

VALUE ENGINEERING CHANGE PROPOSAL MISSOURI DEPARTMENT OF TRANSPORTATION

Conceptual Proposal Final Proposal Date 03/19/2010

Contract ID 091120-201 Job No. J2P0780

County Mercer & Grundy 65 Original Bid Cost \$6,683,736.13

Contractor Norris Asphalt Paving Company By Corey Pelletier

Designed By Corey Pelletier Phone 641-682-3427

VECP# 10-50 (to be completed by C.O.) VECP or PDVECP

1. Description of existing requirements and proposed change(s). Advantages/Disadvantages
 The existing requirements in the plans at section 1 & 5 call for a 1" BP-1 level course. Norris Asphalt Paving Co is proposing a 1.75" mill and putting back 1.75" of SP125C. We believe by doing this you eliminate the old oxidized pavement and you don't change the elevation of the roadway in return you get a much better roadway and a substantial cost savings.

2. Estimate of reduction in construction costs. \$390,642.56

3. Prediction of any effects the proposed change(s) will have on other department costs, such as maintenance and operations.
 The proposed change should not have any effect on other department cost on maintenance and any other operations.

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

03/25/2010
(date)

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

04/12/2010 An additional 10 working days to the contract
(date) (effect)

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

03/19/2010
(date and/or dates)

Additional Comments:

If you have any questions or need more information please give me a call.

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

Comments:

I am recommending that this proposal not be implemented due to the uncertainty regarding the stability of the underlying I-B mixtures and the additional shoulder reconstruction that would be required in Section 5. Please refer to the attachments for additional information.

James R. Kelly
Submitted By Resident Engineer

03/28/2010
Date

Comments:

See attached memo.

- Approval Recommended
- Rejection Recommended

David Tree
District Engineer *DMB*

4/13/10
Date

Comments:

- Approval Recommended
- Rejection Recommended

Federal Highway Administration
Required for FHWA Full Oversight Projects

Date

Comments:

(JPO) 5/11/2010

- Approval
- Rejection

David D. Coates
State Construction and Materials Engineer

5-11-10
Date



MEMORANDUM

Missouri Department of Transportation
Construction & Materials
District 2

TO: Dave Ahlvers-cm

FROM: Dennis Brucks *DB*
District Construction & Materials Engineer

DATE: April 13, 2010

SUBJECT: District Recommendation on VE Proposal #1
J2P0780/Rte. 65, Mercer/Grundy Co.

This Value Engineering proposal recommends eliminating the one-inch BP-1 base course that is to be placed under a 1.75" surface course of SP-125. A 1.75" cold mill of the roadway would serve as a substitute for the base course to provide smoothness. Some sections of shoulder would also be milled under this proposal. The options being proposed were discussed by the project core team during the design phase, but were eliminated for specific reasons. The contractor had to make several assumptions in this proposal since he did not have the pavement history and core data that was available to the design team.

This VE proposal assumes the 1" BP-1 only serves as a leveling course. The BP-1 also provides much needed structure due to the poor condition of the underlying PCC pavement and existing asphalt, as well as weak shoulders. No adjustment was made in the calculations to account for the loss of structure that would result from this alternate design.

Also, this proposal does not include additional cost that would be required to construct Type A3 shoulders in some sections. Assumptions were made that adequate asphalt and/or base was available with the existing structure.

Our recommendation is to reject this proposal and to construct this project per plan. Following are the primary reasons we chose not to perform a mill and fill in each of these sections during the design process. More detail is provided in the supporting documents.

Section 1 – Log Mile 5.172 to 6.372

Cold milling this section would expose a 2" Type I-B mix. This mix type has been prone to rutting and we were unwilling to take the risk on this section. In addition, the outer 2' of this traveled way (from 11' to 13') only has 3.75" of asphalt on an aggregate base. Additional structure is needed in this two-foot strip.

Section 5 – Log Mile 27.327 to 27.420 and 30.177 to 36.364

The majority of this section has only 2" of existing asphalt over an aggregate base on the shoulder. The VE proposal calls for a 1.75" mill and fill on the shoulder, which is not feasible. The shoulder would need to be milled 3.75" and replaced with BP-1, which would negate any savings on the roadway.

