

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** EDS-84(26), HPPN-EDS-84(27) & NHN-007-03(28) **OFFICE:** Eng. Services  
Ware County  
P.I. Nos.: 522770, 522780 & 522775  
S.R. 38/U.S. 84 Widening/Reconstruction and Bridge Replacement

**DATE:** May 13, 2008

**FROM:** Brian K. Summers, PE, Project Review Engineer *REN*

**TO:** Babs Abubakari, P.E., State Consultant Design Engineer

**SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES**

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
<b>TYPICAL SECTIONS (S)</b>				
TS-1	Use 11-ft. travel lanes for typical section in Projects 26 and 27	\$2,602,687	No	This is in an area with a 65 mph Design Speed. In addition, the accident rate on this corridor is above the statewide average.
TS-2	Add bike lanes in the urban sections in Project 27	-\$201,675 (cost increase)	No	Bike Lanes have been removed from this project.
TS-3	Remove the bike lanes from Project 27	Design Suggestion	Yes	This should be done.
TS-5	Reduce 44-ft. median width to 32-ft. median width in Project 27	\$1,142,356	Yes	This should be done.
TS-7	Use soil cement base to eliminate graded aggregate base	\$661,215	Yes	This should be done.

EDS-84(26), HPPN-EDS-84(27) & NHN-007-03(28) Ware  
P.I. No. 522770, 522780, & 522775  
Implementation of Value Engineering Study Alternatives  
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ALT #	Description	Potential Savings/LCC	Implement	Comments
<b>TYPICAL SECTIONS (S) - continued</b>				
TS-10	Provide a 3-lane section between Firetower Road (STA 80+00) to STA 365+00 in Project 26	\$1,607,436	No	AASHTO generally states that flush medians should only be used in urban settings where operating speeds are relatively low (page 713). This is in an area that has a 32' grassed median with a 65 mph Design Speed.
TS-13	Install a 10-ft. raised median in lieu of a 14-ft. flush median from STA 262+00 to STA 295+00	\$39,816	No	This would limit the access to parcels on each side of the roadway.
TS-14	Use 18-in. curb and gutter in lieu of 30-in. curb and gutter in Project 27	\$132,847	Yes	This should be done.
TS-15	Provide a minimum width depressed median from STA 262+00 to 295+00 in Project 27	\$205,954	No	This would limit the access to parcels on each side of the roadway.
TS-16	Provide one multi-use trail on one side of the roadway in lieu of two bike lanes and two sidewalks in the urban section in Project 27	\$337,310	N/A	This does not apply since this corridor is not a designated Bike Route and the Bike Lanes have been removed from the project.
TS-17	Eliminate graded aggregate base under curb and gutter in Project 27	\$30,492	Yes	This should be done.

EDS-84(26), HPPN-EDS-84(27) & NHN-007-03(28) Ware  
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ALT #	Description	Potential Savings/LCC	Implement	Comments
<b>ALIGNMENT (A)</b>				
A-2	Adjust new location alignment to reduce wetland impacts between STA 20+00 and 50+00 in Project 27	Design Suggestion	No	Based on detailed cost analysis, this would end up costing more money. While it would decrease some of the wetland impacts, it would increase the Right of Way and Construction costs by as much as \$372,000.
A-3	Adjust new location alignment to reduce wetland impacts between STA 155+00 and 210+00 in Project 27	Design Suggestion	No	The wetland areas shown on the plans are not inclusive of all areas other than those identified along the original corridor. So shifting the alignment would actually increase the wetland impacts since there are other wetland areas located along the proposed VE Alignment.
A-5	Shift roadway alignment adjacent to utility corridor in Projects 26 and 27	Design Suggestion	No	This results in additional costs for Right of Way of approximately \$5,000,000. There would also be many unknown Environmental impacts.
A-6	Revisit historical value of resources in the community of Ruskin Road in Project 27	Design Suggestion	Yes	This has been done and the properties in question are still deemed to be historical thus parallel widening is not feasible without impacting the historical properties.

EDS-84(26), HPPN-EDS-84(27) & NHN-007-03(28) Ware  
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Implementation of Value Engineering Study Alternatives  
Page 4.

ALT #	Description	Potential Savings/LCC	Implement	Comments
<b>ALIGNMENT (A) - continued</b>				
A-7	Place new location alignment adjacent to railroad from New Mexico Avenue to Idaho Avenue (STA 262+00 to 290+00) in Project 27	\$258,795	No	Based on a more detailed cost estimate, this would result in additional Right of Way and Construction costs associated with extending the alignment on two side roads.
A-8	Use one-way pairs with independent alignments in Project 27	-\$6,436,078 (cost increase)	No	This results in substantially more costs.
A-9	Provide traffic calming measures west of the urban section in Project 27	Design Suggestion	No	All Signing and Marking items will be in accordance with the MUTCD.
A-10	Move new location alignment closer to the railroad right-of-way from 16th Street to STA 162+50 in Project 27	\$179,305	Yes	This should be done.
A-11	Parallel the railroad right-of-way with a new location alignment from 16th Street to Montana Avenue in Project 27	\$2,906,534	No	Results in substantial additional wetland impacts since there are two existing ponds and other wetland areas adjacent to the railroad right of way.
A-12	Add a median opening at STA 345+00 in Project 27	Design Suggestion	Yes	This should be done.

EDS-84(26), HPPN-EDS-84(27) & NHN-007-03(28) Ware  
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Implementation of Value Engineering Study Alternatives  
Page 5.

ALT #	Description	Potential Savings/LCC	Implement	Comments
<b>ALIGNMENT (A) - continued</b>				
A-13	Increase posted speed limit to design speed limit of 65 mph	Design Suggestion	No	This could be considered at a future date after the corridor has been studied in regards to traveling speeds, accident rates, etc.
A-14	Reduce design speed to 55 mph to match posted speed limit	Design Suggestion	No	Would still require correction of many of the existing sub standard design features to meet a 55 mph Design Speed.
<b>INTERSECTIONS (INT)</b>				
INT-1	Reduce realignment of Ammons Road in Project 26	\$96,786	Yes	This should be done.
INT-2	Eliminate intersection and connection of Ruskin Road to new US-84 in Project 27	\$246,261	Yes	This should be done.
INT-3	Eliminate Griffin Road addition and upgraded railroad crossing in Project 27	\$186,808	Yes	This should be done.
INT-4	Eliminate Needham Road addition and upgrade railroad crossing in Project 27	\$123,475	Yes	This should be done.
INT-6	Verify need for railroad gates at 3 proposed railroad crossings in Project 27	Design Suggestion	Yes	This should be done.
INT-7	Use 11-ft. lanes for side road connections in Projects 26 and 27	\$32,632	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
<b>INTERSECTIONS (INT) - continued</b>				
INT-8	Identify the new and old US-84 connections (3 locations) in Project 27	Design Suggestion	Yes	This should be done.
INT-9	Relocate connector from Idaho Avenue to Wyoming Avenue in Project 27	Design Suggestion	Yes	This should be done.
<b>BRIDGES (B)</b>				
B-1	Shorten bridges in Projects 26 and 28	Design Suggestion	No	This would have an adverse affect on the hydraulics at these bridge sites.
B-2	Lengthen bridges from 50-ft. spans in lieu of the proposed 40-ft. spans in Projects 26 and 28	\$234,689	No	Based on a more detailed Cost Estimate, lengthening the spans to 50' would actually increase the overall cost on the bridge by approximately \$94,500.
B-4	Review hydrology of bridges in Projects 26 and 28	Design Suggestion	Yes	This should be done.
<b>CONSTRUCTION MANAGEMENT (CM)</b>				
CM-2	Advance railroad reviews and coordination	Design Suggestion	Yes	This should be done.
CM-3	Alternative bid packaging of Projects 26 and 27	Design Suggestion	Yes	This should be done.

A meeting was held on April 14, 2008 and Mark Mobley and Dave Starling with EMC Engineering Services, Inc., Mike Haithcock with Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Additional information was provided by the Project Manager on May 13, 2008.

The results above reflect the consensus of those in attendance and those who provided input.

Approved:  Date: 5/17/00  
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA  
Todd Long  
Babs Abubakari  
Mike Haithcock  
Yun Tang  
James Magnus  
Richard Marshall  
Will Murphy  
William Hamilton  
Paul Liles  
Bill Ingalsbe  
Bill Duvall  
Vince Wilson  
Alexis John  
Ken Werho  
Cynthia Burney  
Lisa Myers



# Preconstruction Status Report By PI Number

Print Date: 05/13/2008

PROJ ID	COUNTY	DESCRIPTION	MGMT. ROW DATE	SCHED DATE	MGMT. LET DATE
522770-	Ware	SR 38/US 84 FM W OF GREASY BRANCH CK TO W OF CR 88/RUSKIN RD	Dec-08	Oct-10	Dec-10
EDS00-0084-00(026) <b>FIELD DIST:</b> 5					
<b>TIP #:</b> MPO: Not Urban <b>TWIN:</b> 522775- <b>US:</b> 84 <b>EST DATE:</b> 11/8/2006					
<b>MODEL YR:</b> <b>PROJ MGR:</b> Tang, Yun <b>PROJ LENGTH:</b> 7.40					
<b>PROG:</b> Reconstruction/Rehabili <b>TYPE:</b> Widening					
<b>TYPE:</b> tation <b>WORK:</b>					
<b>CONCEPT:</b> ADD 4R(M32/44) <b>LET RESP:</b> DOT					
Phase Approved Proposed Cost Fund Status					
PE 1995 1995 372,000.00 EDS AUTHORIZED					
PE 2003 2003 1,293,504.71 RRB AUTHORIZED					
PE 2003 2003 880,827.61 CFTS AUTHORIZED					
ROW LR LR 7,028,534.50 L050 PRECST					
CST LR LR 21,277,000.00 EDS PRECST					
Congressional 1					

SCHED START	SCHED FINISH	ACTIVITY	ACTUAL START	ACT/EST FINISH	PCT	DISTRICT COMMENTS
		Define Project Concept	7/14/1995	6/30/2002	100	TAS - draft EA is being revised per
		Concept Meeting	6/23/1999	6/23/1999	100	DOT review/1-31-06/PIOH
		Concept Submittal and Review	10/12/1999	11/16/1999	100	held/2-13-06/final doc anticipated
		Receive Preconstruction Concept Approval	10/18/1999	10/29/1999	100	by 8-06/9-12-06/responding to
		<b>Management Concept Approval Complete</b>	<b>11/10/1999</b>	<b>11/24/1999</b>	<b>100</b>	comments on Env doc from
		Revise or Re-validate Approved Concept	6/1/2004	7/23/2004	100	FHWA/1-24-07/PHOH
6/18/2008	6/24/2008	Value Engineering Study	2/8/2007		94	4-17-07/2-12-07/requested VE
		Public Information Open House Held	1/30/2006	1/30/2006	100	study
5/22/2008	5/22/2008	Environmental Approval	1/1/2000		100	
		Public Hearing Held	6/26/2007	6/26/2007	100	
		Mapping	1/20/2005	1/2/2008	100	
		Field Surveys/SDE	1/2/2008	1/2/2008	100	
8/15/2008	8/14/2008	<b>Preliminary Plans</b>	<b>10/11/2006</b>		88	
5/22/2008	5/22/2008	Preliminary Bridge Design	10/11/2006		100	
6/23/2008	6/20/2008	Underground Storage Tanks	9/1/2007		90	
5/23/2008	10/9/2008	404 Permit Obtainment			0	
9/5/2008	9/8/2008	PFPR Inspection			0	
10/14/2008	1/5/2009	R/W Plans Preparation			0	
3/3/2009	3/6/2009	<b>R/W Plans Final Approval</b>			<b>0</b>	
10/14/2008	10/16/2008	L & D Report Development and Approval			0	
3/9/2009	8/9/2010	R/W Acquisition			0	
5/7/2009	5/13/2009	Stake R/W			0	
10/14/2008	10/23/2008	Soil Survey			0	
10/14/2008	11/18/2008	Bridge Foundation Investigation			0	
10/17/2008	6/26/2009	<b>Final Design</b>			0	
12/17/2008	2/10/2009	Final Bridge Plans Preparation			0	
7/20/2009	7/21/2009	FFPR Inspection			0	
8/4/2009	8/17/2009	FFPR Response			0	

BIKE PROVISIONS INCLUDED?: Y MEASUREMENT SYSTEM: E CONSULTANT: C UTEST: \$ 0.00

**PDD:** BOND. PAR & CONCEPT TOGETHER. 6/23/00. w/522775. Reassign to Consult Des 4/25/01.  
**Bridge:** BRIDGE REQUIRED  
**Design:** EMC, Preliminary Design phase, Need EA, VE 12/11/07  
**EIS:** EA12-29-06[NotOnSchedRW/John(2-18-08)]  
**LGPA:** WARE SGN DO UTILITIES 3-11-02[RESCISSION LETTER SENT TO WARE 12-15-05,  
**Planning:** on the SE GA Regional Bike and Pedestrian Plan as proposed bike route  
**Prog. Develop:** EDS CST funds for \$15.346M were converted to H050.  
**Programming:** #1 9-05#2 4-06#3 9-07#4 2-08  
**ROW:** 218 AC JEROME CROSBY TRACT ACQ 4-26-02  
**Traffic Op:** AWAITING CNSLT/TNT PFPR PLANS FOR REVW/081805\$  
**Utility:** COST EST SENT 8/20/04; SUE by Ware Co  
**EMG:** RECST/REHAB(WIDEN); M=PHOTO SCIENCE;S=EMC ENG;FLY 6417/05  
**Conceptual Design:** PHOH 06/26/07 - RESPONSES SENT, XFERRED TO OCD - 02-27-08

R/W INFORMATION:					
PREL PARCEL CT: 69	TOTAL PARCEL CT:	ACQUIRED BY: DOT	ACQ MGR:		
UNDER-REVIEW CT:	RELEASED CT:	OPT-PEND CT:	DEEDS CT:	COND-PEND CT:	COND-FILED CT:
RW CERT DT:	ACQUIRED CT:	RELOCATION CT:			



# Preconstruction Status Report By PI Number

Print Date: 05/13/2008

PROJ ID	COUNTY	DESCRIPTION	MGMT. ROW DATE	SCHED DATE	MGMT. LET DATE			
522775-	Ware	SR 38/US 84 OVER GREASY BRANCH- LITTLE & BIG ALLIGATOR CREEK	Dec-08	Nov-09	Dec-10			
BHN00-0007-03(028)	FIELD DIST: 5							
TIP #:	TWIN: 522770-	US: 84	Phase	Approved	Proposed	Cost	Fund	Status
MPO: Not Urban	EST DATE: 9/6/2006		PE	1995	1995	356,039.00	Q10	AUTHORIZED
MODEL YR:			CST	L.R.	L.R.	2,234,000.00	LIC0	PRECST
PROJ MGR: Tang, Yun	PROJ LENGTH: 0.10		CST	L.R.	L.R.	2,234,000.00	L240	PRECST
PROG Replacement	TYPE Bridges							
TYPE:	WORK:							
CONCEPT: BR WIDENING	LET RESP: DOT							

SCHED START	SCHED FINISH	ACTIVITY	ACTUAL START	ACT/EST FINISH	PCT	DISTRICT COMMENTS
		Define Project Concept	7/14/1995	6/30/2002	100	TAS/1-31-06/PIOH
		Concept Meeting	6/23/1999	6/23/1999	100	held 9-12-06/responding to
		Concept Submittal and Review	9/7/1999	10/12/1999	100	comments on Env doc from
		Receive Preconstruction Concept Approval	10/4/1999	10/18/1999	100	FHWA/1-24-07/PHOH 4-17-07
		<b>Management Concept Approval Complete</b>	<b>11/10/1999</b>	<b>11/24/1999</b>	<b>100</b>	
		Revise or Re-validate Approved Concept	6/1/2004	7/23/2004	100	
6/18/2008	6/24/2008	Value Engineering Study	2/8/2007		94	
		Public Information Open House Held	1/31/2006	1/31/2006	100	
5/22/2008	5/22/2008	Environmental Approval	1/1/2000		100	
		Public Hearing Held	6/26/2007	6/26/2007	100	
		Field Surveys/SDE	1/2/2008	1/2/2008	100	
9/5/2008	9/4/2008	<b>Preliminary Plans</b>	<b>9/1/2007</b>		72	
7/18/2008	7/17/2008	Preliminary Bridge Design	9/1/2007		83	
5/23/2008	10/9/2008	404 Permit Obtainment			0	
9/26/2008	9/29/2008	FFPR Inspection			0	
11/4/2008	11/6/2008	L & D Report Development and Approval			0	
11/4/2008	11/13/2008	Soil Survey			0	
11/4/2008	12/9/2008	Bridge Foundation Investigation			0	
11/7/2008	7/17/2009	<b>Final Design</b>			0	
1/7/2009	3/3/2009	Final Bridge Plans Preparation			0	
8/10/2009	8/11/2009	FFPR Inspection			0	
8/25/2009	9/7/2009	FFPR Response			0	

BIKE PROVISIONS INCLUDED?: N MEASUREMENT SYSTEM: E CONSULTANT: C UTEST: \$ 0.00

PDD: W/EDS-84(26) WARE: 522770. 3/10/99. Reassign to consult Des 4/25/01. [TC1 FEDS] Q10

Bridge: BRIDGE REQUIRED

Design: EMC with unit 26/27, Preliminary design, Need EA

EIS: EA12-29-06[NotOnSchedRW]John(2-18-08)

LGPA: WARE SGN DO UTILITIES 4-24-96[RESCISSON LETTER SENT TO WARE 12-15-05.

Programming: BR #S 299-0008-0[299-0009-0][299-0010-0][PR2/PE=12-1-94#1 9-05

Traffic Op: BR WID PRJCT W/522770-/WARE CO[S&M PLNS N/R]081805\$

EMG: BRIDGE REPLACEMENT/WIDENING

R/W INFORMATION:

PREL PARCEL CT: TOTAL PARCEL CT: ACQUIRED BY: N/R ACQ MGR:

UNDER-REVIEW CT: RELEASED CT: OPT-PEND CT: DEEDS CT: COND-PEND CT: COND-FILED CT:

RW CERT DT: ACQUIRED CT: RELOCATION CT:



# Preconstruction Status Report By PI Number

Print Date: 05/13/2008

PROJ ID	COUNTY	DESCRIPTION	MGMT. ROW DATE	SCHED DATE	MGMT. LET DATE			
522780-	Ware	SR 38/US 84 FM W OF CR 88/RUSKIN RD TO E OF CR 294/WADLEY RD	Dec-08	Mar-11	Dec-10			
HPPNE-0084-00(027)	FIELD DIST: 5							
TIP #:	TWIN:	US: 84	Phase	Approved	Proposed	Cost	Fund	Status
MPO: Not Urban	EST DATE: 1/2/2007		PE	1995	1995	1,605,633.32	EDS	AUTHORIZED
MODEL YR:			ROW	LR	LR	13,991,846.18	EDS	PRECST
PROJ MGR: Tang, Yun	PROJ LENGTH: 5.60		ROW	2008	2009	6,429,422.50	Q92	PRECST
PROG Reconstruction/Rehabili	TYPE Widening		CST	LR	LR	1,989,000.00	L050	PRECST
TYPE: tation	WORK:							
CONCEPT: AN4R(M20/32/44)	LET RESP: DOT							

SCHED START	SCHED FINISH	ACTIVITY	ACTUAL START	ACT/EST FINISH	PCT	DISTRICT COMMENTS
		Define Project Concept	7/14/1994	11/24/1999	100	TAS/9-13-05/description is incorrect, project ends at SR 38 Conn, SR 53 Conn/1-23-06/PIOH held /2-13-06/anticipating final doc by 8-06/9-12-06/responding to comments on Env doc from FHWA/1-24-07/PHOH 4-17-07
		Concept Meeting	6/23/1999	6/23/1999	100	
		Concept Submittal and Review	10/12/1999	10/12/1999	100	
		Receive Preconstruction Concept Approval	10/18/1999	10/18/1999	100	
		<b>Management Concept Approval Complete</b>	<b>11/10/1999</b>	<b>11/24/1999</b>	<b>100</b>	
		Revise or Re-validate Approved Concept	11/30/2006	1/2/2007	100	
6/18/2008	6/24/2008	Value Engineering Study	2/8/2007		94	
		Public Information Open House Held	1/31/2006	1/31/2006	100	
5/23/2008	5/23/2008	Environmental Approval	1/1/2000		100	
		Public Hearing Held	6/26/2007	6/26/2007	100	
		Mapping	12/12/2005	1/2/2008	100	
		Field Surveys/SDE	12/12/2005	1/2/2008	100	
8/15/2008	8/14/2008	<b>Preliminary Plans</b>	<b>10/11/2006</b>		<b>88</b>	
5/22/2008	5/22/2008	Preliminary Bridge Design	10/11/2006		100	
6/23/2008	6/20/2008	Underground Storage Tanks	9/1/2007		90	
5/23/2008	10/10/2008	404 Permit Obtainment			0	
9/5/2008	9/8/2008	PFPR Inspection			0	
10/14/2008	1/5/2009	R/W Plans Preparation			0	
3/3/2009	3/6/2009	<b>R/W Plans Final Approval</b>			<b>0</b>	
10/14/2008	10/16/2008	L & D Report Development and Approval			0	
3/9/2009	1/17/2011	R/W Acquisition			0	
7/30/2009	8/12/2009	Stake R/W			0	
10/14/2008	10/23/2008	Soil Survey			0	
10/14/2008	11/18/2008	Bridge Foundation Investigation			0	
10/17/2008	6/26/2009	<b>Final Design</b>			<b>0</b>	
12/17/2008	2/10/2009	Final Bridge Plans Preparation			0	
7/20/2009	7/21/2009	FFPR Inspection			0	
8/4/2009	8/17/2009	FFPR Response			0	

BIKE PROVISIONS INCLUDED?: Y MEASUREMENT SYSTEM: E CONSULTANT: C UT EST: \$ 0.00

PDD: BOND. [HPPNS] 5/2/01.  
 Bridge: BRIDGE REQUIRED  
 Design: EMC. Preliminary design phase; Need EA  
 EIS: EA12-29-06(OnSchedRW)John (2-18-08)  
 LGPA: REV REQ WARE DO UTIL 3-2-00/WAYCROSS SGN DO UTIL 3-21-00/RESCSSION LETTER SENT TO WARE & WAYCROSS 12-15-05.  
 Planning: on the SE GA Regional Bike and Pedestrian Plan as a proposed bike route  
 Prog. Develop: EDS CST funds for \$14.224M were converted to H050  
 Programming: PE 1625 10-05; 10-07  
 ROW: 218 AC JEROME CROSBY TRACT ACQ 4-26-02  
 Traffic Op: KNJSD CNSLTNT PLNS FR REVW/0818055+  
 Utility: SENT COST EST 8/20/04; WAIT ON PRELM. PLANS; SUE by Ware Co.  
 EMG: RECST/REHAB(WIDEN); M=PHOTO SCIENCE; S=EMC ENG; FLY 6417/05  
 Conceptual Design: HOH 06/26/07 - RESPONSES SENT; XFERRED TO OCD -02-27-08

**R/W INFORMATION:**

PREL PARCEL CT: 64 TOTAL PARCEL CT: ACQUIRED BY: DOT ACQ MGR:  
 UNDER-REVIEW CT: RELEASED CT: OPT-PEND CT: DEEDS CT: COND-PEND CT: COND-FILED CT:  
 RW CERT DT: ACQUIRED CT: RELOCATION CT:

# VALUE ENGINEERING STUDY REPORT RESPONSES

FOR

## **U.S. 84/S.R. 38 Improvements**

Project No. EDS-84(26), P.I. No. 522770

Project No. BHN-007-3(28), P.I. No. 522775

Project No. EDS-84(27), P.I. No. 522780

**Ware County**

**February 7, 2008**

**Prepared by**



**EMC Engineering Services, Inc.  
Savannah, Georgia**

April 22, 2008

Mr. Yun Tang  
Office of Consultant Design  
Georgia Dept. Of Transportation  
No. 2 Capitol Square, S.W., Room 433  
Atlanta, GA 30334

Re: Project No. EDS-84(26), P.I. No. 522770, Ware County  
Value Engineering Study Report Response

Dear Mr. Tang:

We have reviewed the comments submitted by Lewis & Zimmerman Associates, Inc. (LZA) on December 28, 2007. The following are our responses to the 19 alternatives and 18 design suggestions provided by LZA. The responses in red text are for the comments we believe should not be implemented. The responses in blue text are for the comments we believe are feasible and/or show potential for pursuing the issue further.

