



DEPARTMENT OF THE ARMY  
ST. LOUIS DISTRICT CORPS OF ENGINEERS  
1222 SPRUCE STREET  
ST. LOUIS, MISSOURI 63103-2833

REPLY TO  
ATTENTION OF:

April 15, 2011

Regional Planning and Environment Division North  
Planning and Environmental Branch

Dear Sir or Madam:

The St. Louis District, Corps of Engineers has prepared a Supplemental Environmental Assessment (SEA) with Draft Finding of No Significant Impact (FONSI) for a proposed plan that readdresses underseepage and through-seepage problems with the East St. Louis, Illinois levee, in Madison and St. Clair counties. This document serves to notify the public of the proposed project and requests assistance in identifying the probable environmental impacts of the project alternatives. It supplements an earlier EA that was sent out for public review in June 2010 and finalized in August 2010.

You are receiving this letter because you may be interested in the project. The 15-day public review period runs from April 20 to May 4, 2011. The SEA with FONSI is available for public review. The electronic version of the SEA is available online at <http://www.mvs.usace.army.mil/pm/pm-reports.html> or you may request a copy be mailed to you. The August 2010 Limited Reevaluation Report and EA with signed FONSI are also available online at <http://www.mvs.usace.army.mil/pm/EstILRR.html>.

This document is provided to you for your information and review. We invite your comments related to the content of the SEA. If you would like to submit comments, please address your comments or questions to Timothy George of the Planning and Environmental Branch (CEMVS-PD-E), at telephone number (314) 331-8459, facsimile number (314) 331-8606, or e-mail at <Timothy.K.Georger@usace.army.mil>, by close of business on May 4, 2011.

Sincerely,

A handwritten signature in cursive script that reads "Thomas Keevin".

Thomas Keevin, Ph.D.  
Chief, Planning and Environmental Branch

SUPPLEMENTAL  
ENVIRONMENTAL ASSESSMENT  
WITH  
DRAFT FINDING OF NO SIGNIFICANT IMPACT  
AND APPENDIX

DESIGN DEFICIENCY CORRECTIONS  
EAST ST. LOUIS, IL FLOOD PROTECTION PROJECT

APRIL 2011

Prepared by:  
Planning and Environmental Branch  
U.S. Army Corps of Engineers, St. Louis District  
1222 Spruce St.  
St. Louis, Missouri 63103-2818  
(314)331-8459

## 1.0 Introduction

The National Environmental Policy Act (NEPA) requires Federal agencies to prepare a supplement to existing environmental assessments (EA) and environmental impact statements (EIS) when a) the agency makes substantial changes in the proposed action that are relevant to the environmental effects, or b) there are significant new circumstances or information relevant to the environmental concerns that bear on the proposed action or its impacts (40 CFR 1502.9(c)(1)).

In June 2010 the U.S. Army Corps of Engineers (Corps), St. Louis District circulated for public review a plan to correct deficiencies in the underseepage and through-seepage designs for the East St. Louis, Illinois levee in Madison and St. Clair counties. The plan was described in a Limited Reevaluation Report, and potential environmental impacts were analyzed in an EA and associated Finding of No Significant Impact (FONSI) (USACE, 2010). The EA was prepared utilizing a systematic, interdisciplinary approach integrating the natural and social sciences and the design arts with planning and decision-making. The EA assessed the environmental impacts associated with implementing the plan and its alternatives and evaluated them for short-term and long-term effects and for adverse and beneficial effects. These documents were finalized in August 2010 and the FONSI, signed on August 21, concluded that the plan as described would not have significant effects on the quality of the human environment, and also stated that no EIS would be prepared prior to proceeding with implementation of the plan.

The proposed action considered in this supplemental EA was not analyzed previously. This document supplements the EA and FONSI prepared in August 2010. This supplemental EA will incorporate by reference pertinent information from the previous EA, as appropriate to prevent unnecessary duplication, and supplement it with the analysis for the presently proposed action.

The project area is located in Madison and St. Clair counties, in southwestern Illinois. The East St. Louis levee system is located along the east bank of the Mississippi River between river miles 175 and 195 above the mouth of the Ohio River, and opposite the City of St. Louis, Missouri (figure EA-1). The project sponsor was originally the East Side Levee and Sanitary District, and was succeeded by the Metro-East Sanitary District (MESD). The East St. Louis or MESD levee system includes 28.6 miles of levee (4.8 miles north flank, 19.2 miles riverfront, and 4.6 miles south flank), 27 closure structures, 40 gravity drains, 17 pump stations, 300 relief wells, and 3.1 miles of floodwall on the levee. The 9-mile long Chain of Rocks levee and the MESD levee are part of the same levee system. Numerous drainage channels are located within the area protected by the flood protection system. The joint system protects approximately 85,000 acres, 200,000 inhabitants and over \$1 billion in property assets.