Section 5 – Log Mile 27.420 to 30.177

This section was designed to remove only one inch of aggregate material from the shoulder and overlay with 3.75" of BP-1. The design team deemed that the existing aggregate shoulder had sufficient depth to serve as a 4" base, thus creating a Type A3 shoulder. This VE proposal assumes there is at least 7.75" of aggregate base, which our cores showed is not the case. If a mill & fill was used on the traveled way, 7.75" of material would need to be removed from the shoulder and 4" of Type 1 aggregate base would need to be placed under the 3.75" BP-1. This would offset over half of the savings in this section. The remaining savings would be less than the value of the lost structure on the traveled way.

N.A.P. CO.



NORRIS ASPHALT PAVING

April 8, 2010

Mr. James Gillespie
Resident Engineer
Missouri Department of Transportation
1303 Mitchell Ave.
Chillicothe, Mo. 64601

Dear Mr. Gillespie:

Subject: Submittal of detailed changes for VE proposal
Contract ID: 091120-201
Job No: J2P0780
Route 65, Mercer and Grundy County

Please find listed below more detailed information regarding our value engineering proposal for the above mentioned project. The value engineering proposal consist of (Section 1) and (Section 5) of the plans.

Section 1: Log mile 5.172 to Log mile 6.372

We are proposing to eliminate the 1 inch BP-1 leveling course and doing a 1.75 inch mill and fill operation on the 24 foot mainline portion of this section. The shoulders in this section would be built as they are stated in the plans. There will be extra excavation of the shoulders for additional Type 1 aggregate base so structure is not lost on the shoulders. There would not be any additional cost to MoDOT for the extra material needed to build the shoulders that is required in the plans.

Section 5: Log mile 27.327 to Log mile 27.420 and Log mile 30.177 to Log mile 36.364

We are proposing to eliminate the 1 inch BP-1 leveling course and doing a 1.75 inch mill and fill operation on the 24 foot mainline portion of this section. The 10 foot shoulders in this section would also get a 1.75 inch mill and fill operation as well.

Section 5: Log mile 27.420 to Log mile 30.177

We are proposing to eliminate the 1 inch BP-1 leveling course and doing a 1.75 inch mill and fill operation on the 24 foot mainline portion of this section. The shoulders in this section would be built as they are stated in the plans. There will be extra excavation of



P.O. Box 695 • 641-682-3427 • FAX 641-682-7981 • Ottumwa, IA 52501
www.norrisasphalt.com



N.A.P. CO.



NORRIS ASPHALT PAVING

the shoulders for Type 1 aggregate for base so structure is not lost on the shoulders. There would not be any additional cost to MoDOT for additional material that is needed to build the shoulders that is required in the plans.

Listed below is more detailed information regarding the cost savings.

Section 1: Log mile 5.172 to Log mile 6.372

The cost savings in this section is eliminating the BP-1 leveling course. There is 16,896 square yards or 929 tons of material.

Section 5: Log mile 27.327 to Log mile 27.420

The cost savings in this section is eliminating the BP-1 leveling course. There is 1309.44 square yards or 72 tons of material.

Section 5: Log mile 30.177 to Log mile 36.364

The cost savings in this section is eliminating the BP-1 leveling course. There is 87,112.96 square yards or 4,791 tons of material.

Section 5: Log mile 27.420 to Log mile 30.177

The cost savings in this section is eliminating the BP-1 leveling course. There is 38,818.56 square yards or 2,135 tons of material.

The unit price for the BP-1 leveling course is \$49.28 a ton. There is 7,927 tons of BP-1 leveling course eliminated in this proposal which calculates out to a cost savings of \$390,642.56.

If you have any questions or need more information, please feel free to contact me. I look forward to working with you on this project.