#### TYPICAL SECTION (TS)

TS-1	11-ft lanes	3
	<b>As per the AASHTO Green Book 12-ft lanes are required based on the design speed and ADT for both projects. AASHTO does permit 11-ft lanes in corridors where the safety record is satisfactory (AASHTO-Geometric Design of Highways and Streets, pg 455). However, the accident history for this corridor is higher than the statewide average. (See attached Collision Analysis)</b>	
TS-2	Add bike lanes to urban shoulders	DS
	<b>Bike lanes will be removed from the Concept Report as per comment TS-3 as cost saving measure.</b>	
TS-3	Remove bike lanes from Concept Report	3
	<b>Inclusion of bike lanes will be removed from the Concept Report as a cost saving measure.</b>	
TS-4	Not a developed idea	2
TS-5	Build 32-ft. median in lieu of 44-ft. median	3
	<b>The typical sections with 44-ft median will be revised to show a 32-ft median.</b>	
TS-6	Not a developed idea	1
TS-7	Soil cement base in lieu of GAB	3

We will provide alternate bids for a soil cement base and graded aggregate base.

TS-8	Not a developed idea	1
TS-9	Not a developed idea	1
TS-10	3-lane between Firetower Road (STA 81+20) and STA 365+00, and purchase right-of-way for future 4-lane <b>AASHTO states that traversable medians should only be used in an urban setting where operating speeds are relatively low (AASHTO-Geometric Design of Highways and Streets, pg 713). This section of roadway meets neither the urban setting nor the low operating speed criteria (65 mph speed design). In addition to being outside of AASHTO parameters, transitioning from a 4-lane section to a 3-lane section and then back to a 4-lane section increases the likelihood of driver confusion and creates a safety issue. Although a 3-lane section would sufficiently sustain the projected ADT, this is outweighed by the negative effects in terms of driver safety.</b>	2
TS-11	Not a developed idea	1
TS-12	Not a developed idea	1
TS-13	10-ft raised median between New Mexico Avenue and Montana Avenue (STA 262 to STA 295) <b>Installing a raised median in this section will effectively remove sufficient ingress and egress from the parcels adjacent to the alignment. By doing this a significant impact will result in right of way acquisition by decreasing existing property values.</b>	2
TS-14	Use 18-in curb and gutter (verify gutter spread viability) 24-in curb and gutter will be removed from the typical sections and replaced with 18-in curb and gutter pending verification of gutter spread viability. A drainage study will be completed before this can be verified.	3
TS-15	Use a minimum width depressed median between New Mexico Avenue and Montana Avenue (STA 262 to STA 295) <b>Installing a depressed median in this section will effectively remove sufficient ingress and egress from the parcels adjacent to the alignment. By doing this a significant impact will result in right of way acquisition by decreasing existing property values.</b>	2
TS-16	Build an AC multi-use trail on north side in lieu of sidewalk where urban shoulder is.	2

This corridor is not a designated bicycle route which eliminates the need for the two 4' paved bike lanes. Since bike lanes are not a necessary part of this project the VE team's projected savings of \$220,870 for the exclusion of bike lanes will not be realized.

We propose adding concrete sidewalk on the north side only. In doing this the cost savings projected by the VE team would be negligible.

TS-17 Eliminate GAB under curb and gutter on EDS-84(27) 3  
GAB under curb and gutter will be removed from the typical sections as suggested.

#### ALIGNMENT (A)

A-1 Not a developed idea 1

A-2 Reduce impacts to wetlands with new alignment at west end (increase wetlands identification) DS

The wetland areas shown on the plans are not inclusive of all areas other than those impacted by the original corridor. The actual area of wetlands in the surrounding vicinity is much larger. Therefore if the alignment were to be relocated as suggested by this comment, the impacts to wetlands would not be decreased as significantly as it would appear. For the first option the reduction would be 1.73 acres and for the second option the reduction would be 3.71 acres. Furthermore, the overall project costs will be increased due to the increase in required right-of-way as well as the increase in the new location paving quantities. The increase for the first option would be \$274,235 and for the second option the increase would be \$371,700. (See A-2 attachments)

A-3 Reduce impacts to wetlands with new alignment at east end (increase wetlands identification) DS

The wetland areas shown on the plans are not inclusive of all areas other than those impacted by the original corridor. The impacts caused by the original design are significantly less than indicated on the VE Team's proposed alternate alignment. There are actually more wetlands closer to the CSX Railroad right-of-way in the path of this comment's proposed new alignment. (See attachment A-3)

A-4 Not a developed idea 1

A-5 Build road adjacent to utility corridor DS

This is not a viable suggestion due to significant increases in required right-of-way, labor, and materials necessary to construct the entire roadway on new location. The projected cost increase for the just additional required right-of-way and base & paving is \$4,891,930. (See attachment A-5) Additionally, unknown environmental impacts hold potentially higher impacts than the existing corridor.

- A-6 Revisit historicity and do parallel widening 3  
**OEL was consulted and the properties in question are still deemed to be historical. Therefore parallel widening is not feasible without impacts to these historical properties.**
- A-7 Revisit new location alignment through Emerson Park (4F?) 2  
 Right-of-way New Mexico Avenue to Idaho Avenue (new alignment along railroad)  
**This comment incorrectly identifies the parcels to the south of the alignment as landlocked. These parcels will not be landlocked and are capable of being developed as valuable frontage commercial property with possible railway access. Also, the VE team failed to recognize the additional cost of extending the alignment approximately 400'. Nor did the team recognize the required cost of extending the two side roads to meet their proposed alignment. The additional cost for the lengthened alignment would be approximately \$182,300. Also, the team did not recognize the additional cost of required right of way which we estimate to be \$101,600. To implement this comment, the net increase in cost would be approximately \$283,900. (See A-7 attachments)**
- A-8 One-way pairs at both independent alignments – access in town 2  
**The cost projected by the VE Team is for this comment is \$6,400,000. This is not a cost effective option. The only advantage for this suggestion is improved traffic safety. However, the traffic safety of the current design is adequate. (See VE team's cost analysis within VE Report)**
- A-9 Use traffic calming before and at urban sections DS  
**All signing and marking deemed necessary as per the MUTCD will be incorporated. Items suggested that are not mandated by the MUTCD will not be implemented.**
- A-10 Move alignment closer to railroad from STA 114+00 to 162+50 2  
**The alignment will be shifted to parallel the railroad right-of-way.**
- A-11 New alignment along railroad right-of-way from 16<sup>th</sup> St to New Mexico 2  
**There are two existing ponds along the railroad right-of-way that will create enormous environmental and wetland impacts if this suggestion is implemented making this an impractical alternative. (See attachment A-11)**
- A-12 Add additional median opening at STA 345+00 DS  
**An additional median opening will be added at STA 345+00.**
- A-13 Change posted speed limit from 55 mph to 65 mph. DS  
**From a safety standpoint, roadways should be designed for 10 mph over the posted speed. It is common practice for the traveling public to exceed the posted speed limit by up to 10 mph. If the design speed and the posted speed**

are the same the traveling public will, in reality, be traveling at up to 10 mph over the design speed. The safety to the travel public can not be quantified by a cost analysis.

- A-14 Curve correction may be eliminated with a design speed limit of 55 mph DS  
The curve correction may be eliminated for most of the curves by using a design speed of 55 mph. However, the fourth curve on EDS-84-5(26) would still require correction based upon current AASHTO Standards. Also, lowering the design speed would necessitate reducing the posted speed limit to 45 mph to maintain the 10 mph differential between design speed and posted speed limit for the safety purposes noted in the response to comment A-13.

### INTERSECTION (INT)

- |       |   |     |
|-------|---|-----|
| INT-1 | Eliminate realignment at Ammons Road<br>The realignment of Ammons Road will be reduced by increasing the super elevation of the approach curve to 4% thereby reducing the radius of the curve to 150 feet.  | 2   |
| INT-2 | Eliminate intersection and connection of Ruskin Road to new U.S. 84<br>Intersection will be removed.  | 3   |
| INT-3 | Eliminate Griffin Road railroad crossing<br>Intersection will be removed.   | 3   |
| INT-4 | Eliminate intersection at Needham Road<br>Intersection will be removed.   | 3   |
| INT-5 | Not a developed idea  | ABD |
| INT-6 | Review railroad gates at crossings (existing conditions??)<br>There are no existing gates at any of the crossings. Therefore, we will develop a concept that minimizes the crossing and installs gates on only those that justify them.   | DS  |
| INT-7 | 11-ft lanes on side roads being reconstructed<br>11-ft lanes can be used on all side roads.   | 3   |
| INT-8 | Use signals at intersections where "bypass" and existing road tie-in<br>There are no proposed tie-ins where the existing corridor and "bypass" diverge. The current design routes local traffic from the existing corridor, which will no longer be part of US-84, back to the proposed US-84 corridor via three local roads between Sta. 30+00 and Sta. 195+00. However, since two of the three proposed extensions will be removed per this study the tie-ins at the referenced station numbers can be incorporated to provide better access to local traffic. Traffic signals are most likely not warranted at these | DS  |

intersections, however, a warrant study will be completed to make a final determination.

INT-9 Relocate connector (roadway extension) from Idaho Ave to Wyoming Ave2  
The connector will be relocated from Idaho Avenue to Wyoming Avenue.

## **BRIDGES (B)**

- B-1 Shorten bridges in Projects EDS-84(26) and EDS-84(28) 3  
**The designed bridge lengths are for No-rise Condition.  
Alternate designs would have the following impacts:**
- No Rise = 1120 ft bridge on Big Alligator with a 400 ft bridge over Little Alligator = 0.03 ft rise over Existing conditions and 0.3 ft rise over Natural conditions**
- Intermediate Rise = 1040 ft bridge on Big Alligator with a 400 ft bridge over Little Alligator = 0.5 ft rise over Natural conditions and 0.1 ft rise over Existing conditions**
- Maximum rise = 400 ft bridge on Big Alligator with a 400 ft bridge over Little Alligator = 1.0 ft rise over Natural conditions and 0.5 ft rise over Existing Conditions.**
- To shorten the bridges, GDOT will have to explicitly direct the consultant to design for shorter bridges. Shorter bridges would increase water surface levels thereby creating a floodplain on adjacent properties which is a legal trespass. (See B-1 attachments)**
- B-2 Lengthen bridges spans (50' spans) 2  
**Increasing the bridge spans will increase the overall cost of bridge construction by a total of approximately \$94,500. Increasing the span length will make it necessary to raise the profile to compensate for the required deeper superstructure. An increase in the profile grade line will result in an increase in the cost of fill material. Also, increasing the spans from 40 ft to 50 ft will more than marginally increase the beam cost, with the concrete strength going up to a more expensive level, or another beam line required. For cost estimating Type II beams were used for the 50' spans since an extra Type I Mod or significantly higher concrete release strength would be needed to use Type I beams on 50' spans. (See B-2 attachments)**
- B-3 Not a developed idea 1
- B-4 Revisit hydrology (wetlands, railroad down stream crossings) DS  
**The hydrology has been revisited and there are no changes. The downstream railroad bridge controls the flood elevations upstream of it in this area. The US 84 existing bridges are currently overtopped by the 100-yr storm flow**

because of the railroad bridge, and they need to get considerably longer to route the current overtopping weir flow under the roadway and through the bridge to meet current GDOT Hydraulic Design Criteria. Since the flow is sub-critical the railroad bridge is the controlling constriction. As noted previously, we cannot knowingly create a rise on property outside the GDOT Right-of-Way, creating a legal trespass, as a consultant. We would need direction and responsibility acceptance from GDOT to do this. We also have an option of reducing the bridge lengths significantly if easements or agreements are obtained from affected landowners. A savings of approximately \$4.5 million minus the required additional modeling and easement/agreement costs is a possibility if GDOT wishes to pursue this option.

Additionally, properly designing the proposed bridges, increasing the proposed bridge lengths, does not greatly increase the velocity for the overtopping flows, and can decrease the velocities when the existing backwater does not meet current GDOT Design Criteria. Generally, the proposed velocities are decreased for the longer proposed bridges compared to the existing bridges, and modeling supports this.

#### **CONSTRUCTION MANAGEMENT (CM)**

CM-1	Not a developed idea	1
CM-2	Advance the railroad review timeframe and railroad coordination Railroad review and coordination will be advanced to facilitate acquisition of necessary railroad permits.	DS
CM-3	Alternative bids –single versus dual contracts Alternate bids will be implemented at the discretion of the GDOT project manager.	DS

Please distribute our responses to the OEL for their analyses. If you have any questions or comments on any of the above responses please feel free to contact me at your convenience.

Sincerely,

Aaron D. Starling, E.I.T.  
Project Manager

Type I Mod @ 40' spans

DETAIL ESTIMATE - LEFT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	1800	\$6,544.00
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	455	\$402,468.86
500-2100	CONCRETE BARRIER	LF	\$43.88	788	\$34,577.44
500-3101	CLASS A CONCRETE	CY	\$647.10	140	\$90,399.87
507-9001	PSC BEAMS, AASHTO TYPE I, BR NO -	LF	\$107.56	1957	\$210,460.50
511-1000	BAR REINF STEEL	LB	\$0.91	20955	\$19,069.05
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	114450	\$107,583.00
520-2214	PILING, PSC, 14 IN SQ	LF	\$47.69	410	\$19,552.90
520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	1860	\$103,602.00
520-3214	TEST PILE, PSC, 14 IN SQ	EA	\$7,874.88	0	\$0.00
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-4214	LOAD TEST, PSC, 14 IN SQ	EA	\$0.42	1	\$0.42
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00
					<u>\$1,047,520.65</u> = \$63 / SQ. FT.

DETAIL ESTIMATE - RIGHT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	1800	\$6,544.00
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	455	\$402,468.86
500-2100	CONCRETE BARRIER	LF	\$43.88	788	\$34,577.44
500-3101	CLASS A CONCRETE	CY	\$647.10	140	\$90,399.87
507-9001	PSC BEAMS, AASHTO TYPE I, BR NO -	LF	\$107.56	1957	\$210,460.50
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520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	1860	\$103,602.00
520-3214	TEST PILE, PSC, 14 IN SQ	EA	\$7,874.88	0	\$0.00
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-4214	LOAD TEST, PSC, 14 IN SQ	EA	\$0.42	1	\$0.42
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00
					<u>\$1,047,520.65</u> = \$63 / SQ. FT.

Type I Mod @ 40' spans

DETAIL ESTIMATE - LEFT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	4480	\$18,323.20
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	1251	\$1,105,596.27
500-2100	CONCRETE BARRIER	LF	\$43.88	2228	\$97,764.64
500-3101	CLASS A CONCRETE	CY	\$647.10	361	\$233,667.81
507-9001	PSC BEAMS, AASHTO TYPE I, BR NO -	LF	\$107.56	5482	\$589,612.73
511-1000	BAR REINF STEEL	LB	\$0.91	54165	\$49,290.15
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	313350	\$294,549.00
520-2214	PILING, PSC, 14 IN SQ	LF	\$47.69	410	\$19,552.90
520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	5560	\$309,692.00
520-3214	TEST PILE, PSC, 14 IN SQ	EA	\$7,874.68	0	\$0.00
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-4214	LOAD TEST, PSC, 14 IN SQ	EA	\$0.42	1	\$0.42
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00
					<b>\$2,771,311.73 = \$60 / SQ. FT.</b>

DETAIL ESTIMATE - RIGHT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	4480	\$18,323.20
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	1251	\$1,105,596.27
500-2100	CONCRETE BARRIER	LF	\$43.88	2228	\$97,764.64
500-3101	CLASS A CONCRETE	CY	\$647.10	361	\$233,667.81
507-9001	PSC BEAMS, AASHTO TYPE I, BR NO -	LF	\$107.56	5482	\$589,612.73
511-1000	BAR REINF STEEL	LB	\$0.91	54165	\$49,290.15
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	313350	\$294,549.00
520-2214	PILING, PSC, 14 IN SQ	LF	\$47.69	410	\$19,552.90
520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	5560	\$309,692.00
520-3214	TEST PILE, PSC, 14 IN SQ	EA	\$7,874.68	0	\$0.00
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-4214	LOAD TEST, PSC, 14 IN SQ	EA	\$0.42	1	\$0.42
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00
					<b>\$2,771,311.73 = \$60 / SQ. FT.</b>

Type II @ 50' spans

DETAIL ESTIMATE - LEFT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	1600	\$6,544.00
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	459	\$405,827.18
500-2100	CONCRETE BARRIER	LF	\$43.88	788	\$34,577.44
500-3101	CLASS A CONCRETE	CY	\$647.10	117	\$75,904.83
507-9002	PSC BEAMS, AASHTO TYPE II, BR NO -	LF	\$127.06	1965	\$249,674.17
511-1000	BAR REINF STEEL	LB	\$0.91	17595	\$16,011.45
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	115400	\$108,476.00
520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	410	\$22,837.00
520-2218	PILING, PSC, 18 IN SQ	LF	\$54.24	1440	\$78,105.60
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-3218	TEST PILE, PSC, 18 IN SQ	EA	\$6,920.00	0	\$0.00
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
520-4218	LOAD TEST, PSC, 18 IN SQ	EA	\$0.51	1	\$0.51
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00

\$1,051,220.79 = \$64 / SQ. FT.

DETAIL ESTIMATE - RIGHT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	1600	\$6,544.00
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	459	\$405,827.18
500-2100	CONCRETE BARRIER	LF	\$43.88	788	\$34,577.44
500-3101	CLASS A CONCRETE	CY	\$647.10	117	\$75,904.83
507-9002	PSC BEAMS, AASHTO TYPE II, BR NO -	LF	\$127.06	1965	\$249,674.17
511-1000	BAR REINF STEEL	LB	\$0.91	17595	\$16,011.45
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	115400	\$108,476.00
520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	410	\$22,837.00
520-2218	PILING, PSC, 18 IN SQ	LF	\$54.24	1440	\$78,105.60
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-3218	TEST PILE, PSC, 18 IN SQ	EA	\$6,920.00	0	\$0.00
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
520-4218	LOAD TEST, PSC, 18 IN SQ	EA	\$0.51	1	\$0.51
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00

\$1,051,220.79 = \$64 / SQ. FT.

