VALUE ENGINEERING STUDY
OF
FALL LINE FREEWAY

Atlanta, Georgia
January 24-26, 2006

Prepared by:
VE GROUP, L.L.C.

In Association With:
GEORGIA DEPARTMENT OF TRANSPORTATION

VALUE ENGINEERING STUDY
TEAM LEADER

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C.V.S. No. 84063 (LIFE)

DATE

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I. EXECUTIVE SUMMARY

INTRODUCTION

This Value Engineering report summarizes the results of the Value Engineering Study performed by VE Group for the Georgia Department of Transportation and Development. The study was performed during the week of January 24-26, 2006.

The subject of the study was the Fall Line Freeway.

PROJECT DESCRIPTION

Project FLF-540(26) consists of the widening, reconstruction, and partial relocation of SR 24. The project begins 3,100 feet south of CR 186/Ennis Road/O'Quinn Pond Road in Baldwin County and ends at CR 10/CR 342/Indian Trail Road in Washington County, a distance of approximately 7.8 miles. The existing 2-lane roadway will be improved to 2 12-foot lanes in each direction with a 44-foot depressed grass median. The project includes the replacement of the existing bridges over Town Creek, Gum Creek, Bluff Creek, and Big Branch, with new parallel bridges.

Project FLF-540(29) begins at CR 10/CR 342 and ends just west of SR 68. The project consists of widening the existing SR 24 from a 2-lane road to a 4-lane road with a 44-foot depressed grass median. The length of the project is 8.0 miles. There are 2 existing bridges on the project, the Buffalo Creek Overflow Bridge and the Buffalo Creek Bridge.

Project EDS-0000-00(346) consists of the construction of a limited access 4-lane facility on new location from US 441 in Wilkinson County near the Baldwin County line northeastward to SR 24 for a length of 8.8 miles. The typical section consists of 4 12-foot lanes and a 44-foot depressed grass median. Parallel bridges are proposed over Little Black Creek, Reedy Creek, the Oconee River, and US 441. The Buck Creek crossing near Stembridge Road is proposed as a quadruple 9-foot by 8-foot concrete box culvert. All local road intersections are proposed as at-grade, with minor realignment occurring at SR 112 and SR 24.

Project FLF-540(22) consists of the construction of a 4-lane facility on new location from SR 243 in Wilkinson County northeastward to US 441 near the Baldwin County Line. The typical section for the majority of the project will consist of 4 12-foot lanes with a 44-foot depressed grass median. A 14-foot flush median with an urban type shoulder will be used through the City of Ivey. The project length is 8.12 miles.

I. EXECUTIVE SUMMARY

PROJECT DESCRIPTION (cont'd)

Project HPPN-FLF-540(19) will create a bypass for the City of Gordon. The bypass begins near the Twiggs/Wilkinson County line and extends north on a new location crossing Old Macon Road at grade. SR 57 will be relocated to intersect the proposed bypass across from Old Macon Road. The new alignment will continue north and then turn northeast bridging Little Commissioner Creek and Central of Georgia Railroad. The project continues northeast crossing SR 18. At Kennington Road, the alignment shifts to the southeast, crossing CR 37 and Dennard Hardy Road at grade. The alignment continues southeast before shifting back to a northeasterly direction and tying into SR 243 at Lake Tchukalaho. Both existing SR 243 and CR 183 will be realigned to interest the proposed bypass at grade. The proposed typical section consists of a 4-lane divided section with 2 3.6 meter lanes in each direction separated by a 13.6 meter graded median. Access along this route will be partially controlled with a speed design of 105 km/h. The project length is 11.5 km.

METHODOLOGY

The Value Engineering Team followed the basic Value Engineering procedure for conducting this type of analysis.

This process included the following phases:

1. Investigation
2. Speculation
3. Evaluation
4. Development
5. Presentation
6. Report Preparation

Evaluation criteria identified as a basis for the comparison of alternatives included the following:

- Traffic Control
- Construction Time
- Service Life
- Future Maintenance Cost
- Construction Cost
- Local access
- Drainage Requirements
- Constructability

I. EXECUTIVE SUMMARY

RESULTS – AREAS OF FOCUS

The following areas of focus were analyzed by the Value Engineering team and from these areas the following Value Engineering alternatives were developed and are recommended for implementation:

I. FALL LINE FREEWAY, UNIT NO. 19

Recommendation Number 1: LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses vertical abutments and MSE walls.

If this recommendation can be implemented, there is a possible savings of ***$241,740.***

Recommendation Number 2: PRIVATE POND IMPACT

The Value Engineering Team recommends that **Value Enhancement Alternative** Number 2 be implemented. This alternative uses a fabric reinforced embankment.

If this recommendation can be implemented, there is a possible cost increase of $91,861.

Recommendation Number 3: SR 243/CR 183 INTERSECTIONS

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative combines the intersections into one intersection.

If this recommendation can be implemented, there is a possible savings of ***$367,702.***

I. EXECUTIVE SUMMARY

RESULTS – AREAS OF FOCUS (cont'd)

II. FALL LINE FREEWAY, UNIT NO. 22

Recommendation Number 1: LAKE TCHUKLAHO BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative leaves the existing bridge until remaining life is used up and builds one bridge only without a turn lane.

If this recommendation can be implemented, there is a possible savings of ***$1,058,695.***

Recommendation Number 2: CR 21/SOUTHERN RAILROAD BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses vertical abutments and MSE walls.

If this recommendation can be implemented, there is a possible savings of ***$233,204.***

Recommendation Number 3: US 441 INTERCHANGE

The Value Engineering Team recommends that Value Engineering Alternative Number 1 be implemented. This alternative replaces the interchange with an at grade intersection.

If this recommendation can be implemented, there is a possible savings of ***$2,475,661.***

The Value Engineering Team recommends that Value Engineering Alternative Number 2 be implemented. This alternative redesigns the ramps.

If this recommendation can be implemented, there is a possible savings of ***$100,863.***

I. EXECUTIVE SUMMARY

RESULTS – AREAS OF FOCUS (cont'd)

III. FALL LINE FREEWAY, UNIT NO. 346

Recommendation Number 1: US 441 INTERCHANGE BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses vertical abutments and MSE walls.

If this recommendation can be implemented, there is a possible savings of ***$108,036.***

Recommendation Number 2: REEDY BRANCH BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses a bottomless culvert.

If this recommendation can be implemented, there is a possible savings of ***$2,009,891.***

Recommendation Number 3: OCONEE RIVER BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses a pre-cast segmental structure.

If this recommendation can be implemented, there is a possible savings of ***$1,807,555.***

Recommendation Number 4: BUCK CREEK BRIDGE CULVERTS

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses a Con-Span culvert.

If this recommendation can be implemented, there is a possible savings of ***$731,074.***

RESULTS – AREAS OF FOCUS (cont'd)

IV. FALL LINE FREEWAY, UNIT NO. 26

Recommendation Number 1: GUMM CREEK BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative matches the existing bridge lengths.

If this recommendation can be implemented, there is a possible savings of ***$398,963.***

Recommendation Number 2: BLUFF CREEK BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative shortens the bridges to avoid the existing bridge.

If this recommendation can be implemented, there is a possible savings of ***$302,379.***

Recommendation Number 3: PAVEMENT DESIGN

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative changes the thickness to 9.5 from 12.5.

If this recommendation can be implemented, there is a possible savings of ***$220,610.***

RESULTS – AREAS OF FOCUS (cont'd)

V. FALL LINE FREEWAY, UNIT NO. 29

Recommendation Number 1: OLD SR 24 BYPASS

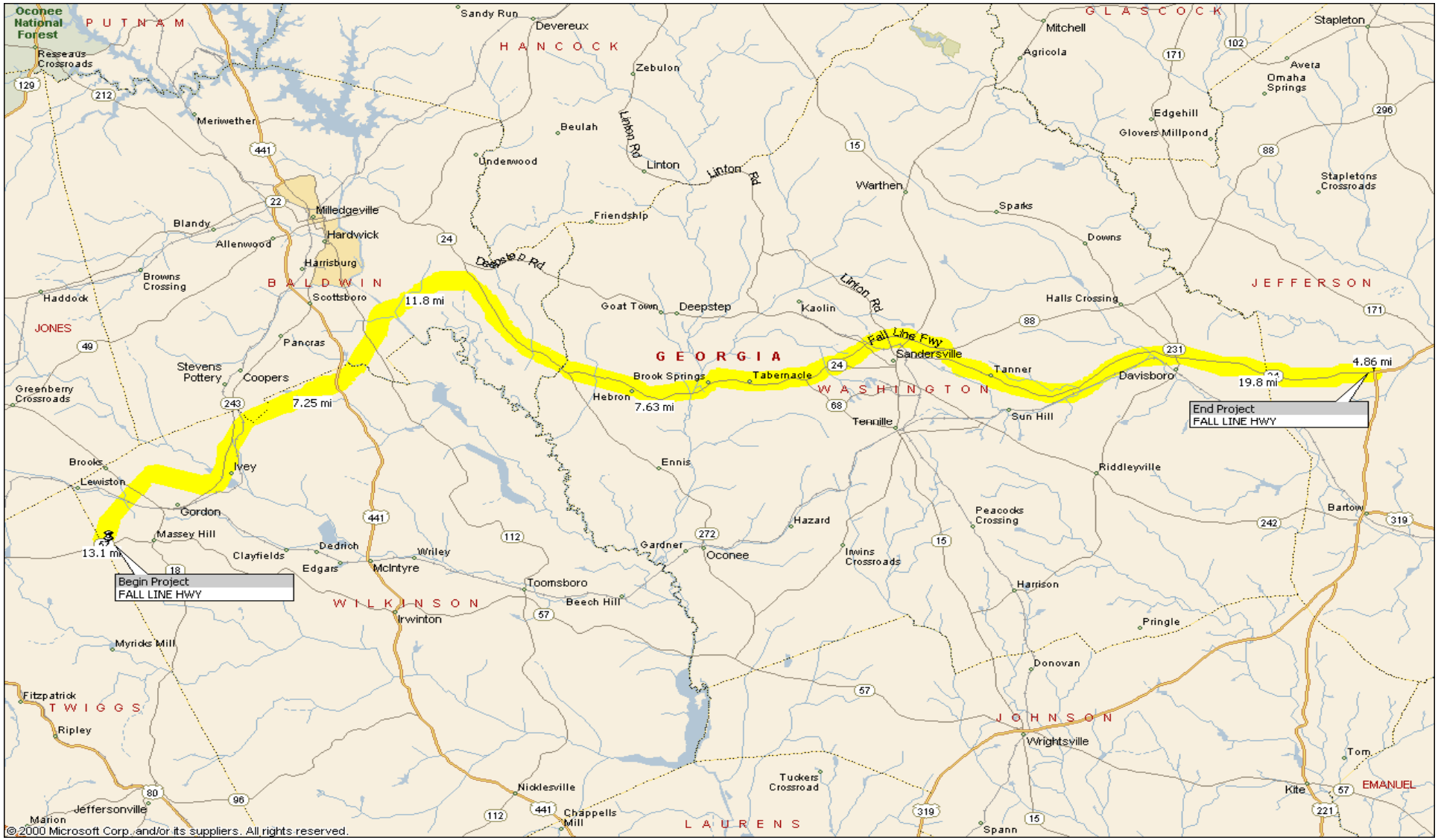
The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative extends and realigns Brooks Road/CR 6 to connect to the Old SR 24 alignment and cul-de-sacs both ends of Old SR 24.

If this recommendation can be implemented, there is a possible savings of ***$42,526.***

Recommendation Number 2: PAVEMENT DESIGN

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative changes the thickness to 9.5 from 12.5.

If this recommendation can be implemented, there is a possible savings of ***$77,930.***



II. LOCATION OF PROJECT

III. TEAM MEMBERS AND PROJECT DESCRIPTION

TEAM MEMBERS

NAME	AFFILIATION	EXPERTISE	PHONE
Bill Ventry, P.E., C.V.S.	VE Group	Team Leader	850/627-3900
Bruce Nicholson	VE Group	Construction	850-627-3900
Tom Hartley, P.E., C.V.S.	VE Group	Roadway Design/Traffic	850/627-3900
John Ledbetter, Jr., P.E., R.L.S.	VE Group	Structures	850/627-3900

III. TEAM MEMBERS AND PROJECT DESCRIPTION

PROJECT DESCRIPTION

Project FLF-540(26) consists of the widening, reconstruction, and partial relocation of SR 24. The project begins 3,100 feet south of CR 186/Ennis Road/O'Quinn Pond Road in Baldwin County and ends at CR 10/CR 342/Indian Trail Road in Washington County, a distance of approximately 7.8 miles. The existing 2-lane roadway will be improved to 2 12-foot lanes in each direction with a 44-foot depressed grass median. The project includes the replacement of the existing bridges over Town Creek, Gum Creek, Bluff Creek, and Big Branch, with new parallel bridges.

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IV. INVESTIGATION PHASE

VALUE ENGINEERING STUDY BRIEFING

FALL LINE FREEWAY JANUARY 24-26, 2006		
NAME	**AFFILIATION**	**PHONE**
Bill Ventry, P.E., C.V.S.	VE Group	850/627-3900
Bruce Nicholson	VE Group	850/627-3900
Tom Hartley, P.E., C.V.S.	VE Group	850/627-3900
John Ledbetter, Jr., P.E., R.L.S.	VE Group	850/627-3900
Andy Casey	GDOT	404/656-5406
Jim Simpson	GDOT	404/657-9192
Rick Reasons	GDOT	404/463-3832
Stanley Hill	GDOT	404/463-2988
Vines Pegram	GDOT	404/463-2988
Jimmy Smith	GDOT	478/553-2331
John Baxter	GDOT	404/657-9706
Kraig Collins	GDOT	478/445-5130
Richard Marshall	GDOT	404/656-5306
Joe King	GDOT	404/656-5159

IV. INVESTIGATION PHASE

VALUE ENGINEERING STUDY BRIEFING (cont'd)

FALL LINE FREEWAY JANUARY 24-26, 2006		
NAME	**AFFILIATION**	**PHONE**
Veronica Davis	GDOT	404/635-8145
Jerry Milligan	GDOT	404/463-2575
Nancy Petrie	GDOT	404/699-4439
Lisa Meyers	GDOT	404/651-7468
Dino Patel	BRE Jackson	404/577-4914
Aykut Urgen	Parsons	678/969-2327
Alan Hunley	Parsons	678/969-2304

IV. INVESTIGATION PHASE

STUDY RESOURCES

FALL LINE FREEWAY JANUARY 24-26, 2006		
NAME	**AFFILIATION**	**PHONE**
Wade Harris	GDOT, Estimates	404/656-6849
Rick Reasons	GDOT, Consultant Design	404/463-3832
Troy Patterson	GDOT,Estimates	404/656-6849

IV. INVESTIGATION PHASE

The following areas have been identified during the Functional Analysis phase by the Value Engineering Team as areas of focus and investigation for the Value Engineering process:

I. FALL LINE FREEWAY, UNIT NO. 19

A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

B. PRIVATE POND IMPACT

C. SR 243/CR 183 INTERSECTIONS

II. FALL LINE FREEWAY, UNIT NO. 22

A. LAKE TCHUKLAHO BRIDGES

B. CR 21/SOUTHERN RAILROAD BRIDGES

C. US 441 INTERCHANGE

III. FALL LINE FREEWAY, UNIT NO. 346

A. US 441 INTERCHANGE BRIDGES

B. REEDY BRANCH BRIDGES

C. OCONEE RIVER BRIDGES

D. BUCK CREEK BRIDGE CULVERTS

IV. FALL LINE FREEWAY, UNIT NO. 26

A. GUMM CREEK BRIDGES

B. BLUFF CREEK BRIDGES

C. PAVEMENT DESIGN

V. FALL LINE FREEWAY, UNIT NO. 29

A. OLD SR 24 BYPASS

B. PAVEMENT DESIGN

V. SPECULATION PHASE

Ideas generated, utilizing the brainstorming method, for performing the functions of previously identified areas of focus.

I. FALL LINE FREEWAY, UNIT NO. 19

A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

- Use vertical abutments and MSE walls.

B. PRIVATE POND IMPACT

- Use short wall.
- Bench slopes and use fabric.
- Use road embankment.

C. SR 243/CR 183 INTERSECTIONS

- Combine intersections into one intersection.

II. FALL LINE FREEWAY, UNIT NO. 22

A. LAKE TCHUKLAHO BRIDGES

- Leave existing bridge until remaining life is used up and build one bridge only without a turn lane.

B. CR 21/SOUTHERN RAILROAD BRIDGES

- Use vertical abutments and MSE walls.

C. US 441 INTERCHANGE

- Replace with at grade intersection.
- Redesign ramps.

III. FALL LINE FREEWAY, UNIT NO. 346

A. US 441 INTERCHANGE BRIDGES

- Use vertical abutments and MSE walls.

B. REEDY BRANCH BRIDGES

- Use bottomless culvert.

C. OCONEE RIVER BRIDGES

- Use pre-cast segmental structure.

D. BUCK CREEK BRIDGE CULVERTS

- Use con-span culvert.

V. SPECULATION PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

A. GUMM CREEK BRIDGES

- Match existing bridge lengths.

B. BLUFF CREEK BRIDGES

- Shorten bridges to avoid existing bridge.

B. PAVEMENT DESIGN

- Change 12.5 to 9.5 inches of surface course.

V. FALL LINE FREEWAY, UNIT NO. 29

A. OLD SR 24 BYPASS

- Extend and/or realign Brooks Road/CR 6 to connect to the Old SR 24 alignment and cul-de-sac both ends of Old SR 24.

B. PAVEMENT DESIGN

- Change 12.5 to 9.5 inches of surface course.

VI. EVALUATION PHASE

A. ALTERNATIVES

The following alternatives were formulated during the "eliminate and combine" portion of the Evaluation Phase.

I. FALL LINE FREEWAY, UNIT NO. 19

A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

Value Engineering Alternative: *Use vertical abutments and MSE walls.*

B. PRIVATE POND IMPACT

Value Engineering Alternative Number 1: *Use short wall.*

Value Engineering Alternative Number 2: *Bench slopes and use fabric.*

Value Engineering Alternative Number 3: *Use road embankment.*

C. SR 243/CR 183 INTERSECTIONS

Value Engineering Alternative: *Combine intersections into one intersection.*

II. FALL LINE FREEWAY, UNIT NO. 22

A. LAKE TCHUKLAHO BRIDGES

Value Engineering Alternative: *Leave existing bridge until remaining life is used up and build one bridge only without a turn lane.*

B. CR 21/SOUTHERN RAILROAD BRIDGES

Value Engineering Alternative: *Use vertical abutments and MSE walls.*

C. US 441 INTERCHANGE

Value Engineering Alternative Number 1: *Replace with at grade intersection.*

Value Engineering Alternative Number 2: *Redesign ramps.*

VI. EVALUATION PHASE

A. ALTERNATIVES (cont'd)

III. FALL LINE FREEWAY, UNIT NO. 346

A. US 441 INTERCHANGE BRIDGES

Value Engineering Alternative: *Use vertical abutments and MSE walls.*

B. REEDY BRANCH BRIDGES

Value Engineering Alternative: *Use bottomless culvert.*

C. OCONEE RIVER BRIDGES

Value Engineering Alternative: *Use pre-cast segmental structure.*

D. BUCK CREEK BRIDGE CULVERTS

Value Engineering Alternative: *Use Con-Span culvert.*

IV. FALL LINE FREEWAY, UNIT NO. 26

A. GUMM CREEK BRIDGES

Value Engineering Alternative: *Match existing bridge lengths.*

B. BLUFF CREEK BRIDGES

Value Engineering Alternative: *Shorten bridges to avoid existing bridge.*

C. PAVEMENT DESIGN

Value Engineering Alternative: *Change 12.5 to 9.5 inches of surface course.*

V. FALL LINE FREEWAY, UNIT NO. 29

A. OLD SR 24 BYPASS

Value Engineering Alternative: *Extend and/or realign Brooks Road/CR 6 to connect to the Old SR 24 alignment and cul-de-sac both ends of Old SR 24.*

B. PAVEMENT DESIGN

Value Engineering Alternative: *Change 12.5 to 9.5 inches of surface course.*

VI. EVALUATION PHASE

B. ADVANTAGES AND DISADVANTAGES

The following Advantages and Disadvantages were developed for the Value Engineering Alternatives previously generated during the speculation phase. It also includes the Advantages and Disadvantages for the "As Proposed".

I. FALL LINE FREEWAY, UNIT NO. 19

A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

"As Proposed": *Four span with sloped abutments.*

Advantages

- Typical design.

Disadvantages

- High construction cost.
- Longer construction time.
- Higher future maintenance because more bridge area.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Use vertical abutments and MSE walls.***

Advantages

- Lower construction cost.
- Less construction time.
- Less future bridge maintenance.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

VI. EVALUATION PHASE

B. ADVANTAGES AND DISADVANTAGES (cont'd)

I. FALL LINE FREEWAY, UNIT NO. 19

B. PRIVATE POND IMPACT

"As Proposed": *3:1 slopes will spill into pond.*

Advantages

- More stable slope.

Disadvantages

- Environmental impact.
- More right-of-way.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative Number 1: MSE wall.

Advantages

- Avoids pond.
- No slope problems.

Disadvantages

- May be higher construction cost.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative Number 2: Fabric stabilized slope.

Advantages

- Avoids pond.
- No slope problems.

Disadvantages

- Medium construction cost.
- More difficult construction.

Conclusion

- Carry forward for further evaluation.