Sincerely,

Corey Pelletier
Project Engineer



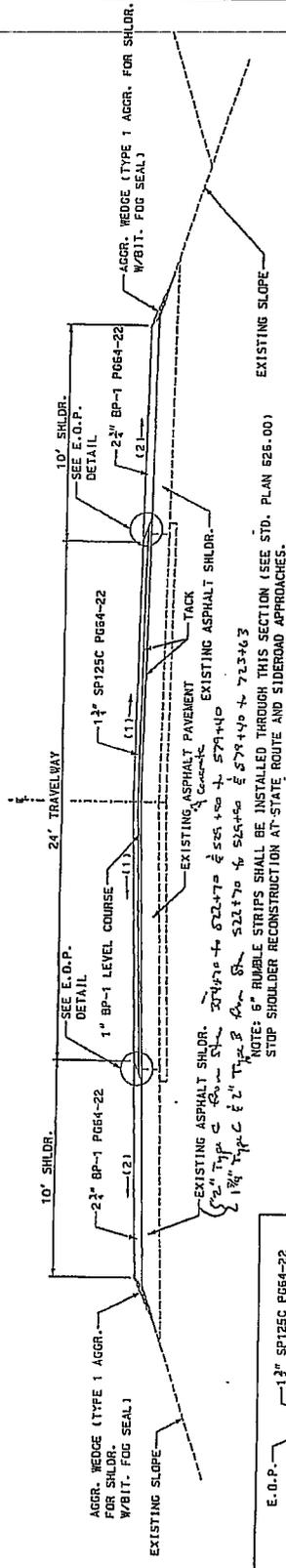
Resident Engineer Comments:

Section 1 and 5 were last overlaid in 1998 and 1997, respectively, with 1 ¾" I-C over 2" I-B in all of Section 1 and 30% of Section 5. The contractor's proposal to mill and fill 1 ¾" for a portion of Section 1 and all of Section 5 would achieve the initial smoothness; however, it would expose the existing I-B mixture to milling. The documentation related to the Pavement Type Selection does not state that the I-B has begun to ravel but does indicate that it has de-bonded from the other asphaltic pavement layers in multiple locations. Exposure of I-B mixtures to milling in other areas of the state has led to unanticipated rutting and this may be possible here. Another issue to consider is the existing pavement structure.

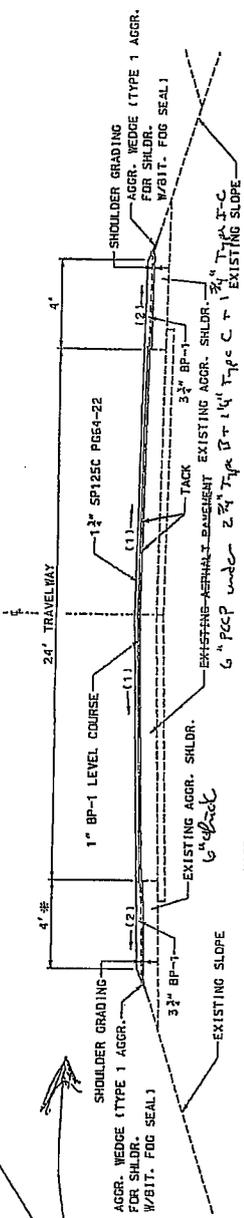
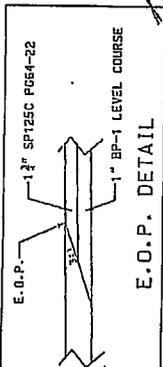
The typical section for Section 1 is asphaltic concrete over PCCP with aggregate shoulders. The PCCP is believed to be in poor condition due to D Cracking and the additional structure provided by the overlay, as designed, would add to the long term stability/durability of the pavement. Similarly, in Section 5 the additional structure would be beneficial due to the condition of the underlying PCCP; however, it would be particularly important from log mile 27.420 to 30.177 where the existing PCCP is only 6" thick. Additionally, in Section 5 the existing 10' shoulders consist of 2" of asphalt over base (4.11 miles) and 3 ¾" of asphalt over base (2.87 miles). The 2" thick shoulders are in fair to poor condition and the 3 ¾" thick shoulders are in fair condition. If the design is modified as proposed it would be advisable to mill the 10' shoulders 3 ¾" deep and fill with BP-1. The remaining shoulders in Section 5 are 6" of Type I Aggregate Base. If the design is modified as proposed the existing aggregate shoulders would not have sufficient depth to construct the new shoulders as shown on the typical sections (3 ¾" of BP-1 over 4" of Aggregate Base). 4" of Type 1 Aggregate Base would need to be installed from log mile 27.420 to 30.177. Basically, if mainline is milled and filled in Section 5 it would require extensive shoulder reconstruction for its entire length (9.037 miles) to achieve the designed level of service.