Type II @ 56' spans

DETAIL ESTIMATE - LEFT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	4480	\$18,323.20
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	1290	\$1,140,063.30
500-2100	CONCRETE BARRIER	LF	\$43.88	2228	\$97,764.64
500-3101	CLASS A CONCRETE	CY	\$647.10	265	\$171,416.79
507-9002	PSC BEAMS, AASHTO TYPE II, BR NO -	LF	\$127.06	5515	\$700,739.71
511-1000	BAR REINF STEEL	LB	\$0.91	39735	\$36,158.85
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	323100	\$303,714.00
520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	410	\$22,837.00
520-2220	PILING, PSC, 20 IN SQ	LF	\$59.19	3910	\$231,432.90
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-3220	TEST PILE, PSC, 20 IN SQ	EA	\$3,777.77	0	\$0.00
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
520-4220	LOAD TEST, PSC, 20 IN SQ	EA	\$1.00	1	\$1.00
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00
					<b>\$2,775,714.00 = \$60 / SQ. FT.</b>

DETAIL ESTIMATE - RIGHT BRIDGE

ITEM NUMBER	ITEM DESCRIPTION	UNITS	UNIT PRICE	QUANTITY	COST
500-0100	GROOVED CONCRETE	SY	\$4.09	4480	\$18,323.20
500-1006	SUPERSTR CONCRETE, CL AA, BR NO -	LS	\$883.77	1290	\$1,140,063.30
500-2100	CONCRETE BARRIER	LF	\$43.88	2228	\$97,764.64
500-3101	CLASS A CONCRETE	CY	\$647.10	265	\$171,416.79
507-9002	PSC BEAMS, AASHTO TYPE II, BR NO -	LF	\$127.06	5515	\$700,739.71
511-1000	BAR REINF STEEL	LB	\$0.91	39735	\$36,158.85
511-3000	SUPERSTR REINF STEEL, BR NO -	LS	\$0.94	323100	\$303,714.00
520-2216	PILING, PSC, 16 IN SQ	LF	\$55.70	410	\$22,837.00
520-2220	PILING, PSC, 20 IN SQ	LF	\$59.19	3910	\$231,432.90
520-3216	TEST PILE, PSC, 16 IN SQ	EA	\$7,193.00	0	\$0.00
520-3220	TEST PILE, PSC, 20 IN SQ	EA	\$3,777.77	0	\$0.00
520-4216	LOAD TEST, PSC, 16 IN SQ	EA	\$0.61	1	\$0.61
520-4220	LOAD TEST, PSC, 20 IN SQ	EA	\$1.00	1	\$1.00
603-2024	STN DUMPED RIP RAP, TP 1, 24 IN	SY	\$54.46	900	\$49,014.00
603-7000	PLASTIC FILTER FABRIC	SY	\$4.72	900	\$4,248.00
					<b>\$2,775,714.00 = \$60 / SQ. FT.</b>

Comment B-2 Analysis

Increase in Earthwork Cost by using 50' Spans

	<u>Xsection increase (sf)</u>	<u>Length of area affected (ft)</u>	<u>Volume (cf)</u>	<u>Volume (CY)</u>	<u>Unit Cost</u>	<u>Sub Total</u>	<u>10% Mark up</u>	<u>Total</u>
BR1	145	800	116000	4296.30	\$ 5.00	\$ 21,481.48	\$ 2,148	\$ 23,630
BR2	145	800	116000	4296.30	\$ 5.00	\$ 21,481.48	\$ 2,148	\$ 23,630
BR3	145	800	116000	4296.30	\$ 5.00	\$ 21,481.48	\$ 2,148	\$ 23,630

**\$ 70,889 Increase**

Increase in Bridge Items by using 50' Spans

(see cost analysis for breakdown of individual items)

	<u>Cost using 40' Spans</u>	<u>Cost using 50' Spans</u>
BR1	\$ 2,095,040.00	\$ 2,102,442.00
BR2	\$ 2,095,040.00	\$ 2,102,442.00
BR3	\$ 5,542,624.00	\$ 5,551,428.00

**\$ 23,608 Increase**

**TOTAL INCREASE**

**\$ 94,497 Increase**

**Comment A-2 Analysis**

Original	Sq Ft	Paving		Sq Ft	Unit Price	Total Cost
138694	15410.44	Sq Yd	135 lbs/yd2	1040.205	Tons	\$ 85.00 \$ 88,417.43
	15410.44	Sq Yd	220 lbs/yd2	1695.149	Tons	\$ 85.00 \$ 144,087.66
	15410.44	Sq Yd	330 lbs/yd2	2542.723	Tons	\$ 85.00 \$ 216,131.48
	15410.44	Sq Yd	0.0035 gallyd2	161.8097	Gal	\$ 1.20 \$ 194.17
	15410.44	Sq Yd	7.47 to FT3	57.55801	Tons	\$ 20.00 \$ 1,151.16
700551.66	Sq Ft	Right of Way				Original Paving Cost \$ 449,981.90
	16,08171	AC				Original R/W Cost \$ 86,841.26

343375	Sq Ft	Wetland Impacts				
	7.88	AC				

Option 1	Sq Ft	Paving		Sq Ft	Unit Price	Total Cost
209321	23257.89	Sq Yd	135 lbs/yd2	1569.908	Tons	\$ 85.00 \$ 133,442.14
	23257.89	Sq Yd	220 lbs/yd2	2558.368	Tons	\$ 85.00 \$ 217,461.26
	23257.89	Sq Yd	330 lbs/yd2	3637.552	Tons	\$ 85.00 \$ 326,191.89
	23257.89	Sq Yd	0.0035 gallyd2	244.2078	Gal	\$ 1.20 \$ 293.05
	23257.89	Sq Yd	7.47 to FT3	86.86822	Tons	\$ 20.00 \$ 1,737.36
1064324.4	Sq Ft	Right of Way				\$ 229,143.81 Paving Cost Increase
	24.4324	AC				\$ 45,093.72 R/W Increase
						\$ 274,237.53 TOTAL INCREASE

267939	Sq Ft	Wetland Impacts				
	6.15	AC				Reduction to wetland impacts 1.73 AC

Option 2	Sq Ft	Paving		Sq Ft	Unit Price	Total Cost
234377	26041.89	Sq Yd	135 lbs/yd2	1757.828	Tons	\$ 85.00 \$ 149,415.34
	26041.89	Sq Yd	220 lbs/yd2	2864.608	Tons	\$ 85.00 \$ 243,491.66
	26041.89	Sq Yd	330 lbs/yd2	4296.912	Tons	\$ 85.00 \$ 365,237.49
	26041.89	Sq Yd	0.0035 gallyd2	273.4398	Gal	\$ 1.20 \$ 328.13
	26041.89	Sq Yd	7.47 to FT3	97.26646	Tons	\$ 20.00 \$ 1,945.33
1194755.7	Sq Ft	Right of Way				\$ 310,436.05 Paving Cost Increase
	27.42656	AC				\$ 148,103.40
						\$ 61,262.14 R/W Increase
						\$ 371,698.20 TOTAL INCREASE

181572	Sq Ft	Wetland Impacts				
	4.17	AC				Reduction to wetland impacts 3.71 AC

**Comment A-2 Analysis**

Original	Sq Ft	Paving	Unit Price	Total Cost
138694	15410.44	Sq Yd	\$ 85.00	\$ 88,417.43
	15410.44	Sq Yd	\$ 85.00	\$ 144,087.66
	15410.44	Sq Yd	\$ 85.00	\$ 216,131.48
	15410.44	Sq Yd	\$ 1.20	\$ 194.17
	15410.44	Sq Yd	\$ 20.00	\$ 1,151.16
				<b>\$ 449,981.90</b>
				Original Paving Cost
700551.66		Right of Way		
	16.08	171 AC		<b>\$ 86,841.26</b>
				Original R/W Cost

Option 1	Sq Ft	Paving	Unit Price	Total Cost
209321	23257.89	Sq Yd	\$ 85.00	\$ 133,442.14
	23257.89	Sq Yd	\$ 85.00	\$ 217,461.26
	23257.89	Sq Yd	\$ 85.00	\$ 326,191.89
	23257.89	Sq Yd	\$ 1.20	\$ 293.05
	23257.89	Sq Yd	\$ 20.00	\$ 1,737.36
				<b>\$ 679,125.70</b>
1064324.4		Right of Way		
	24.43	24 AC		<b>\$ 131,934.98</b>
				\$ 229,143.81 Paving Cost Increase
				\$ 45,093.72 R/W Increase
				<b>\$ 274,237.53 TOTAL INCREASE</b>

267939 Sq Ft Wetland Impacts  
6.15 AC  
Reduction to wetland impacts  
1.73 AC

Option 2	Sq Ft	Paving	Unit Price	Total Cost
234377	26041.89	Sq Yd	\$ 85.00	\$ 149,415.34
	26041.89	Sq Yd	\$ 85.00	\$ 243,491.66
	26041.89	Sq Yd	\$ 85.00	\$ 365,237.49
	26041.89	Sq Yd	\$ 1.20	\$ 328.13
	26041.89	Sq Yd	\$ 20.00	\$ 1,945.33
				<b>\$ 760,417.95</b>
1194755.7		Right of Way		
	27.43	2656 AC		<b>\$ 148,103.40</b>
				\$ 310,436.05 Paving Cost Increase
				\$ 61,262.14 R/W Increase
				<b>\$ 371,698.20 TOTAL INCREASE</b>

181572 Sq Ft Wetland Impacts  
4.17 AC  
Reduction to wetland impacts  
3.71 AC

Comment A-2 Analysis

Original	Sq Ft	Paving	Unit Price	Total Cost
138694	15410.44	135 lbs/yd <sup>2</sup>	\$ 85.00	\$ 88,417.43
	15410.44	220 lbs/yd <sup>2</sup>	\$ 85.00	\$ 144,087.66
	15410.44	330 lbs/yd <sup>2</sup>	\$ 85.00	\$ 216,131.48
	15410.44	0.0035 gal/yd <sup>2</sup>	\$ 1.20	\$ 194.17
	15410.44	7.47 to FT3	\$ 20.00	\$ 1,151.16
				<b>\$ 449,981.90</b>
700551.66		Right of Way		
	16.08171	AC		\$ 86,841.26
				<b>\$ 86,841.26</b>
343375		Wetland Impacts		
		7.88 AC		

Original Paving Cost

Original R/W Cost

Option 1	Sq Ft	Paving	Unit Price	Total Cost
209321	23257.89	135 lbs/yd <sup>2</sup>	\$ 85.00	\$ 133,442.14
	23257.89	220 lbs/yd <sup>2</sup>	\$ 85.00	\$ 217,461.26
	23257.89	330 lbs/yd <sup>2</sup>	\$ 85.00	\$ 326,191.89
	23257.89	0.0035 gal/yd <sup>2</sup>	\$ 1.20	\$ 293.05
	23257.89	7.47 to FT3	\$ 20.00	\$ 1,737.36
				<b>\$ 679,125.70</b>
1064324.4		Right of Way		
	24.4324	AC		\$ 131,934.98
				<b>\$ 131,934.98</b>

\$ 229,143.81 Paving Cost Increase

\$ 45,093.72 R/W Increase

\$ 274,237.53 TOTAL INCREASE

Reduction to wetland impacts

1.73 AC

Option 2	Sq Ft	Paving	Unit Price	Total Cost
234377	26041.89	135 lbs/yd <sup>2</sup>	\$ 85.00	\$ 149,415.34
	26041.89	220 lbs/yd <sup>2</sup>	\$ 85.00	\$ 243,491.66
	26041.89	330 lbs/yd <sup>2</sup>	\$ 85.00	\$ 365,237.49
	26041.89	0.0035 gal/yd <sup>2</sup>	\$ 1.20	\$ 328.13
	26041.89	7.47 to FT3	\$ 20.00	\$ 1,945.33
				<b>\$ 760,417.95</b>
1194755.7		Right of Way		
	27.42656	AC		\$ 148,103.40
				<b>\$ 148,103.40</b>