VI. EVALUATION PHASE

B. ADVANTAGES AND DISADVANTAGES (cont'd)

I. FALL LINE FREEWAY, UNIT NO. 19

B. PRIVATE POND IMPACT (cont'd)

Value Engineering Alternative Number 3: Rock embankment.

Advantages

- Avoids pond.
- No slope problems.
- Lower construction cost.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

I. FALL LINE FREEWAY, UNIT NO. 19

C. SR 243/CR 183 INTERSECTIONS

"As Proposed": *Two separate intersections.*

Advantages

- Good access.

Disadvantages

- Higher construction cost.
- Two conflict points with mainline.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Combine intersections into one intersection.***

Advantages

- Only one conflict point.
- Lower construction cost.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

II. FALL LINE FREEWAY, UNIT NO. 22

A. LAKE TCHUKOLAHO BRIDGES

"As Proposed": *Widen the existing bridge and construct a new bridge with a turn lane.*

Advantages

- Utilizes the remaining life of the existing bridge.
- Provides a turn lane for use at the end of the bridge.

Disadvantages

- High construction cost.
- No need for the turn lane until the end of the bridge.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Leave existing bridge until remaining life is used up and build one bridge only without a turn lane.***

Advantages

- Lower construction cost.
- Less construction time.
- Turn lane not needed until end of bridge.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

II. FALL LINE FREEWAY, UNIT NO. 22

B. CR 21/SOUTHERN RAILROAD BRIDGES

"As Proposed": *3 span bridges with spill through abutments.*

Advantages

- Typical design.

Disadvantages

- High construction cost.
- Longer construction time.
- Higher future maintenance because more bridge area.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Use vertical abutments and MSE walls.***

Advantages

- Lower construction cost.
- Less construction time.
- Less future bridge maintenance.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

B. ADVANTAGES AND DISADVANTAGES (cont'd)

II. FALL LINE FREEWAY, UNIT NO. 22

C. US 441 INTERCHANGE

"As Proposed": *Conventional diamond interchange.*

Advantages

- Typical design.
- No conflicts on mainline.

Disadvantages

- High construction cost.
- Traffic projection does not warrant interchange.
- Longer construction time.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative Number 1: Replace with a- grade intersection.

Advantages

- Lower construction cost.
- Less construction time.
- Less future maintenance.

Disadvantages

- Additional conflict point on mainline.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative Number 2: Redesign ramps for tight diamond.

Advantages

- Less right of way acquisition.
- No conflict on mainline.

Disadvantages

- High construction cost.
- Traffic projection does not warrant interchange.
- Longer construction time.

Conclusion

- Carry forward for further evaluation.

III. FALL LINE FREEWAY, UNIT NO. 346

A. US 441 INTERCHANGE BRIDGES

"As Proposed": *4 span bridge with spill through abutments.*

Advantages

- Typical design.

Disadvantages

- High construction cost.
- Longer construction time.
- Higher future maintenance because more bridge area.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Use vertical abutments and MSE walls.***

Advantages

- Lower construction cost.
- Less construction time.
- Less future bridge maintenance.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

III. FALL LINE FREEWAY, UNIT NO. 346

B. REEDY BRANCH BRIDGES

"As Proposed": *4 span bridges with spill through abutments.*

Advantages

- More than adequate hydraulic design.

Disadvantages

- More bridge than hydraulically required.
- Hydraulic flows are restricted by double box culvert in close proximity upstream.
- High construction cost.
- High future bridge maintenance.
- Longer construction time.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Use bottomless culverts.***

Advantages

- Lower construction cost.
- Less construction time.
- Meets hydraulic requirements.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

VI. EVALUATION PHASE

B. ADVANTAGES AND DISADVANTAGES (cont'd)

III. FALL LINE FREEWAY, UNIT NO. 346

C. OCONEE RIVER BRIDGES

"As Proposed": *12 span bridge with spill through abutments.*

Advantages

- Adequate hydraulic design.
- Typical design.

Disadvantages

- Bents in the river.
- Long construction time.
- High construction time.
- Will require a work bridge to construct.
- High environmental impacts.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Use pre-cast segmental structures.***

Advantages

- Less environmental impacts.
- Less construction time.
- Lower construction cost.
- More aesthetically pleasing.
- No bents in the river.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

VI. EVALUATION PHASE

B. ADVANTAGES AND DISADVANTAGES (cont'd)

III. FALL LINE FREEWAY, UNIT NO. 346

D. BUCK CREEK BRIDGE CULVERTS

As Proposed": *Quad 9x8 cast-in-place box culverts.*

Advantages

- Typical design.
- Meets hydraulic requirements.

Disadvantages

- Longer construction time.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Con-Span pre-cast culverts.***

Advantages

- May be less construction cost.
- Less construction time.
- Meets hydraulic requirements.
- Less environmental impacts.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

VI. EVALUATION PHASE

B. ADVANTAGES AND DISADVANTAGES (cont'd)

IV. FALL LINE FREEWAY, UNIT NO. 26

A. GUMM CREEK BRIDGES

"As Proposed": *2 separate 2 span bridges with 2 different span lengths.*

Advantages

- Avoids creek.

Disadvantages

- Unorthodox design.
- May be higher bridge cost because of design.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Match existing bridge lengths.***

Advantages

- Typical design.
- Less construction cost.
- Less construction time.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

VI. EVALUATION PHASE

B. ADVANTAGES AND DISADVANTAGES (cont'd)

IV. FALL LINE FREEWAY, UNIT NO. 26

B. BLUFF CREEK BRIDGES

"As Proposed": *3 span bridges with spill through slopes.*

Advantages

- Typical design.

Disadvantages

- Difficult construction due to lengths of new bridges impacting the existing bridge.
- Difficult traffic control during construction.
- May require an alignment change to construct.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Shorten bridges.***

Advantages

- Does not impact the existing bridge.
- Easier traffic control during construction.
- Does not require an alignment change.

Disadvantages

- None apparent.

Conclusion

- Carry forward for further evaluation.

IV. FALL LINE FREEWAY, UNIT NO. 26

C. PAVEMENT DESIGN

"As Proposed": *12.5 inches of surface course.*

Advantages

- More than adequate design.
- Longer service life.

Disadvantages

- May be more than required.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Reduce the design to 9.5 inches of surface course.***

Advantages

- Less construction cost.
- May meet design requirements.

Disadvantages

- Less service life.

Conclusion

- Carry forward for further evaluation.

V. FALL LINE FREEWAY, UNIT NO. 29

A. OLD SR 24 BYPASS

"As Proposed": *Connect both ends of old 24 to new 24 with two intersections.*

Advantages

- Provides access.

Disadvantages

- Two conflict points.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Extend and/or realign Brooks Road/CR 6 to connect to the Old SR 24 alignment and cul-de-sac both ends of Old SR 24.***

Advantages

- One intersection rather than two.
- Less construction cost.
- Reduce traffic on Old 24.

Disadvantages

- Circuitous travel for some residences.

Conclusion

- Carry forward for further evaluation.

V. FALL LINE FREEWAY, UNIT NO. 29

B. PAVEMENT DESIGN

"As Proposed": *12.5 inches of surface course.*

Advantages

- More than adequate design.
- Longer service life.

Disadvantages

- May be more than required.

Conclusion

- Carry forward for further evaluation.

Value Engineering Alternative: ***Reduce the design to 9.5 inches of surface course.***

Advantages

- Less construction cost.
- May meet design requirements.

Disadvantages

- Less service life.

Conclusion

- Carry forward for further evaluation.

VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

B. PRIVATE POND IMPACT

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE No. 1
(3) VALUE ENGINEERING ALTERNATIVE No. 2
(4) VALUE ENGINEERING ALTERNATIVE No. 3

C. SR 243/CR 183 INTERSECTIONS

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

II. FALL LINE FREEWAY, UNIT NO. 22

A. LAKE TCHUKLAHO BRIDGES

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

B. CR 21/SOUTHERN RAILROAD BRIDGES

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

C. US 441 INTERCHANGE

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE No. 1
(3) VALUE ENGINEERING ALTERNATIVE No. 2

VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

A. US 441 INTERCHANGE BRIDGES

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

B. REEDY BRANCH BRIDGES

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

C. OCONEE RIVER BRIDGES

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

D. BUCK CREEK BRIDGE CULVERTS

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

IV. FALL LINE FREEWAY, UNIT NO. 26

A. GUMM CREEK BRIDGES

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

B. BLUFF CREEK BRIDGES

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

C. PAVEMENT SURFACE COURSE

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

VII. DEVELOPMENT PHASE

V. FALL LINE FREEWAY, UNIT NO. 29

A. OLD SR 24 BYPASS

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

B. PAVEMENT SURFACE COURSE

(1) AS PROPOSED
(2) VALUE ENGINEERING ALTERNATIVE

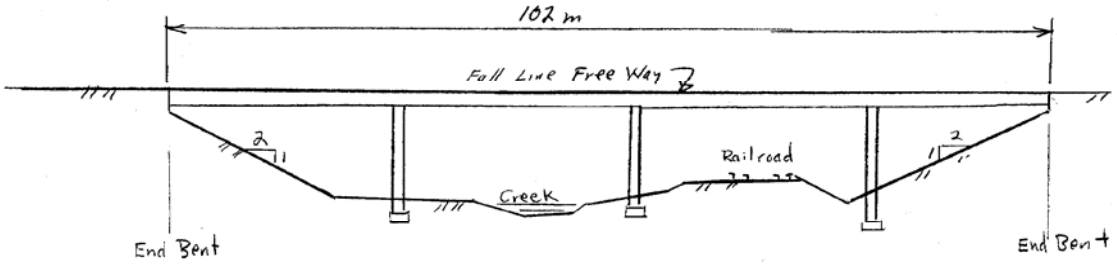
VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

1. "As Proposed"

The bridges at this site are 12.4 meter wide dual bridges on the Fall Line Freeway over the creek and railroad. The bridges are 102 meters long and composed of 4 spans at 27 meters. The girders are prestressed concrete bulb tees at a spacing of 2,500 millimeters, and the abutments on each end of the bridge are spill through on a 2:1 end slope. The bridges are 10.2 meters apart.



I. Unit 19-A
As Proposed

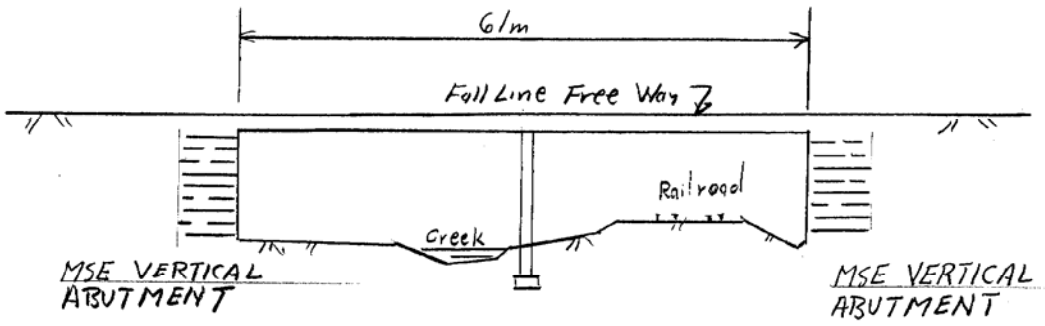
VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

2. Value Engineering Alternative

The Value Engineering Alternative consists of substituting MSE Vertical Abutments for the spill through type currently designed. This results in a bridge length of 61 meters which can be divided into 2 spans of approximately 30.5 meters each. The 100-year flood elevation is below the railroad embankment and Abutment 1 is far enough away from the stream so that flood waters would not affect the MSE Wall, and it appears that the water way opening will still be adequate with the use of Vertical Abutments.



I Unit 19-A
VE Alternate

I. FALL LINE FREEWAY, UNIT NO. 19
A. LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RR
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGE OVER LITTLE COMMISSIONER CREEK & CENTRAL GA RAILROAD	SM	$915.00	2,530.0	$2,314,950	,1464.0	$1,339,560
ROADWAY (BASE & PAVEMENT)	SM	$30.00			1,066.0	$31,980
MSE VERTICAL ABUTMENTS	SM	$538.00			1,394.0	$749,972
SUBTOTAL				**$2,314,950**		**$2,121,512**
MOBILIZATION	4%	1		$92,598		$84,861
MOT @ 5%	5%	1		$115,748		$106,076
E & C	10%	1		$231,495		$212,151
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$138,203		$126,654
GRAND TOTAL				**$2,892,994**		**$2,651,254**

POSSIBLE SAVINGS: $241,740

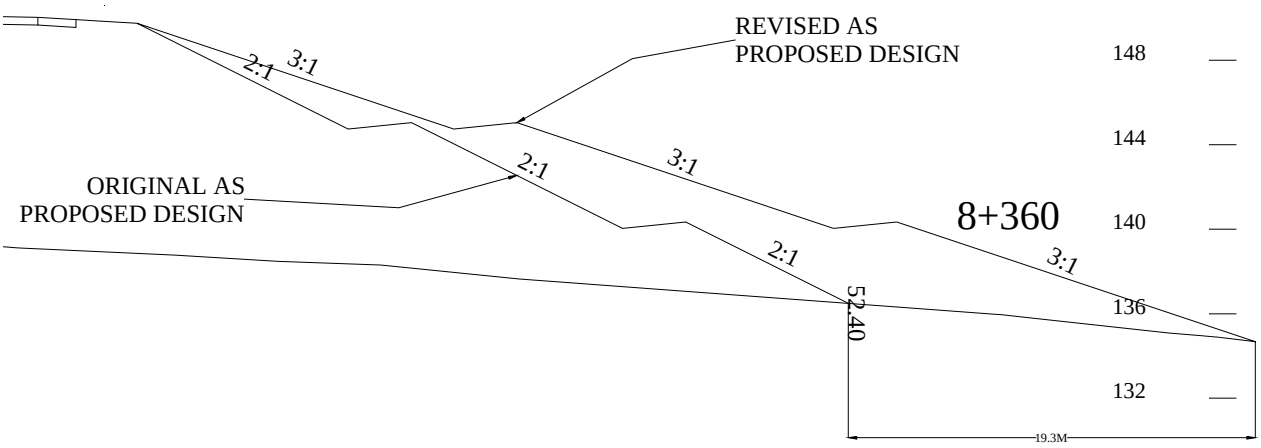
VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

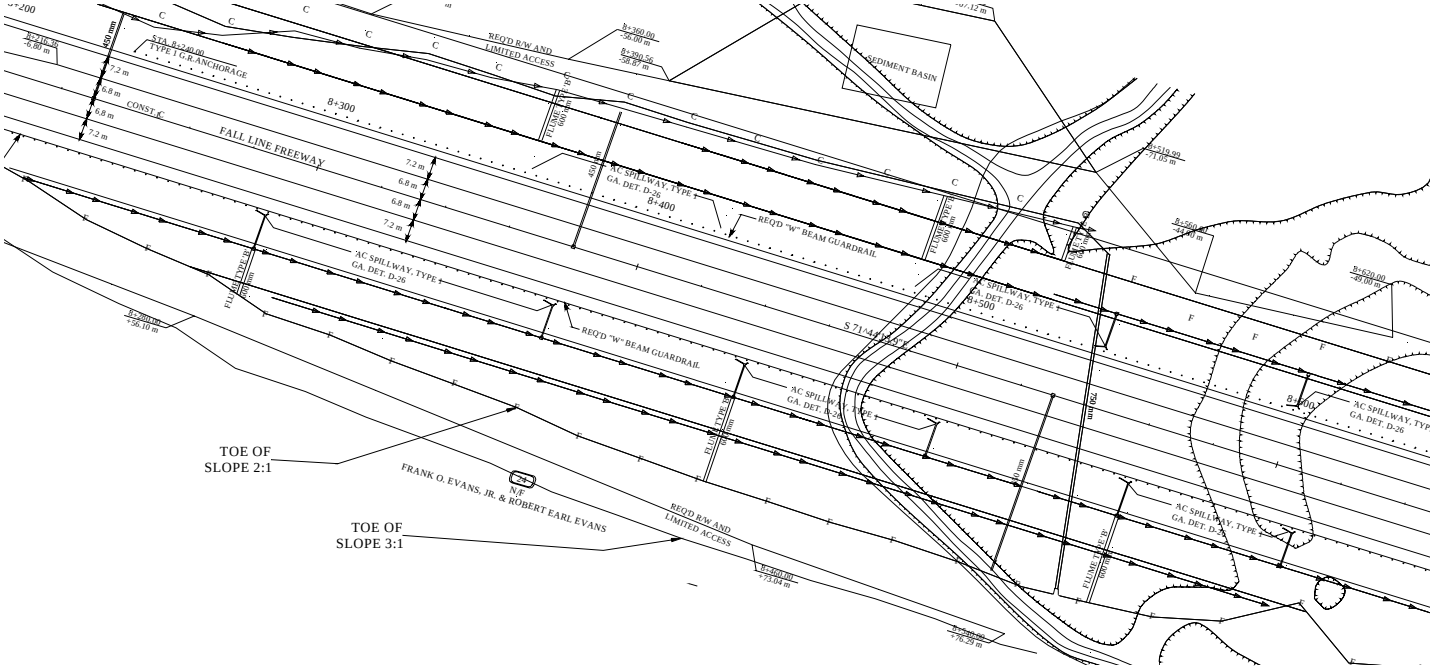
B. PRIVATE POND IMPACT

1. "As Proposed"

The previous design for the embankment was with a 2:1 slope. The soils report recommends a 3:1 side slope for the entire project. With the 2:1 side slopes, the toe of slope did not encroach upon the pond located on the right side of SR 24 between stations 8+300 to 9+100. The change in design to a 3:1 side slope pushes the toe of slope out up to 19.3 meters +/- (63 feet +/-) at the pond and may encroach upon it.



CROSS SECTION



POND LOCATION

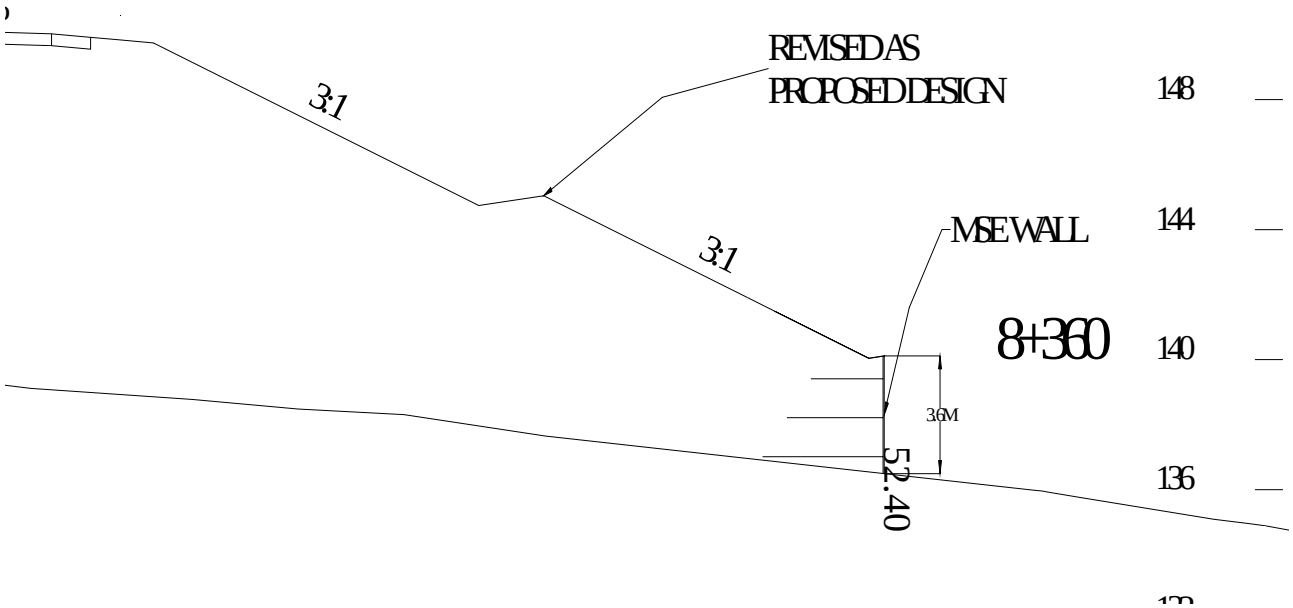
VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

B. PRIVATE POND IMPACT

2. Value Engineering Alternative Number 1

If environmental or property owner issues develop over the encroachment into the pond, an alternative design is to construct an MSE Wall at the toe of slope for the 2:1 slope. The maximum height would be approximately 3.6 meters (12 feet) adjacent to the private pond.



