

1. Description of existing requirements and proposed change(s).

Existing requirement: Build a new twin 12'x12' box culvert at Sta. 400.
Place a temporary roadway pipe to maintain drainage.
Fill roadway pipe with flowable mortar after box construction.

Proposed change: Excavate new ditch line to Lake Wapello.
Relocate the twin 12'x12' box culvert at Sta 400 to route FF.
Eliminate temporary pipe and flowable mortar.

2. Estimated initial advantages/disadvantages of proposal, including cost, time and quality.

Initial advantage: Safer access to highway.
Initial advantage: Modest cost savings (see attached).
Initial advantage: Eliminates a structure under new pavement.

3. Other impacts, such as safety and future maintenance.

Maintenance: Less guardrail to maintain in the future
Safety: Safer access for entering highway by increasing the site distance from rock bluff.
Safety: Safer access for entering highway by increasing the site distance from bridge rail.
Safety: Safer access for entering highway by having a perpendicular angle to the new roadway.
Safety: No shoring needed. Eliminates hazard along roadway.

4. Date(s) or references of previous or concurrent submittals of the same or similar proposal.

D.N.A.

5. Deadline for notification of initial acceptance or rejection of conceptual proposal, considering time required for final detail proposal- per Specification 1105.15—and contract completions time or delivery schedule.

ASAP

6. Additional information/comments.

Construction sequence would begin by placing a temporary run-a-round for route FF to the north of the new box culvert. After switching traffic to the temporary road, excavation and construction of new box through route FF as per Sheet 26. After box is built, backfill new box routing FF traffic on to the new roadway alignment. Remove channel ditch cut for final drainage into Lake Wapello.

Exhibit A

(COST SAVINGS)