\$ 310,436.05 Paving Cost Increase

\$ 61,262.14 R/W Increase

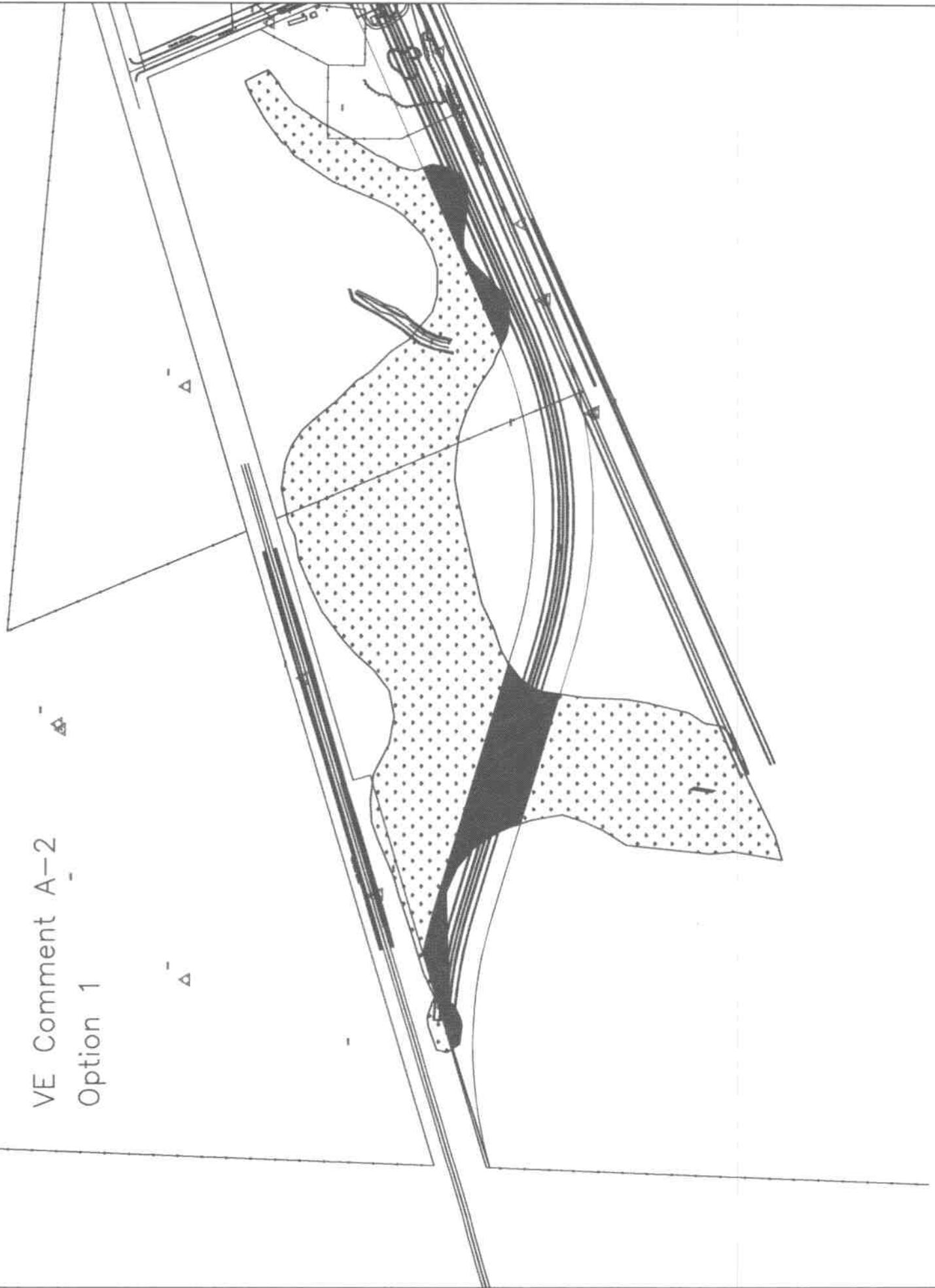
\$ 371,698.20 TOTAL INCREASE

Reduction to wetland impacts

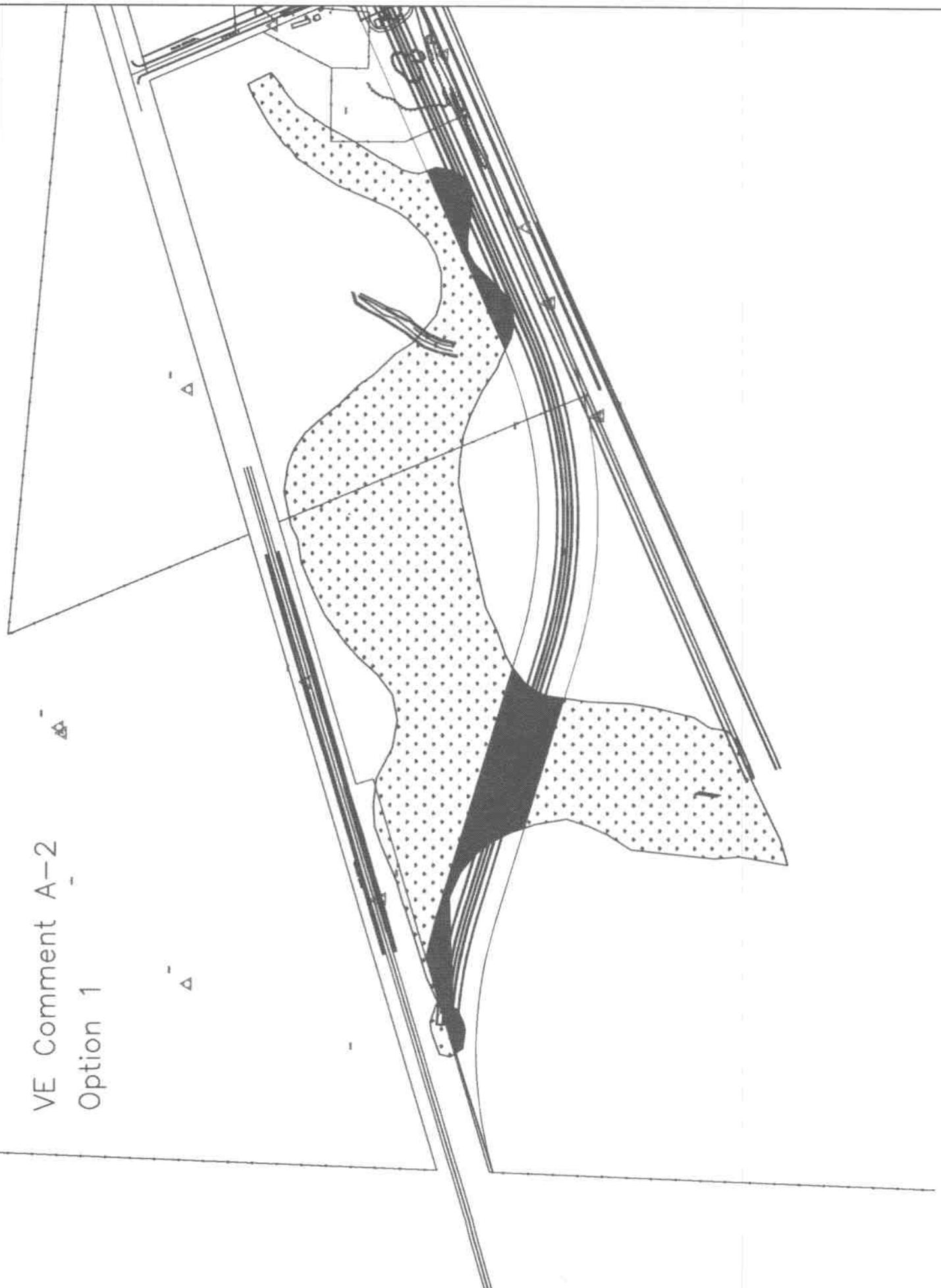
3.71 AC

	Sq Ft	Wetland Impacts
181572		4.17 AC

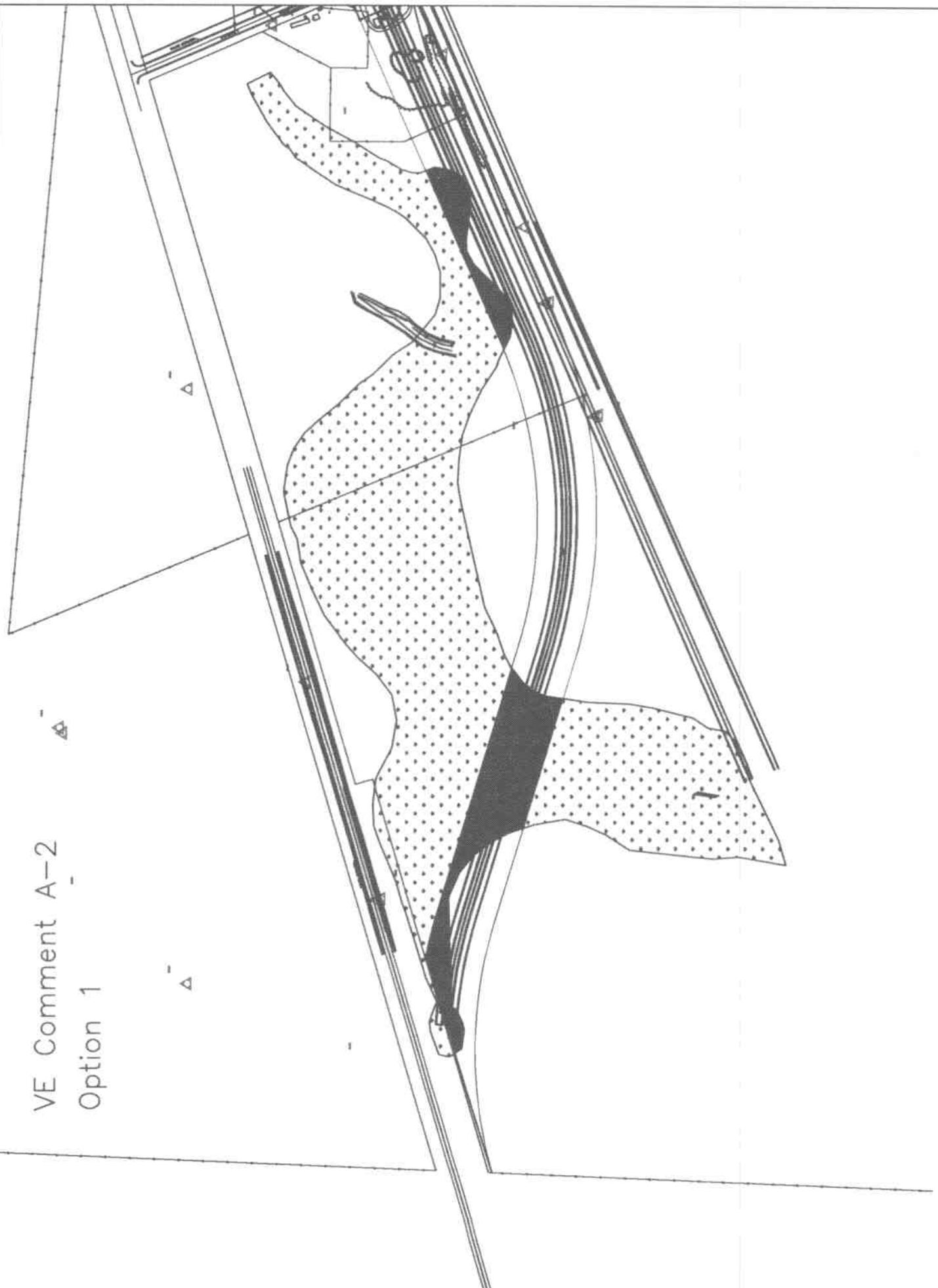
VE Comment A-2  
Option 1



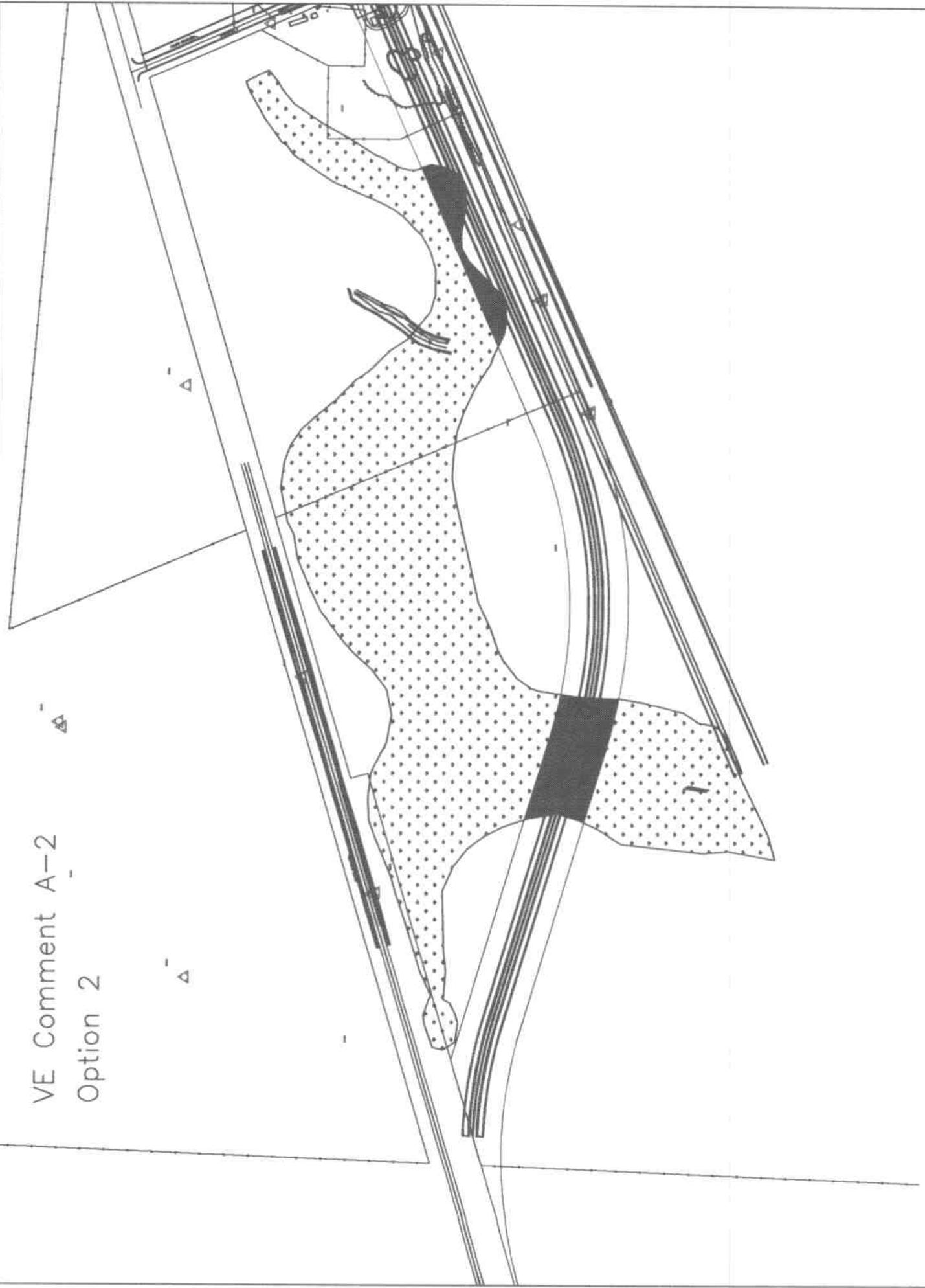
VE Comment A-2  
Option 1



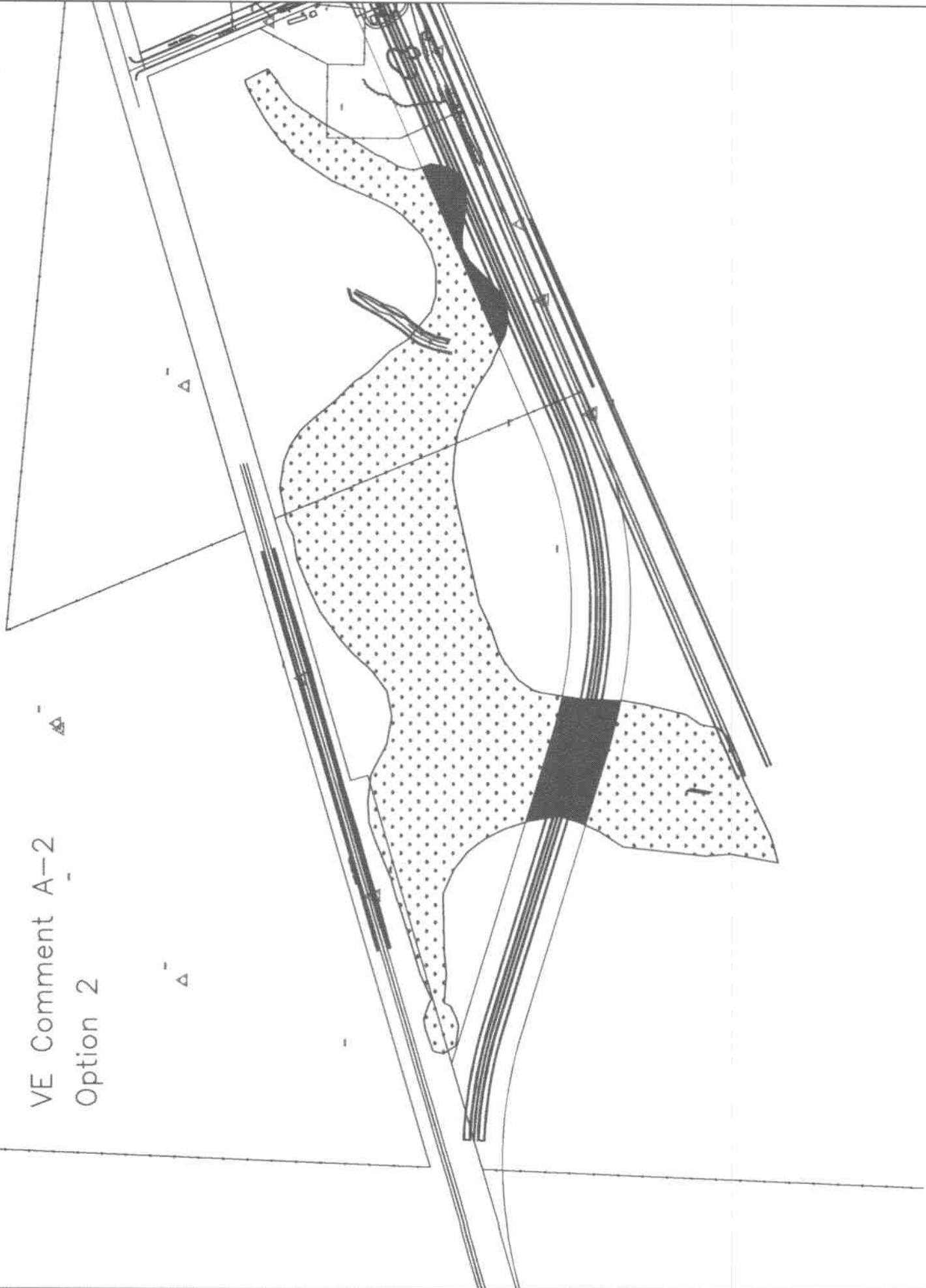
VE Comment A-2  
Option 1



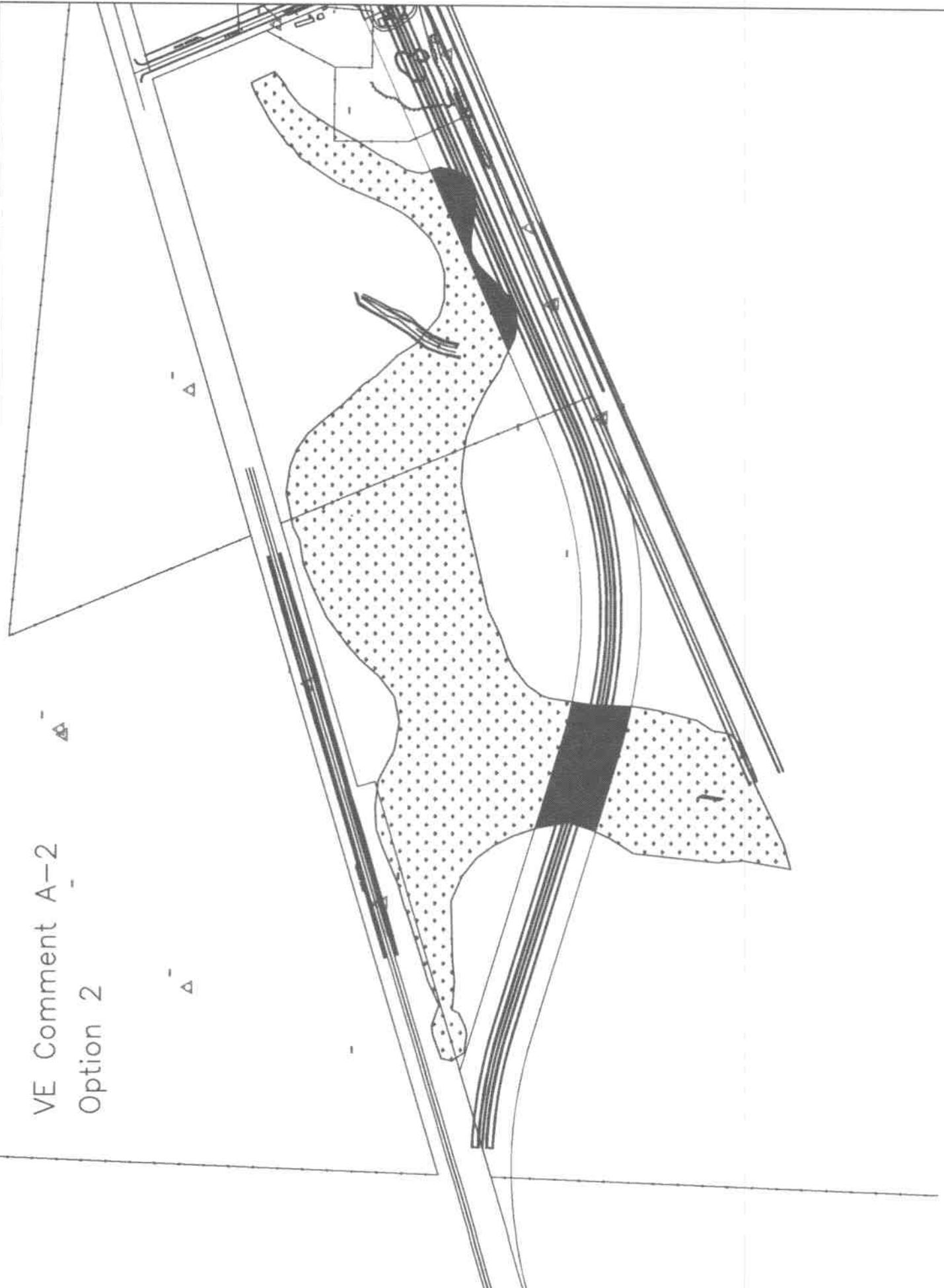
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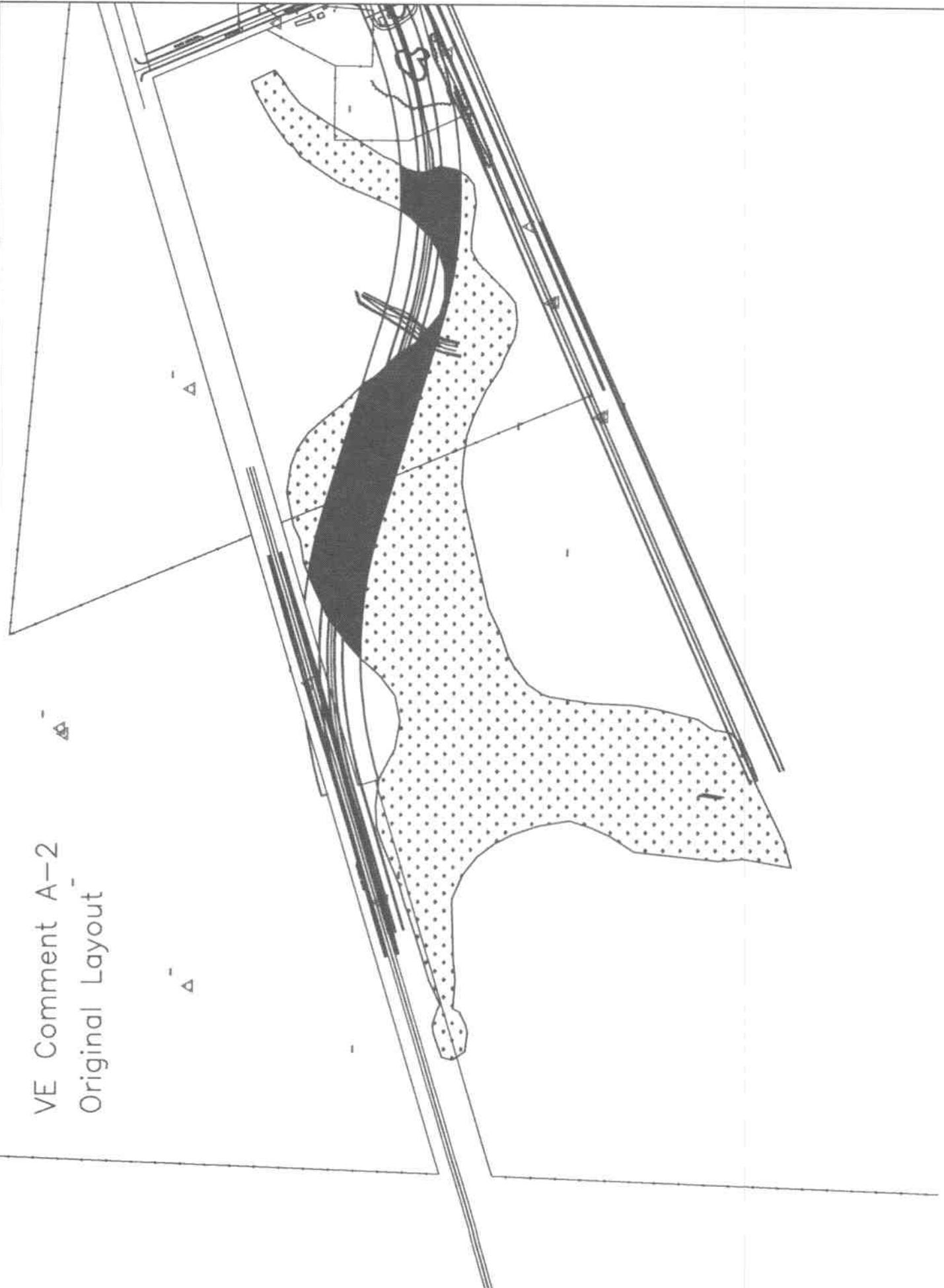
VE Comment A-2  
Option 2