EXCEPTION LOG MILE 22.967 TO LOG MILE 27.327

NOTE: (1) MATCH EXISTING TRAVELWAY SLOPES - 1-5% MIN.
(2) SHOULDER SLOPE MATCH EXISTING

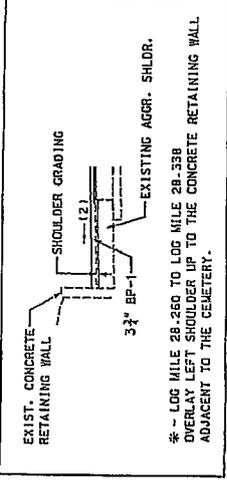


LOG MILE 27.327 TO LOG MILE 27.420 -
LOG MILE 30.177 TO LOG MILE 36.364 -
(SECTION 5)



NOTE: STOP SHOULDER RECONSTRUCTION AT STATE ROUTE AND SIDEROAD APPROACHES.

LOG MILE 27.420 TO LOG MILE 30.177 (SECTION 5)



* LOG MILE 28.260 TO LOG MILE 28.338 OVERLAY LEFT SHOULDER UP TO THE CONCRETE RETAINING WALL ADJACENT TO THE CEMETERY.

NOTE: 6" RUMBLE STRIPS SHALL BE INSTALLED THROUGH THIS SECTION (SEE STD. PLAN 626.00) SEE SHEET 8 FOR CONSTRUCTION SEQUENCE OF RESURFACING AND SHOULDER RECONSTRUCTION. SEE JOB SPECIAL PROVISION FOR SHOULDER GRADING. STOP SHOULDER RECONSTRUCTION AT STATE ROUTE AND SIDEROAD APPROACHES.

TYPICAL SECTION
SHEET 5 OF 5

Proposed Sections to be Modified

PAY
4"
4"
12"
P.C.
24"

STATE



MEMORANDUM
Missouri Department of Transportation
Construction - Materials
Materials Central Laboratory

TO: Laurel McKean- de
FROM: Brandon Simmons
DATE: 12/05/08
SUBJECT: Pavement Type Selection
J2P0780
Mercer / Grundy
US 65

Project Description

This project is located from the Iowa State Line to MO 6 in Grundy County. The pavement consists of five distinct sections.

The first section is located from the Iowa State Line to 1.2 miles south of the Rte. M and K junction. The most recent overlay was placed in 1998 with 1 3/4" I-C over 2" I-B. In 2001 the pavement was scrub sealed. The average core thickness ranges from 6.5 to 7.5 inches on PCCP, except through Lineville, where the cores were 3.5 and 6.25 inches on PCCP. The average IRI in this section is 84.2. Daily truck traffic volume is near 450. The current scope is to resurface the pavement with 1 3/4" SP125 and build A3 shoulders. Some of the cores south of Lineville exhibit de-bonding at 2" making 1" HIR not an option. After reviewing the cores, the pavement through Lineville may be milled 1 3/4" prior to the 1 3/4" overlay. The pavement from Rte. M and K intersection to 1.2 miles south of the Rte. M and K junction will need a 1" level course prior to the overlay based on an IRI average of 126.6.

The second section is located from 1.2 miles south of the Rte. M and K intersection in Mercer to 0.2 miles north of County Road 354 including the town of Princeton. In 1998 the pavement received a 1 1/4" Mill / Fill with Type C Asphaltic Concrete. The pavement from Princeton to 1.2 miles south of Rte. M and K was treated with a 1" Level Course in 2007. The IRI on this section is 81 while the pavement south of Princeton without the level course has an IRI of 162. There is a 0.17 mile section of PCCP placed in 2001 at the south edge of Princeton that shall be excepted. The pavement north of Princeton that received an overlay in 2007 should be resurfaced with 1 3/4" SP125 to add rumble stripes and the shoulder shall be reconstructed with A3 shoulders. The pavement south of Princeton should receive a 3 3/4" SP overlay vs. 5" Unbonded PCCP. The cores through Princeton exhibit de-bonding at 2". The recommendation is to mill/fill with 2" SP125 through Princeton.

