	CONCRETE BARRIER	LF	\$43.88	710	\$31,155
500-3002	CLASS AA CONCRETE	CY	\$516.02	332	\$171,319
507-9031	PSC BEAMS, AASHTO, BULB TEE, 63 IN, BR NO -	LF	\$189.37	1080	\$204,520
507-9032	PSC BEAMS, AASHTO, BULB TEE, 72 IN, BR NO -	LF	\$190.68	690	\$131,569
511-1000	BAR REINF STEEL	LB	\$0.91	62450	\$56,830
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	133450	\$125,443
520-1147	PILING IN PLACE, STEEL H, HP 14 X 73	LF	\$61.88	2430	\$150,368

\$1,410,260 = \$95 / SF

Total Cost = \$2,820,519