CROSS SECTION

I. FALL LINE FREEWAY, UNIT NO. 19
B. PRIVATE POND IMPACT
VALUE ENGINEERING ALTERNATIVE NUMBER 1
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
EMBANKMENT	M3	$4.27	6,315.0	$26,965	0.0	$0
MSE WALL	M2	$538.00	0.0	$0	1,080.0	$581,040
SUBTOTAL				**$26,965**		**$581,040**
TRAFFIC CONTROL	5%			$1,348		$29,052
MOBILIZATION	0%			$0		$0
E AND C	10%			$2,697		$58,104
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$1,550		$33,410
RIGHT OF WAY	AC	3,000.00	1.43	$4,290	0.0	$0
GRAND TOTAL				**$36,850**		**$701,606**

POSSIBLE COST INCREASE: -$664,756

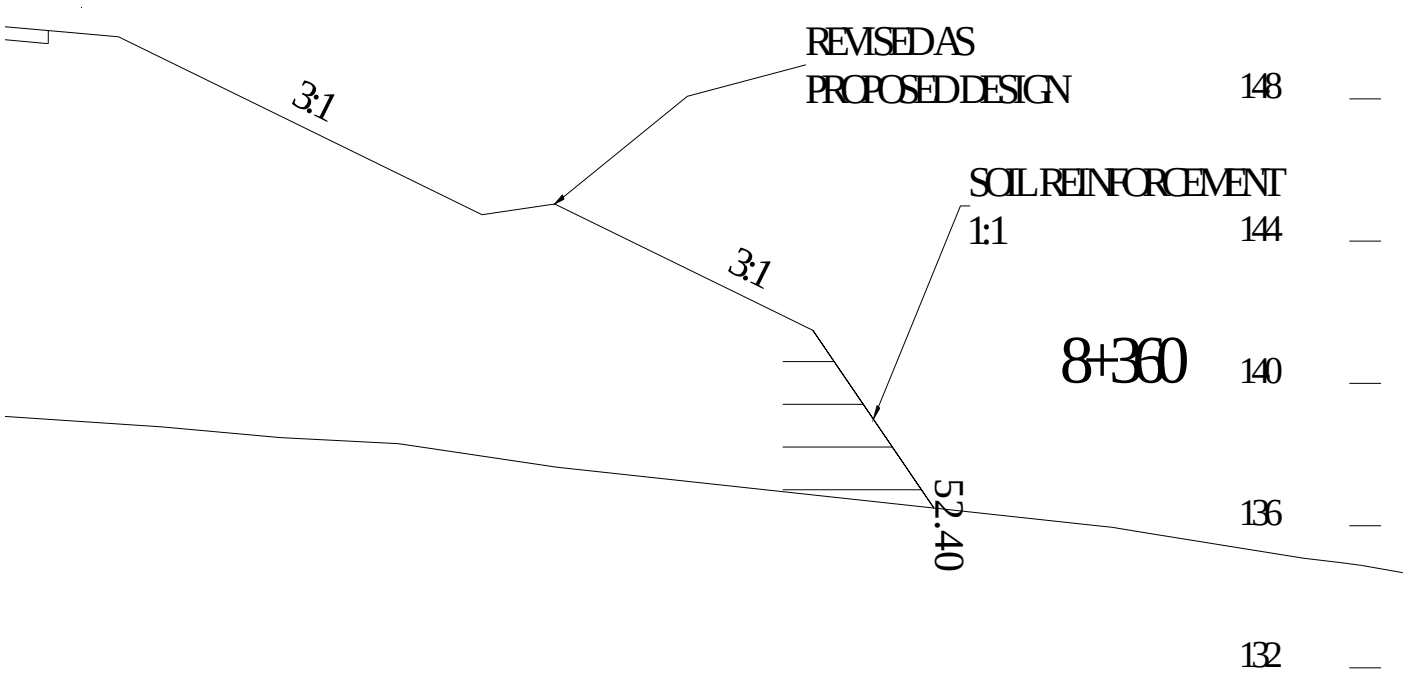
VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

B. PRIVATE POND IMPACT

3. Value Engineering Alternative Number 2

If environmental or property owner issues develop over the encroachment into the pond, the Value Engineering Team recommends using Value Engineering Alternative Number 2 to reinforce the embankment with geotextile and create a 1:1 slope.



I. FALL LINE FREEWAY, UNIT NO. 19
B. PRIVATE POND IMPACT
VALUE ENGINEERING ALTERNATIVE NUMBER 2
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
EMBANKMENT	M3	$4.27	7,605.0	$32,473	0.0	$0
MSE STABALIZED SLOPE	SM	$52.63	0.0	$0	2,130.0	$112,102
SUBTOTAL				**$32,473**		**$112,102**
TRAFFIC CONTROL	5%			$1,624		$5,605
MOBILIZATION				$0		$0
E AND C	10%			$3,247		$11,210
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$1,867		$6,446
RIGHT OF WAY	AC	$3,000.00	1.43	$4,290	0.0	$0
GRAND TOTAL				**$43,502**		**$135,363**

POSSIBLE COST INCREASE: -$91,861

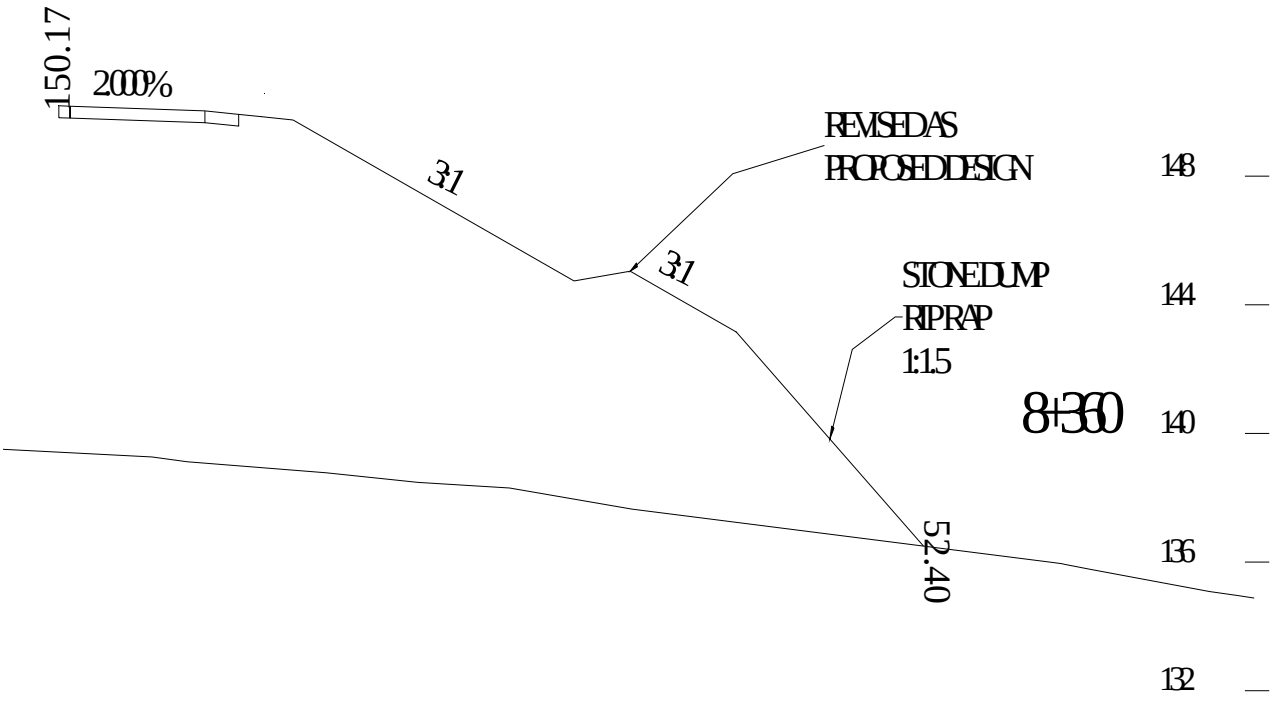
VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

B. PRIVATE POND IMPACT

4. Value Engineering Alternative Number 3

If environmental or property owner issues develop over the encroachment into the pond, Value Engineering Alternative Number 3 is to place stone dump riprap on a 1:1.5 slope.



I. FALL LINE FREEWAY, UNIT NO. 19
B. PRIVATE POND IMPACT
VALUE ENGINEERING ALTERNATIVE NUMBER 3
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
EMBANKMENT	M3	$4.27	7,905.0	$33,754		$0
STONE DUMP RIP RAP TYPE I 600MM	M2	$42.95		$0	3,600.0	$154,620
SUBTOTAL				**$33,754**		**$154,620**
TRAFFIC CONTROL	5%			$1,688		$7,731
MOBILIZATION				$0		$0
E AND C	10%			$3,375		$15,462
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$1,941		$8,891
RIGHT OF WAY	AC	$3,000.00	1.43	$4,290	0.0	$0
GRAND TOTAL				**$45,048**		**$186,704**

POSSIBLE COST INCREASE: -$141,655

VII. DEVELOPMENT PHASE

I. FALL LINE FREEWAY, UNIT NO. 19

C. SR 243/CR 183 INTERSECTIONS

1. "As Proposed"

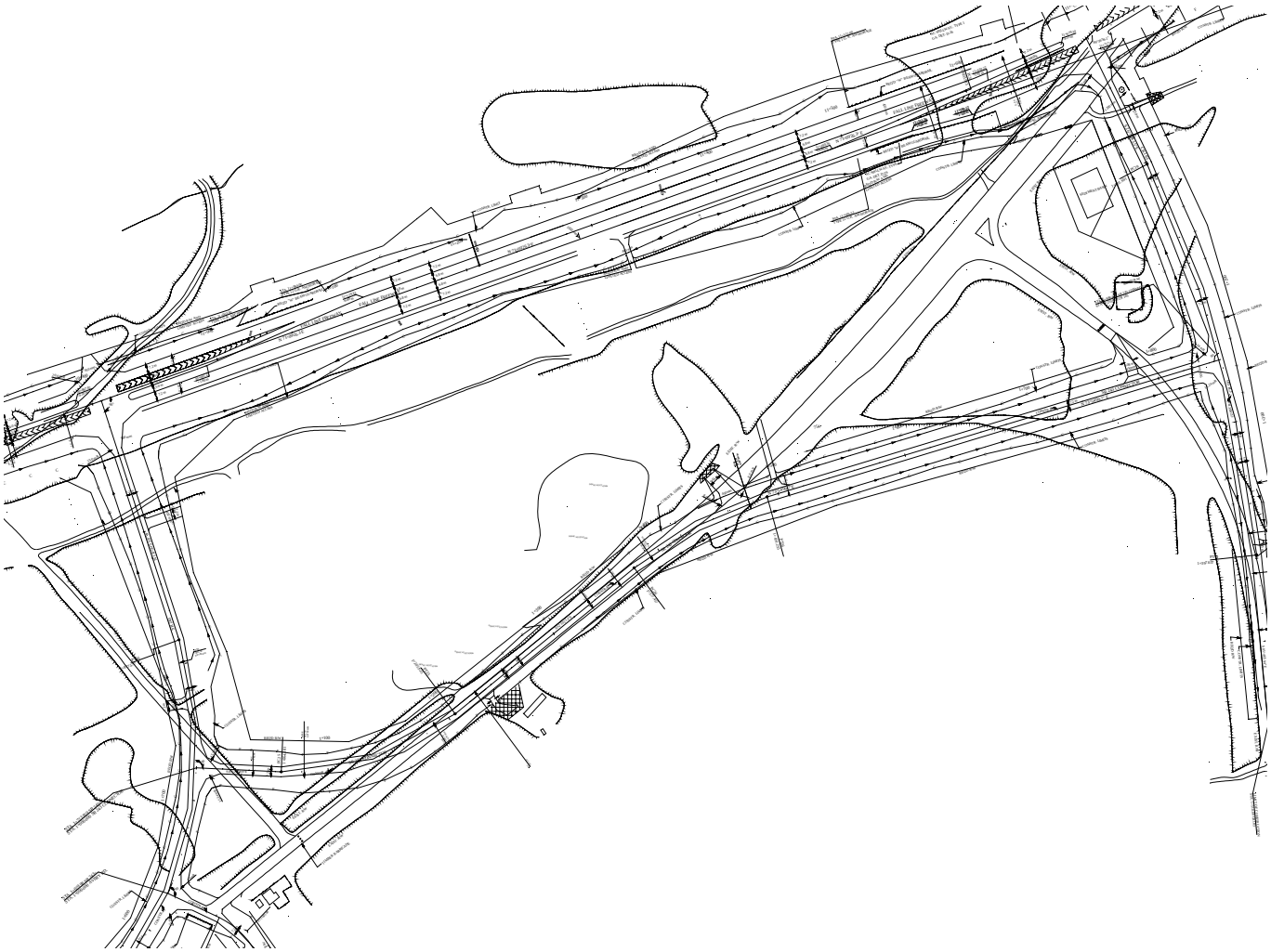
Existing SR 243 intersects SR 24 with a large skew and CR 183 "T's" into SR 243 before it intersects with SR 24. The "As Proposed" design removes the large skew intersection with SR 24 by constructing 2 "T" intersections on SR 24, to 1 for SR 243 and 1 for CR183. These 2 intersections are 793 meters (2600 feet) apart. The As Proposed design requires the demolition of:

- 370 meters of CR 183
- 710 meters of SR 243

It will also construct on new alignment:

- 400 meters of CR 183
- 430 meters of SR 243
- 110 meters of a side road to SR 243

A 755 meters connector road between SR 243 and CR 183 will also be constructed. 225 meters will be on the old SR 243 alignment and will be reconstructed, and 430 meters will be new construction.



AS PROPOSED

VII. DEVELOPMENT PHASE

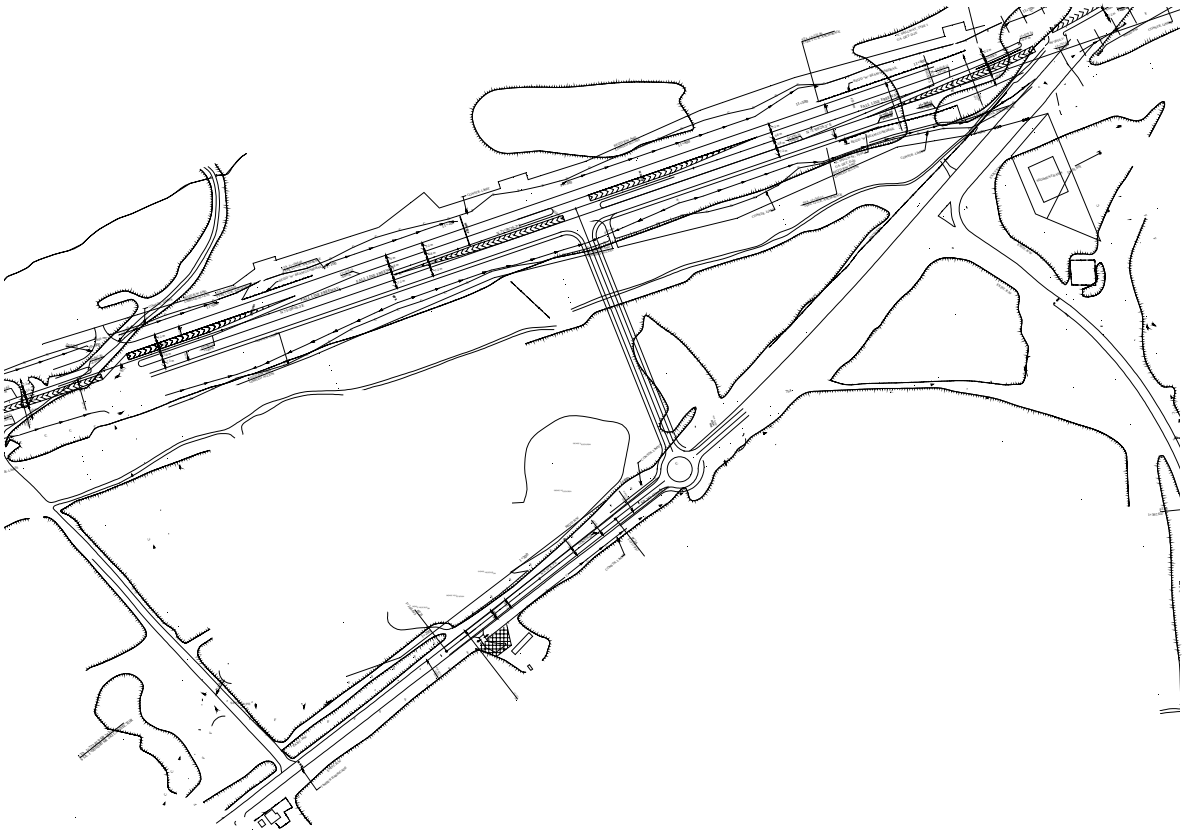
I. FALL LINE FREEWAY, UNIT NO. 19

C. SR 243/CR 183 INTERSECTIONS

2. Value Engineering Alternative

The Value Engineering Team recommends replacing the 2 "T" intersections with a single "T" intersection about halfway between the 2 proposed intersections. The plan below shows a Modern Day Round About as an intersection between SR 243 and CR 183; a "T" intersection could easily replace the Round About if the Department wishes.

This alternative eliminates much of the reconstruction and construction on new alignment while using the remaining service life of both SR 243 and CR 183. Only the last 160 meters of SR 243 would be demolished.



VALUE ENGINEERING ALTERNATIVE

I. FALL LINE FREEWAY, UNIT NO. 19
C. SR 243/CR 183 INTERSECTIONS
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
DEMOLISH PAVEMENT	M2	$3.00	10,800.0	$32,400	1,600.0	$4,800
RESURFACE PAVEMENT	M2	$4.25	3,250.0	$13,813	2,250.0	$9,563
CONSTRUCT PAVEMENT	M2	$30.00	9,400.0	$282,000	2,100.0	$63,000
SUBTOTAL				**$328,213**		**$77,363**
TRAFFIC CONTROL	5%			$16,411		$3,868
MOBILIZATION				$0		$0
E AND C	10%			$32,821		$7,736
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$18,872		$4,448
RIGHT OF WAY	AC	$3,000.00	27.90	$83,700	6.3	$18,900
GRAND TOTAL				**$480,017**		**$112,315**

POSSIBLE SAVINGS: $367,702

VII. DEVELOPMENT PHASE

II. FALL LINE FREEWAY, UNIT NO. 22

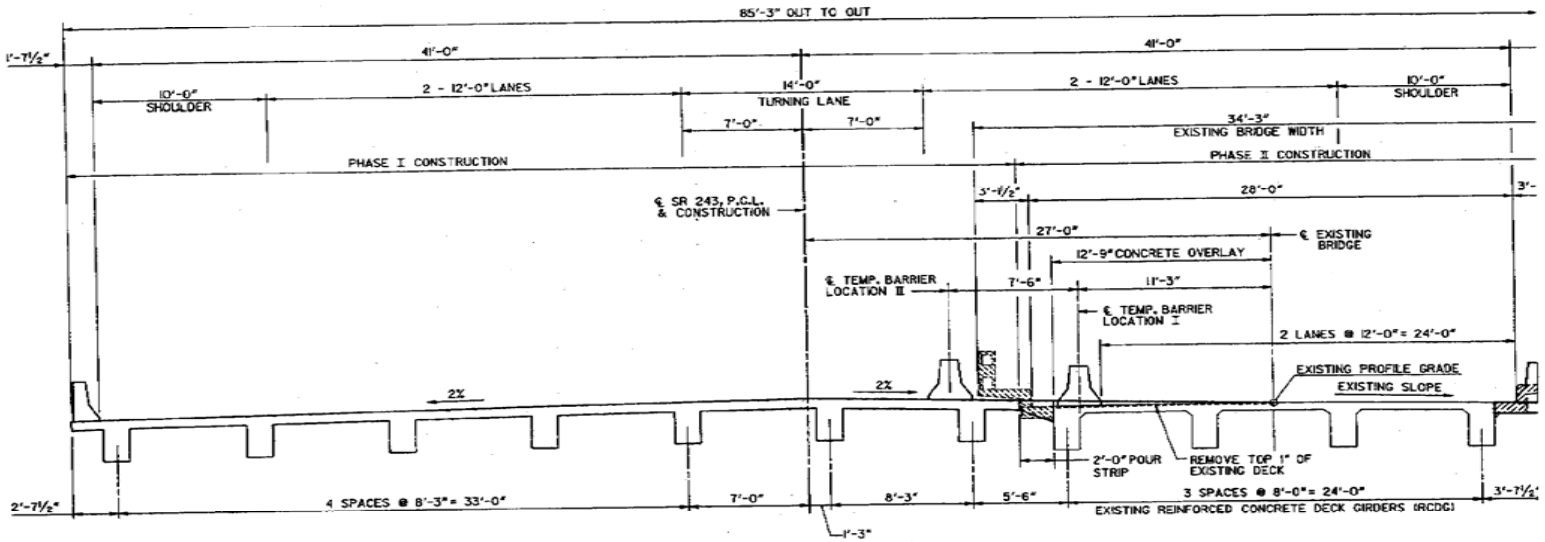
A. LAKE TCHUKLAHO BRIDGES

1. "As Proposed"

FLF 540 (22) is the reconstruction of SR 24 from east of the City of Gordon in Wilkinson County and extends 8.123 miles east to US 441 in Baldwin County. The project begins with a proposed 5-lane section at Sta. 223. This roadway section has curb and gutter with sidewalk and extends to Sta. 283 at Fred Hall Road.

Approximately 500 feet from the beginning of the project is an existing bridge over Little Commissioner Creek and Lake Tchukolako. The project plan proposes to widen this bridge to the left in two phases. The first phase will remove the existing handrail and curb, place a temporary barrier on the existing bridge, and construct some 55 feet of new bridge. Traffic will then be shifted to the new bridge. The handrail and curb will be removed from the existing bridge, a new barrier constructed on the right side, a two-foot tie strip will be poured between the 2 structures, and a concrete overlay, will be placed on the original westbound lane to correct the cross slope. The resultant structure will have 2 12-foot lanes in each direction, a 14-foot center turning lane, and 10-foot shoulders on each side.

The estimated cost of the widened bridge is approximately $2,000,000.