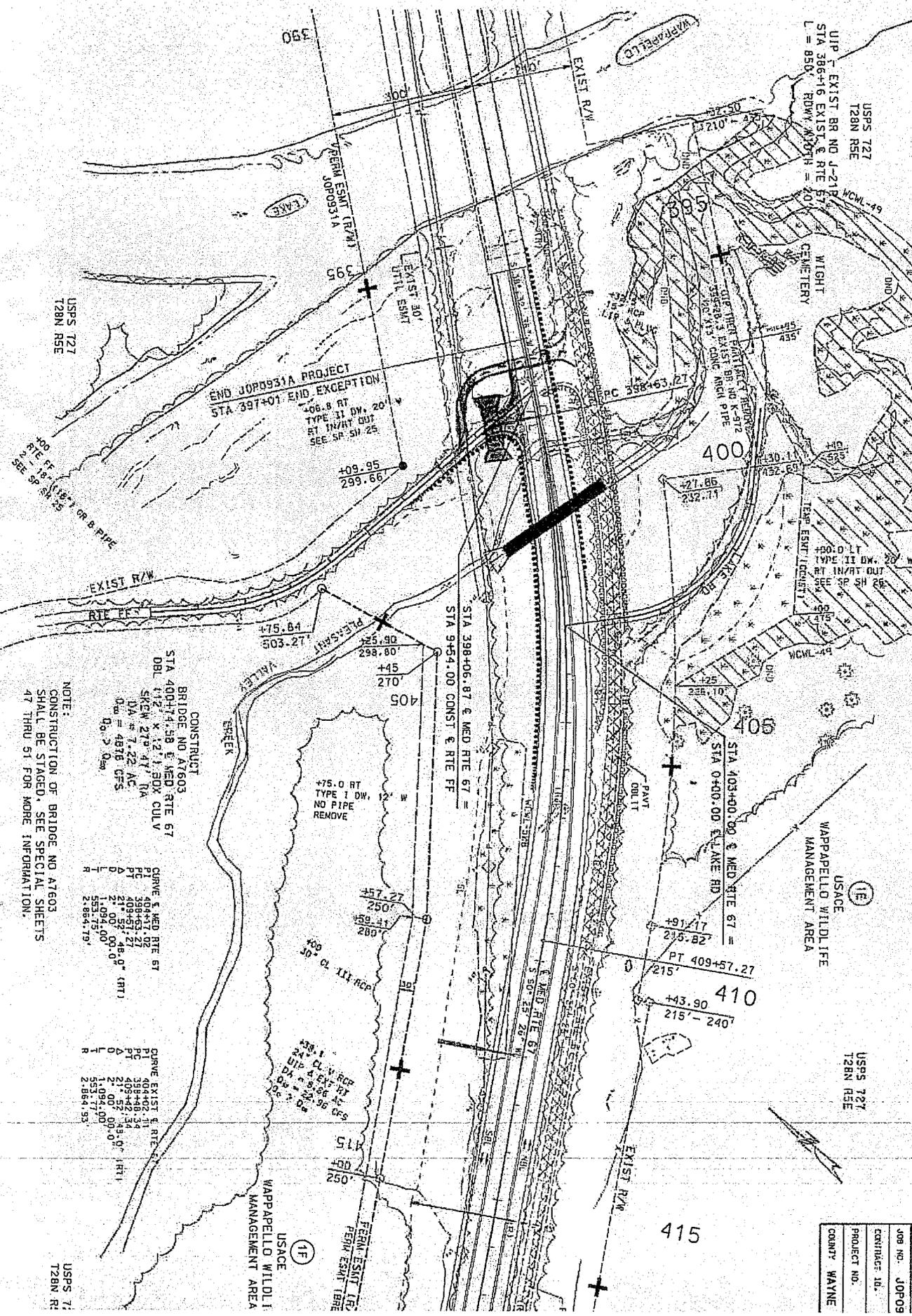
Item 206	Class 4 Excavation	15,915 cy	@	\$ 10.00/cy	\$159,150.00
Item 207	Temporary Shoring	1 ls	@	\$ 1.00/ls	\$ 75,000.00
Item 208	Class B1 Concrete	1,658 cy	@	\$243.00/cy	\$402,894.00
Item 209	Reinforcing Steel	140,740 lb	@	\$.96/lb	\$135,110.40
Item 108	Flowable Backfill	1,169.8 cy	@	\$128.00/cy	\$149,734.40
Item 127	Pipe 108"	180 ft	@	\$182.00/lf	\$ 32,760.00
Item 66	Guardrail Type A	500 lf	@	\$ 17.00/lf	\$ 8,500.00
				Total	\$963,148.80

(EXPENSES)

Item New	Channel Excavation	26,771 cy	@	\$ 3.50/cy	\$ 93,698.50
Item 208	Class B1 Concrete	829 cy	@	\$243.00/cy	\$201,447.00
Item 209	Reinforcing Steel	70,370 lb	@	\$.96/lb	\$ 67,555.20
				Total	\$362,700.70

Total VE Savings \$600,448.10

- Note: Potential guardrail savings.
- Note: Should review box culvert size.
- Note: Expenses are rough estimates.



END J0P0931A PROJECT
 STA 397+01 END EXCEPTION
 +06.8 RT
 TYPE II DW, 20'
 RT IN/RT OUT
 SEE SP. SH. 25

CONSTRUCT
 BRIDGE NO AT603
 STA 400+41.58 & MED. RTE 67
 OBL 112' x 12' 1.80X CUL V
 SKEN 21' x 47' 0A
 DA = 1.22 AC
 DM = 4876 CFS
 D_{0.2} > 0.5m

NOTE:
 CONSTRUCTION OF BRIDGE NO AT603
 SHALL BE STAGED, SEE SPECIAL SHEETS
 47 THRU 51 FOR MORE INFORMATION.