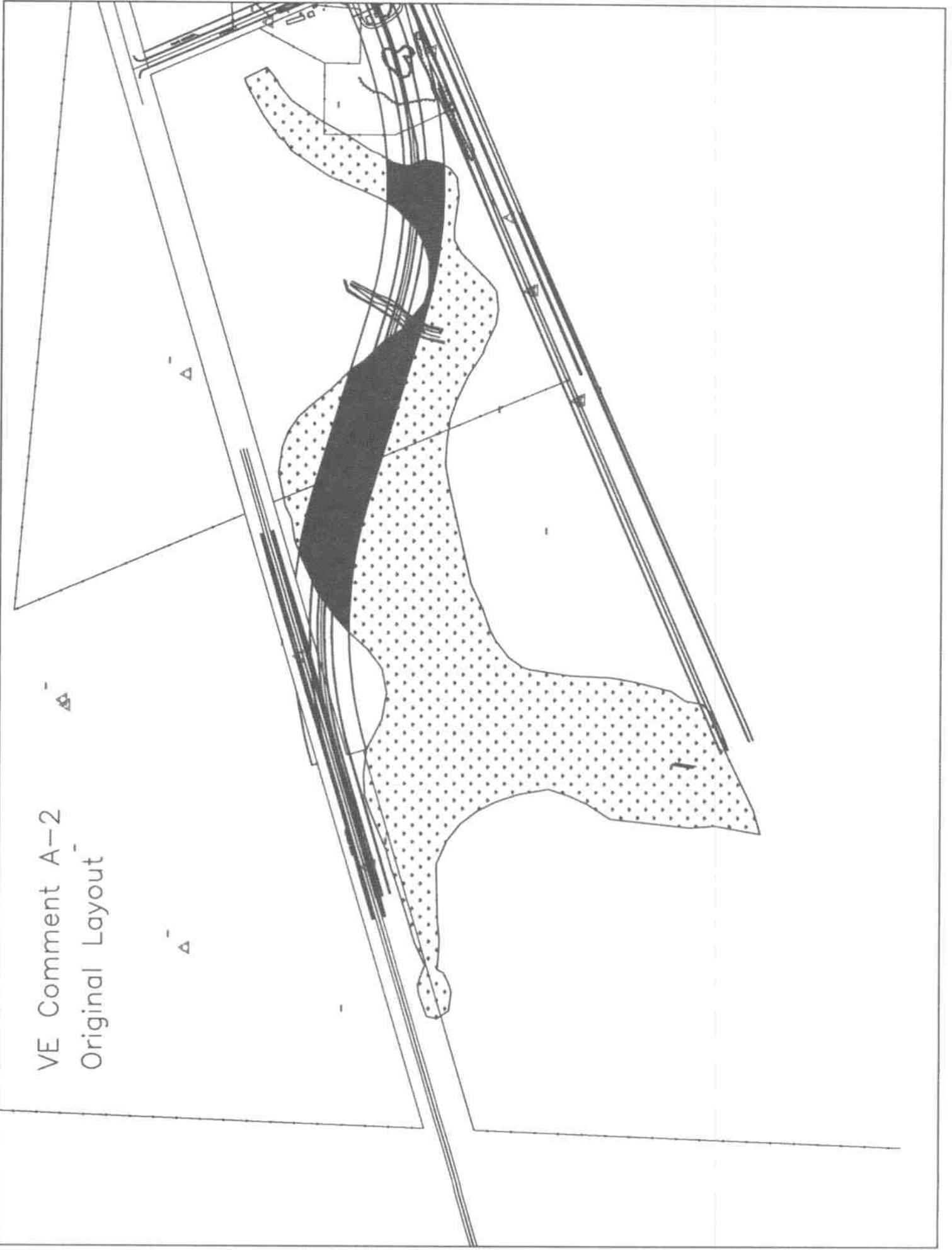
VE Comment A-2  
Option 2



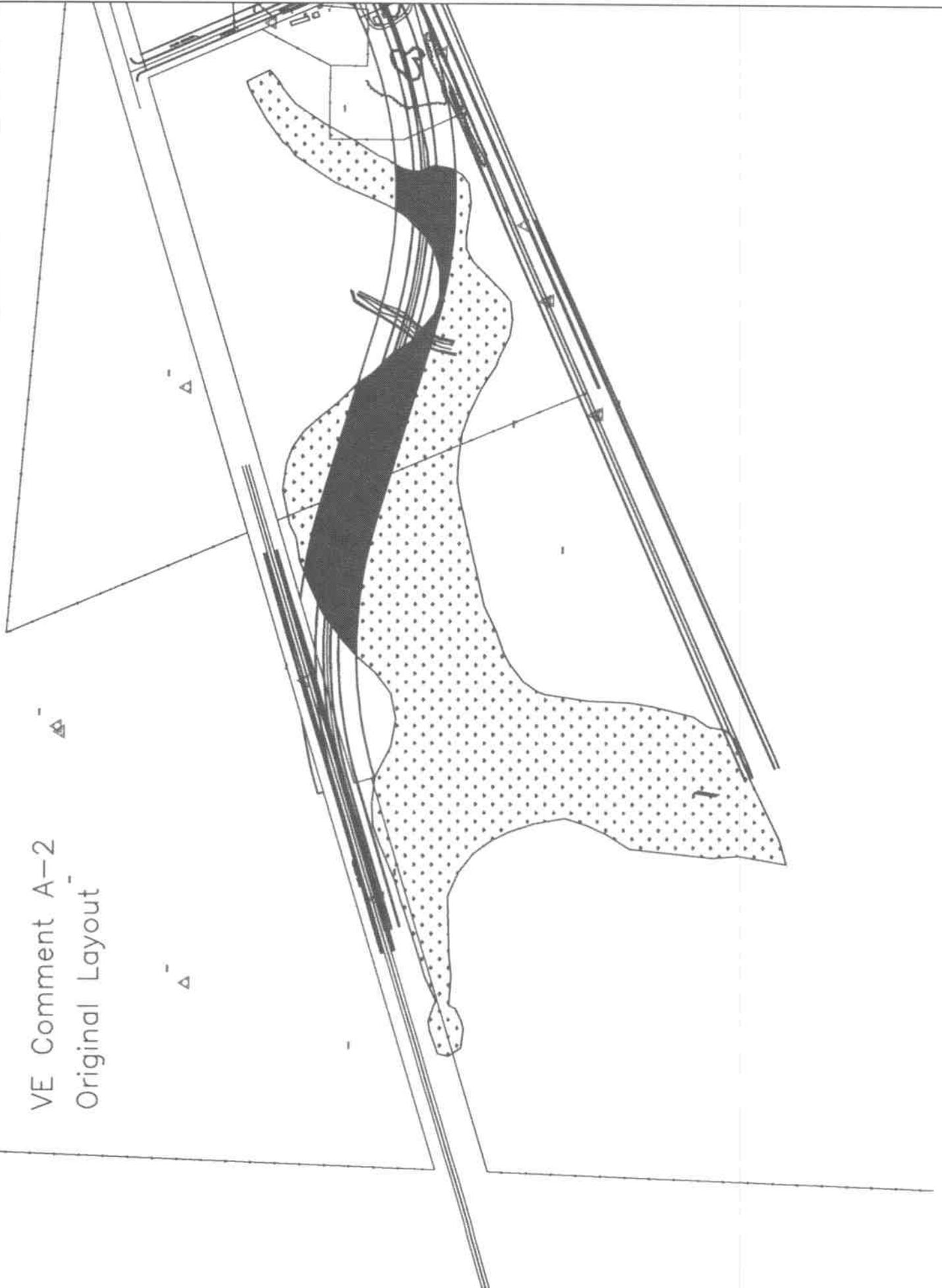
VE Comment A-2  
Original Layout



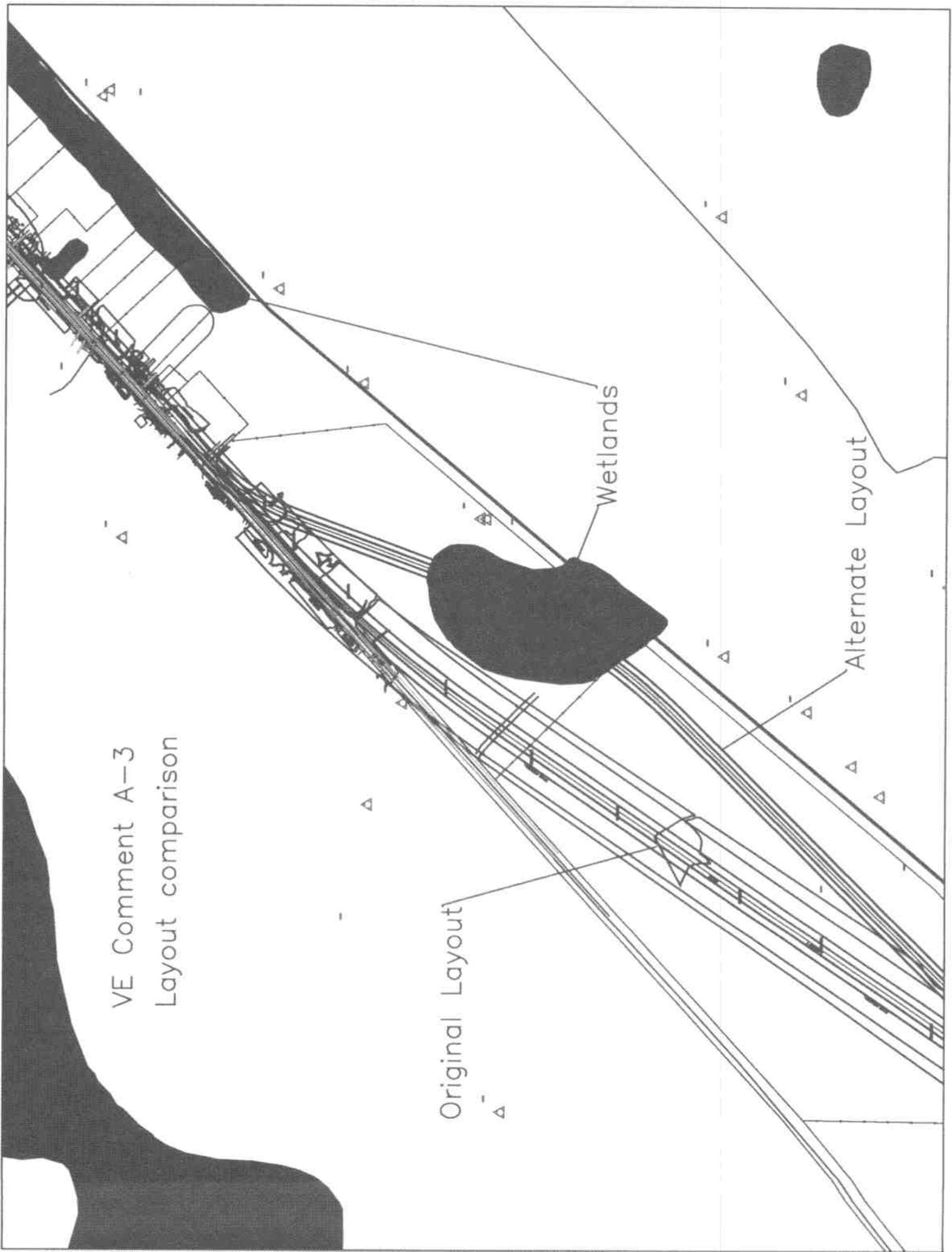
VE Comment A-2  
Original Layout



VE Comment A-2  
Original Layout



VE Comment A-3  
Layout comparison

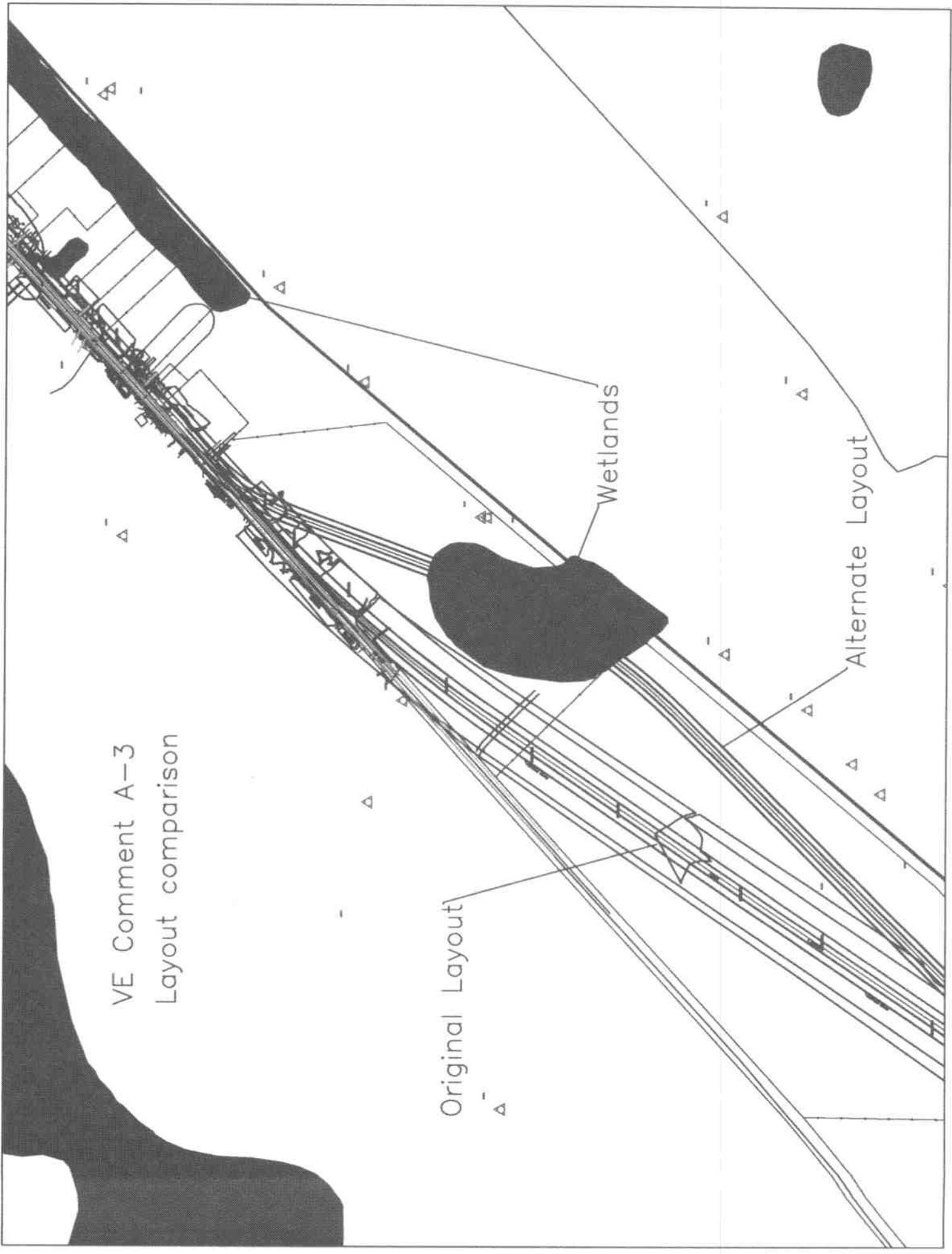


Original Layout

Wetlands

Alternate Layout

VE Comment A-3  
Layout comparison

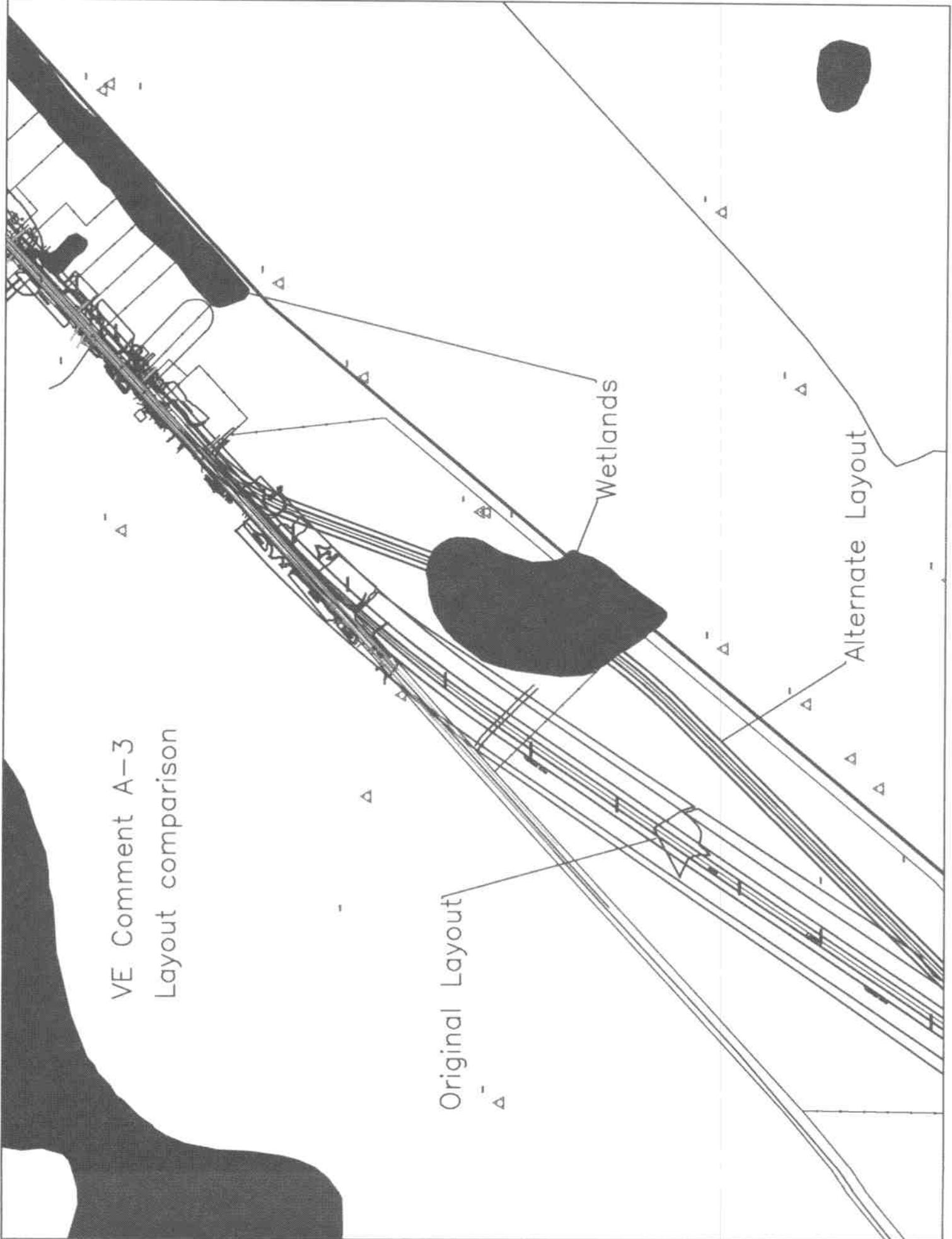


Original Layout

Wetlands

Alternate Layout

VE Comment A-3  
Layout comparison



Original Layout

Wetlands

Alternate Layout

Comment A-5 Analysis

New Location

<i>New 200' Corridor</i>				
Approx. Length (ft)	Req'd RM (sf)	(ac)	Unit Cost	
23000	4600000	105.6	\$4,500	\$475,206.61
				3.472 Mark Up%
				\$1,649,917.36
				\$2,125,123.97 Total (RM)
	<i>Replace GAB, Base, Binder (existing lane) Additional Paving (sf)</i>			
	552000			
		13493 25mm Base (Tons)	\$85	\$1,146,933.33
		6747 19mm Binder (Tons)	\$85	\$573,466.67
		39744 G.A.B. (Tons)	\$20	\$794,880.00
				<u>\$2,515,280.00</u> Sub Total (Base & Paving)
				0.1 Mark Up%
				\$251,528.00
				\$2,766,808.00 Total (Base & Paving)

**\$4,891,931.97 Increased Project Cost**

# mmment A-5 Analysis

## New Location

<i>New 200' Corridor</i>			
Approx. Length (ft)	Req'd RW (sf)	(ac)	Unit Cost
23000	4600000	105.6	\$4,500
			\$475,206.61
		3.472	Mark Up%
			\$1,649,917.36
			\$2,125,123.97
			Total (RAW)
	<i>Replace GAB, Base, Binder (existing lane) Additional Paving (sf)</i>		
	552000		
		13493	25mm Base (Tons)
		6747	19mm Binder (Tons)
		39744	G.A.B. (Tons)
			\$85
			\$85
			\$20
			\$1,146,933.33
			\$573,466.67
			\$794,880.00
			\$2,515,280.00
			Sub Total (Base & Paving)
			0.1
			Mark Up%
			\$251,528.00
			\$2,766,808.00
			Total (Base & Paving)
			<b>\$4,891,931.97</b>
			<b>Increased Project Cost</b>

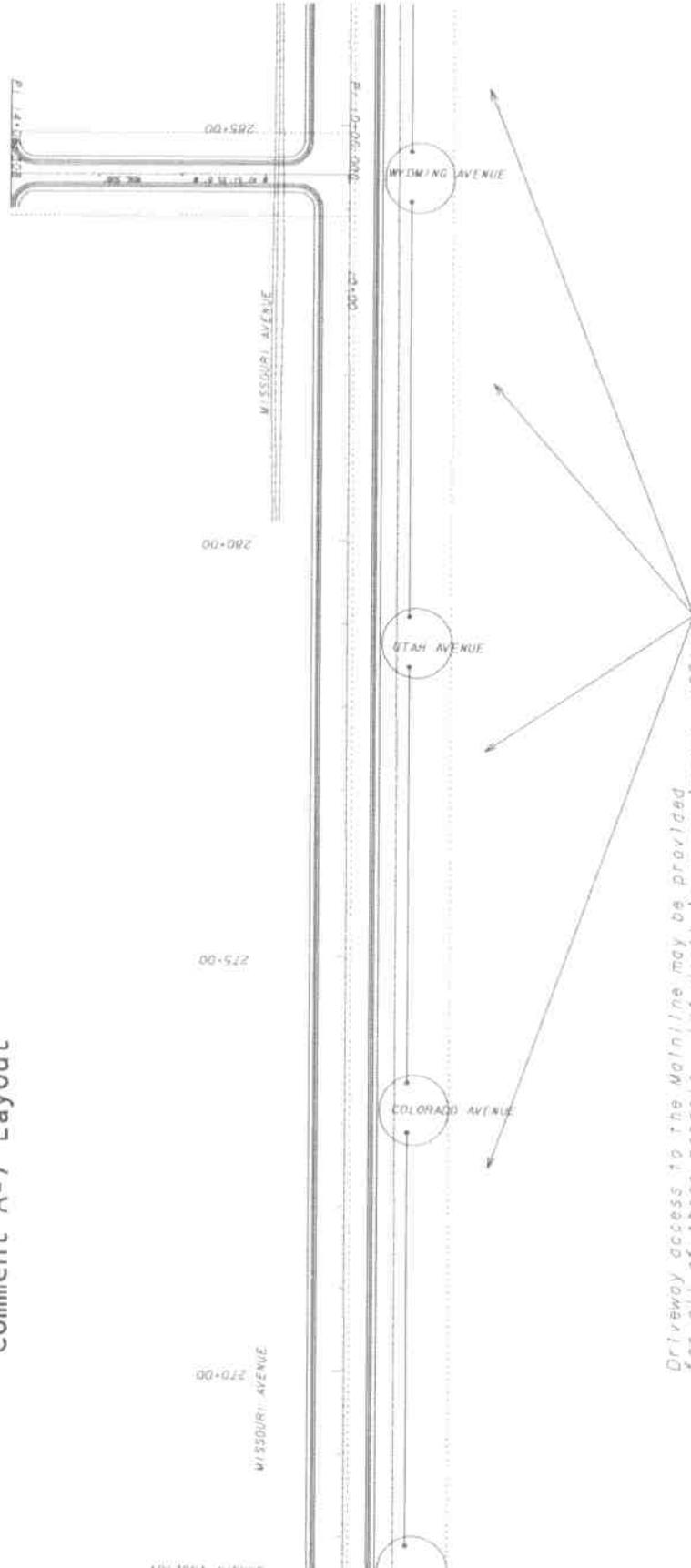
**Comment A-5 Analysis**

New Location

		<i>New 200' Corridor</i>		
Approx. Length (ft)	Req'd R/W (sf)	(ac)	Unit Cost	
23000	4600000	105.6	\$4,500	\$475,206.61
				3.472 Mark Up%
				\$1,649,917.36
				\$2,125,123.97 Total (R/W)
	<i>Replace GAB, Base, Binder (existing lane) Additional Paving (sf)</i>			
	552000			
		13493 25mm Base (Tons)	\$85	\$1,146,933.33
		6747 19mm Binder (Tons)	\$85	\$573,466.67
		39744 G.A.B. (Tons)	\$20	\$794,880.00
				<u>\$2,515,280.00</u> Sub Total (Base & Paving)
				0.1 Mark Up%
				\$251,528.00
				\$2,766,808.00 Total (Base & Paving)

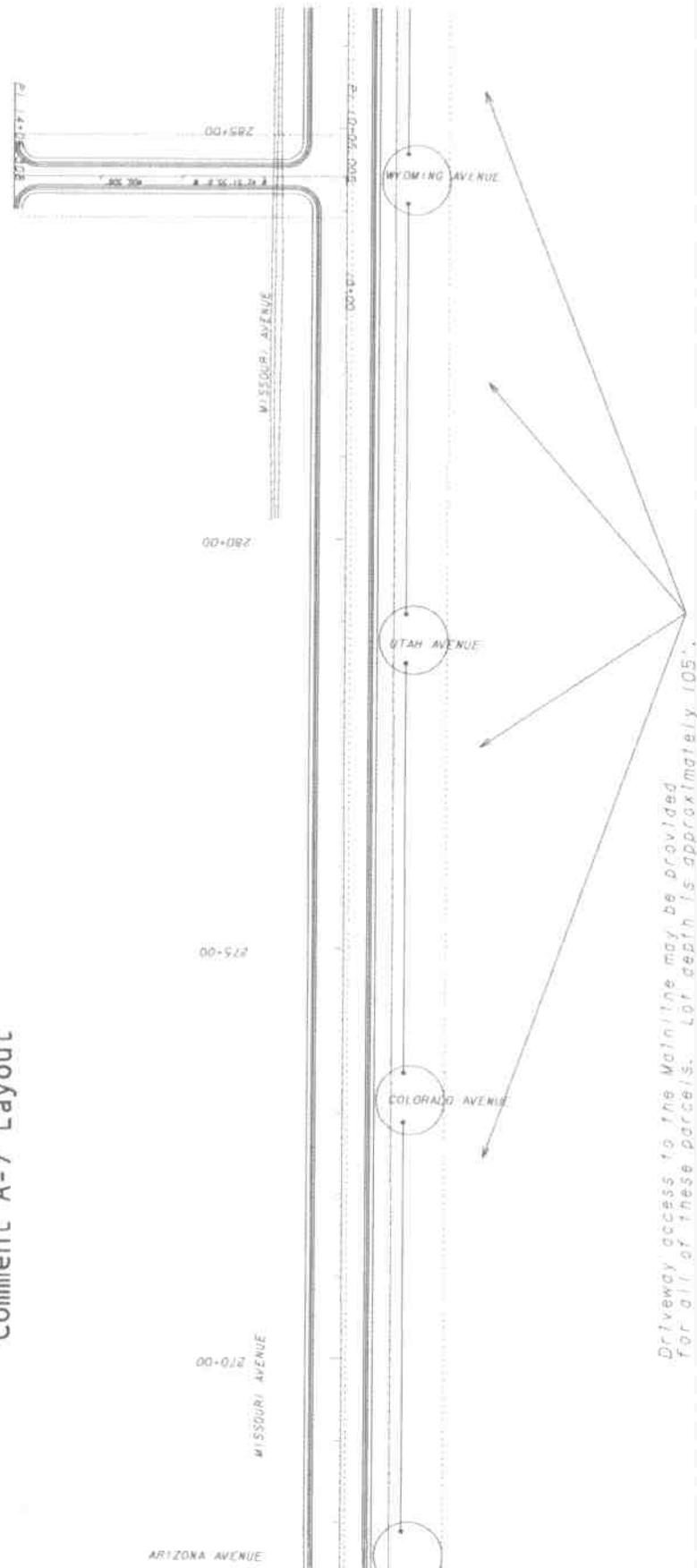
**\$4,891,931.97 Increased Project Cost**