WIDENING S.R. 243 (FALL LINE FREEWAY) OVER COMMISSIONER'S CREEK (LAKE TCHUKOLAHO)
PRELIMINARY LAYOUT
WILKINSON COUNTY FLF-540 (22)

AS PROPOSED

VII. DEVELOPMENT PHASE

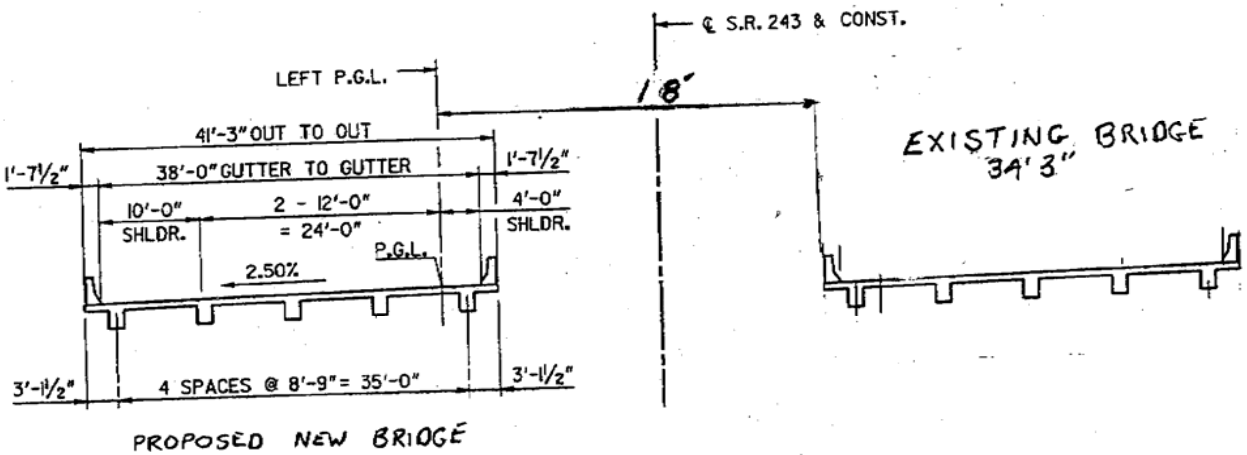
II. FALL LINE FREEWAY, UNIT NO. 22

A. LAKE TCHUKLAHO BRIDGES

2. Value Engineering Alternative

The existing bridge on SR 24 over Little Commissioner Creek and Lake Tchukolako was reported to the value engineering team as having a satisfactory sufficiency rating to allow widened. Therefore, it is recommended, as a result of this value engineering study, that the existing bridge be retained exactly as it is to accommodate future eastbound traffic on SR 24. It is further recommended that a completely new structure be constructed for westbound traffic. This one new bridge would have a width of 41 feet 3 inches to accommodate 2 12-foot lanes and appropriate shoulders. The existing bridge could then be replaced in the future at the end of its service life. Concrete median paving is recommended from the end of the bridges to a point near Jackson Drive. A further addition required by this recommendation would be the placement of necessary guardrail and anchorages at the bridge ends.

The estimated savings by constructing only one bridge is $1,058,695.



PROPOSED NEW BRIDGE

WIDENING S.R. 243 (FALL LINE FREEWAY) OVER COMMISSIONER'S CREEK (LAKE TCHUKOLAHO)
PRELIMINARY LAYOUT
WILKINSON COUNTY FLF-540 (22)

VE ALTERNATIVE

II. FALL LINE FREEWAY UNIT No. 22
A. LAKE TCHUKOLAHO BRIDGES
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGE OVER LITTLE COMMISSIONER CREEK / LAKE TCHUKOLAHO	SF	$85.00	23,440.0	$1,992,400	13,200.0	$1,122,000
CONCRETE OVERLAY	SF	$7.00	4,080.0	$28,560		
CONCRETE MEDIAN PAVING	SY	$35.00		$0	1,480.0	$51,800
GUARDRAIL TP T	LF	$38.37			50.0	$1,919
GUARDRAIL ANCHORAGE TP 12	EA	$1,755.17			2.0	$3,510
SUBTOTAL				**$2,020,960**		**$1,173,800**
Mobilization	4%	1		$80,838		$46,952
Mot @ 5%	5%	1		$101,048		$58,690
E & C	10%	1		$202,096		$117,380
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$120,651		$70,076
GRAND TOTAL				**$2,525,593**		**$1,466,898**

POSSIBLE SAVINGS: $1,058,695

VII. DEVELOPMENT PHASE

II. FALL LINE FREEWAY, UNIT NO. 22

DESIGN COMMENTS

1. The typical section at the beginning of the project has curb and gutter and sidewalk on both sides of the 5-lane roadway. There is no sidewalk shown on the bridge plans.

2. On divided 4-lane highways, acute angle intersections hinder the line of sight for crossing vehicles. Intersections should be at right angles or slightly obtuse.

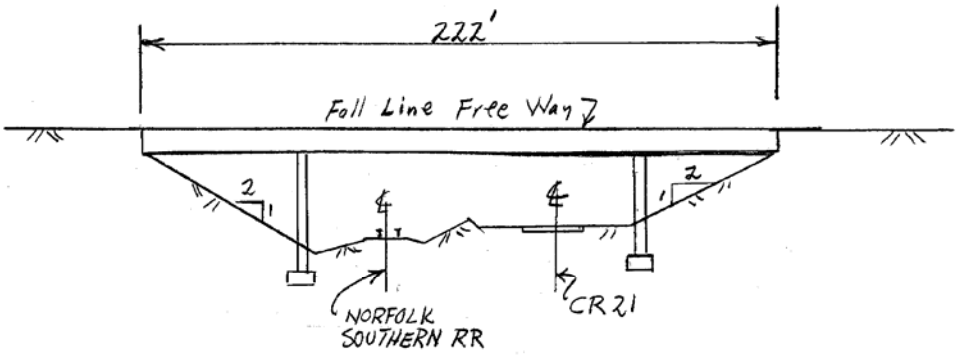
VII. DEVELOPMENT PHASE

II. FALL LINE FREEWAY, UNIT NO. 22

B. CR 21/SOUTHERN RAILROAD BRIDGES

1. "As Proposed"

The bridges at this site are 41 feet 3 inch wide dual bridges on the Fall Line Freeway over CR 21 and the railroad. The bridges are 222 feet long and composed of 3 spans at 57 feet, 115 feet and 50 feet. The girders are prestressed concrete bulb tees and Type II PSC beams at a spacing of 8 feet 6 inches, and the abutments on each end of the bridge are spill through on a 2:1 end slope. The bridges are 44 feet apart.



II Unit 22-B
CR 21 & Southern RR
Vertical Abutments

AS PROPOSED

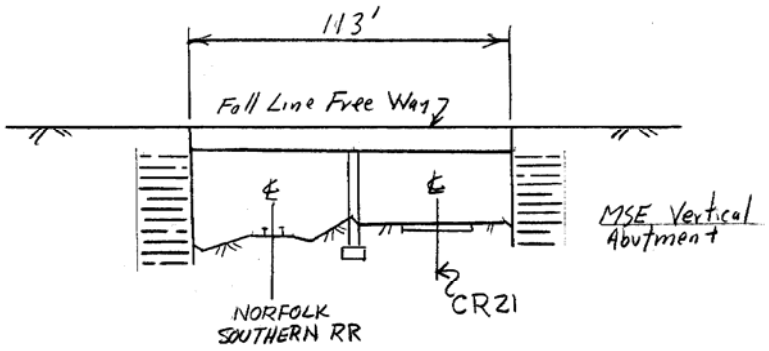
VII. DEVELOPMENT PHASE

II. FALL LINE FREEWAY, UNIT NO. 22

B. CR 21/SOUTHERN RAILROAD BRIDGES

2. Value Engineering Alternative

The Value Engineering Alternative consists of substituting MSE Vertical Abutments for the spill through type currently designed. This results in a bridge length of 113 feet, which can be divided into 2 spans of approximately 56 feet each. The minimum clearance of 25 feet between the bridge abutment and the railroad is maintained as well as the 24-foot clearance between the abutment and CR 21. The use of Bulb Tees will not be required since the long span is eliminated.



II Unit 22-B
CR 21 & Southern RR
Vertical Abutments

VE ALTERNATE

II. FALL LINE FREEWAY, UNIT NO. 22
B. CR 21/SOUTHERN RAILROAD BRIDGES
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGE OVER CR 21 & SOUTHERN RAILWAY	SF	$85.00	18,315.0	$1,556,775	9,322.0	$792,370
ROADWAY (BASE & PAVEMENT)	SY	$24.44			585.0	$14,297
MSE VERTICAL ABUTMENTS	SF	$50.00		$0	11,270.0	$563,500
SUBTOTAL				**$1,556,775**		**$1,370,167**
MOBILIZATION	4%	1		$62,271		$54,807
MOT @ 5%	5%	1		$77,839		$68,508
E & C	10%	1		$155,678		$137,017
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$92,939		$81,799
GRAND TOTAL				**$1,945,502**		**$1,712,298**

POSSIBLE SAVINGS: $233,204

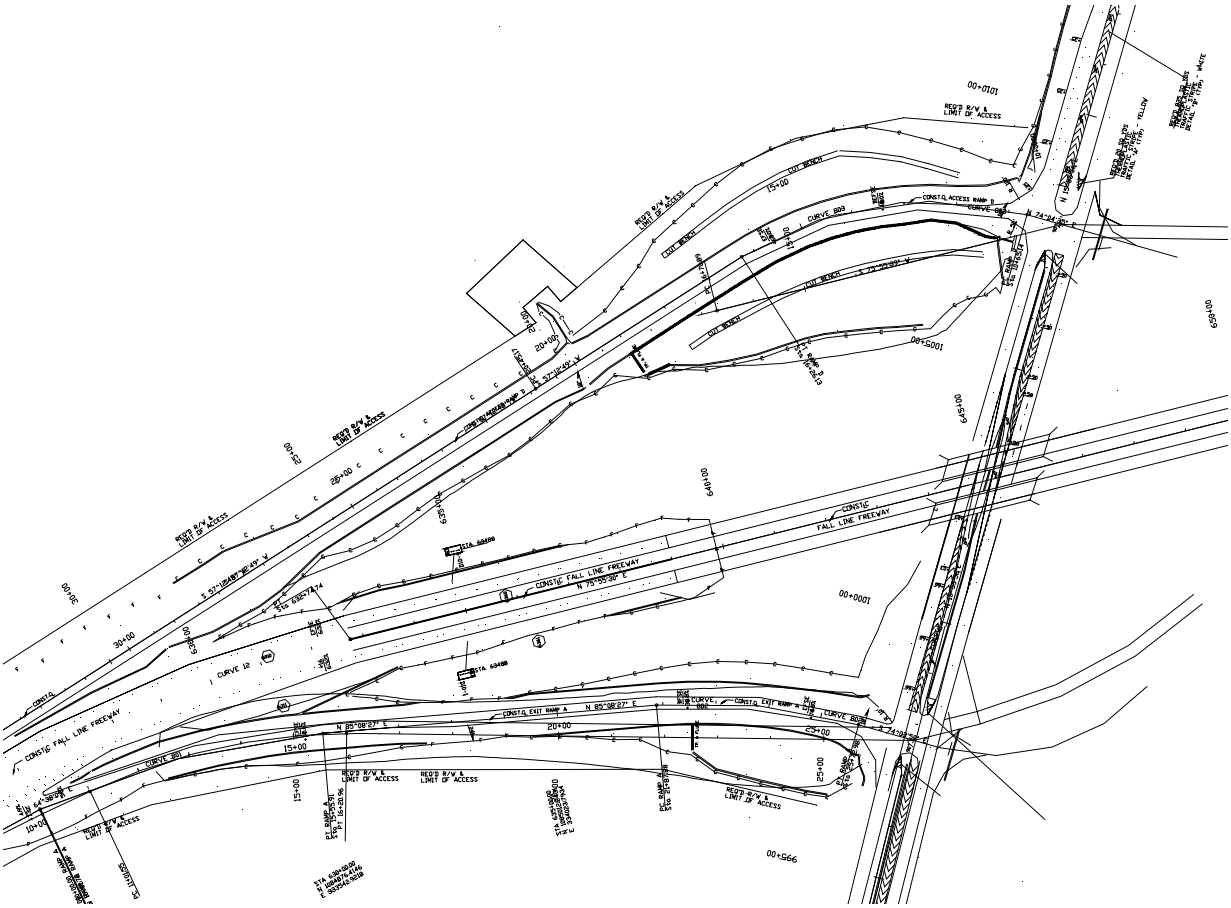
VII. DEVELOPMENT PHASE

II. FALL LINE FREEWAY, UNIT NO. 22

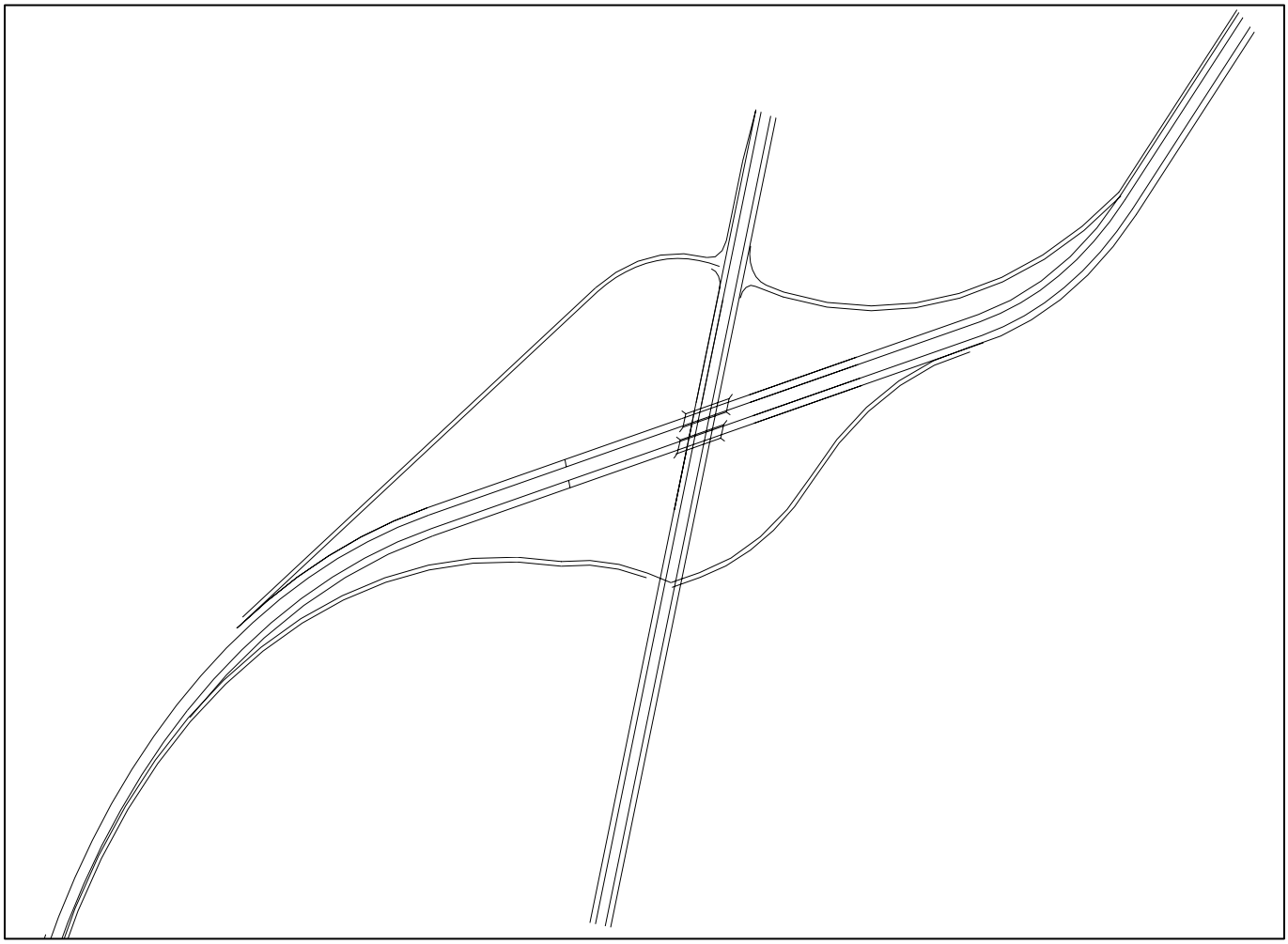
C. US 441 INTERCHANGE

1. "As Proposed"

The proposed plans will construct at-grade intersections with the on/off ramps as shown below. Another construction project will complete the Diamond Interchange by constructing the flyover and the other 2 ramps.



AS PROPOSED FOR PROJECT FLF-540(22)



AS PROPOSED DIAMOND INTERCHANGE

VII. DEVELOPMENT PHASE

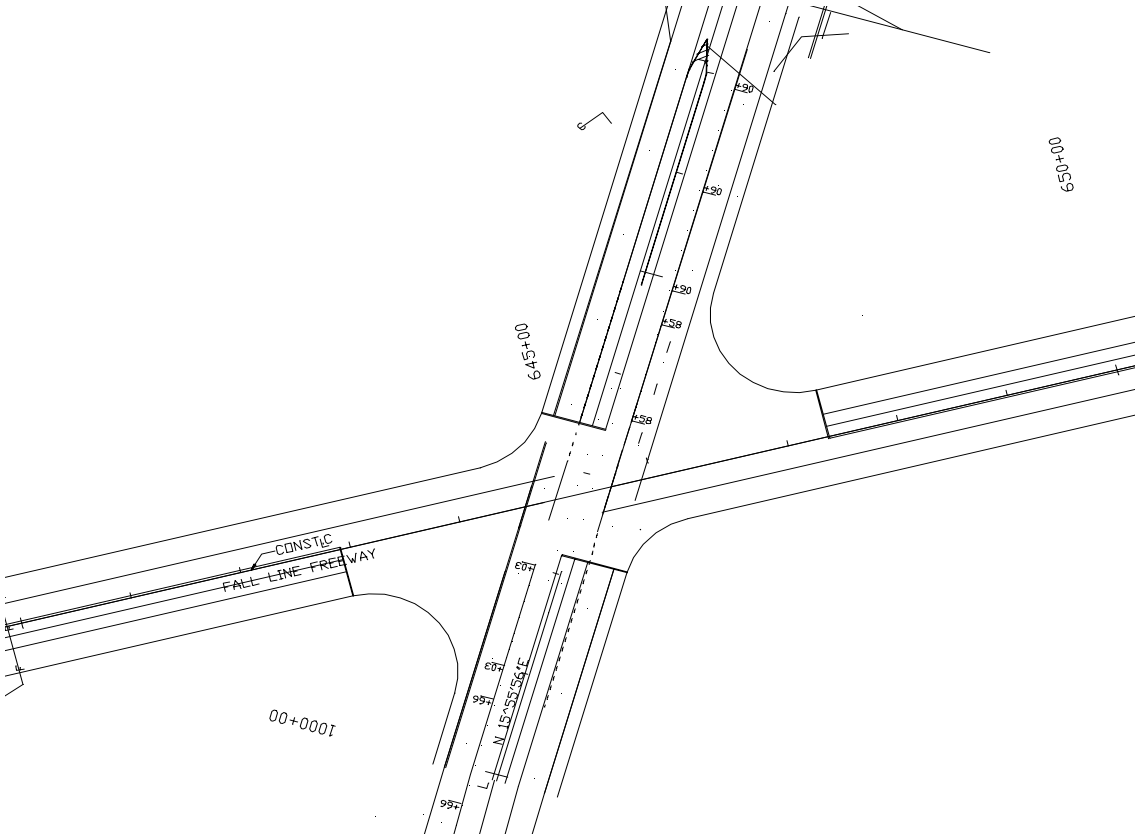
II. FALL LINE FREEWAY, UNIT NO. 22

C. US 441 INTERCHANGE

2. Value Engineering Alternative Number 1

The Value Engineering Team was informed at the briefing that the projected traffic for this project would not warrant an interchange. An interchange was included only to avoid conflicts between the 2 intersecting roadways. It is the belief that a properly designed and constructed at-grade intersection will also provide the function of avoiding conflict between the 2 roadways, therefore the Value Engineering Team recommends constructing a signalized at-grade intersection as shown below. The intersections will include:

- Dual left turn lanes for each direction
- Single right turn lanes in each direction
- Signals
- Lighting



VALUE ENGINEERING ALTERNATIVE

II. FALL LINE FREEWAY, UNIT NO. 22
C. US 441 INTERCHANGE
VALUE ENGINEERING ALTERNATIVE NUMBER 1
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
EMBANKMENT	CY	$4.35	49,066.7	$213,440	0.0	$0
STRUCTURE	SF	$85.00	14,972.0	$1,272,620	0.0	$0
RAMP PAVEMENT	SY	$24.44	17,111.1	$418,196	0.0	$0
SIGNALIZATION	EA	$75,000.00	0.0	$0	1.0	$75,000
LIGHTING	EA	$8,500.00	0.0	$0	12.0	$102,000
SUBTOTAL				**$1,904,256**		**$177,000**
TRAFFIC CONTROL	5%			$95,213		$8,850
MOBILIZATION				$0		$0
E AND C	10%			$190,426		$17,700
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$109,495		$10,178
RIGHT OF WAY	AC	$3,000.00	130.00	$390,000	0.0	$0
GRAND TOTAL				**$2,689,389**		**$213,728**

POSSIBLE SAVINGS: $2,475,661

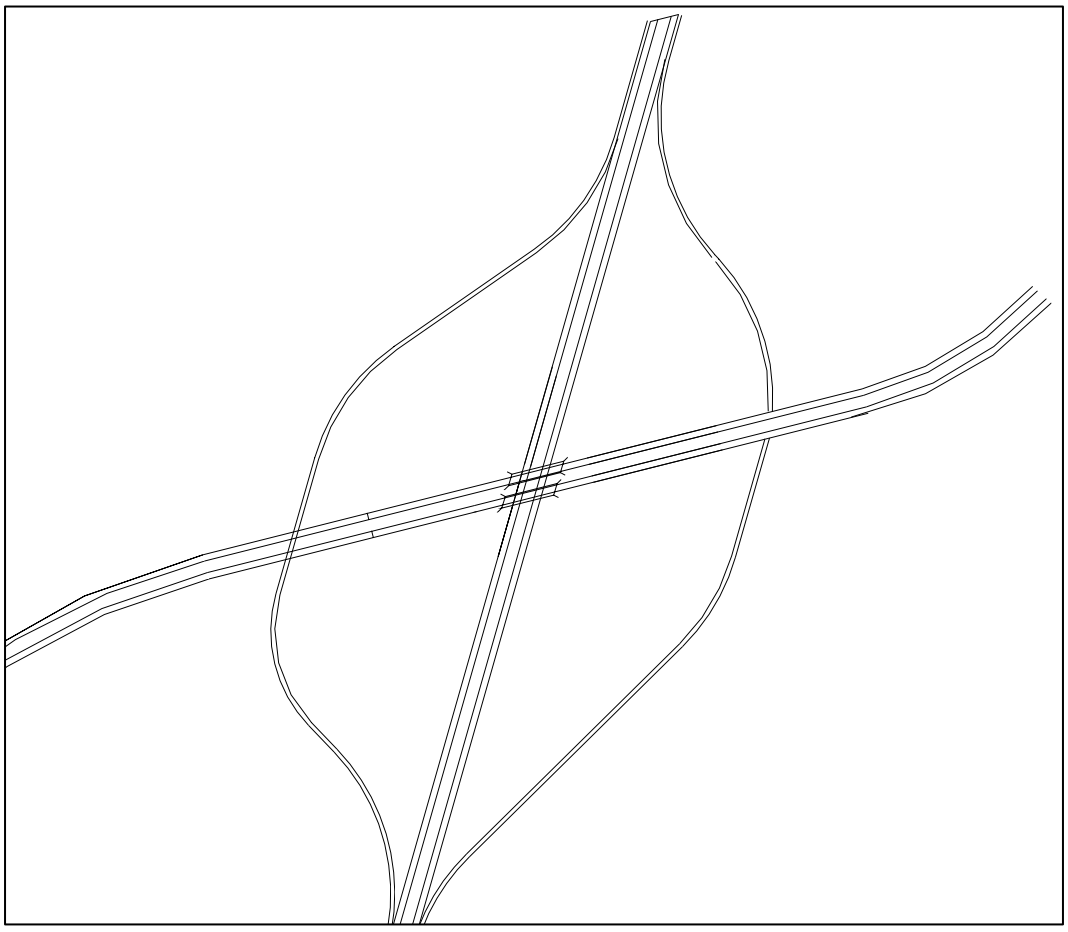
VII. DEVELOPMENT PHASE

II. FALL LINE FREEWAY, UNIT NO. 22

C. US 441 INTERCHANGE

3. Value Engineering Alternative Number 2

In the future, if the traffic and crash data warrants an interchange at this location, the Value Engineering Team recommends putting the ramp intersections on SR 24 as shown below.