The third section is located from 0.2 miles north of County Road 354 to 0.6 miles north of the Mercer / Grundy County Line. The pavement is PCCP built in 1990. The pavement was diamond ground in 2002. The average IRI is 71.5. There will be no work on this section.

The fourth section is located from 0.6 miles north of the Mercer / Grundy County line to 3.8 miles south of the Mercer / Grundy County line. The original pavement is 8" NRPCCP that has been resurfaced in 2005 with 1 3/4" SP125 over 2" SP190 and has rumble-stripes. The average IRI is 81.8. The pavement is in good condition, but oxidized. It should receive a thin surface treatment to rejuvenate the surface.

The fifth section is located from 3.8 miles south of the Mercer / Grundy County line to 0.2 miles south of Rte. 6. The average IRI is 106.6. Due to a moderate amount of surface cracking, the pavement should receive a 1/2" BP-3 prior to 1 3/4" SP125. The Rte. 6 ramps should receive 1 3/4" SP125. The hard surface shoulders should receive 1 3/4" BP-1 and the 4' aggregate shoulders shall be reconstructed as A3 shoulders. Extra quantity should be added to the shoulder to mediate drop-off.

Section 1

Iowa State line to the Rte. M and K intersection

Rehabilitation Strategy		
Surface Preparation	Surface	Shoulders
Pavement may be milled 1 3/4" through Lineville prior to the overlay	1 3/4" SP125 with PG64-22	A3 Shoulders

Rte. M and K intersection south 1.2 miles

Rehabilitation Strategy		
Surface Preparation	Surface	Shoulders
1" Level course	1 3/4" SP125 with PG64-22	A3 Shoulders

This commentary is being written to summarize the existing pavement conditions and the value engineering proposal's impact. Attached to this summary are copies of the previous project's typical sections and a graphical representation of the existing pavement.

Section 1 (Mercer County)

Log Mile 5.172 to 6.372

The last overlay was 26' wide with 1.75" of I-C over 2" of I-B with 5" aggregate shoulders. The existing pavement is 14.75" thick (8" of concrete under 6.75" of asphaltic concrete).

- The contractor is proposing to mill and fill 1.75" for 24' wide. This proposal is based off the typical sections shown in the plans. These sections appear to have been incorrect. If the contractor's proposal is accepted the width of milling and paving will have to be increased to 26' and/or the shoulders modified. This option would expose I-B asphalt to milling.

Section 5 (Grundy County)

Log Mile 27.327 to 30.177

The last overlay was 1.75" of I-C, 24' wide, with 4' aggregate shoulders except at the culverts which have 10' aggregate shoulders. The aggregate shoulders are 6" thick. The existing pavement in this area was originally constructed in 1930 with 6" concrete. The total depth of the existing pavement in this section is only 11.75".

- The contractor is proposing to mill and fill 1.75" for 24' wide. If the contractor's proposal is accepted the pavement section will remain relatively thin for the traffic conditions. Additionally, the shoulder design will need to be modified to add 4" of Type 1 aggregate base as the shoulders would not have sufficient rock depth remaining to support the 3.75" BP-1.

Log Mile 30.177 to 32.856 2,679

The last overlay was 2.5" of I-C placed 24' wide. The shoulders are 2" of Type C over a previously existing aggregate shoulder. The shoulders are 10' wide. The existing pavement is 12" thick (7" concrete base constructed in 1974 with the remainder in asphalt overlays).

- The contractor is proposing to mill and fill mainline and the shoulders. If the contractor's proposal is accepted there is a possibility that the remaining portion of the I-C mixture will debond (the pavement selection commentary noted the debonding of the newer I-C and I-B layers). Additionally, the existing asphalt shoulder is 2" thick. This will require milling 3.75" and filling with BP-1 to bring the shoulder up to current guidelines.

Log Mile 32.826 to 33.018

The last overlay was 2.5" of I-C placed 24' wide with 2" of Type C placed over an existing shoulder of unknown type. The shoulders are 10' wide. The existing pavement was constructed in 1930 with 6" PCCP. The pavement was upgraded in 1967. The details of this upgrade are unknown. The total thickness of the pavement is unknown.