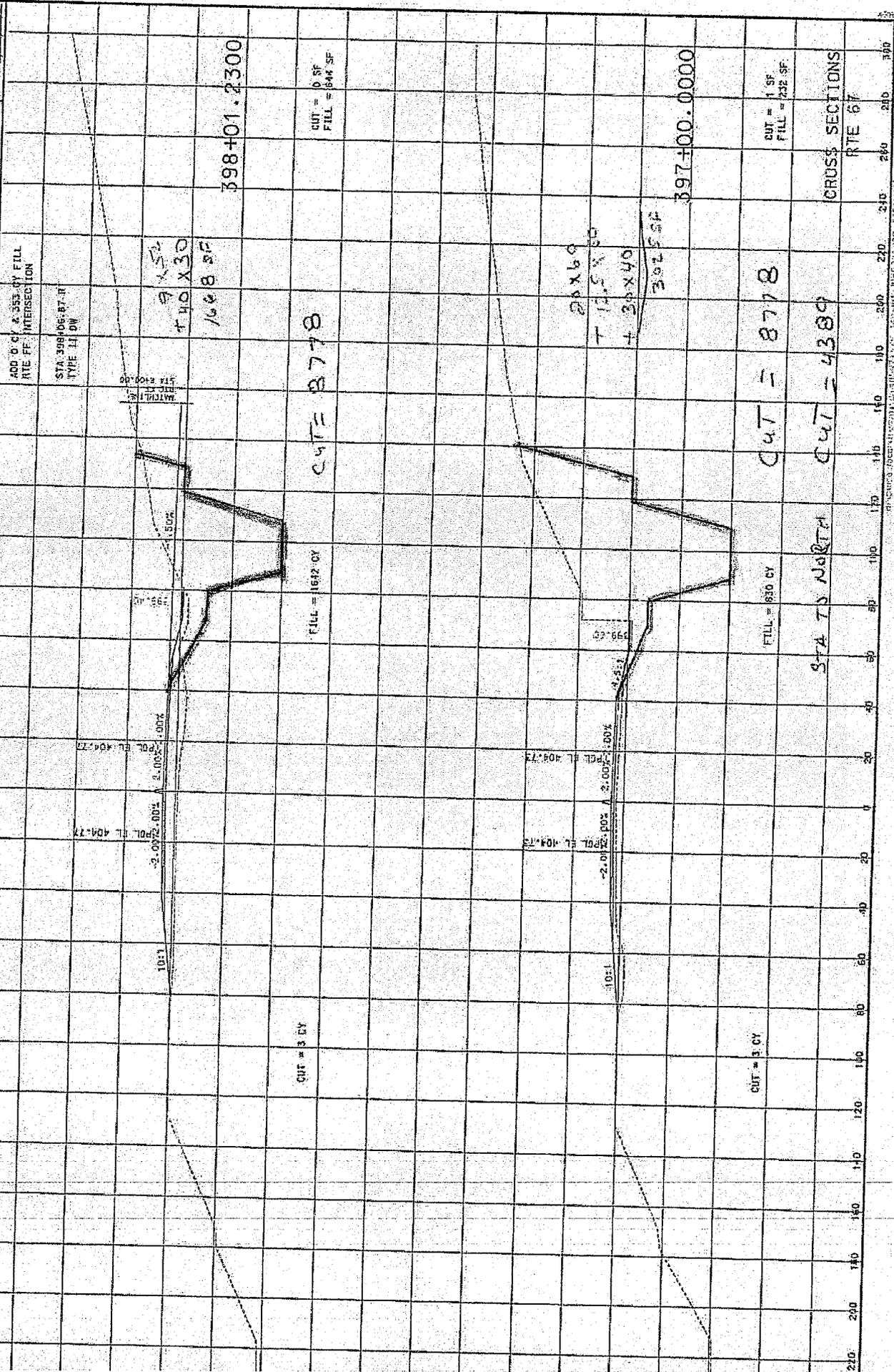
CURVE S. MED. RTE 67
 P 404417.02
 PC 398+63.27
 PT 409+51.27
 DA = 5.86 AC
 DM = 20.96 CFS
 D_{0.2} = 0.9' (RT)