# Comment A-7 Layout



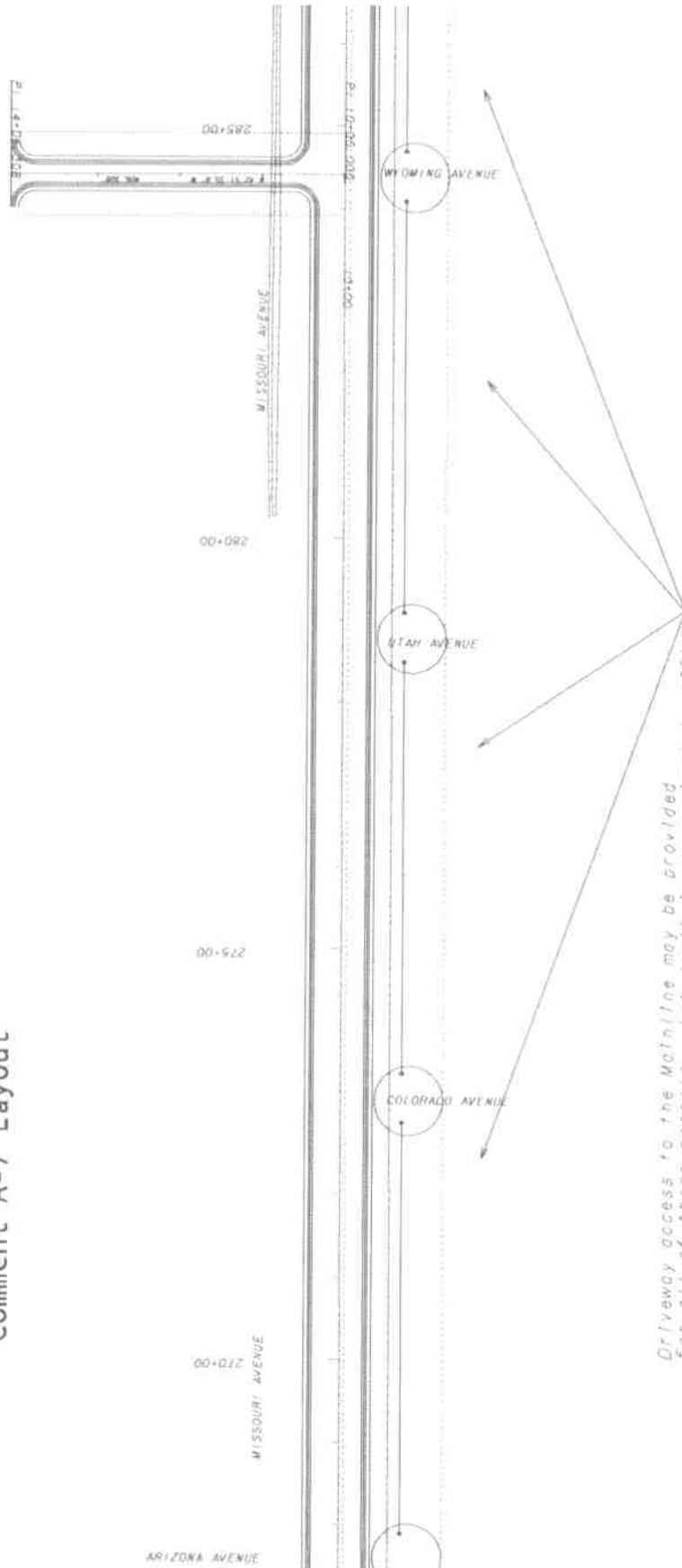
*Driveway access to the Mainline may be provided for all of these parcels. Lot depth is approximately 105'.*

Comment A-7 Layout



*Driveway access to the Mainline may be provided for all of these parcels. Lot depth is approximately 105'.*

Comment A-7 Layout



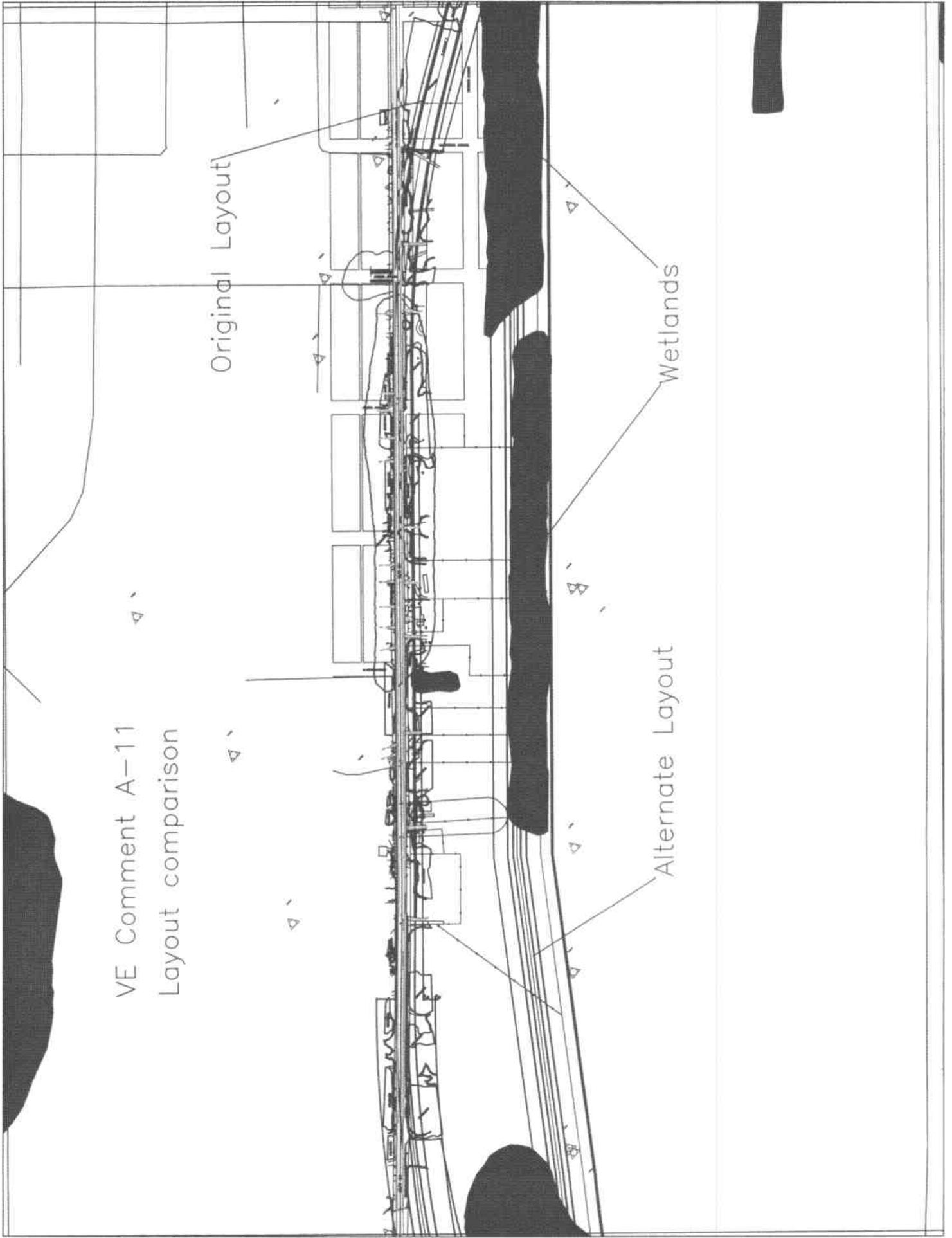
Driveway access to the Mainline may be provided  
for all of these parcels. Lot depth is approximately 105'.

VE Comment A-11  
Layout comparison

Original Layout

Alternate Layout

Wetlands

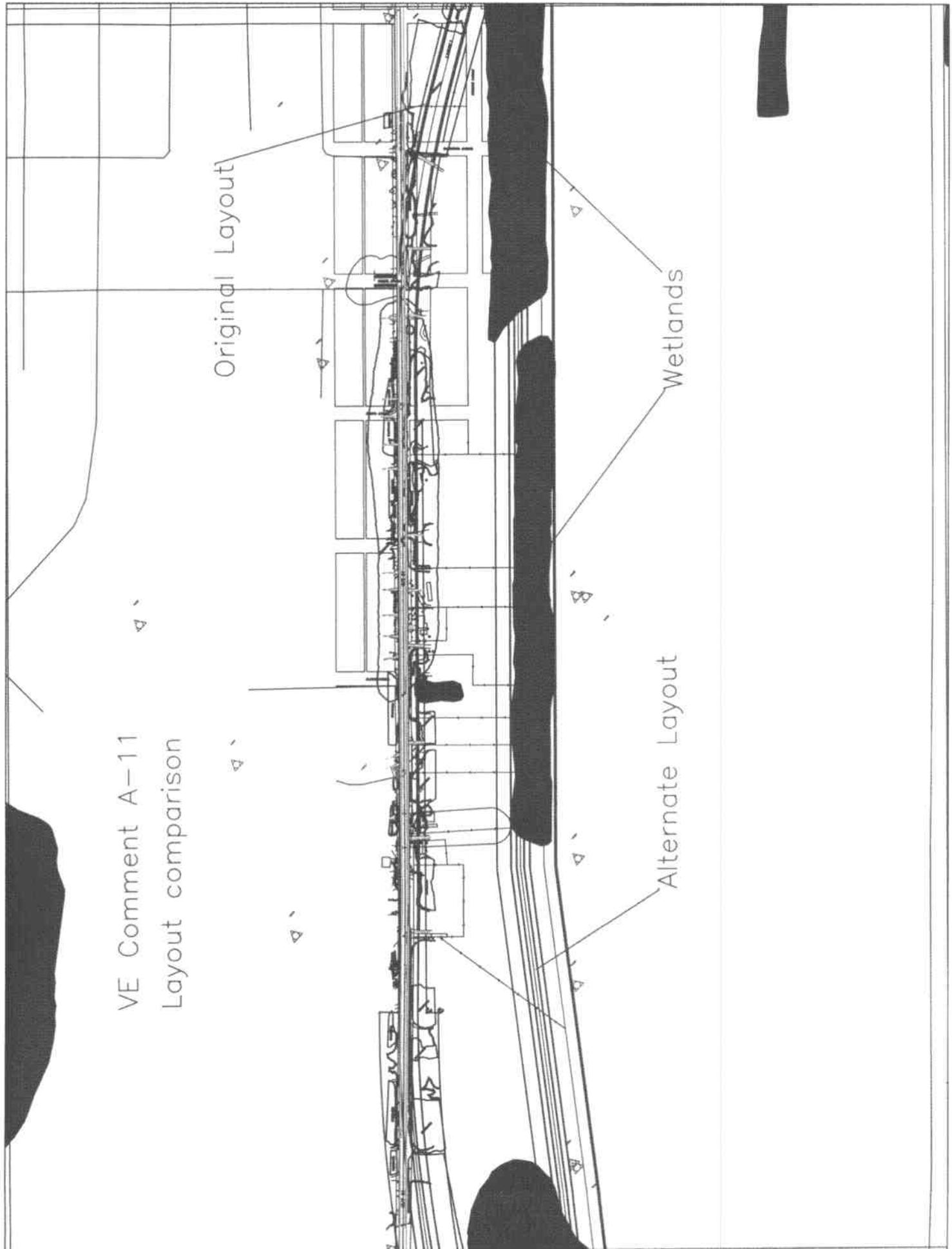


VE Comment A-11  
Layout comparison

Original Layout

Alternate Layout

Wetlands

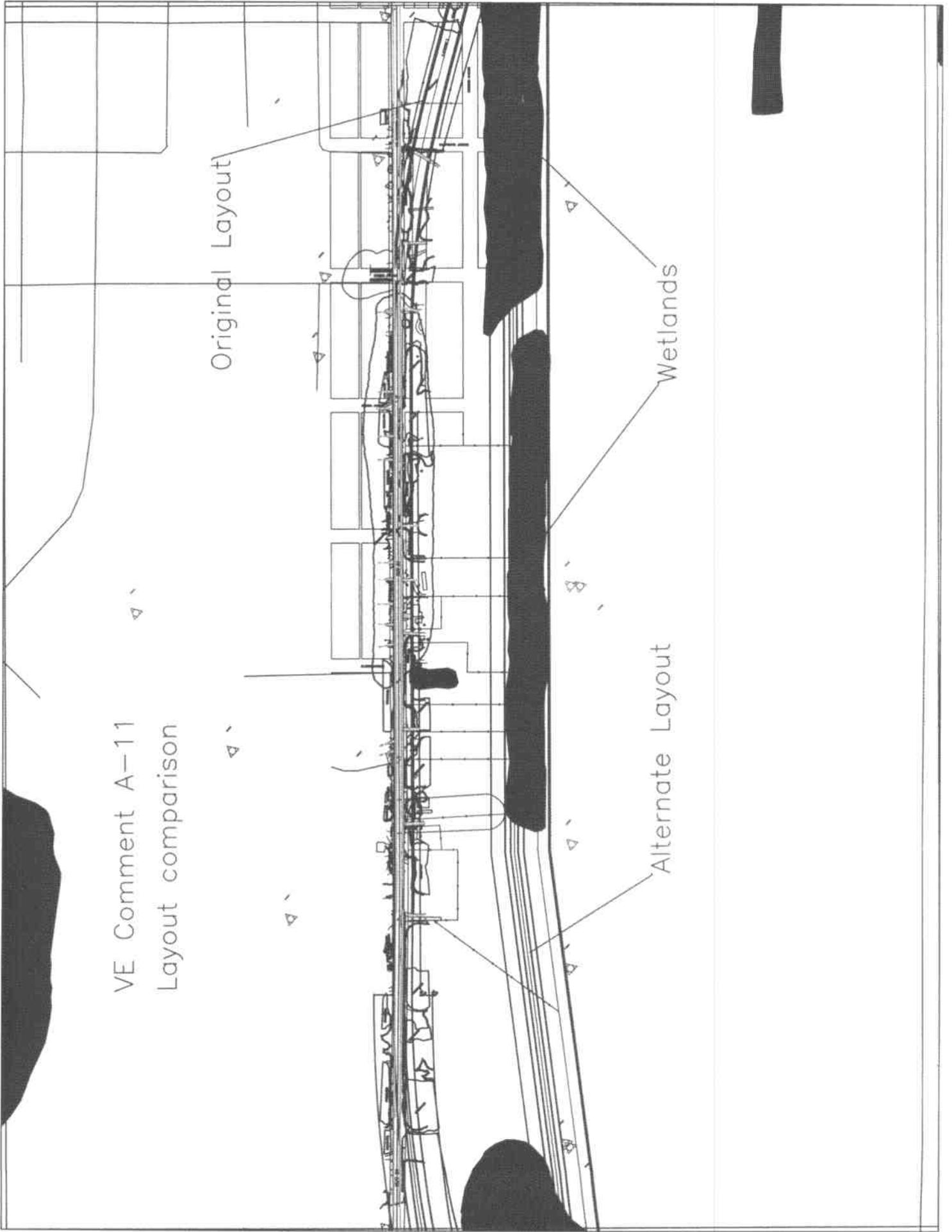


VE Comment A-11  
Layout comparison

Original Layout

Alternate Layout

Wetlands



Proposed bridge Big Alligator Creek Minimum Hydraulic Design	
Bridge length (ft)	1120
LCEL (ft)-NAVD	150
PGL (ft)-NAVD	154.03
Begin Station	199+25.4
End Station	210+45.4
Pier 1 Station	199+25.4
Pier 2 Station	200+05.4
Pier 3 Station	200+45.4
Pier 4 Station	200+85.4
Pier 5 Station	201+25.4
Pier 6 Station	201+65.4
Pier 7 Station	202+05.4
Pier 8 Station	202+45.4
Pier 9 Station	202+85.4
Pier 10 Station	203+25.4
Pier 11 Station	203+65.4
Pier 12 Station	204+05.4
Pier 13 Station	204+45.4
Pier 14 Station	204+85.4
Pier 15 Station	205+25.4
Pier 16 Station	205+65.4
Pier 17 Station	206+05.4
Pier 18 Station	206+45.4
Pier 19 Station	206+85.4
Pier 20 Station	207+25.4
Pier 21 Station	207+65.4
Pier 22 Station	208+05.4
Pier 23 Station	208+45.4
Pier 24 Station	208+85.4
Pier 25 Station	209+25.4
Pier 26 Station	209+65.4
Pier 27 Station	210+05.4
Downstream Contracted Section WSEL (ft) 50-yr	148.0
Approach subgrade elevation (ft) based on upstream contracted section	149.1

Existing Bridge Big Alligator Creek	
Bridge length (ft)	144
LCEL (ft)-NAVD	147.2
PGL (ft)-NAVD	153.2
Begin Station	204+18.4
End Station	205+62.4
Pier 1 Station	204+42.4
Pier 2 Station	204+66.4
Pier 3 Station	204+90.4
Pier 4 Station	205+14.4
Pier 5 Station	205+38.4
Downstream Contracted Section WSEL (ft) 50-yr	147.92

	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.1	N/A	-0.39	-0.26
Natural Conditions 100-year	148.38	N/A	-0.56	-0.3
Existing Conditions 50-year	148.49	0.39	N/A	0.13
Existing Conditions 100-year	148.94	0.56	N/A	0.26
Proposed Conditions 50-year	148.36	0.26	-0.13	N/A
Proposed Conditions 100-year	148.68	0.3	-0.26	N/A

	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.01	N/A	0.07	-0.08
Natural Conditions 100-year	148.25	N/A	-0.06	-0.1
Existing Conditions 50-year	147.94	-0.07	N/A	-0.15
Existing Conditions 100-year	148.31	0.06	N/A	-0.04
Proposed Conditions 50-year	148.09	0.08	0.15	N/A
Proposed Conditions 100-year	148.35	0.1	0.04	N/A

<b>Proposed bridge</b>	
<b>Big Alligator Creek</b>	
Minimum Hydraulic Design	
Bridge length (ft)	1120
LCEL (ft)-NAVD	150
PGL (ft)-NAVD	154.03
Begin Station	199+25.4
End Station	210+45.4
Pier 1 Station	199+25.4
Pier 2 Station	200+05.4
Pier 3 Station	200+45.4
Pier 4 Station	200+85.4
Pier 5 Station	201+25.4
Pier 6 Station	201+65.4
Pier 7 Station	202+05.4
Pier 8 Station	202+45.4
Pier 9 Station	202+85.4
Pier 10 Station	203+25.4
Pier 11 Station	203+65.4
Pier 12 Station	204+05.4
Pier 13 Station	204+45.4
Pier 14 Station	204+85.4
Pier 15 Station	205+25.4
Pier 16 Station	205+65.4
Pier 17 Station	206+05.4
Pier 18 Station	206+45.4
Pier 19 Station	206+85.4
Pier 20 Station	207+25.4
Pier 21 Station	207+65.4
Pier 22 Station	208+05.4
Pier 23 Station	208+45.4
Pier 24 Station	208+85.4
Pier 25 Station	209+25.4
Pier 26 Station	209+65.4
Pier 27 Station	210+05.4
Downstream Contracted Section	
WSEL (ft) 50-yr	148.0
Approach subgrade elevation (ft) based on upstream contracted section	149.1

<b>Existing Bridge</b>	
<b>Big Alligator Creek</b>	
Bridge length (ft)	144
LCEL (ft)-NAVD	147.2
PGL (ft)-NAVD	153.2
Begin Station	204+18.4
End Station	205+62.4
Pier 1 Station	204+42.4
Pier 2 Station	204+66.4
Pier 3 Station	204+90.4
Pier 4 Station	205+14.4
Pier 5 Station	205+38.4
Downstream Contracted Section	
Section WSEL (ft) 50-yr	147.92

Table 1. WSEL at Approach Section (Cross Section 6232)				
	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.1	N/A	-0.39	-0.26
Natural Conditions 100-year	148.38	N/A	-0.56	-0.3
Existing Conditions 50-year	148.49	0.39	N/A	0.13
Existing Conditions 100-year	148.94	0.56	N/A	0.26
Proposed Conditions 50-year	148.36	0.26	-0.13	N/A
Proposed Conditions 100-year	148.68	0.3	-0.26	N/A

Table 2. WSEL at Upstream Contracted Section (Cross Section 5893)				
	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.01	N/A	0.07	-0.08
Natural Conditions 100-year	148.25	N/A	-0.06	-0.1
Existing Conditions 50-year	147.94	-0.07	N/A	-0.15
Existing Conditions 100-year	148.31	0.06	N/A	-0.04
Proposed Conditions 50-year	148.09	0.08	0.15	N/A
Proposed Conditions 100-year	148.35	0.1	0.04	N/A

Proposed bridge Big Alligator Creek Minimum Hydraulic Design	
Bridge length (ft)	1120
LCEL (ft)-NAVD	150
PGL (ft)-NAVD	154.03
Begin Station	199+25.4
End Station	210+45.4
Pier 1 Station	199+25.4
Pier 2 Station	200+05.4
Pier 3 Station	200+45.4
Pier 4 Station	200+85.4
Pier 5 Station	201+25.4
Pier 6 Station	201+65.4
Pier 7 Station	202+05.4
Pier 8 Station	202+45.4
Pier 9 Station	202+85.4
Pier 10 Station	203+25.4
Pier 11 Station	203+65.4
Pier 12 Station	204+05.4
Pier 13 Station	204+45.4
Pier 14 Station	204+85.4
Pier 15 Station	205+25.4
Pier 16 Station	205+65.4
Pier 17 Station	206+05.4
Pier 18 Station	206+45.4
Pier 19 Station	206+85.4
Pier 20 Station	207+25.4
Pier 21 Station	207+65.4
Pier 22 Station	208+05.4
Pier 23 Station	208+45.4
Pier 24 Station	208+85.4
Pier 25 Station	209+25.4
Pier 26 Station	209+65.4
Pier 27 Station	210+05.4
Downstream Contracted Section WSEL (ft) 50-yr	148.0
Approach subgrade elevation (ft) based on upstream contracted section	149.1

Existing Bridge Big Alligator Creek	
Bridge length (ft)	144
LCEL (ft)-NAVD	147.2
PGL (ft)-NAVD	153.2
Begin Station	204+18.4
End Station	205+62.4
Pier 1 Station	204+42.4
Pier 2 Station	204+66.4
Pier 3 Station	204+90.4
Pier 4 Station	205+14.4
Pier 5 Station	205+38.4
Downstream Contracted Section WSEL (ft) 50-yr	147.92