- The contractor is proposing to mill and fill mainline and the shoulders. If the contractor's proposal is accepted there is a possibility that the remaining portion of the I-C mixture will debond (the pavement selection commentary noted the debonding of the newer I-C and I-B layers). The impact to the shoulders is unknown.

Log Mile 33.018 to 33.152

The last overlay was 1.75" of I-C placed over 2" of I-B; the total width being 24'. The shoulders were paved 10' wide with 1.75" Type C over 2" Type B. The underlying pavement was 8" PCCP paved in 1972 with 6" aggregate shoulders.

- The contractor is proposing to mill and fill mainline and the shoulders. If the contractor's proposal is accepted it will expose I-B to milling.

Log Mile 33.152 to 34.090

The last overlay was 2.5" of I-C placed 24' wide with 2" of Type C placed over an existing shoulder of unknown type. The shoulders are 10' wide. The existing pavement was constructed in 1930 with 6" PCCP. The pavement was upgraded in 1967? The total thickness of the pavement is unknown.

- The contractor is proposing to mill and fill mainline and the shoulders. If the contractor's proposal is accepted there is a possibility that the remaining portion of the I-C mixture will debond (the pavement selection commentary noted the debonding of the newer I-C and I-B layers). The impact to the shoulders is unknown.

Log Mile 34.090 to 36.364

The last overlay was 1.75" of I-C placed over 2" of I-B; the total width being 24'. The shoulders were paved 10' wide with 1.75" Type C over 2" Type B. The underlying pavement was 8" PCCP paved in 1972 with 6" aggregate shoulders.

- The contractor is proposing to mill and fill mainline and the shoulders. If the contractor's proposal is accepted it will expose I-B to milling.

22

400+69?

GRUNDY CO. LINE

LM 23.526

LM 27.327

3.80

SECTION 5 PVMT HISTORY

J2P0780 TYPICAL SECTION LOGS

LM 30.177

LM 32.826 STA. 512+55

LM 33.018 STA. 522+70

LM 33.152 STA. 529+90

LM 34.090 STA. 579+40

LM 36.364

LM 36.821

J2P0625 (1998)
24' WIDE
1.75" TYPE I-C AC
4' AGGR SHLDRS
10' AGGR SH OVER CULVERTS

2-P-65-277 (1984)
24' RESURFACING
2.75" TYPE B AC
RESURF 24' WIDE

C040-65(2) (1967)
WIDEN 2' LT. 3' RT.
TO 24' WIDE & RESURF
1.25" TYPE C AC

65-11A (1930)
9' WIDE PCC - 6" DEPTH
NRH-376C (1934)
ADD 10' PCC WIDENING

C040-65(6) (1967)
WIDENING & 24' RESURE
UNK DEPTH (1.25" TYPE C AC?)
J2P0625 (1998)
24' WIDE
1.75" TYPE I-C AC
2' TYPE I-B
10' PAVED SHLDRS
1.75" TYPE C AC
2" TYPE B AC

