Form C-104
Rev. 02/2009

VALUE ENGINEERING CHANGE PROPOSAL
MISSOURI DEPARTMENT OF TRANSPORTATION

☒ Conceptual Proposal ☐ Final Proposal Date April 19th 2012

Contract ID 111118-D05 Job No. J9P2190

County PHELPS Original Bid Cost $2,588,062.06

Contractor Magruder Paving LLC By Donnie Mantle

Designed By _____ Phone 573-286-4908

VECP# 12-23 (to be completed by C.O.) VECP ☒ - or PDVECP ☒ 75/25

1. **Description of existing requirements and proposed change(s). Advantages/Disadvantages**
   Plans show laying 3.75 inches of BP-1 asphalt on the shoulders. We are proposing to lay 3.75 inches along the pavement tapering it down to 2 inches on the outside edge. After installing the edge drains and patching these areas the shoulders will have a sufficient structure by making this reduction in depth.

2. **Estimate of reduction in construction costs.** ~~$171,768.16~~ $175,257.44 4/20/12

3. **Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.**
   None

4. **Anticipated date for submittal of detailed change(s) of items required by Section 104.6 of the Specifications.**

   MAY 1st 2012
   (date)

5. **Deadline for issuing a change order to obtain maximum cost reduction, noting the effect of contract completion time or delivery schedule.**

   May 1st 2012 (date) none (effect)

6. **Dates of any previous or concurrent submission of the same proposal.**

   none
   (date and/or dates)

Additional Comments:

**** Portion Below This Line To Be Filled Out by MoDOT ****

Comments:
I feel this is acceptable and recommend acceptance of this as a 25/75 Practical Design Value Engineering Proposal. We have checked the existing cross slope of the shoulders and other than in super elevation areas nothing will be over 6% cross slope when the project is finished.

Dennis Krammes, P.E. — Submitted By Resident Engineer — 4/18/12 — Date

Comments:
Agree that this is an acceptable practical design VE. Review of the calculations for the BP-1 shoulder quantities has determined that there will be an estimated $175,257.44 in savings [illegible] 3/25/15

☒ **Approval Recommended**
☐ **Rejection Recommended**

Digitally signed by Duane Kliethermes
DN: cn=Duane Kliethermes, o=MoDOT, ou, email=Duane.Kliethermes@modot.mo.gov, c=US
Date: 2012.04.20 13:51:19 -05'00'

District Engineer — 4/20/12 — Date

Comments:

☐ **Approval Recommended**
☐ **Rejection Recommended**

Federal Highway Administration
Required for FHWA Full Oversight Projects

Date

Comments: Quantities are estimated. Final savings will be based on actual underrun of asphalt laid on shoulders.

☒ **Approval**
☐ **Rejection**

David D. Goodwin

Digitally signed by Dennis Brucks
DN: cn=Dennis Brucks, o=Field Office, ou=6N25, email=Dennis.Brucks@modot.mo.gov, c=US
Date: 2012.04.23 10:07:13 -05'00'

State Construction and Materials Engineer — Date

Distribution: Resident Engineer, Project Manager, District Construction & Materials Engineer, State Construction & Materials Engineer, FHWA Value Engineering Administrator – MoDOT, P. O. Box 270, Jefferson City, MO 65102

Calculation For Shoulder VE (111118-D05)

STA	STA	Traffic Direction	Feet of 10' Shoulder
0+00	261+02	NB/SB	52204
261+02	305+88	NB	4486
261+02	268+37	SB	735
268+37	303+02	SB	3465
303+02	305+88	SB	286
305+88	306+15	NB/SB	54
3+75	1+91	Equation	368
		TOTAL	**61598**

	Shoulder @ 3.75"	TOTAL
10' Shoulder	[(61598' x 10' x 3.75"/12")/27] x 1.985 = 14151.9 Tons	**14815.6 Tons**
3:1 Wedge	[(61598' x 0.469' x 3.75"/12)/27] x 1.985 = 663.7 Tons	

	Shoulder taper from 3.75" to 2"	TOTAL
10' Shoulder	[(61598' x 10' x 2.875"/12")/27] x 1.985 = 10849.8 Tons	**11038.5 Tons**
3:1 Wedge	[(61598' x 0.25' x 2"/12")/27] x 1.985 = 188.7 Tons	
	Difference	**(3777.1) Tons**

Price per Tons of BP-1 = $46.40

(-3777.1) x ($46.40) = **($175,257.44)**

Northbound		Southbound	
Miles	Existing X-Slope	Miles	Existing X-Slope
0.25	-0.3	0.25	-2.7
0.50	6.0	0.50	-2.6
0.75	-3.4	0.75	-2.2
1.00	-2.5	1.00	-1.5
1.25	-3.8	1.25	-2.3
1.50	-2.6	1.50	-2.5
1.75	-2.8	1.75	-2.0
2.00	-2.6	2.00	1.0
2.25	-4.8	2.25	-3.5
2.50	-0.8	2.50	-2.2
2.75	-2.7	2.75	-2.4
3.00	-1.9	3.00	-2.2
3.25	-2.4	3.25	-2.2
3.50	-2.5	3.50	-3.4
3.75	-2.2	3.75	5.2
4.00	-5.2	4.00	-2.8
4.25	-2.2	4.25	-2.6
4.50	-2.6	4.50	-1.7
4.75	-2.4	4.75	-2.2
5.00	-2.0	5.00	-1.0
5.25	-2.2	5.25	-2.4
5.50	-2.4	5.50	-7.1
5.75	-3.6	5.75	-6.9
6.00	-1.2		

red numbers are in a super