CURVE EXIST. & RTE
 P 404417.02
 PC 398+63.27
 PT 409+51.27
 DA = 5.86 AC
 DM = 20.96 CFS
 D_{0.2} = 0.9' (RT)

USPS 71
 128N RSE

DATE	5/7
TYPE	MD
JOB NO.	JOP09
CONTRACT ID.	
PROJECT NO.	
COUNTY	WAYNE

STATE DISTRICT SHEET NO. 67 MD 10 149
 JOB NO. JOF0931
 CONTRACT ID.
 PROJECT NO.
 COUNTY WAYNE DATE 7/28/77



ADD 0.07 & 353.07 FILL
 RTE FF INTERSECTION

STA 398+06.87-IT
 TYPE II BW

MATERIAL
 150%

9 X 32
 140 X 30
 1668 SF

398+01.2300

CUT = 3 CY

FILL = 1632 CY

CUT = 8778

CUT = 0 SF
 FILL = 844 SF

2.00%
 3.00%
 1.00%

20X69
 + 12.5 X 30
 + 30X40
 = 3025 SF

397+00.0000

CUT = 3 CY

FILL = 650 CY

CUT = 8778

CUT = 1 SF
 FILL = 232 SF

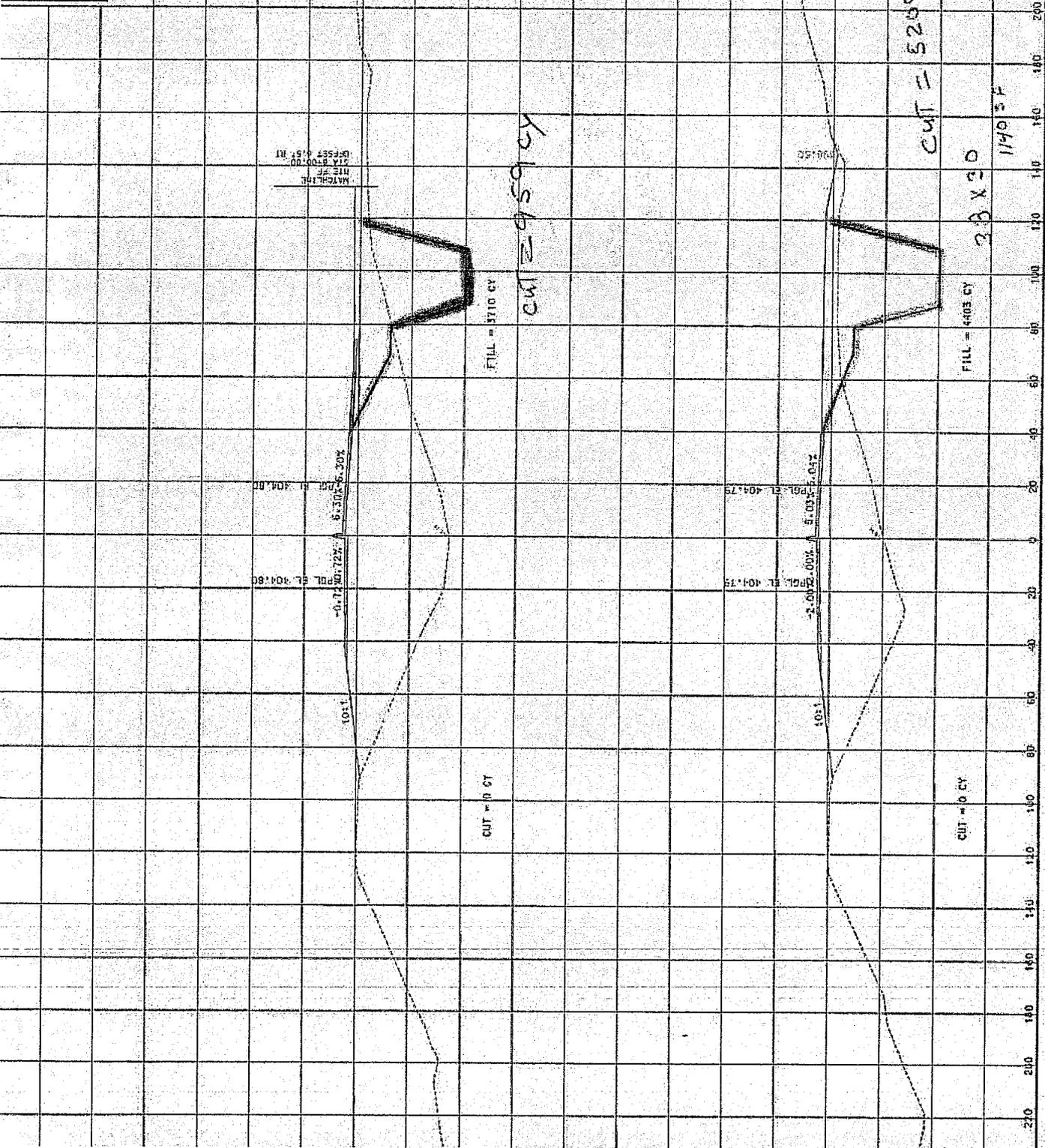
STA 75 NORTH CUT = 4389

CROSS SECTIONS
 RTE 67

220	200	180	160	140	120	100	80	60	40	20	0	20	40	60	80	100	120	140	160	180	200	220
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DESIGNED BY: [unreadable] CHECKED BY: [unreadable] DATE: 7/28/77

JOB NO. J0P0331
 CONTRACT NO.
 PROJECT NO.
 COUNTY WAYNE
 DATE 12/1/11



GROSS SECTIONS	
CUT = 0 SF	
FILL = 3270 SF	
RTS 67	

270 280 290 300 310 320 330 340 350 360 370 380 390
 0 20 40 60 80 100 120 140 160 180 200 220

Additional Comments:

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

Comments:

SEE ATTACHED COMMENTS -



Submitted By Resident Engineer 13 AUG 08
Date

Comments:

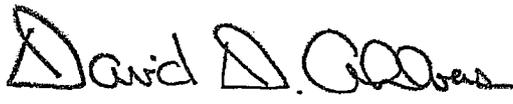
Concept viability hinges on presence of sound rock for back-slopes. Approval of concept is recommended. Final design must address engineering details, all cultural and environmental issues. 50%-50% split

Approval Recommended *Mark Shelton by P. Fisher* 8-13-08

Rejection Recommended District Engineer Date

Comments:

Agree with Resident Engineer and District Comments



Approval 8-15-08

Rejection State Operations Engineer *BAW* Date

Distribution: Resident Engineer, District Operations Engineer, State Operations Engineer
*Value Engineering Administrator - *MoDOT, P.O. Box 270, Jefferson City, MO 65102

Andy Meyer, Project Manager, and I have each reviewed the proposal as a concept only and offer the following comments.