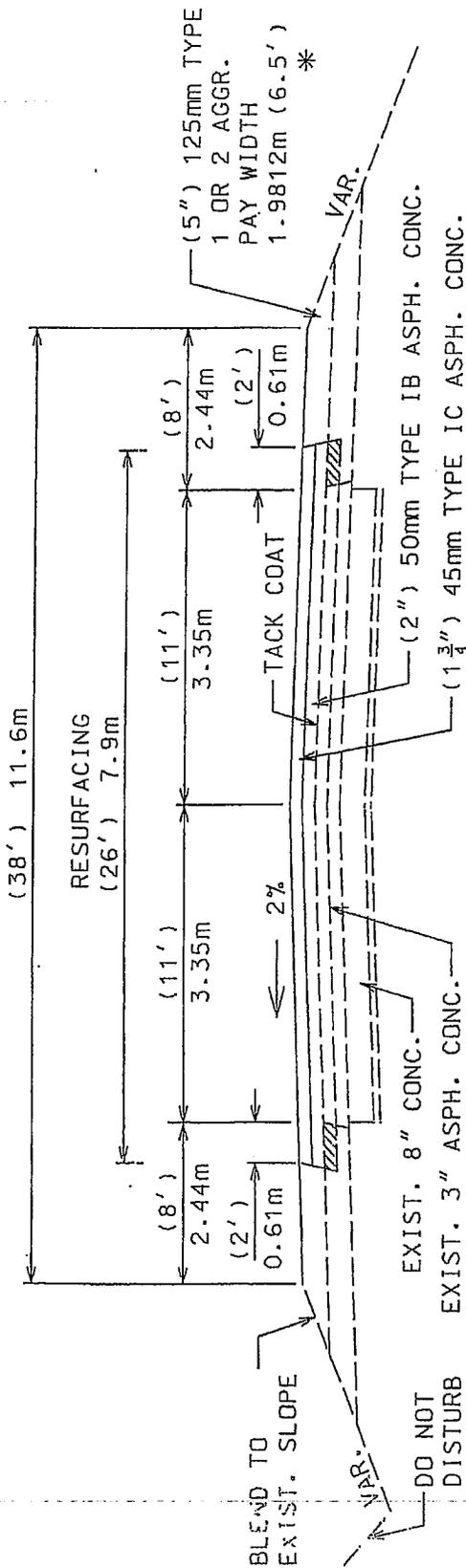
65-13 (1930)
18' WIDE PCC
6" DEPTH

65-2-P-65-14 (1974)
24' WIDE
1.25" TYPE C
1.75" TYPE B
7" CONC BASE (NR)
10' AGGR SHLDRS
6" DEPTH

65-F-65-5(1) (1972)
24' WIDE PCC
8" DEPTH
10' AGGR SHLDRS
6" AGGR DEPTH

Section 1 Area

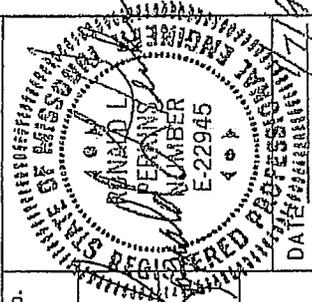
* EXTRA SHOULDER DEPTH TO CORRECT EXIST. LOW SHOULDER



TYPICAL SECTION ON TANGENT

STA. 0+365.76m (12+00) TO 8+593.53m (281+94)