	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.1	N/A	-0.39	-0.26
Natural Conditions 100-year	148.38	N/A	-0.56	-0.3
Existing Conditions 50-year	148.49	0.39	N/A	0.13
Existing Conditions 100-year	148.94	0.56	N/A	0.26
Proposed Conditions 50-year	148.36	0.26	-0.13	N/A
Proposed Conditions 100-year	148.68	0.3	-0.26	N/A

	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.01	N/A	0.07	-0.08
Natural Conditions 100-year	148.25	N/A	-0.06	-0.1
Existing Conditions 50-year	147.94	-0.07	N/A	-0.15
Existing Conditions 100-year	148.31	0.06	N/A	-0.04
Proposed Conditions 50-year	148.09	0.08	0.15	N/A
Proposed Conditions 100-year	148.35	0.1	0.04	N/A

<b>Proposed bridge</b>	
Minimum Hydraulic Design	
Bridge length (ft)	240
LCEL (ft)	154.9
PGL (ft)	158.83
Begin Station	12+76.7
End Station	15+16.7
Pier 1 Station	13+16.7
Pier 2 Station	13+56.7
Pier 3 Station	13+96.7
Pier 4 Station	14+36.7
Pier 5 Station	14+76.7
Downstream	
Contracted Section	
WSEL (ft) 50-yr	152.87
Approach subgrade elevation (ft)	153.9

<b>Existing Bridge</b>	
Bridge length (ft)	96
LCEL (ft)	152.9
PGL (ft)	156.9
Begin Station	13+53
End Station	14+49
Pier 1 Station	13+77.6
Pier 2 Station	14+1.6
Pier 3 Station	14+25.6
Downstream	
Contracted Section	
WSEL (ft) 50-yr	152.99

	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	152.87	N/A	-0.74	-0.37
Natural Conditions 100-year	153.4	N/A	-0.47	-0.42
Existing Conditions 50-year	153.61	0.74	N/A	0.37
Existing Conditions 100-year	153.87	0.05	N/A	0.05
Proposed Conditions 50-year	153.24	0.37	-0.37	N/A
Proposed Conditions 100-year	153.82	0.42	-0.05	N/A

	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	152.82	N/A	-0.64	-0.25
Natural Conditions 100-year	153.37	N/A	-0.33	-0.26
Existing Conditions 50-year	153.46	0.64	N/A	0.39
Existing Conditions 100-year	153.7	0.07	N/A	0.07
Proposed Conditions 50-year	153.07	0.25	-0.39	N/A
Proposed Conditions 100-year	153.63	0.26	-0.07	N/A

<b>Proposed bridge</b>	
Minimum Hydraulic Design	
Bridge length (ft)	240
LCEL (ft)	154.9
PGL (ft)	158.83
Begin Station	12+76.7
End Station	15+16.7
Pier 1 Station	13+16.7
Pier 2 Station	13+56.7
Pier 3 Station	13+96.7
Pier 4 Station	14+36.7
Pier 5 Station	14+76.7
Downstream	
Contracted Section	
WSEL (ft) 50-yr	152.87
Approach subgrade	
elevation (ft)	153.9

<b>Existing Bridge</b>	
Bridge length (ft)	96
LCEL (ft)	152.9
PGL (ft)	156.9
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Downstream	
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Approach subgrade	
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Existing Conditions 100-year	153.7	0.07	N/A	0.07
Proposed Conditions 50-year	153.07	0.25	-0.39	N/A
Proposed Conditions 100-year	153.63	0.26	-0.07	N/A

<b>Proposed bridge Little Alligator Creek Minimum Hydraulic Design</b>	
Bridge length (ft)	400
LCEL (ft)-NAVD	150.03
PGL (ft)-NAVD	154.06
Begin Station	182+40
End Station	186+40
Pier 1 Station	182+80
Pier 2 Station	183+20
Pier 3 Station	183+60
Pier 4 Station	184+00
Pier 5 Station	184+40
Pier 6 Station	184+80
Pier 7 Station	185+20
Pier 8 Station	185+60
Pier 9 Station	186+00
Downstream Contracted Section	
WSEL (ft) 50-yr	148.03
Approach subgrade elevation (ft)	149.1

<b>Existing Bridge Little Alligator Creek</b>	
Bridge length (ft)	72
LCEL (ft)-NAVD	146.4
PGL (ft)-NAVD	152.2
Begin Station	184+27
End Station	184+99
Pier 1 Station	184+51
Pier 2 Station	184+75
Downstream Contracted Section	
WSEL (ft) 50-yr	148.03

Table 1. WSEL at Approach Section (Cross Section 6235)				
	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.04	N/A	-0.64	-0.08
Natural Conditions 100-year	148.27	N/A	-0.09	-0.12
Existing Conditions 50-year	148.68	0.64	N/A	0.56
Existing Conditions 100-year	148.36	0.09	N/A	-0.03
Proposed Conditions 50-year	148.12	0.08	-0.56	N/A
Proposed Conditions 100-year	148.39	0.12	0.03	N/A

Table 2. WSEL at Upstream Contracted Section (Cross Section 5893)				
	WSEL	Rise With Respect to		
		Natural	Existing	Proposed
Natural Conditions 50-year	148.02	N/A	-0.65	-0.05
Natural Conditions 100-year	148.25	N/A	-0.11	-0.09
Existing Conditions 50-year	148.67	0.65	N/A	0.6
Existing Conditions 100-year	148.36	0.11	N/A	0.02
Proposed Conditions 50-year	148.07	0.05	-0.6	N/A
Proposed Conditions 100-year	148.34	0.09	-0.02	N/A

<b>Proposed bridge</b>	
<b>Little Alligator Creek</b>	
Minimum Hydraulic Design	
Bridge length (ft)	400
LCEL (ft)-NAVD	150.03
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Pier 9 Station	186+00
Downstream Contracted Section	
WSEL (ft) 50-yr	148.03
Approach subgrade elevation (ft)	149.1

<b>Existing Bridge</b>	
<b>Little Alligator Creek</b>	
Bridge length (ft)	72
LCEL (ft)-NAVD	146.4
PGL (ft)-NAVD	152.2
Begin Station	184+27
End Station	184+99
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Downstream Contracted Section	
WSEL (ft) 50-yr	148.03

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Existing Conditions 100-year	148.36	0.09	N/A	-0.03
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Proposed Conditions 100-year	148.39	0.12	0.03	N/A

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Pier 8 Station	185+60
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Downstream Contracted Section	
WSEL (ft) 50-yr	148.03
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<b>Existing Bridge Little Alligator Creek</b>	
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Downstream Contracted Section	
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Figure 2. 2003 Collision Diagram