The August 2010 Limited Reevaluation Report and EA with FONSI are available in pdf format and can be referenced at the St. Louis District's website at: <http://www.mvs.usace.army.mil/pm/EstLRR.html>.

The information in the Introduction section of the 2010 EA that was presented in the subsections titled Purpose of and Need for Action (1.1), Authority for the Proposed Action (1.2), Prior Reports (1.3), Public Concerns (1.4), and Data Gaps and Uncertainties (1.5) is incorporated by reference.

## **2.0 ALTERNATIVES**

The new analysis conducted by the St. Louis District since August 2010 has taken into consideration two issues. First, as of late August 2010 the U.S. Army Corps of Engineers Mississippi Valley Division directed the St. Louis District to “reevaluate the selection of seepage remediation features using berm designs that follow current criteria as specified in Engineering Technical Letter 111-2-569, dated 1 May 2005”. This reevaluation of berm designs now follows design criteria for a factor of safety of 1.0 at the berm toe, instead of 1.6 at the berm toe as reflected in the August 2010 report and EA.

Second, to potentially reduce construction costs, the St. Louis District responded to review comments suggesting reevaluation of the use of soil-cement-bentonite walls in locations of proposed deep cutoff walls. Soil-cement-bentonite walls were proposed in response to concerns about deep wall depths; these concerns centered on global stability, the need to ensure that the permeability of the finished wall would reduce landside seepage gradients to Corps criteria, and the limited working area along the levee centerline. To reevaluate the potential for using soil-cement-bentonite walls with trench construction, additional geotechnical data were collected and additional slope stability analyses were completed since August 2010. As a result, all cutoff wall options considered during this reevaluation now consist of the use of soil-bentonite (cement has been excluded). This change allows for a significant construction cost savings.

The reevaluation resulting from the above activities did not result in a change of project scope, rather a shift in project features within the original scope of work.

As mentioned in the August 2010 EA, the Alternatives section presents the alternative measures that could potentially be used to control seepage under and through the levee embankment of the MESD levee system, describes the formulation of alternatives, evaluates alternatives, and lastly describes the proposed action in summary and detailed fashion. The information in the Alternatives section of the 2010 EA that was presented in the subsections titled Introduction (2.1), Plan Formulation (2.2), and Plan Comparison (2.3) is incorporated by reference.

Plates displaying the alternatives that were considered during this reevaluation are attached to this SEA (numbered i, B01-B10). All levee reaches that were addressed in the August 2010 report and EA have since been reevaluated. The acquisition of new geotechnical data with additional underseepage analysis has identified the need for some changes in levee segments. Reevaluation has identified one additional levee segment requiring corrective measures that previously was not a concern; it is located along the North Flank levee (240+30 to 243+60). The reanalysis also identified a number of levee segments no longer needing corrective measures. They are located along the North Flank