VALUE ENGINEERING ALTERNATIVE DIAMOND INTERCHANGE

II. FALL LINE FREEWAY, UNIT NO. 22
C. US 441 INTERCHANGE
VALUE ENGINEERING ALTERNATIVE NUMBER 2
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
RAMP PAVEMENT	SY	$24.44	17,111.1	$418,196	13,693.3	$334,665
SUBTOTAL				**$418,196**		**$334,665**
TRAFFIC CONTROL	5%			$20,910		$16,733
MOBILIZATION				$0		$0
E AND C	10%			$41,820		$33,467
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$24,046		$19,243
RIGHT OF WAY	AC	$3,000.00	0.00	$0	0.0	$0
GRAND TOTAL				**$504,971**		**$404,108**

POSSIBLE SAVINGS: $100,863

VII. DEVELOPMENT PHASE

II. FALL LINE FREEWAY, UNIT NO. 22

DESIGN COMMENTS

1. The typical section at the beginning of the project has curb and gutter and sidewalk on both sides of the 5-lane roadway. There is no sidewalk shown on the bridge plans.

2. On divided 4-lane highways, acute angle intersections hinder the line of sight for crossing vehicles. Intersections should be at right angles or slightly obtuse.

3. The FLF projects have been changed to the National Highway System. If a new Federal Route Number is assigned to this corridor, it needs to be added to the cover sheet.

4. Project termini need to include sufficient construction to overlap the adjacent projects to allow for the resurfacing of conflicting markings and a minimum amount of additional work to tie in a future 4-lane project.

5. Complete reconstruction of the roadway approaching existing bridge locations is recommended rather than “best fit” to allow for quality construction in these areas.

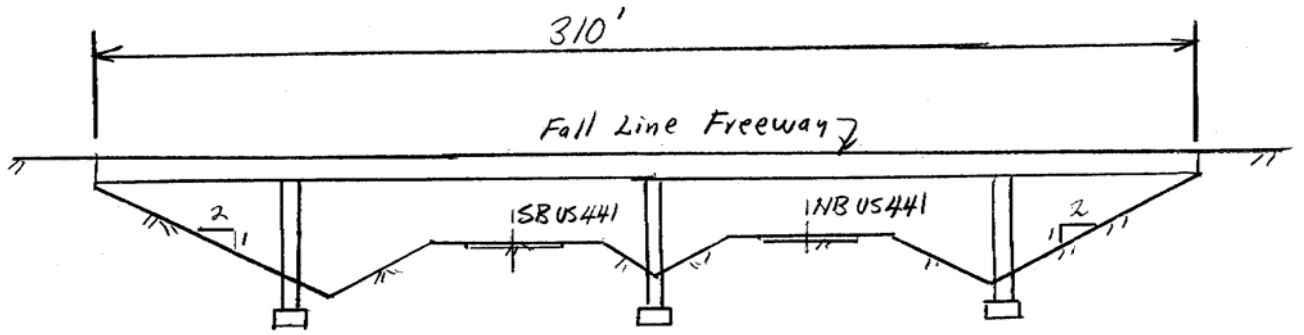
VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

A. US 441 INTERCHANGE BRIDGES

1. "As Proposed"

The bridges at this site are 41 feet 3 inch wide dual bridges on the Fall Line Freeway over US 441. The bridges are 310 feet long and composed of 4 spans at 55 feet, 101.5 feet, 98.5 feet, and 55 feet. The girders are prestressed concrete bulb tees and Type II PSC beams at a spacing of 8 feet-3 inches, and the abutments on each end of the bridge are spill through on a 2:1 end slope. The bridges are 44 feet apart, and on a 60 degree skew. The fascia girder on the short span is a bulb tee. This gives a uniform superstructure depth when viewed from the side.



III Unit 346-A
US 441 Interchange
Vertical Abutments
& MSE Walls
AS PROPOSED

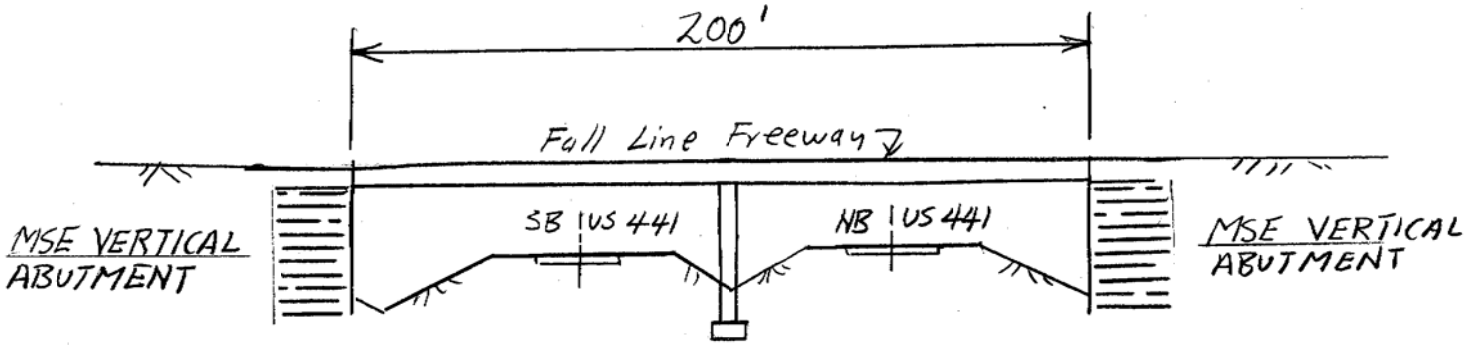
VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

A. US 441 INTERCHANGE BRIDGES

2. Value Engineering Alternative

The Value Engineering Alternative consists of substituting MSE Vertical Abutments for the spill through type currently designed. This results in a bridge length of 200 feet, which can be divided into 2 spans of approximately 100 feet each. These spans will require Bulb Tees similar to the As Proposed.



III Unit 346-A
US 441 Interchange
Vertical Abutments
& MSE Walls

VE ALTERNATE

III. FALL LINE FREEWAY, UNIT NO. 346
A. US 441 INTERCHANGE BRIDGES
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGE OVER US 441	SF	$85.00	25,575.0	$2,173,875	16,500.0	$1,402,500
ROADWAY (BASE & PAVEMENT)	SY	$24.00			590.0	$14,160
MSE VERTICAL ABUTMENTS	SF	$50.00		$0	13,422.0	$671,100
SUBTOTAL				**$2,173,875**		**$2,087,760**
MOBILIZATION	4%	1		$86,955		$83,510
MOT @ 5%	5%	1		$108,694		$104,388
E & C	10%	1		$217,388		$208,776
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$129,780		$124,222
GRAND TOTAL				**$2,716,692**		**$2,608,656**

POSSIBLE SAVINGS: $108,036

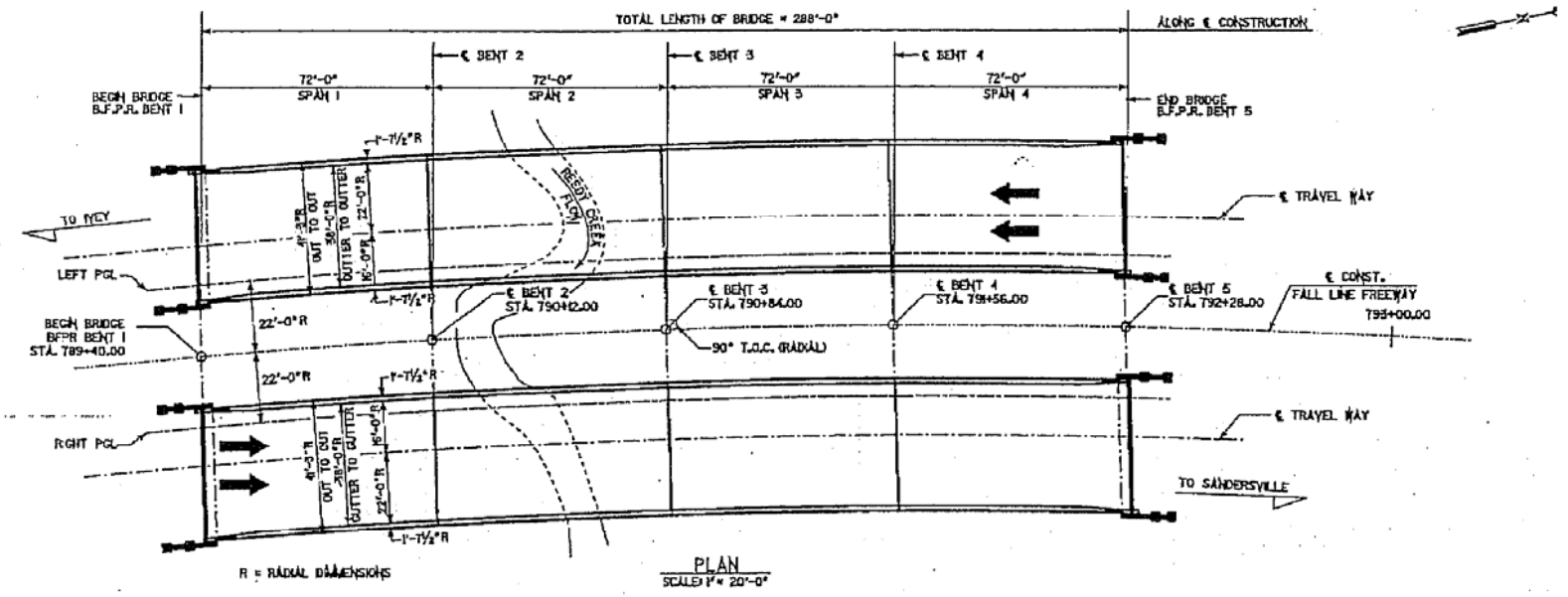
VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

B. REEDY BRANCH BRIDGES

1. "As Proposed"

Project FLF 540 (346) is the construction of a divided 4-lane facility on an almost entirely new location from near US 441 in Wilkinson County to a point near SR 24 south of Milledgeville in Baldwin County. Near Sta. 791, the project crosses Reedy Creek. The project proposes to construct 2, 4 span bridges over this creek. Each span is 72 feet in length for a total length of 288 feet. The estimated cost of these two bridges is over $2,000,000 using an estimated $85 per square foot to construct.



PLAN AND ELEVATION
SR 1085 FALL LINE FREEWAY OVER REEDY CREEK
BALDWIN COUNTY EDS-0000-00(346)

AS PROPOSED

VII. DEVELOPMENT PHASE

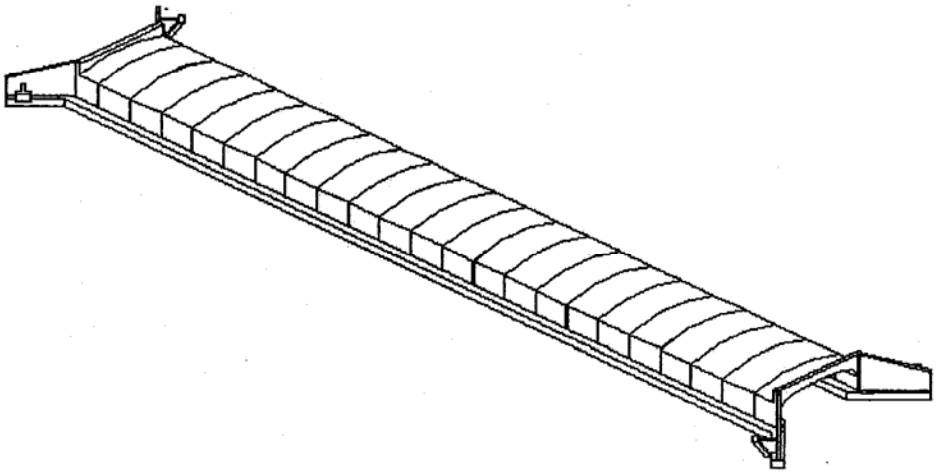
III. FALL LINE FREEWAY, UNIT NO. 346

B. REEDY BRANCH BRIDGES

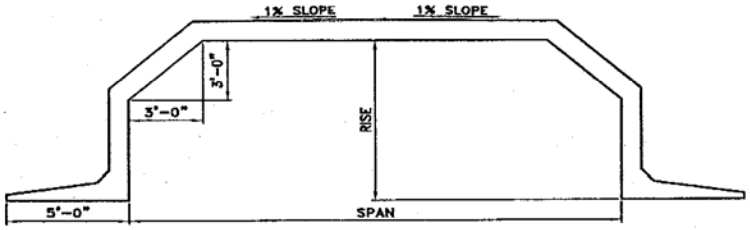
2. Value Engineering Alternative

The need to construct 2 bridges on FLF 540 (346) for Reedy Creek does not appear to be warranted. Less than 300 feet upstream from the project centerline, Reedy Creek goes under existing SR 112 in a double 8-foot x 8-foot concrete box culvert, which restricts the flow to this project.

It is therefore the recommendation of the Value Engineering Team that the double bridges proposed for this project be replaced by the use of a bottomless 18-foot x 8-foot culvert. This culvert would be approximately 240 feet in length and would cost an estimated $1,000 per linear foot. A cross-sectional and a three-dimensional view are attached as the value engineering alternative. By using this application, there could be an estimated savings of more than $1.9 million.



PRECAST BOTTOMLESS CULVERT



FLF 540 (346)
REEDY CREEK

VE ALTERNATIVE

III. FALL LINE FREEWAY, UNIT NO. 346
B. REEDY BRANCH BRIDGES
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGE OVER REEDY CREEK	SF	$85.00	23,760.0	$2,019,600	0.0	$0
BOTTOMLESS CULVERT	LF	$1,000.00			240.0	$240,000
EMBANKMENT	CY	$2.49			57,600.0	$143,424
ROADWAY (BASE & PAVEMENT)	SY	$24.00			1,540.0	$36,960
GUARDRAIL ANCHORAGE TP 12	EA	$1,190.77	4.0	$4,763		
GUARDRAIL TP T	LF	$35.43	120.0	$4,252		
SUBTOTAL				**$2,028,615**		**$420,384**
MOBILIZATION	4%	1		$81,145		$16,815
MOT @ 5%	5%	1		$101,431		$21,019
E & C	10%	1		$202,862		$42,038
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$121,108		$25,013
GRAND TOTAL				**$2,535,161**		**$525,270**

POSSIBLE SAVINGS: $2,009,891

VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

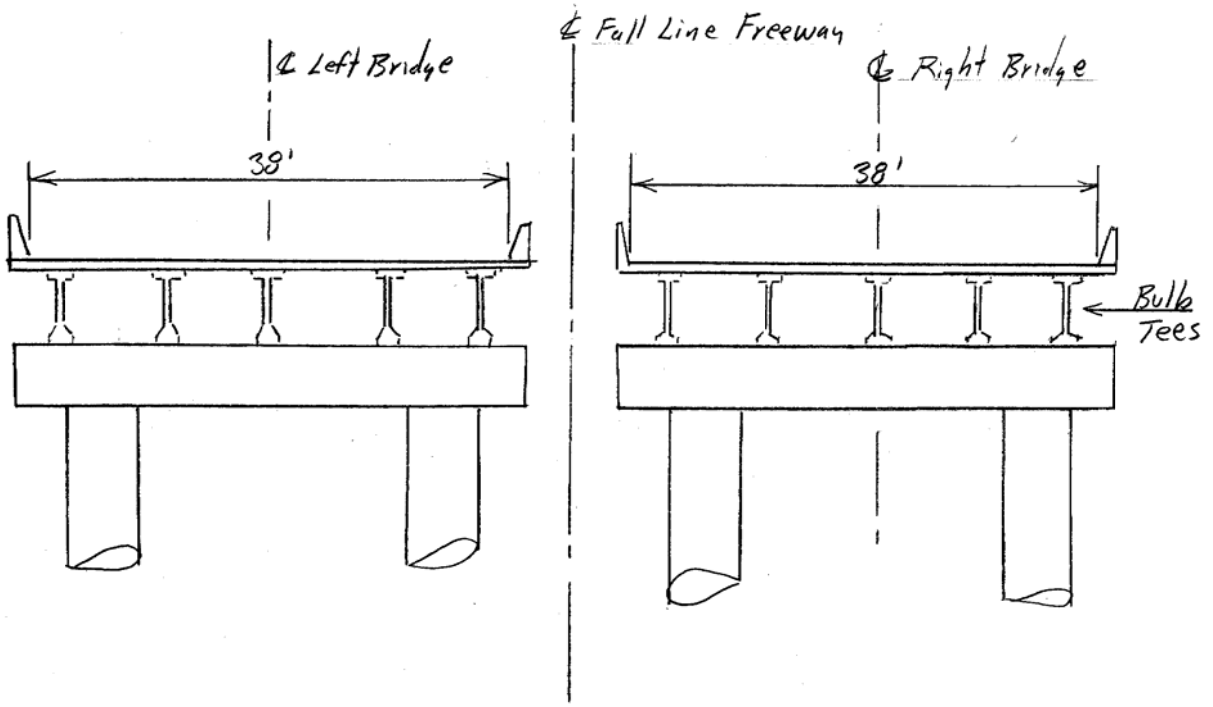
C. OCONEE RIVER BRIDGES

1. "As Proposed"

The bridges at this site are 41 feet 3 inch wide dual bridges on the Fall Line Freeway over the Oconee River. The bridges are 1,500 feet long and composed of 12 spans. All the spans are 120 feet except 3 spans over and adjacent to the river, which are 140 feet.

The bridges are at a 90 degree skew, and the girders are prestressed concrete bulb tees. The abutments at each end of the bridge are spill through on a 2:1 end slope. The bridges are approximately 33 feet apart, and the river spans are about 75 feet above the river bed, while in the flood plain the bridge is near 50 feet above ground.

Two bents in the river will require cofferdam construction for the foundations. To protect the environmentally sensitive areas adjacent to the river either construction mats and/or a work bridge will be required.