ROUTE 65	STATE MD	DISTRICT 2	SHEET NO.
JOB NO. J2P0661			
PROJECT NO.			
COUNTY MERCER			DATE 7/78

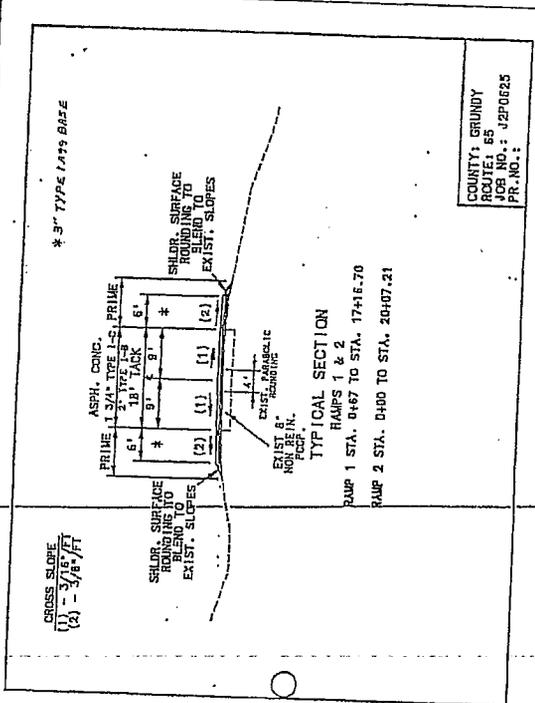
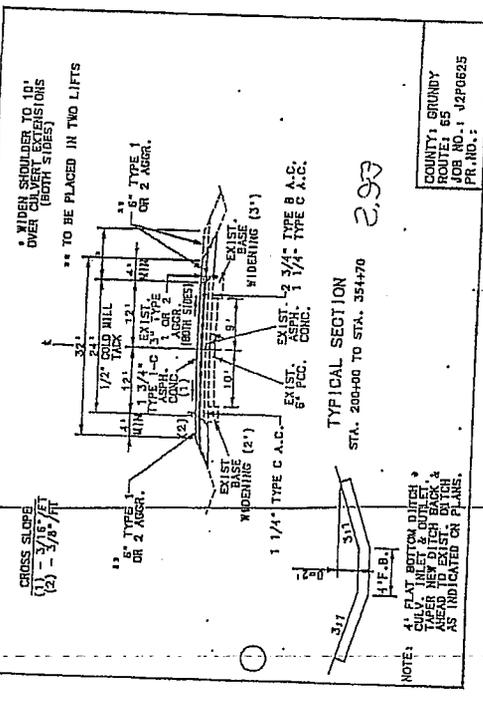
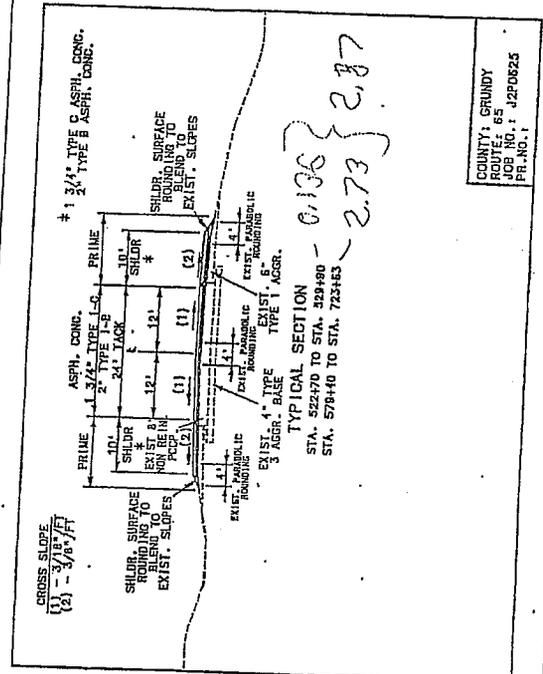
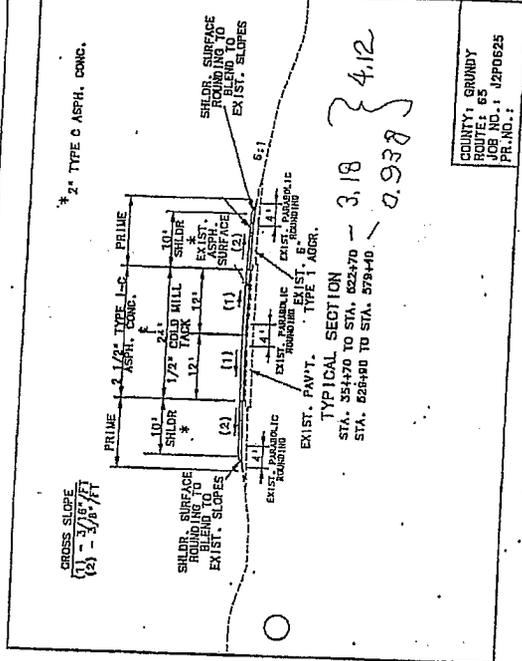


3

Section 5 Areas

DATE	JOB NO.	J2P0625
MO	PROJECT NO.	5TP-65-5025
02	COUNTY	GRUNDY

FINAL PLANS



I CERTIFY THAT THIS IS A TRUE AND CORRECT COPY OF THE ORIGINAL.

VALUE ENGINEERING CHECK SHEET

TYPE OF WORK

(Check one that applies)

- Bridge/Structure/Footings
- Drainage Structures (RCP, RCB, CMP's, ect.)
- TCP/MOT
- Paving (PCCP, ect.)
- Grading/MSE Walls
- Signal/Lighting/ITS
- Misc. _____

SUMMARY OF PROPOSAL

(If needed, condense summary to a couple of lines)

CONTRACTOR PROPOSED TO ELIMINATE 1" BPI LEVEL COURSE
AND PROFILE MILL IN EXISTING HMA.

SCANNING OF DOCUMENT

If the proposal is large, please mark or make note, which pages need to be scanned into the database. If there are special instructions, make note of them here.