- The proposed open channel drainage incorporates ¼:1 slopes. No boring data is available to determine whether the in-situ material is of sufficient quality for this slope design. Additionally, the cross sections provided do not extend to the outlet of the proposed roadway ditch, therefore we were not able to evaluate the entire length of the channel relocation.
- The proposed excavation appears to avoid encroachment into the utility easement. Avoiding this location is necessary to eliminate disturbances to both a culturally historic site and the newly relocated utility facilities. A thorough review of these encroachments will not be possible until boring data is available and a final backslope design is completed. Any encroachments to the cultural site located between approximately station 396+00 and 396+80 will require a reinvestigation of the area and possible renegotiation of our permit with the U.S. Army Corps of Engineers.
- The template shown on the provided cross sections do not appear to provide adequate width for guardrail. Project JOP0931A constructs a walkway across the new Wappapello Lake bridge, these plans also include an additional width of 7' 1" for a walkway/trail system. The cross sections on JOP0931 do not directly address this additional width on the pavement structure, however the in-slopes were designed such that future construction by the City of Greenville and the U. S. Army Corps of Engineers would be possible. A final proposal would have to accommodate these needs and may require a physical barrier between the walkway and proposed cut slopes.
- The existing portion of Pleasant Valley creek between the outlet of existing Bridge No. K-972 and Lake Wappapello is currently designated a wetland. The proposal appears to eliminate all flow to this location from Pleasant Valley Creek, which may jeopardize the quality of the wetland. The creek channel receives backwater from Lake Wappapello during summer pool stages, and therefore is inundated most of the year, which may offset the affects of eliminating the flow. A final VE proposal must address this matter and all effects and costs, which may include additional wetland mitigation and/or stream bank mitigation. This action will also require the 404 Permit be renegotiated with the U.S. Army Corps of Engineers.
- Pleasant Valley creek runs through a buffer area between the Lake and Bridge No. K-972. This buffer area provides considerable velocity dissipation by allowing high flows to spread across the wetlands. The proposed design does not appear to address the potential high exit velocities that may exist at the ditch outlet to Lake Wappapello. If the exist velocities are high, there is potential for a scour hole to

develop in the Lake bed, possibly affecting the foundation of the new Lake Wappapello bridge. These items must be addressed in a final VE proposal. The proposal indicates a safer access to Route FF. We feel the original design adequately address the safety aspects of the intersection with inclusion of a right-in/right-out access only. There may be benefits of a longer sight distance, however considering the traffic patterns are merging onto a four lane facility these benefits are hard to measure.

- The estimated savings are shown at approximately \$600,000.00. These estimates include totally eliminating Bridge No. A7603, the temporary drainage structures, plugging Bridge No. K-972 and building a new structure approximately one-half the length of Bridge No. A7603. Our estimates show the overall length of the proposed structure will be approximately 210 LF utilizing 2:1 fill slopes on Route FF. This additional length will add approximately \$84,000.00 to the proposed costs. There are numerous other costs not shown on the proposal such as demolition of Bridge No. K-972, guardrail along Route FF, guardrail or barrier curb along US67 to protect against the deep cut slopes, etc. The total cost of these items is unknown, however an estimated cost of \$50,000.00 should cover most of the ancillary work.

The effects of eliminating a water source to Pleasant Valley creek are unknown, however the costs of these impacts must also be considered. The stream channelization in the original design included 570 linear feet of impacts due to the new bridge culvert, the temporary drainage, and impacts due to utility work. The total cost of these impacts was approximately \$84,000.00. Dewatering the portion of the creek east of existing US67 amounts to approximately 2000 linear feet. If the original costs per linear foot of impacts are used, the cost of these impacts would total \$295,000.00. Costs associated with stream bank mitigation may require payment by the Contractor to the Stream Stewardship Trust Fund in the Department's name.

I estimate engineering costs at approximately \$50,000. These costs include all necessary roadway and structure design and drilling and geological evaluation costs.

The additional costs shown above diminish the savings to approximately \$171,000.00.

- The proposal does not address contract completion time. There are many agencies involved with this proposed design, and I anticipate their reviews will take considerable time. A final proposal should address this additional time and show that a change in design will not lengthen the project beyond its contract completion time.

In closing, I feel the concept is a good idea. Many engineering details as well as cultural, historic, and environmental impacts must be addressed in the final submittals. I recommend this Concept Proposal be approved, with the complete understanding no work may be completed until a final design addressing all concerns has been completed and thoroughly reviewed by all interested parties.

13 AUG 08

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)

The main part of this VE relocates the proposed RCB. By doing this it decreases the length of the RCB.

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.