III Unit 346-C
Oconee River

AS PROPOSED

VII. DEVELOPMENT PHASE

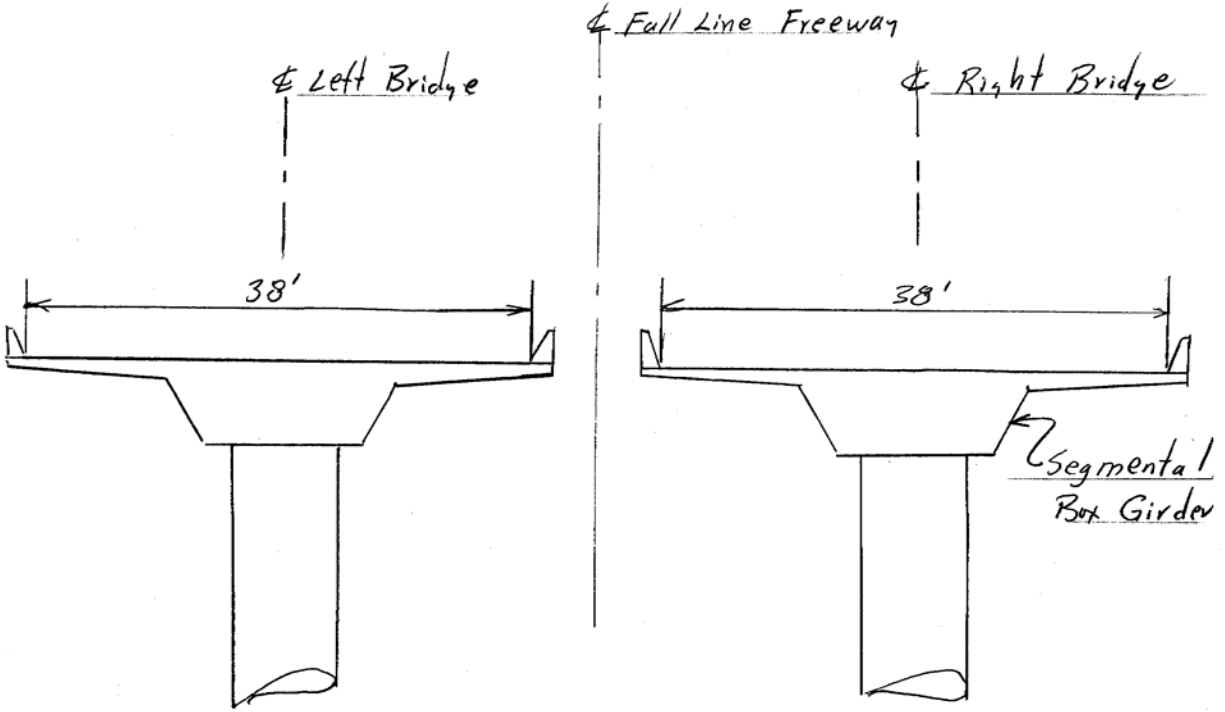
III. FALL LINE FREEWAY, UNIT NO. 346

C. OCONEE RIVER BRIDGES

2. Value Engineering Alternative

The Value Engineering Alternative is to use dual segmented box girder bridges. One box girder will be used in order to achieve the roadway width requirements for traffic on each dual bridge. The segmental box girder allows for much longer spans that will allow the elimination of up to 8 bents. Also, the river can be completely crossed with a 400 +/- span, and thereby eliminate the need for cofferdams. The use of Drilled Shafts will further reduce the construction time spent in the flood plain and reduce environmental disturbance.

The recommended method of construction for the segmental box girder bridge is the balanced cantilever method. Thus, once the bents are constructed, little or no construction equipment will be below the bridge.



III Unit 346-C
Oconee River

VE ALT

III. FALL LINE FREEWAY, UNIT NO. 346
C. OCONEE RIVER BRIDGES
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGE	SF	$85.00	123,750.0	$10,518,750		$0
PRECAST SEGMENTAL BOX GIRDER	SF	$80.00			123,750.0	$9,900,000
COFFER DAMS	LS	$30,000.00	6.0	$180,000		
WORK BRIDGE	SF	$35.00	14,400.0	$504,000		
WORK MATS	SF	$10.00	20,520.0	$205,200	6,156.0	$61,560
SUBTOTAL				**$11,407,950**		**$9,961,560**
MOBILIZATION	4%	1		$456,318		$398,462
MOT @ 5%	5%	1		$570,398		$498,078
E & C	10%	1		$1,140,795		$996,156
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1	5.0%	$681,055		$594,705
GRAND TOTAL				**$14,256,516**		**$12,448,961**

POSSIBLE SAVINGS: $1,807,555

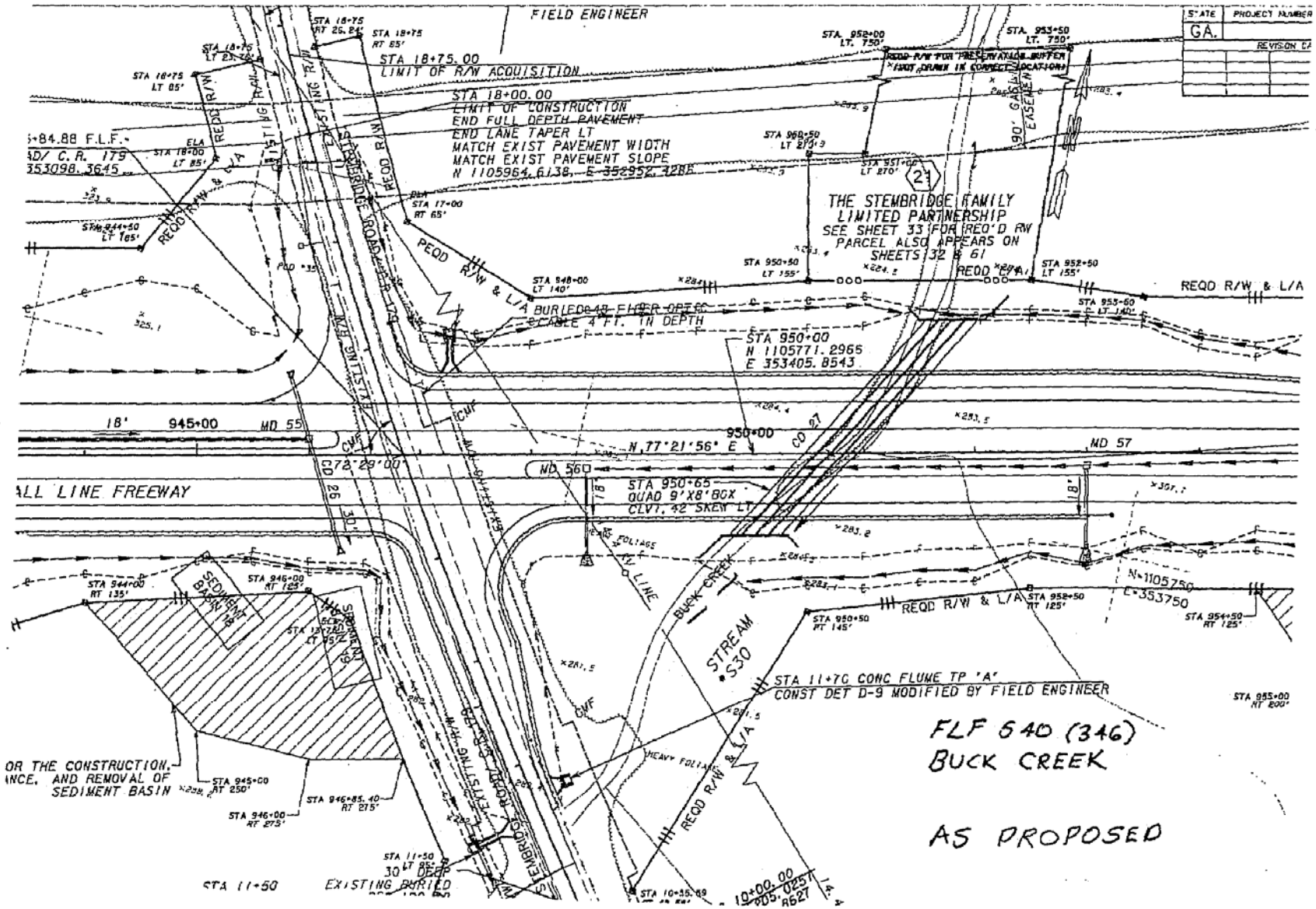
VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

D. BUCK CREEK BRIDGE CULVERTS

1. "As Proposed"

Project FLF 540 (346) is the construction of a divided 4-lane facility on almost an entirely new location from near US 441 in Wilkinson County to a point near SR 24 south of Milledgeville in Baldwin County. At Sta. 950+65 and just east of Stembridge Road/CR 179, the project crosses Buck Creek. The project proposes to construct a 260-foot long quadruple 10-foot x 10-foot concrete box culvert. The cost of this structure is estimated to be approximately $950,000.


FIELD ENGINEER
STA 18+75.00
LIMIT OF R/W ACQUISITION
STA 18+00.00
LIMIT OF CONSTRUCTION
END FULL DEPTH PAVEMENT
END LANE TAPER LT
MATCH EXIST PAVEMENT WIDTH
MATCH EXIST PAVEMENT SLOPE
N 1105964.6138, E 352952.3288
THE STEMBRIDGE FAMILY
LIMITED PARTNERSHIP
SEE SHEET 33 FOR REQ'D R/W
PARCEL ALSO APPEARS ON
SHEETS 32 & 61
REQD R/W & L/A
STA 950+00
N 1105771.2965
E 353405.8543
STA 950+65
QUAD 9'X8' BOX
CLVT. 42° SKEW LT
STA 11+70 CONC FLUME TP 'A'
CONST DET D-9 MODIFIED BY FIELD ENGINEER
BUCK CREEK
STREAM #S30
SEDIMENT BASIN
FLF 540 (346)
BUCK CREEK
AS PROPOSED

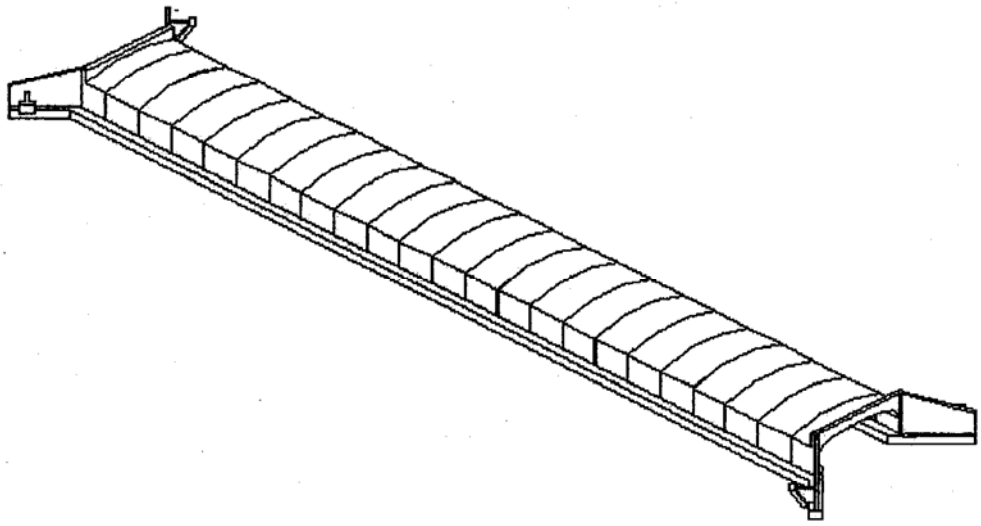
VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

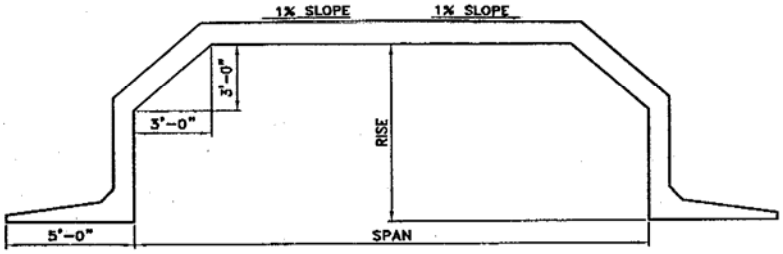
D. BUCK CREEK BRIDGE CULVERTS

2. Value Engineering Alternative

The recommendation of the value engineering study is to replace the proposed quadruple 10-foot x 10-foot concrete box culvert with a bottomless 40-foot x 10-foot culvert. This culvert would be the same 260 feet in length and would cost an estimated $1,400 per linear foot. This compares with an estimated cost of $3,650 per linear foot to construct a conventional quadruple concrete box culvert. A cross-sectional and a three-dimensional view are attached as the value engineering alternative. By using this application, there could be an estimated savings of more than $702,000.



PRECAST BOTTOMLESS CULVERT



FLF 540 (346)
BUCK CREEK

VE ALTERNATIVE

III. FALL LINE FREEWAY, UNIT NO. 346
D. BUCK CREEK BRIDGE CULVERTS
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
QUADRUPLE 10'X10' CONCRETE BOX CULVERT	LF	$3,650.00	260.0	$949,000	0.0	$0
BOTTOMLESS CULVERT	LF	$1,400.00			260.0	$364,000
SUBTOTAL				**$949,000**		**$364,000**
MOBILIZATION	4%	1		$37,960		$14,560
MOT @ 5%	5%	1		$47,450		$18,200
E & C	10%	1		$94,900		$36,400
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$56,655		$21,731
GRAND TOTAL				**$1,185,965**		**$454,891**

POSSIBLE SAVINGS: $731,074

VII. DEVELOPMENT PHASE

III. FALL LINE FREEWAY, UNIT NO. 346

DESIGN COMMENTS

1. The structure on Buck Creek is shown as being a quadruple 9’ X 8’ box culvert. The drainage cross sections show it to be a quadruple 10’ X 10’. The drainage cross-sections are supposed to be correct.

2. On divided 4-lane highways, acute angle intersections hinder the line of sight for crossing vehicles. Intersections should be at right angles or slightly obtuse.

3. The FLF projects have been changed to the National Highway System. If a new Federal Route Number is assigned to this corridor, it needs to be added to the cover sheet.

4. Project termini need to include sufficient construction to overlap the adjacent projects to allow for the resurfacing of conflicting markings and a minimum amount of additional work to tie in a future 4-lane project.

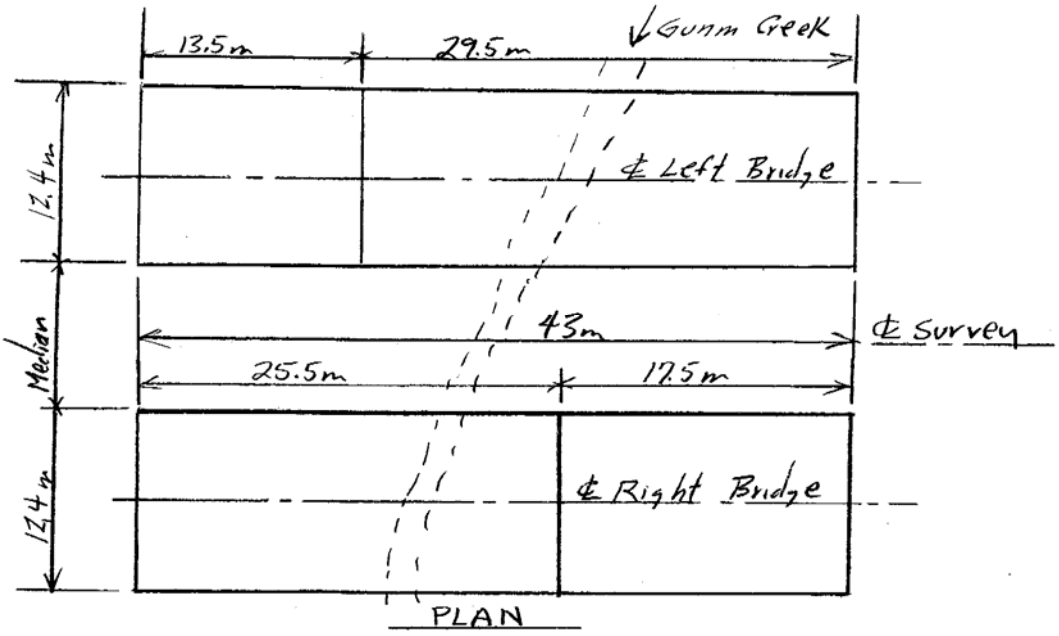
VII. DEVELOPMENT PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

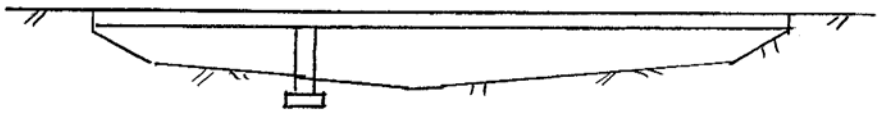
A. GUMM CREEK BRIDGES

1. "As Proposed"

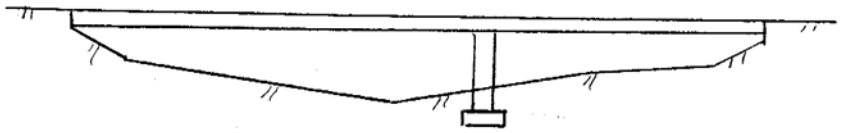
The bridges at this site are 12.4 meter wide dual bridges on the Fall Line Freeway over Gumm Creek. The bridges are 43 meters long and composed of 2 spans. The left bridge has spans of 13.5 meters and 29.5 meters; while the right bridge has spans of 25.5 meters and 17.5 meters. The bridges are at a 90 degree skew, and the Beginning and Ending Stations for both bridges are the same. The one interior bent is off-set differently on each bridge in order to avoid a channel change in Gumm Creek. The girders are prestressed concrete bulb tees and Type II PSC beams at a spacing of 2,500 millimeters, and the abutments on each end of the bridge are spill through on a 2:1 end slope. The bridges are separated by approximately a 13 meters median.



PLAN



ELEVATION LEFT BRIDGE



ELEVATION RIGHT BRIDGE

IV Unit 26-A
Gumm Creek

AS PROPOSED

VII. DEVELOPMENT PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

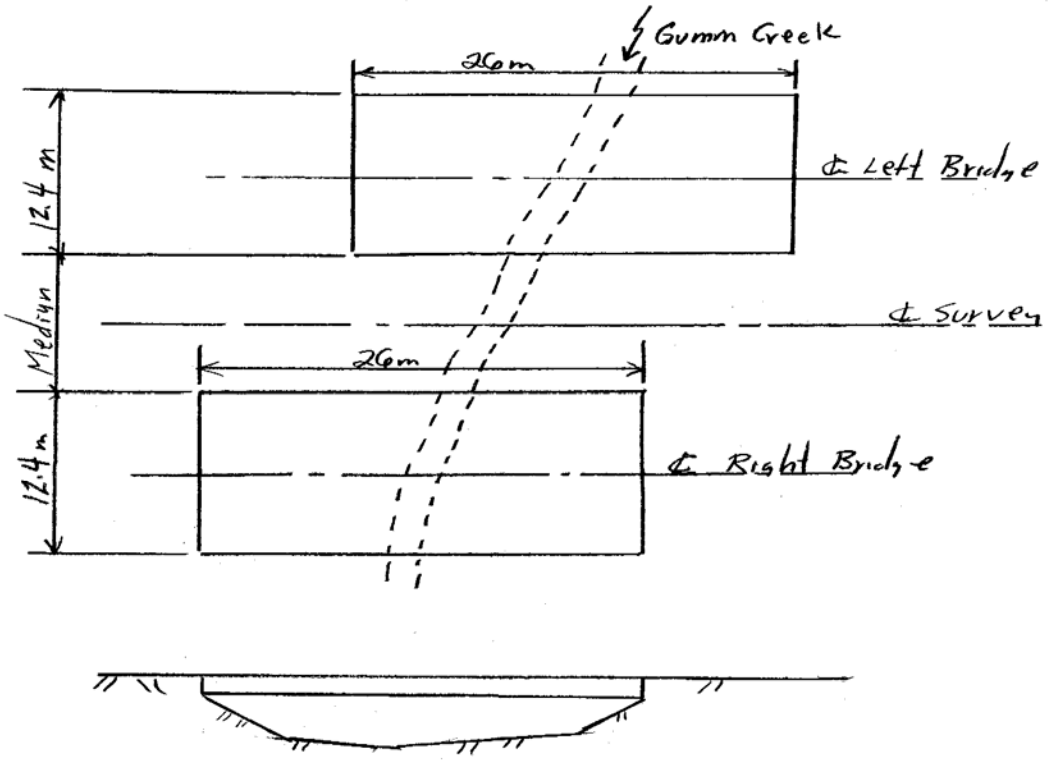
A. GUMM CREEK BRIDGES

2. Value Engineering Alternative

The As Proposed design will present an unorthodox construction situation for the contractor where the interior bent was shifted to avoid Gumm Creek.

The Value Engineering Alternative consists of dual bridges 12.4 meters wide and 26 meters in length. These are one span with Bulb Tee Girders.

The Value Engineering Alternative shifts the entire bridge; consequently, the bridges do not have the same Beginning and Ending Stations. The lengths of the Value Engineering Alternative bridges, however, are the same as the existing bridge.