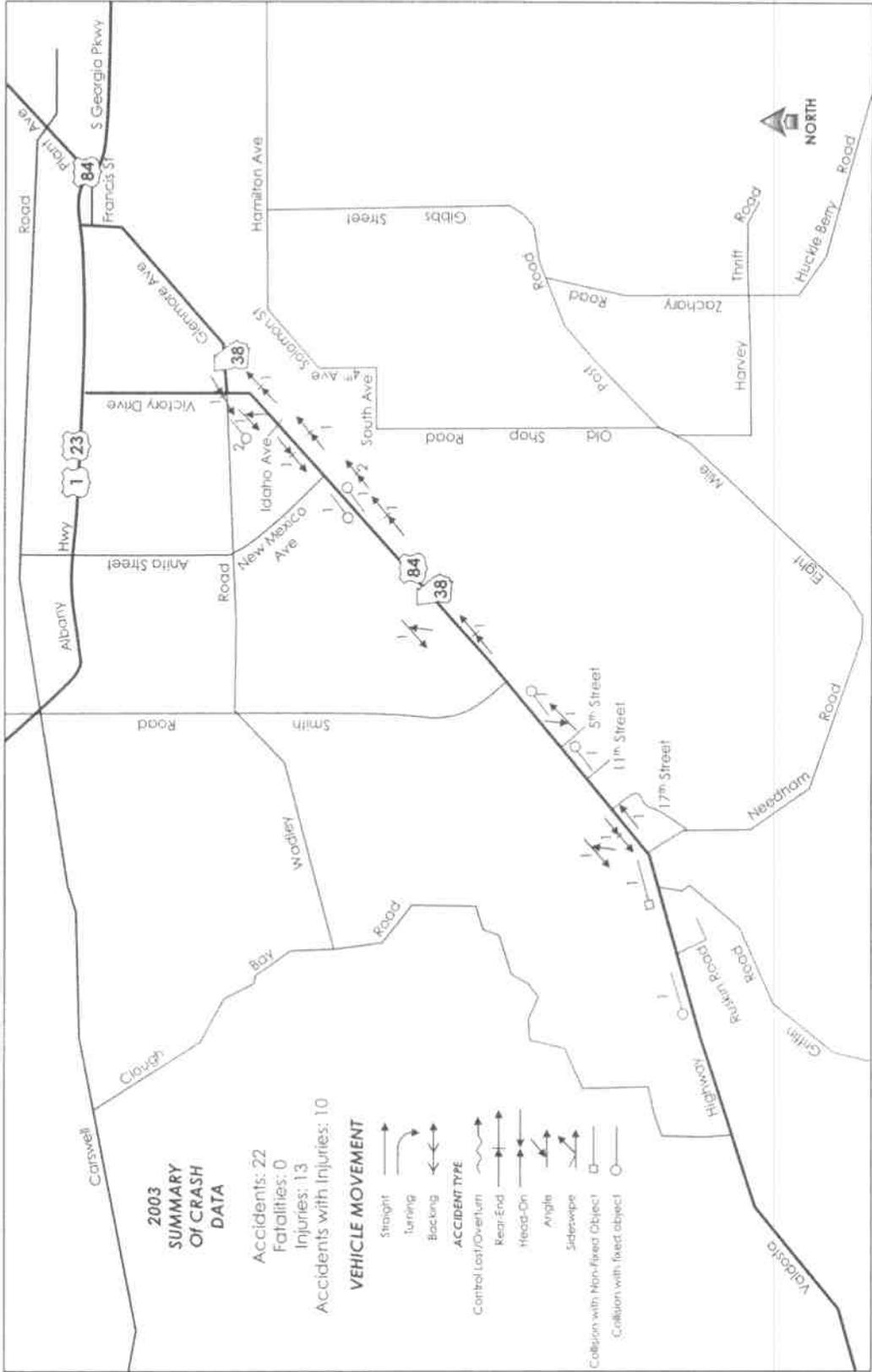


Figure 2. 2003 Collision Diagram

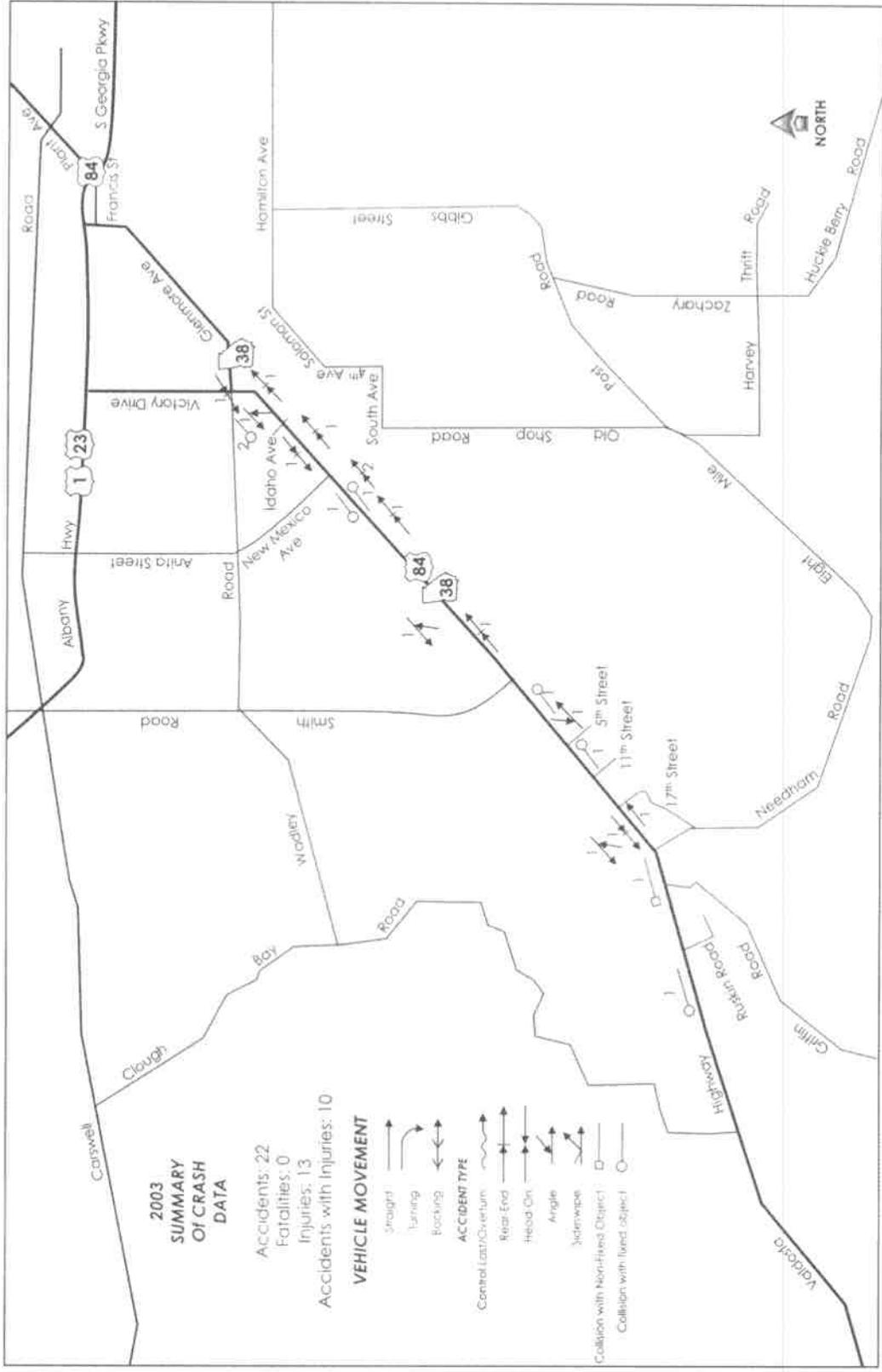


Figure 2. 2003 Collision Diagram

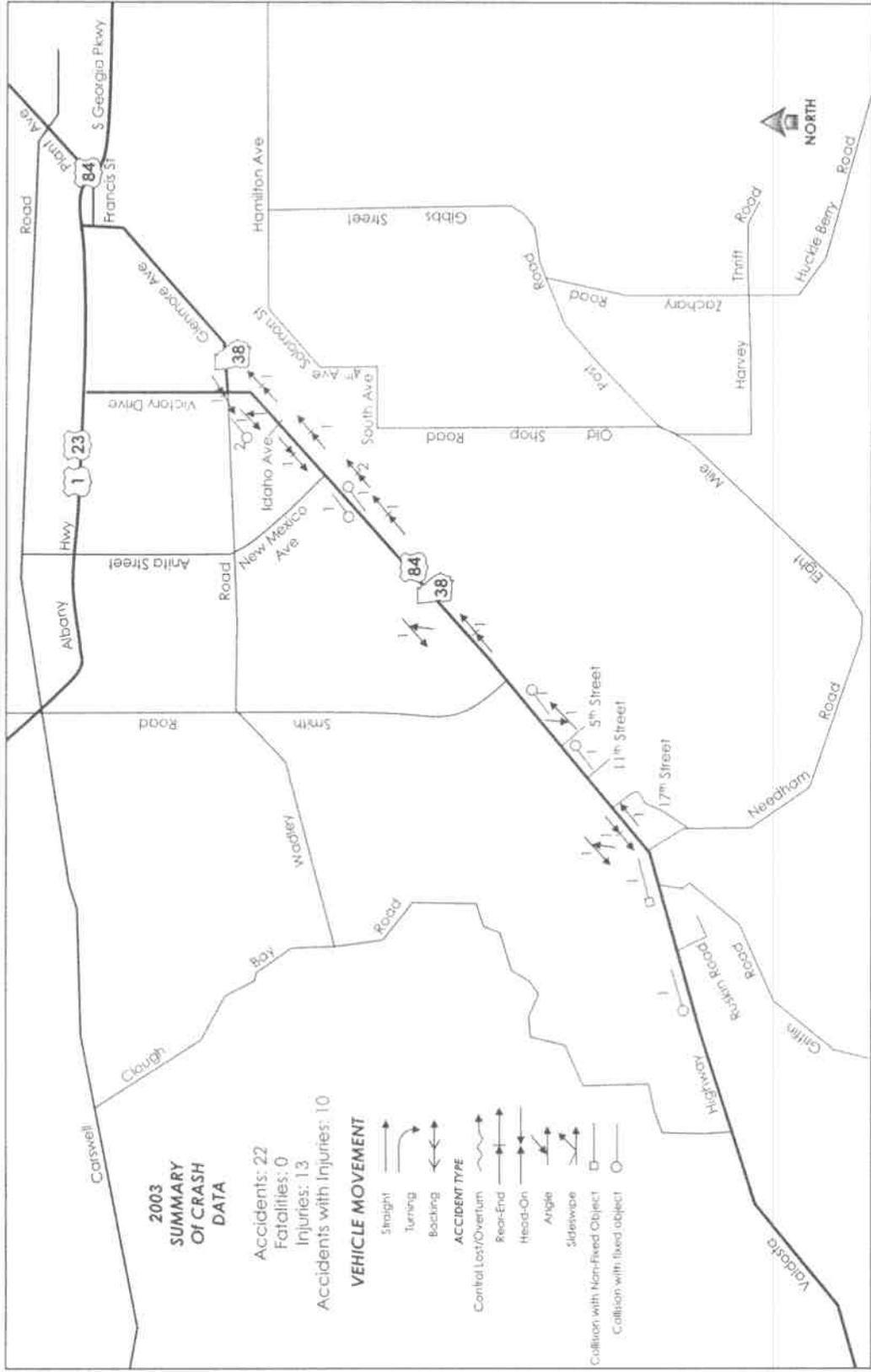


Figure 3. 2004 Collision Diagram

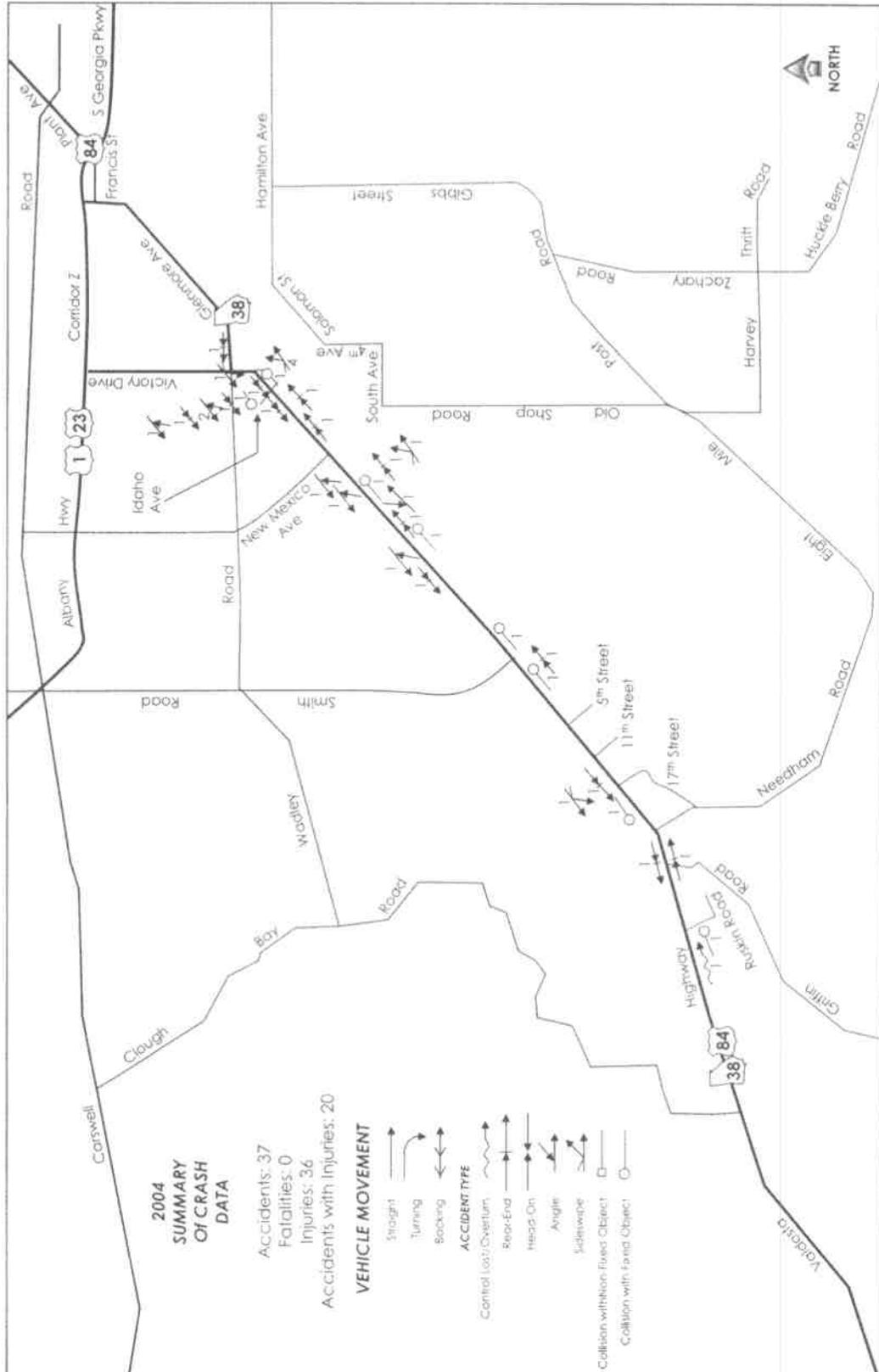


Figure 3. 2004 Collision Diagram

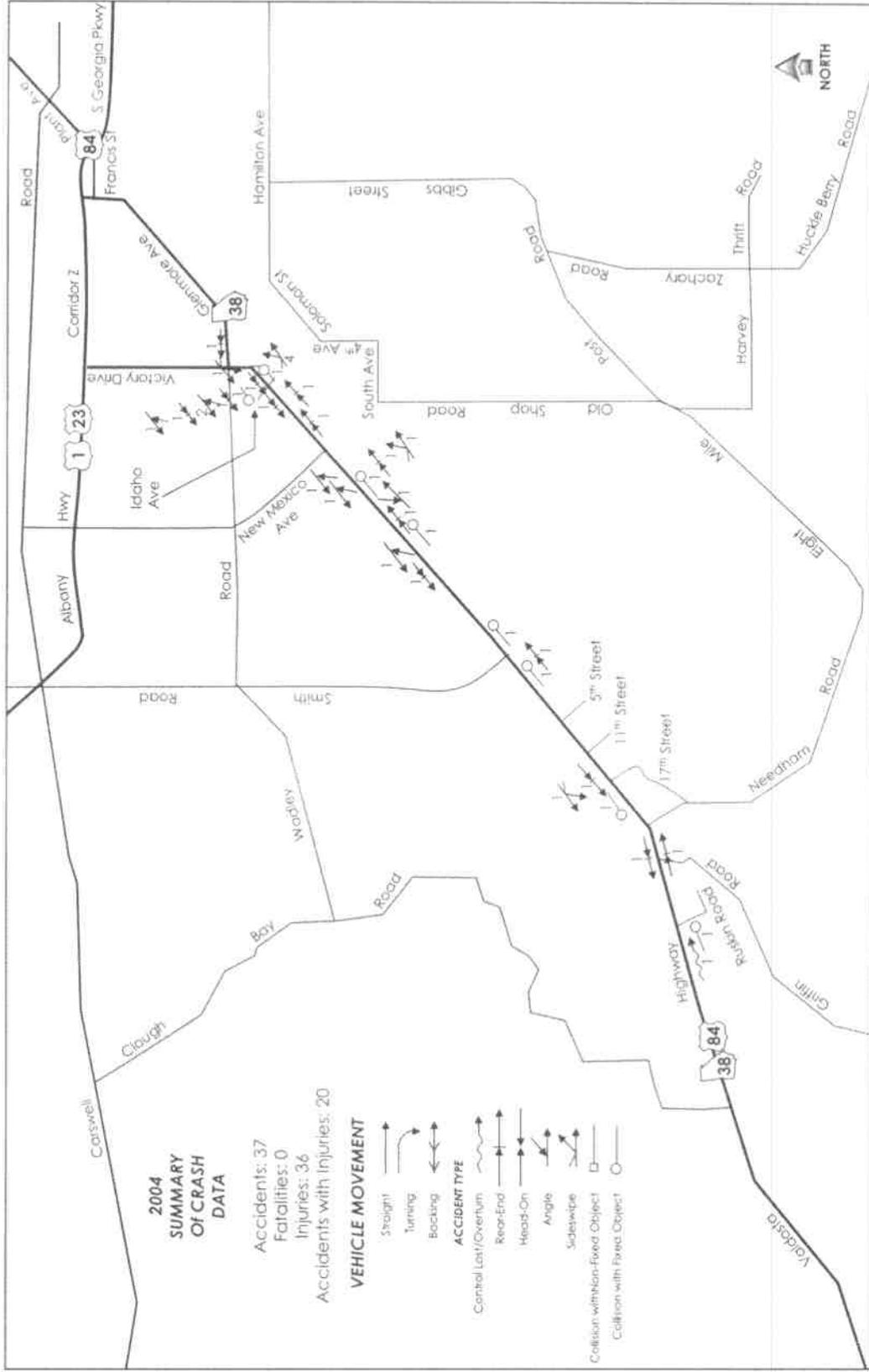


Figure 3. 2004 Collision Diagram

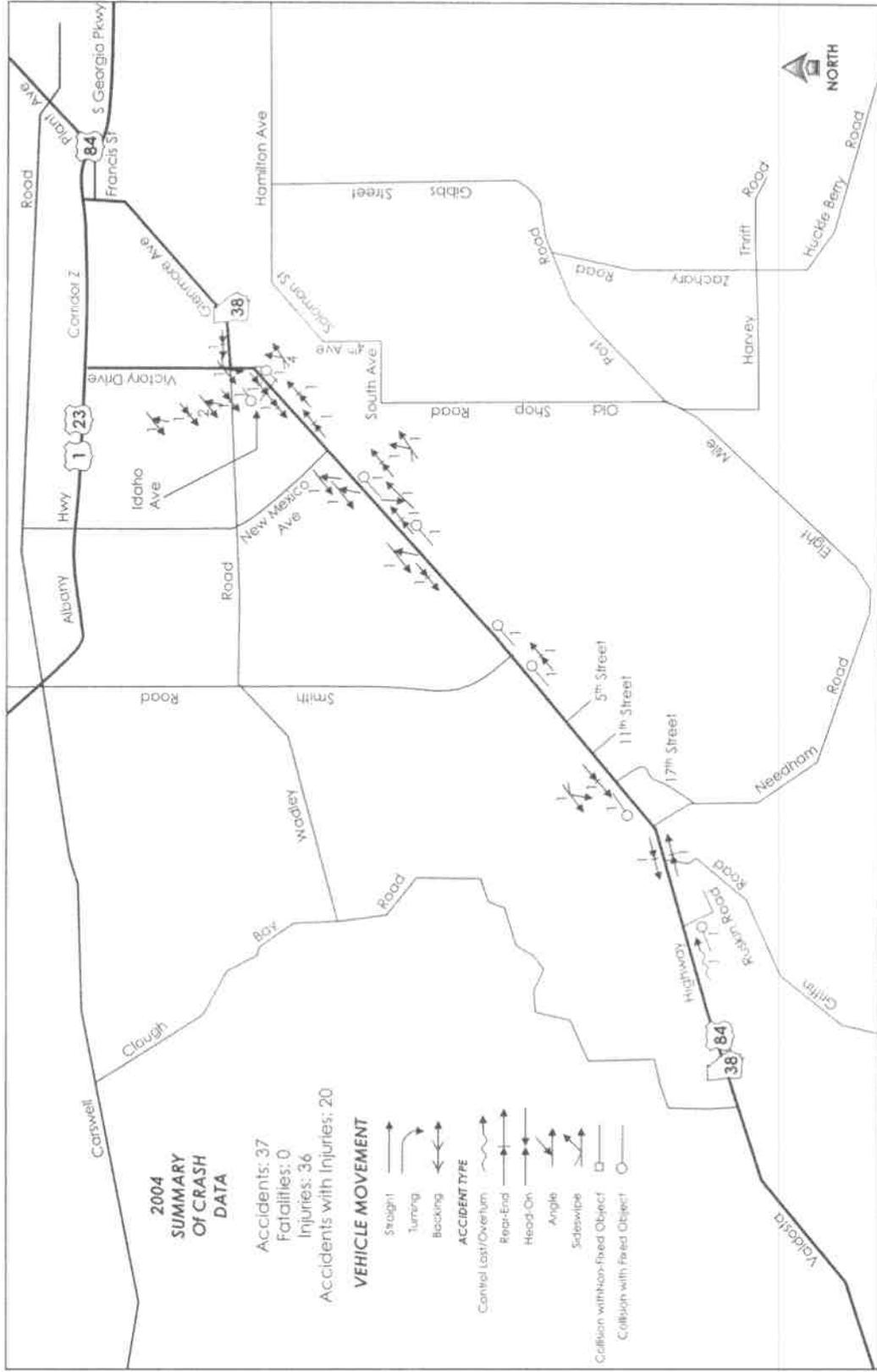


Figure 4. 2005 Collision Diagram

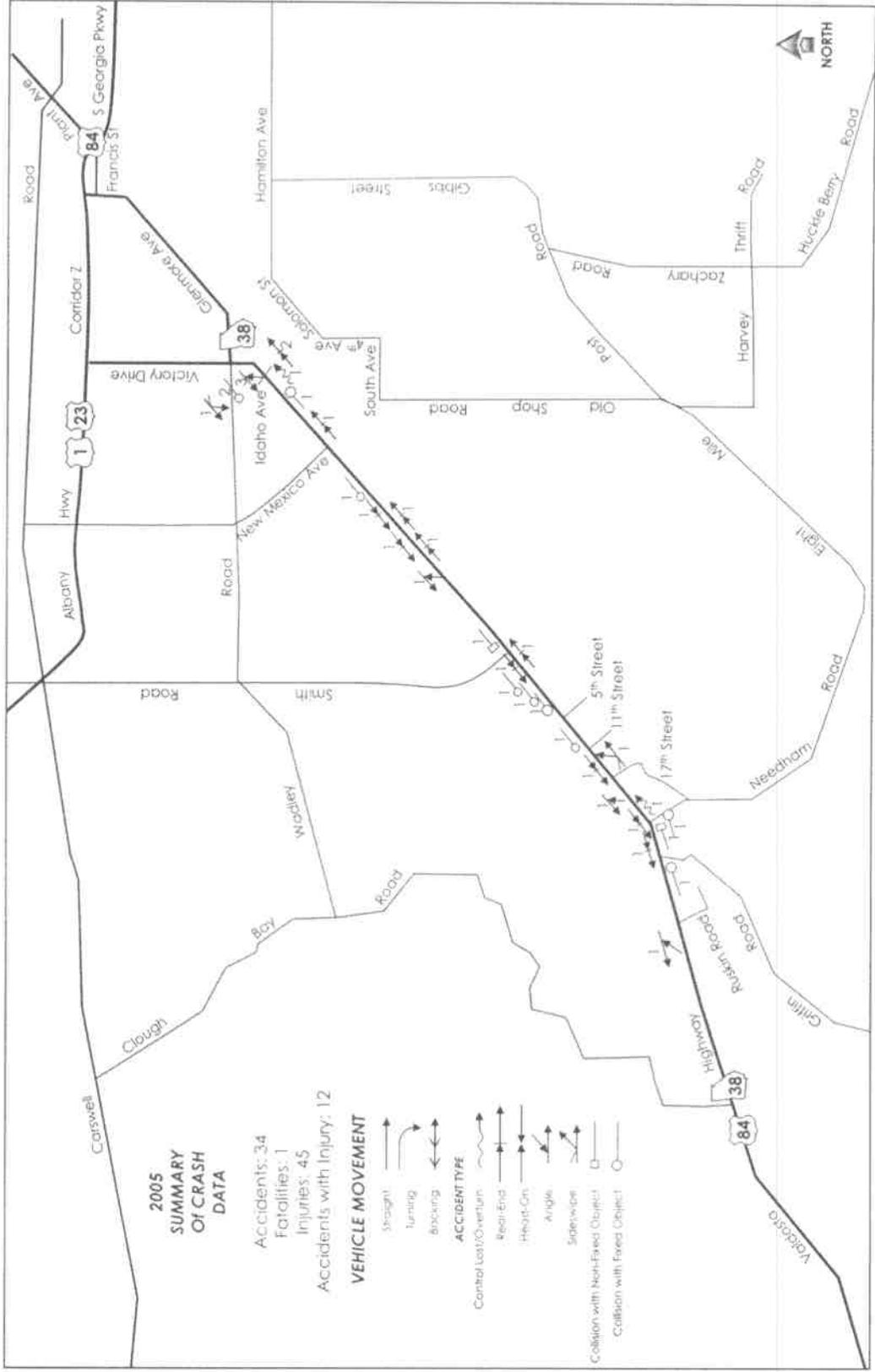


Figure 4. 2005 Collision Diagram

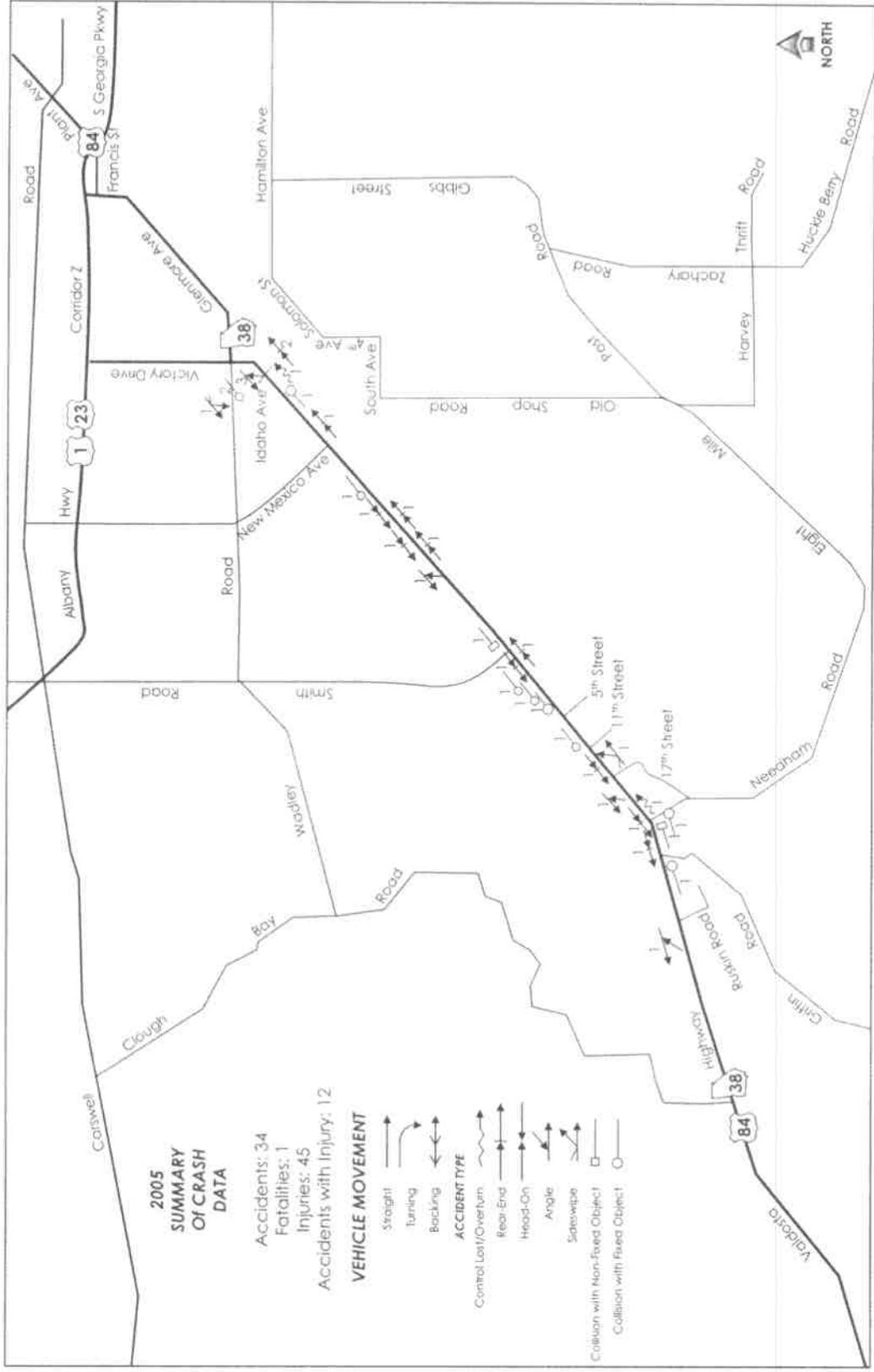
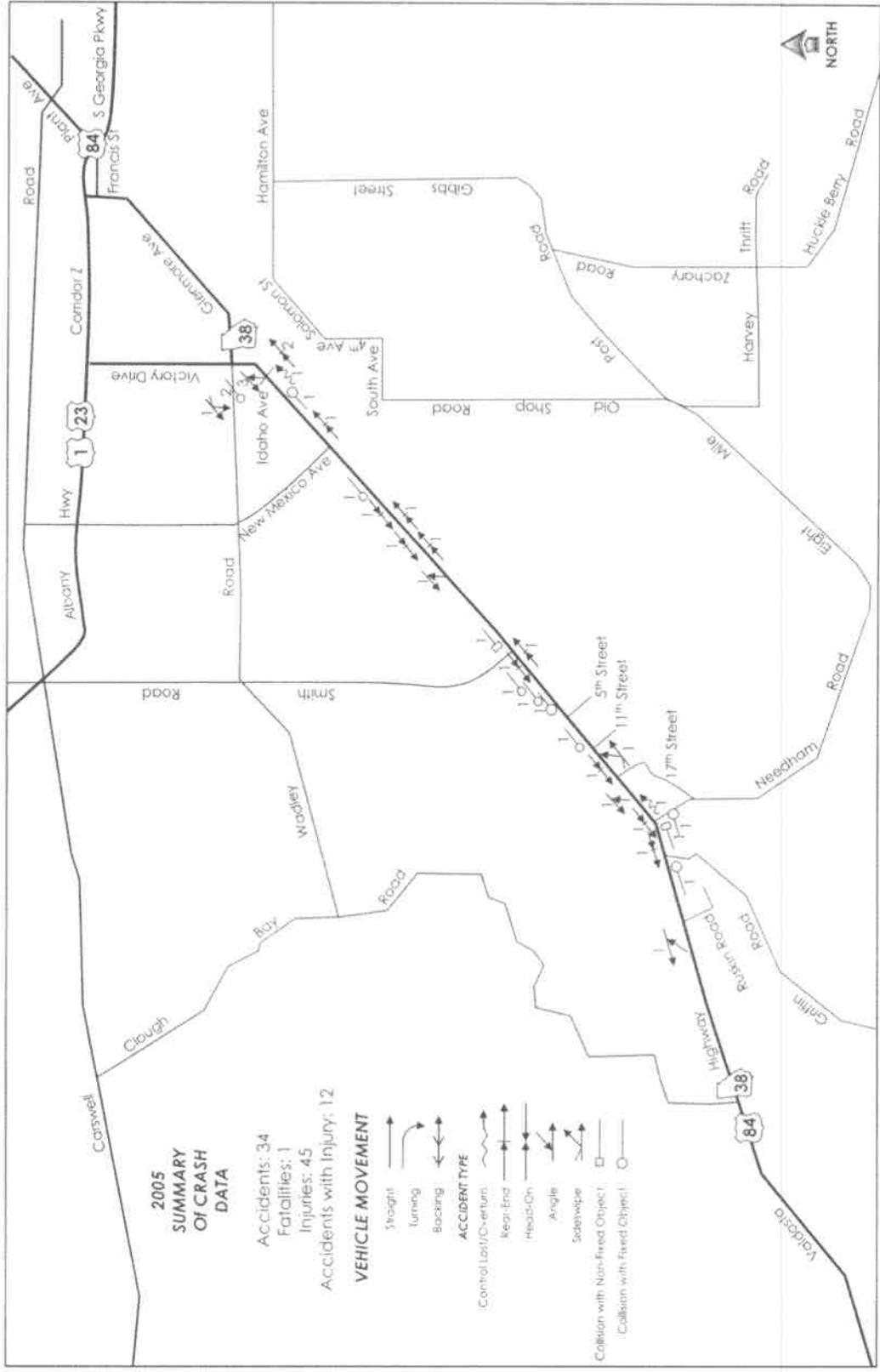


Figure 4. 2005 Collision Diagram



## 2. EXISTING CONDITIONS

### Roadway Inventory

To determine existing traffic conditions of nearby roadway segments and study intersections, an inventory was made of the major roads in the vicinity of the study area. The physical and traffic control elements of each of the roadways, as well as the functional classification and other important elements for the study roadways, follows.

**State Route 38 (SR 38)/US Highway 84 (US 84)/Valdosta Highway** is a Rural Principal Arterial two-lane undivided roadway in the study area. SR 38 runs from west to east across southern Georgia from the Alabama boundary near Florida to I-95, passing through the cities of Valdosta and Waycross near the study area. The land uses along SR 38 in the study area are a mix of sparse residential and agricultural/undeveloped land to the west and single-family residential to the east.

### Collision Analysis

Records of vehicular crashes that were reported on SR 38 during the most recent three years available (2003, 2004, and 2005) were provided by the Georgia Department of Transportation Office of Traffic Safety.

The statewide accident rates for a National Highway System (NHS) Rural Principal Arterial were also obtained from the Georgia Department of Transportation website for the years 2003 and 2004 (2005 information was not yet available). For the Year 2003, there were 94 accidents per 100 million vehicular miles (MVM) on this type of roadway. For the Year 2004, 101 accidents per 100 MVM on this type of roadway were reported. There were 33 accidents that involved injuries per 100 MVM in 2003 and 36 accidents that involved injuries per 100 MVM in 2004. In 2003, 1.18 accidents per 100 MVM resulted in fatalities. In 2004, 1.31 accidents per 100 MVM resulted in fatalities.

During 2003, 22 vehicular crashes were reported on the approximately 5.6 mile study area along SR 38. During 2004, 37 vehicular crashes were reported. During 2005, 34 vehicular crashes were reported. Using the AADT's on SR 38, the overall accident rate was approximately 159 crashes per 100 MVM during 2003, 268 crashes per 100 MVM during 2004, and 246 crashes per 100 MVM during 2005.

Injuries were reported in conjunction with 42 of the crashes over the three year period, with one fatality. In 2003, approximately 72 crashes with injuries per 100 MVM were reported to have occurred on SR 38 in the study area. In 2004, approximately 145 crashes with injuries per 100 MVM were reported. Overall, the frequency and the severity (as indicated by the injury rates) of the crashes in the study area, appears to be substantially higher than the statewide rate during 2003 and 2004. The collision history of the study area is shown in Figures 2, 3 and 4.

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**Comment TS-16 Analysis**

	<u>No.</u>	<u>Width (ft)</u>	<u>Length (ft)</u>	<u>Area (sq)</u>	<u>Unit Cost</u>	<u>Sub Total</u>	<u>10% Mark up</u>	<u>Total</u>
Sidewalk	1	5	5600	3111	\$ 31.79	\$ 98,902	\$ 9,890	\$ 108,792
Trail	1	8	5600	4978	\$ 18.50	\$ 92,089	\$ 9,209	\$ 101,298
								<b>\$ 7,495 Savings</b>

**Item Comment TS-16 Analysis**

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