ELEVATION LEFT & RIGHT BRIDGES

Unit 26-A
Gumm Creek

VE ALTERNATE

IV. FALL LINE FREEWAY, UNIT NO. 26
A. GUMM CREEK BRIDGES
VALUE ENGINEERING ALTERNATIVE NO. A
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGES OVER GUMM CREEK	SM	$915.00	1,066.0	$975,390	645.0	$590,175
ROADWAY (BASE & PAVEMENT)	SM	$30.00			1,066.0	$31,980
EMBANKMENT	M3	$4.73			7,208.0	$34,094
SUBTOTAL				**$975,390**		**$656,249**
MOBILIZATION	4%	1		$39,016		$26,250
MOT @ 5%	5%	1		$48,770		$32,812
E & C	10%	1		$97,539		$65,625
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$58,231		$39,047
GRAND TOTAL				**$1,218,946**		**$819,983**

POSSIBLE SAVINGS: $398,963

VII. DEVELOPMENT PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

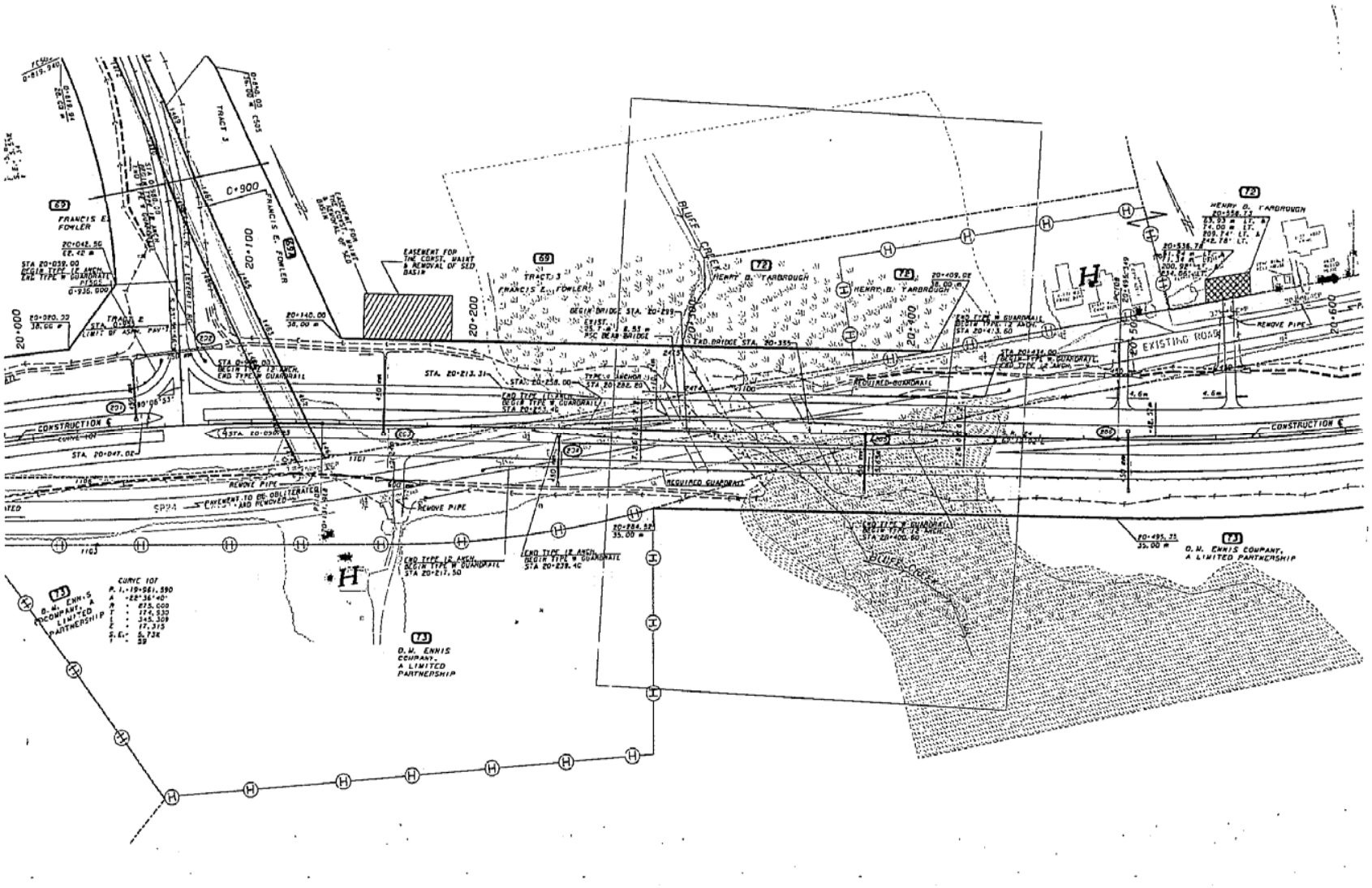
B. BLUFF CREEK BRIDGES

1. "As Proposed"

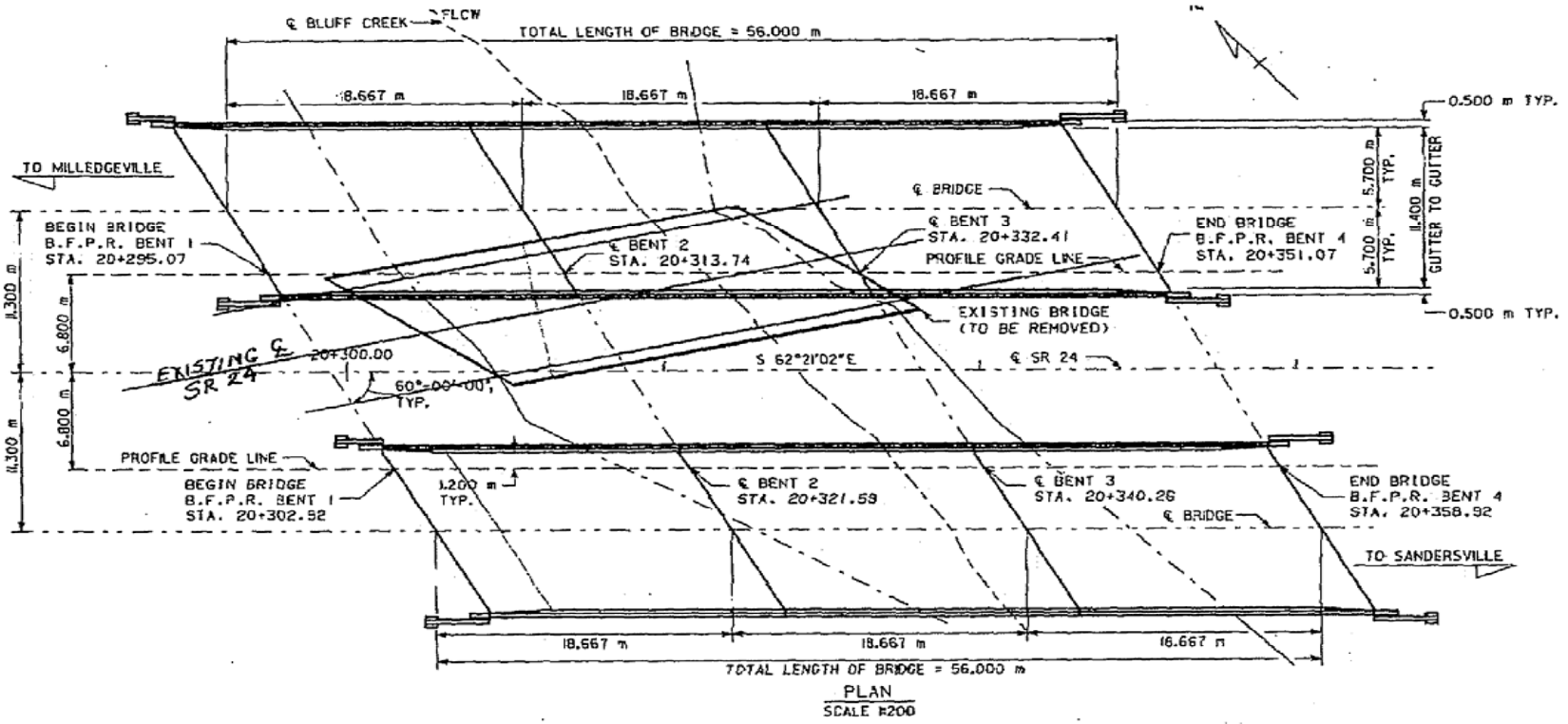
FLF 540 (26) is a portion of the east/west corridor of the Fall Line Freeway. This is a 4-lane divided corridor across the central part of Georgia. The subject project includes a significant amount of work on new location, but adjacent to or crossing SR 24.

Approximately 750 feet from the proposed intersection of the project with relocated Leverett Road; the project will cross Bluff Creek. Currently, there is an existing bridge – 84 feet long and 28 feet wide. The existing bridge had a sufficiency rating of 77.5 in the concept report dated 1993 provided to the study team.

The proposed alignment is on a skew with the existing bridge, and proposes to construct 2 new parallel bridges over Bluff Creek. These bridges are each 56 meters long and 11.4 meters wide. The bridges are 3-span with the span length of each being 18.667 meters. The estimated cost of these new structures is almost $1,170,000. The proposed staging for the project is to construct the right bridge first, shift traffic to the new bridge, remove the existing bridge and then construct the left bridge.


FRANCIS E. FOWLER
TRACT 3
HENRY B. YARBROUGH
D.W. ENNIS COMPANY, A LIMITED PARTNERSHIP
BLUFF CREEK
EXISTING ROAD
CONSTRUCTION
REMOVE PIPE
REQUIRED GUARDRAIL

“AS PROPOSED”



SR 24 OVER BLUFF CREEK
BALDWIN/WASHINGTON CO., GA FLF-540(26)

AS PROPOSED

"AS PROPOSED"

II. DEVELOPMENT PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

B. BLUFF CREEK BRIDGES

2. Value Engineering Alternative

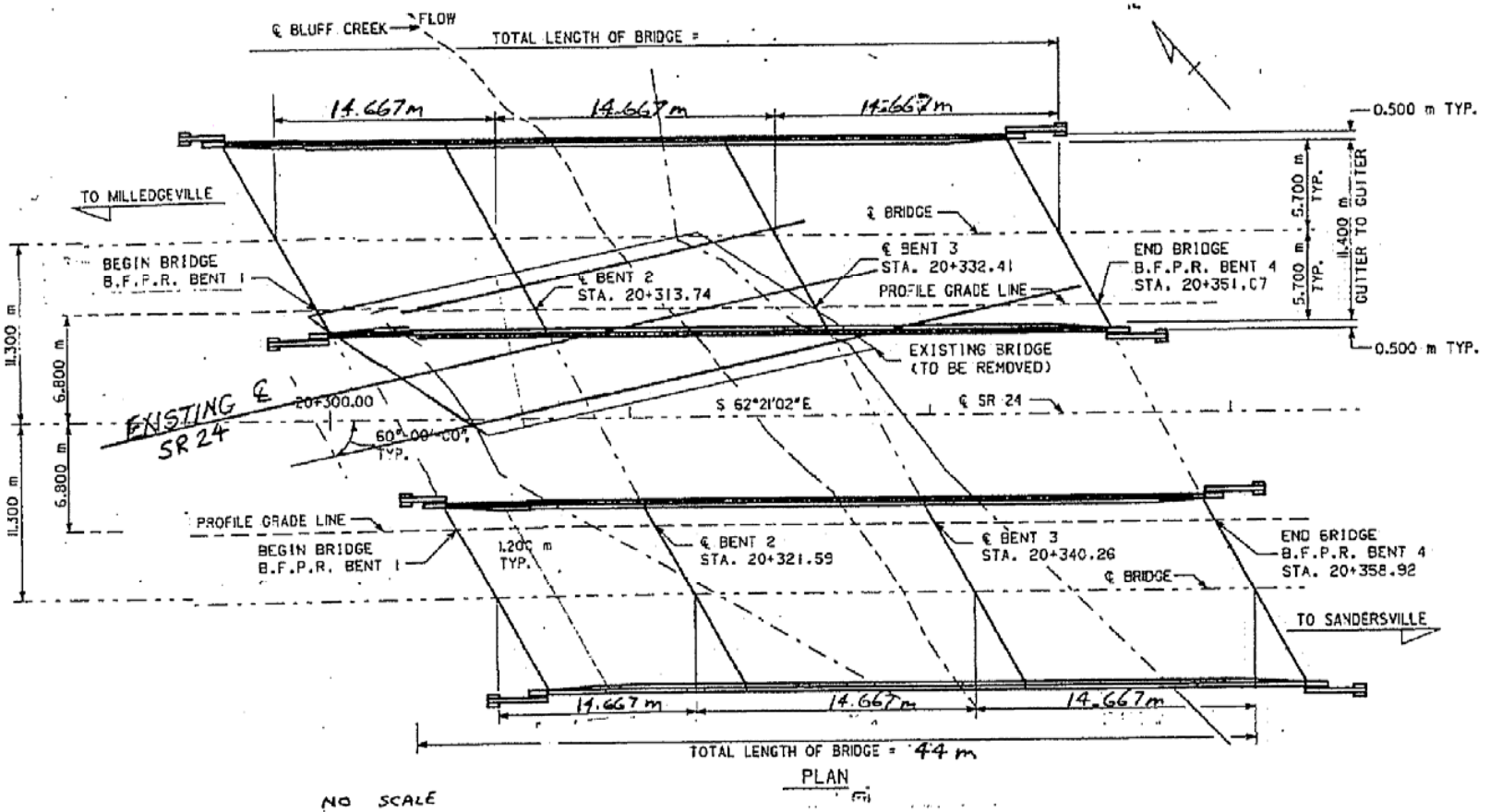
As can be seen from the plan view of the "as proposed" plans, the existing bridge is partially contained within the median of the proposed roadway. In fact, the end of the proposed right bridge is less than 10 feet from the existing edge of pavement. It is the conclusion of the study team that the "as proposed" cannot be constructed due to this extremely close proximity between the new and the old bridge.

There are several ways to amend this situation. The proposed alignment crosses the existing bridge on a skew. The alignment could be changed to parallel the existing alignment. However, there is historical property to either side of Bluff Creek. Changing the alignment would impact these properties.

Another alternative would be to detour traffic. With the traffic gone, the existing bridge could be easily removed and the right bridge quickly constructed. Traffic could be shifted back to this new bridge while the left bridge is being constructed. However, there is not an acceptable detour for SR 24 traffic for the length of time required to construct a bridge.

The value engineering recommendation is to shorten the right bridge to a length that would allow its construction without impact to traffic on the existing bridge. By reducing Span 1 on the right bridge by 4 meters, the offset to the edge of the travel lane would be approximately 16 feet. This could easily be increased to 20 feet by shifting the existing traffic to the left through this section. This would then allow the right bridge to be constructed while traffic is retained on the existing roadway and bridge.

The reduction of the length of the right bridge to 46.667 meters does not appear to adversely impact the bridge hydraulics. It can then be deduced that since the right bridge is downstream from the left bridge, that the left bridge should mirror the right bridge in its length and design. By reducing the length of the Bluff Creek bridges, the project cost can be reduced by an estimated $303,000.



SR 24 OVER BLUFF CREEK
BALDWIN/WASHINGTON CO., GA FLF-540(26)

VE ALTERNATIVE

IV. FALL LINE FREEWAY, UNIT NO. 26
B. BLUFF CREEK BRIDGES
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
BRIDGES OVER BLUFF CREEK	SM	$915.00	1,276.8	$1,168,272	1,003.2	$917,928
ROADWAY (BASE & PAVEMENT)	SM	$30.00			240.0	$7,200
EMBANKMENT	M3	$4.73			250.0	$1,183
SUBTOTAL				**$1,168,272**		**$926,311**
MOBILIZATION	4%	1		$46,731		$37,052
MOT @ 5%	5%	1		$58,414		$46,316
E & C	10%	1		$116,827		$92,631
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$69,746		$55,301
GRAND TOTAL				**$1,459,990**		**$1,157,611**

POSSIBLE SAVINGS: $302,379

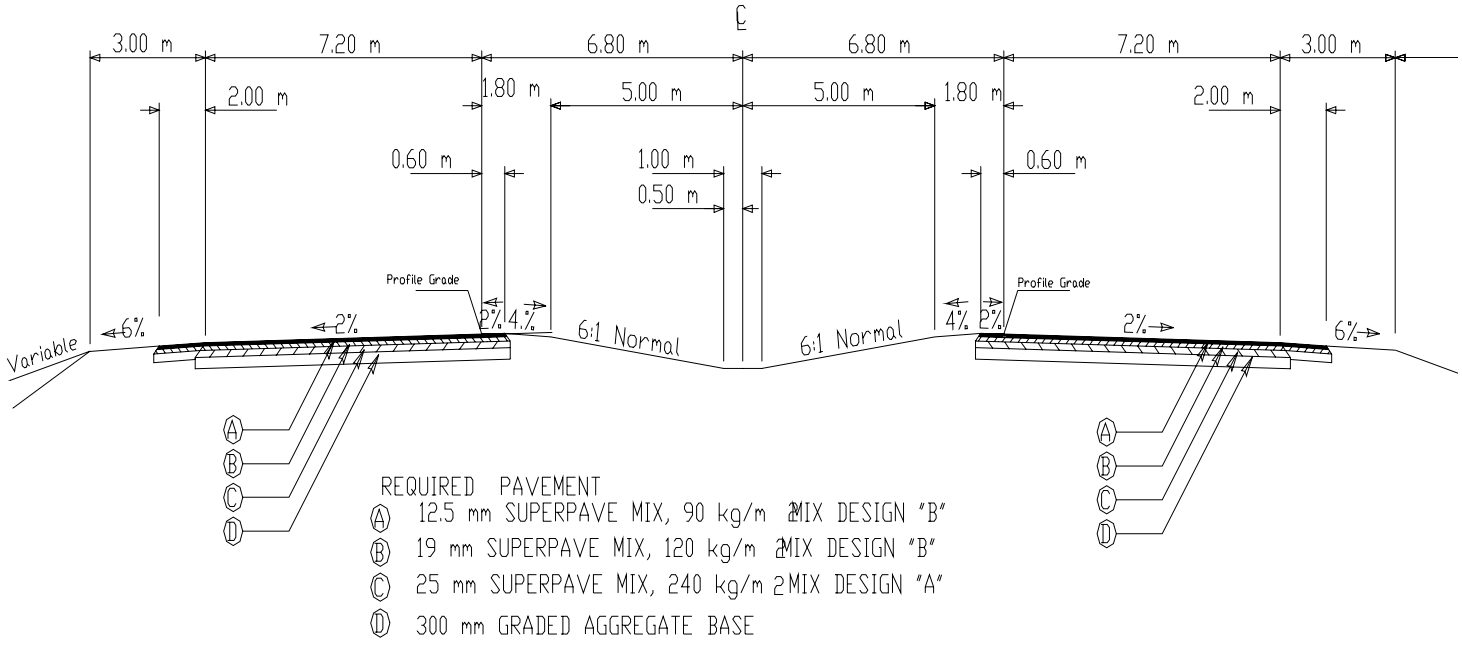
VII. DEVELOPMENT PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

C. PAVEMENT DESIGN

1. "As Proposed"

The proposed surface course calls for 12.5 millimeters surface course as shown below.



AS PROPOSED PAVEMENT DESIGN

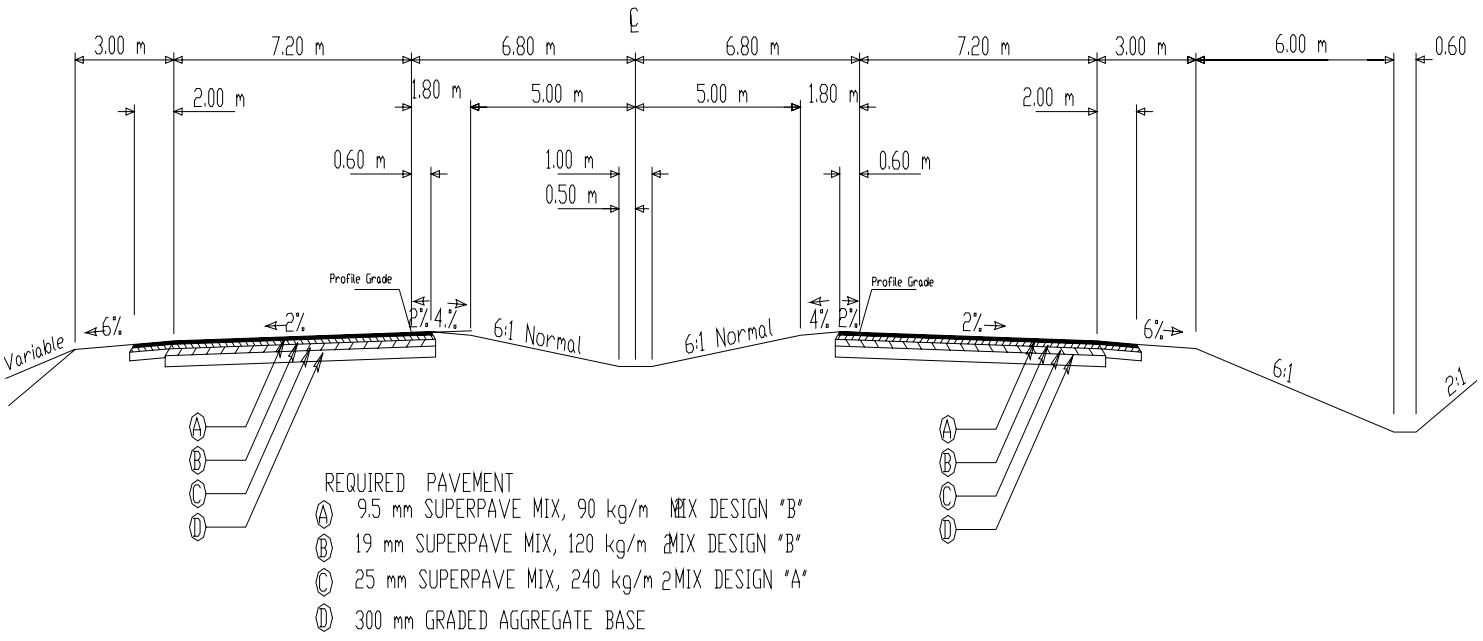
VII. DEVELOPMENT PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

C. PAVEMENT DESIGN

2. Value Engineering Alternative

It is the understanding of the Value Engineering Team that the "as proposed" surface course violates GDOT Policy and recommends constructing the pavement with a 9.5 millimeter surface course as shown below.



VALUE ENGINEERING ALTERNATIVE

IV. FALL LINE FREEWAY, UNIT NO. 26
C. PAVEMENT DESIGN
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
12.5 MM SUPERPAVE	MG	$45.62	30,000.0	$1,368,600	0.0	$0
9.5 MM SUPERPAVE	MG	$39.53	800.0	$31,624	30,800.0	$1,217,524
SUBTOTAL				**$1,400,224**		**$1,217,524**
TRAFFIC CONTROL	5%			$70,011		$60,876
MOBILIZATION				$0		$0
E AND C	10%			$140,022		$121,752
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$80,513		$70,008
RIGHT OF WAY	AC	$3,000.00		$0	0.0	$0
GRAND TOTAL				**$1,690,770**		**$1,470,160**

POSSIBLE SAVINGS: $220,610

VII. DEVELOPMENT PHASE

IV. FALL LINE FREEWAY, UNIT NO. 26

DESIGN COMMENTS

1. On divided 4-lane highways, acute angle intersections hinder the line of sight for crossing vehicles. Intersections should be at right angles or slightly obtuse.

2. The FLF projects have been changed to the National Highway System. If a new Federal Route Number is assigned to this corridor, it needs to be added to the cover sheet.

3. Project termini need to include sufficient construction to overlap the adjacent projects to allow for the resurfacing of conflicting markings and a minimum amount of additional work to tie in a future 4-lane project.

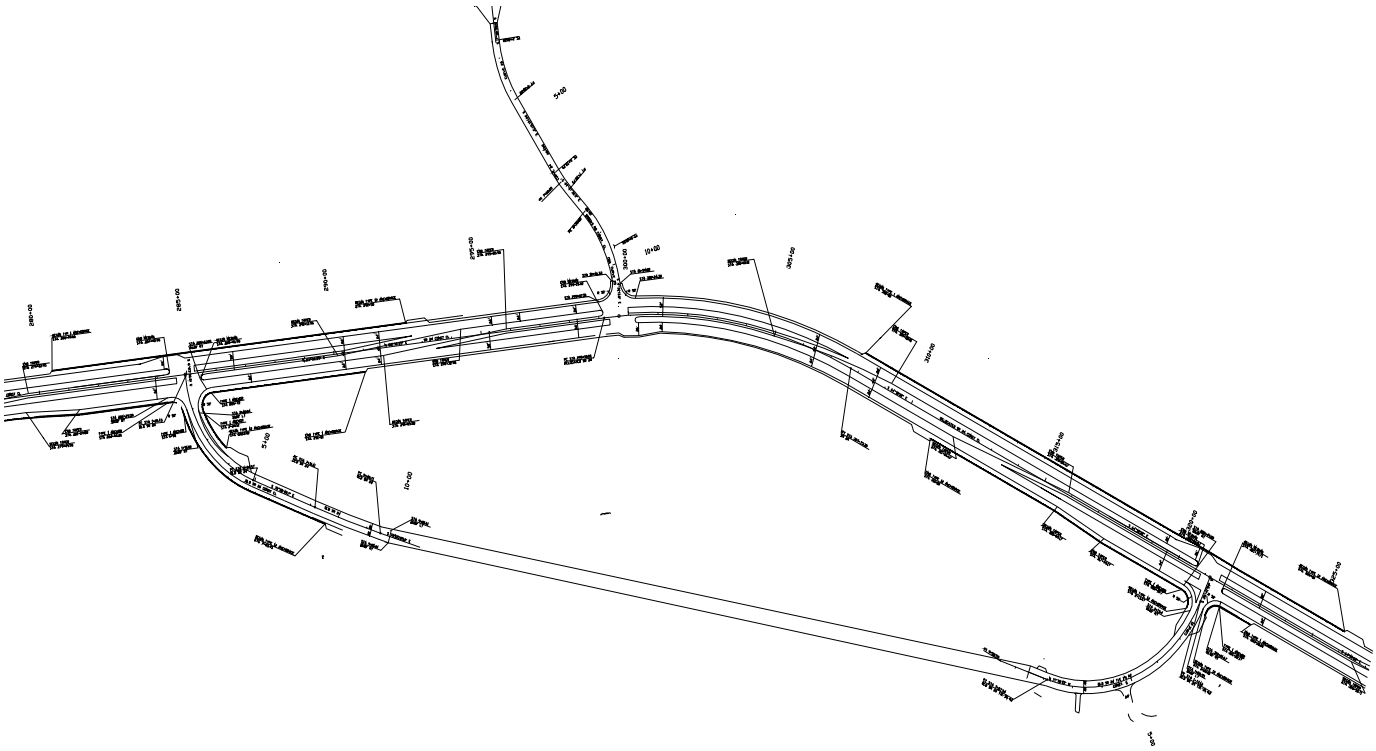
VII. DEVELOPMENT PHASE

V. FALL LINE FREEWAY, UNIT NO. 29

A. OLD SR 24 BYPASS

1. "As Proposed"

The proposed design for the connecting Brooks Road/CR 6 and the old alignment of SR 24 calls for 3 "T" intersections as shown below.



AS PROPOSED

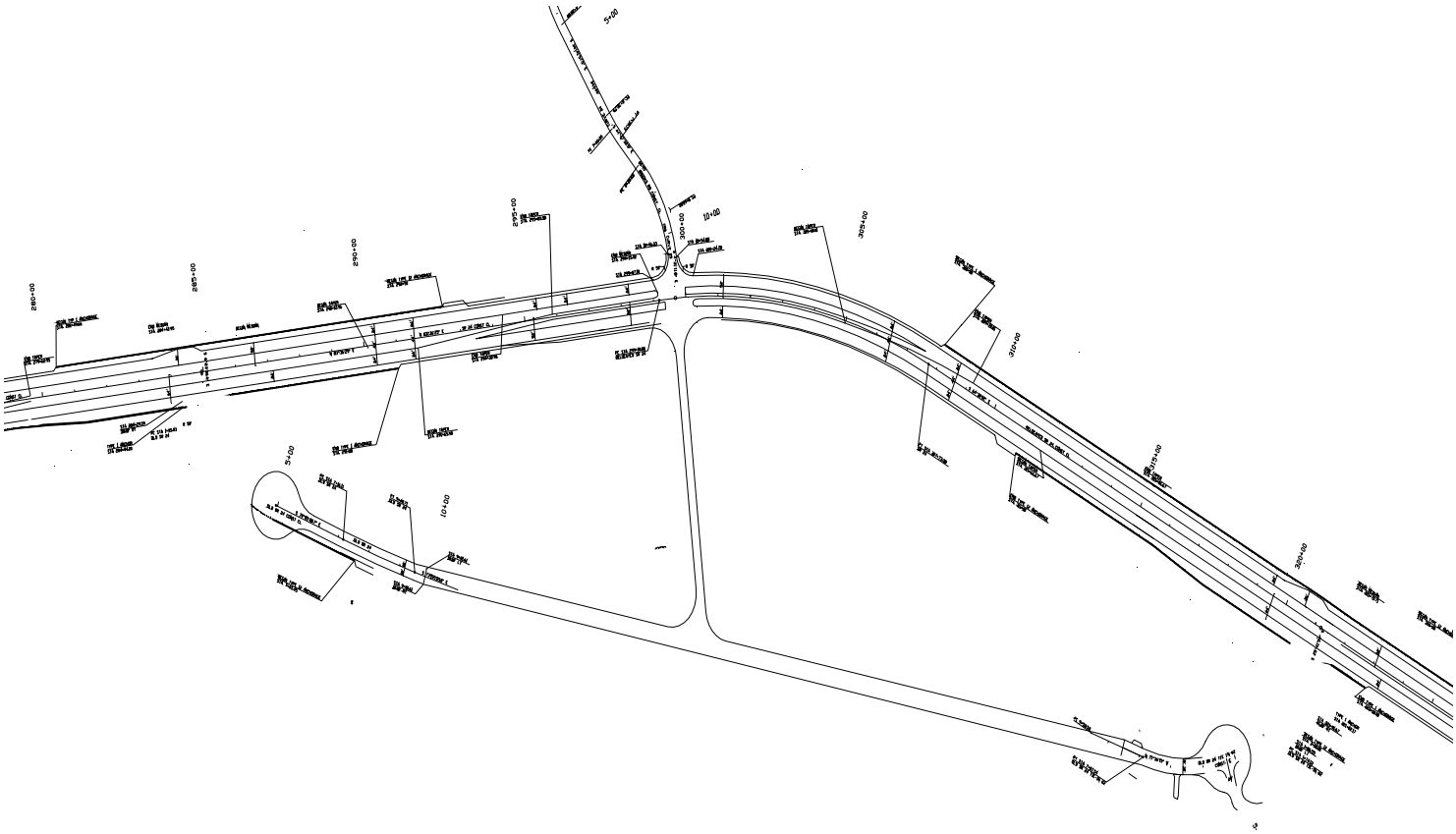
VII. DEVELOPMENT PHASE

V. FALL LINE FREEWAY, UNIT NO. 29

A. OLD SR 24 BYPASS

2. Value Engineering Alternative

The Value Engineering Team recommends extending Brooks Road/CR 6 past its intersection with new SR 24 continuing on to the old alignment as shown below. This eliminates two intersections along the new SR 24, which will improve operations. This alternative will also reduce the amount of construction required.



VALUE ENGINEERING ALTERNATIVE

V. FALL LINE FREEWAY, UNIT NO. 29
A. OLD SR 24 BYPASS
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
DEMOLISH PAVEMENT	SF	$0.38	0.0	$0	4,333.3	$1,647
RESURFACE PAVEMENT	SY	$3.55	0.0	$0	0.0	$0
CONSTRUCT PAVEMENT	SY	$25.10	4,333.3	$108,767	2,666.7	$66,933
SUBTOTAL				**$108,767**		**$68,580**
TRAFFIC CONTROL	5%			$5,438		$3,429
MOBILIZATION				$0		$0
E AND C	10%			$10,877		$6,858
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$6,254		$3,943
RIGHT OF WAY	AC	$3,000.00	0	$0	2.0	$5,950
GRAND TOTAL				**$131,336**		**$88,810**

POSSIBLE SAVINGS: $42,526

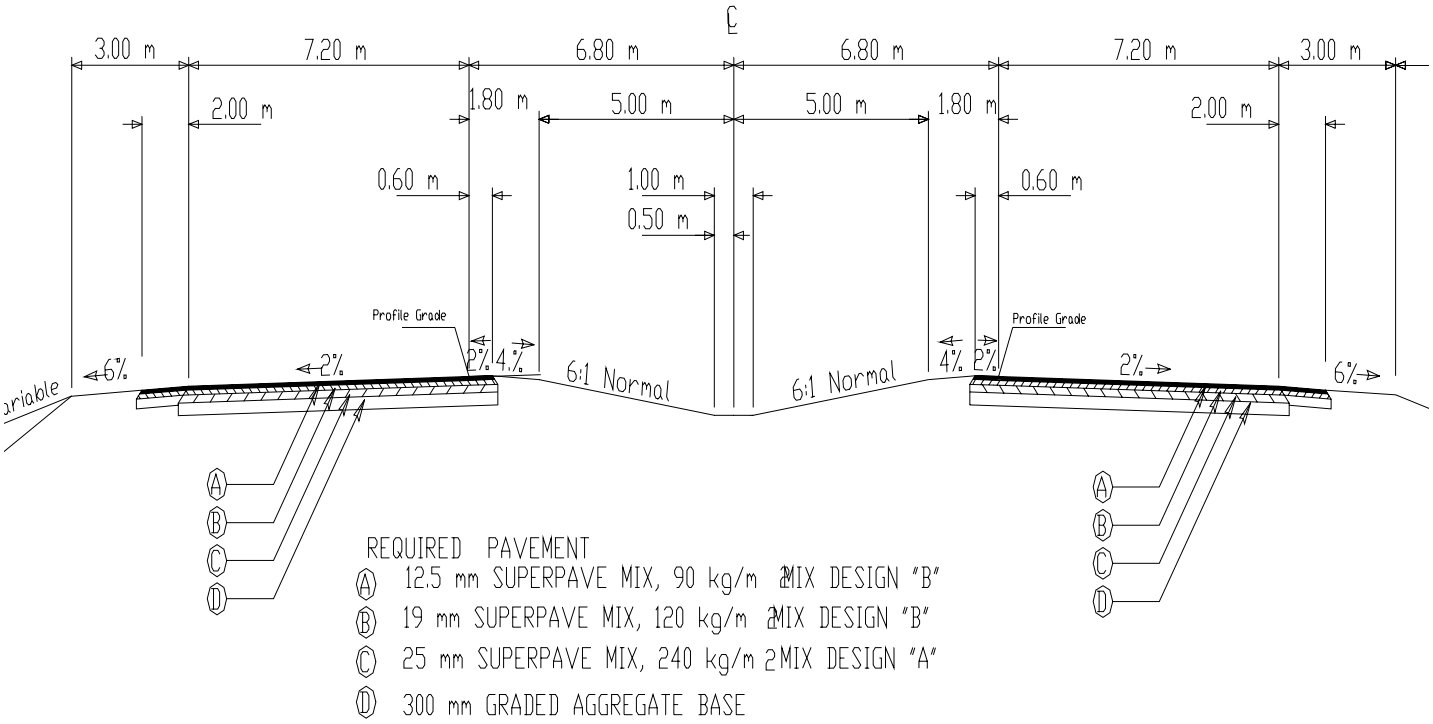
VII. DEVELOPMENT PHASE

V. FALL LINE FREEWAY, UNIT NO. 29

B. PAVEMENT DESIGN

1. "As Proposed"

The proposed surface course calls for 12.5 millimeter surface course as shown below.



AS PROPOSED PAVEMENT DESIGN

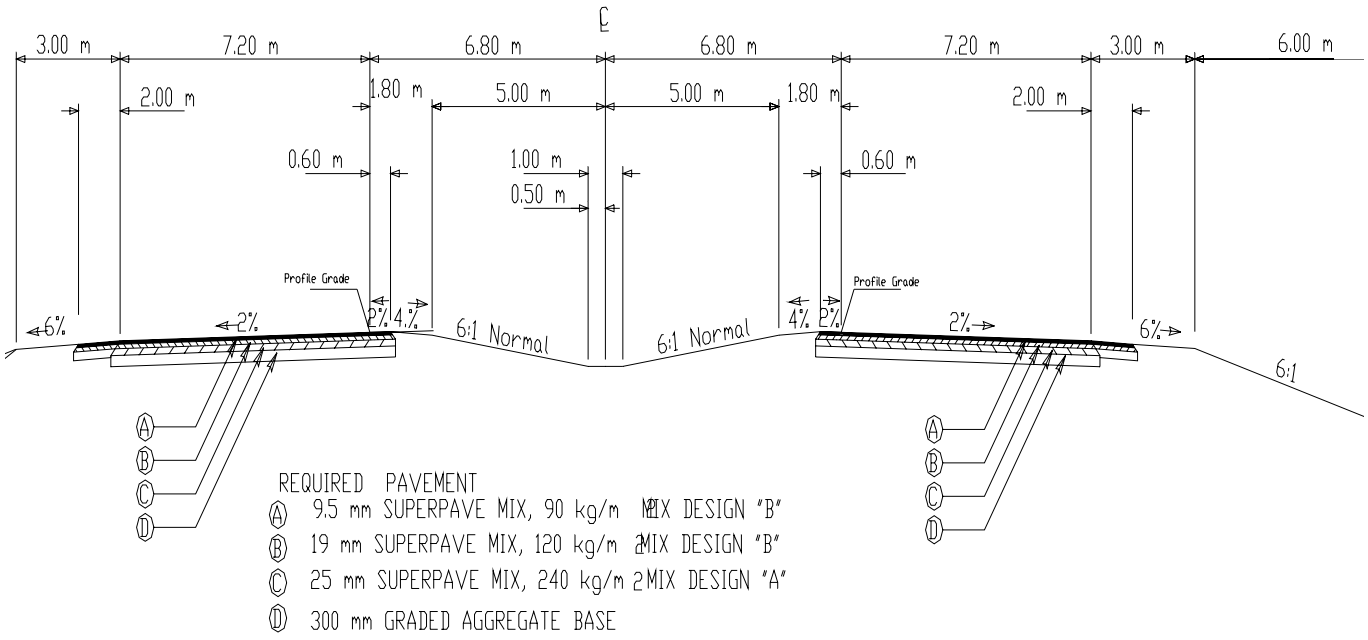
VII. DEVELOPMENT PHASE

V. FALL LINE FREEWAY, UNIT NO. 29

B. PAVEMENT DESIGN

2. Value Engineering Alternative

It is the understanding of the Value Engineering Team that the "as proposed" surface course violates GDOT Policy and recommends constructing the pavement with a 9.5 millimeter surface course as shown below.



VALUE ENGINEERING ALTERNATIVE

V. FALL LINE FREEWAY, UNIT NO. 29
B. PAVEMENT DESIGN
VALUE ENGINEERING ALTERNATIVE
COST COMPARISON SHEET

DESCRIPTION	UNITS	UNIT COST	PROP'D QTY.	PROP'D COST	V.E. QTY.	V.E. COST
12.5 MM SUPERPAVE	TN	$50.00	19,323.0	$966,150	0.0	$0
9.5 MM SUPERPAVE	TN	$46.66	0.0	$0	19,323.0	$901,611
SUBTOTAL				**$966,150**		**$901,611**
TRAFFIC CONTROL	5%			$48,308		$45,081
MOBILIZATION				$0		$0
E AND C	10%			$96,615		$90,161
INFLATION RATE 5.0% @ 1.0 YEARS	5%	1		$55,554		$51,843
RIGHT OF WAY	AC	$3,000.00	0.00	$0	0.0	$0
GRAND TOTAL				**$1,166,626**		**$1,088,695**

POSSIBLE SAVINGS: $77,931

VIII. SUMMARY OF RECOMMENDATIONS

It is the recommendation of the Value Engineering Team that the following Value Engineering Alternatives be carried into the Project Development process for further development.

I. FALL LINE FREEWAY, UNIT NO. 19

Recommendation Number 1: LITTLE COMMERCE CREEK AND GEORGIA CENTRAL RAILROAD

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses vertical abutments and MSE walls.

If this recommendation can be implemented, there is a possible savings of ***$241,740.***

Recommendation Number 2: PRIVATE POND IMPACT

The Value Engineering Team recommends that **Value Enhancement Alternative** Number 2 be implemented. This alternative uses a fabric reinforced embankment.

If this recommendation can be implemented, there is a possible cost increase of $91,861.

Recommendation Number 3: SR 243/CR 183 INTERSECTIONS

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative combines the intersections into one intersection.

If this recommendation can be implemented, there is a possible savings of ***$367,702.***

VIII. SUMMARY OF RECOMMENDATIONS

II. FALL LINE FREEWAY, UNIT NO. 22

Recommendation Number 1: LAKE TCHUKLAHO BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative leaves the existing bridge until remaining life is used up and builds one bridge only without a turn lane.

If this recommendation can be implemented, there is a possible savings of ***$1,058,695.***

Recommendation Number 2: CR 21/SOUTHERN RAILROAD BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses vertical abutments and MSE walls.

If this recommendation can be implemented, there is a possible savings of ***$233,204.***

Recommendation Number 3: US 441 INTERCHANGE

The Value Engineering Team recommends that Value Engineering Alternative Number 1 be implemented. This alternative replaces the interchange with an at grade intersection.

If this recommendation can be implemented, there is a possible savings of ***$2,475,661.***

The Value Engineering Team recommends that Value Engineering Alternative Number 2 be implemented. This alternative redesigns the ramps.

If this recommendation can be implemented, there is a possible savings of ***$100,863.***

VIII. SUMMARY OF RECOMMENDATIONS

III. FALL LINE FREEWAY, UNIT NO. 346

Recommendation Number 1: US 441 INTERCHANGE BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses vertical abutments and MSE walls.

If this recommendation can be implemented, there is a possible savings of ***$108,036.***

Recommendation Number 2: REEDY BRANCH BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses a bottomless culvert.

If this recommendation can be implemented, there is a possible savings of ***$2,009,891.***

Recommendation Number 3: OCONEE RIVER BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses a pre-cast segmental structure.

If this recommendation can be implemented, there is a possible savings of ***$1,807,555.***

Recommendation Number 4: BUCK CREEK BRIDGE CULVERTS

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative uses a Con-Span culvert.

If this recommendation can be implemented, there is a possible savings of ***$731,074.***

VIII. SUMMARY OF RECOMMENDATIONS

IV. FALL LINE FREEWAY, UNIT NO. 26

Recommendation Number 1: GUMM CREEK BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative matches the existing bridge lengths.

If this recommendation can be implemented, there is a possible savings of ***$398,963.***

Recommendation Number 2: BLUFF CREEK BRIDGES

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative shortens the bridges to avoid the existing bridge.

If this recommendation can be implemented, there is a possible savings of ***$302,379.***

Recommendation Number 3: PAVEMENT DESIGN

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative changes the thickness to 9.5 from 12.5.

If this recommendation can be implemented, there is a possible savings of ***$220,610.***

VIII. SUMMARY OF RECOMMENDATIONS

V. FALL LINE FREEWAY, UNIT NO. 29

Recommendation Number 1: OLD SR 24 BYPASS

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative extends and realigns Brooks Road/CR 6 to connect to the Old SR 24 alignment and cul-de-sacs both ends of Old SR 24.

If this recommendation can be implemented, there is a possible savings of ***$42,526.***

Recommendation Number 2: PAVEMENT DESIGN

The Value Engineering Team recommends that the Value Engineering Alternative be implemented. This alternative changes the thickness to 9.5 from 12.5.

If this recommendation can be implemented, there is a possible savings of ***$77,930.***