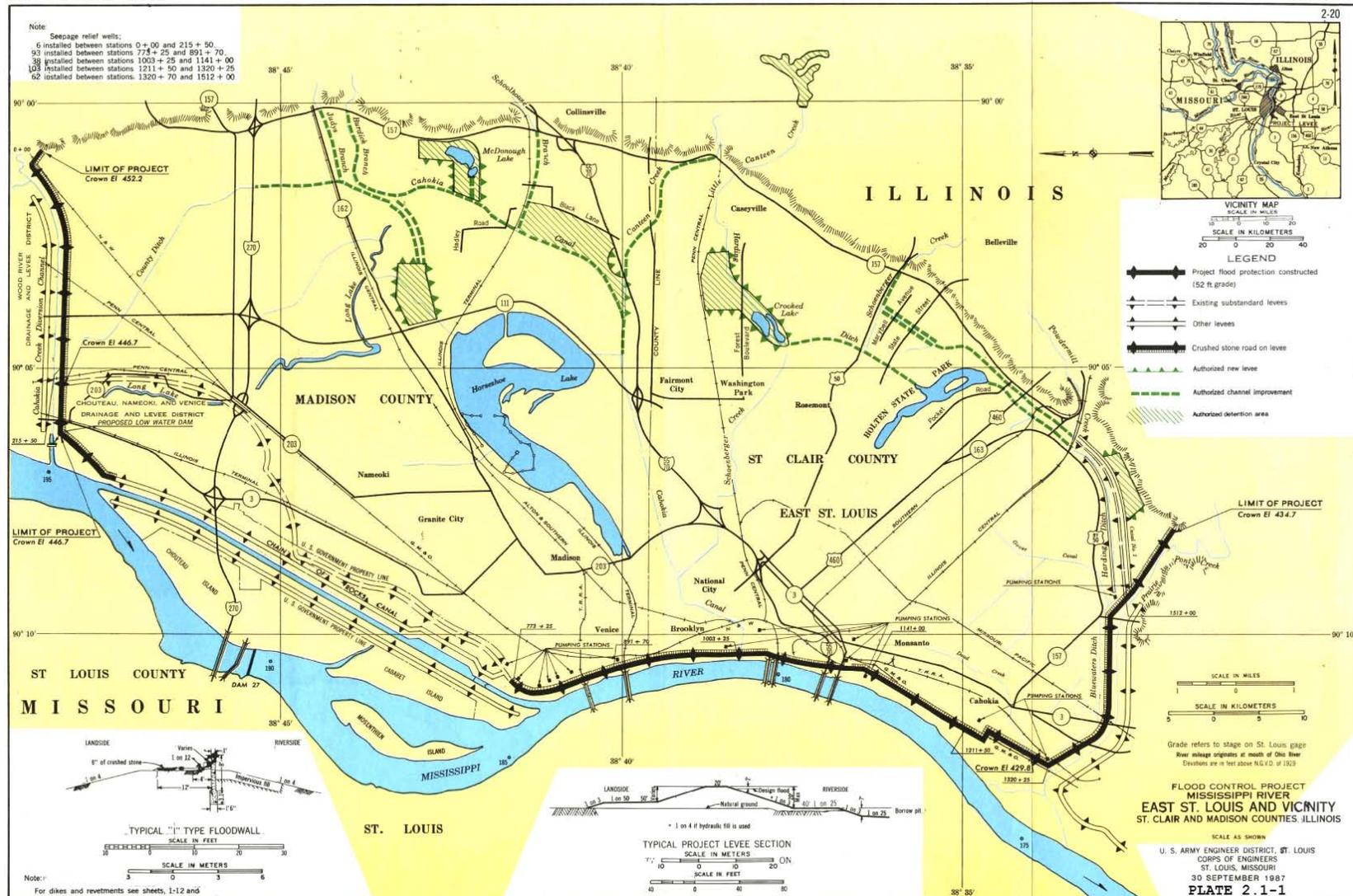


Figure EA-1. Map of Project Area and East St. Louis Levee System

levee (52+00 to 55+50) and South Flank levee (1401+70 to 1408+30, 1405+00 to 1408+30, 1418+20 to 1421+50, 1494+10 to 1500+70). Proposed corrective measures included in the August 2010 plan are described in Table EA-1 by levee segment, along with those for the currently proposed action.

An additional change from the August 2010 plan is a shifting in the location of proposed cutoff walls. In the August 2010 plan, all cutoff walls were centered on the centerline of the levee crown, whereas for this reevaluation the centerline for all walls has been shifted to the unprotected side of the levee and 30 feet off of the toe of the embankment. This shift in wall location also requires a shift in the location of the temporary construction easement required for construction, which is 100 feet wide for all proposed deep walls and 50 feet wide for all proposed shallow walls.

Collectively these changes from the earlier analysis “constitute substantial changes in the proposed action that are relevant to the environmental effects.”

## **2.4 Proposed Action**

The tentatively recommended plan for underseepage and through-seepage controls for a flood at 54 ft on the St. Louis gage (design flood at 52 feet on the St. Louis gage plus 2 feet of freeboard) consists of the lowest cost alternative at all levee segments requiring corrective measures.

The main components of the tentatively recommended plan are summarized in Table EA-2 for the North Flank, Riverfront, and South Flank of the MESD levee and by phases of construction (Phase 1 or Phase 2). The plates attached to this SEA in Appendix EA-1 display the tentatively recommended plan at each of the levee segments that require correction, in addition to the other options considered at each location.

Detailed Description of Tentatively Recommended Plan: 305 new relief wells; filling 314 existing wood stave relief wells with grout; ditching and pipe collector systems; a 61 cfs seepage pump station that pumps the flow from relief wells over the levee and discharges into the North Pump Station emergency closure gatewell structure; a 7 cfs lift station to get relief well flows to the Village of Sauget’s Physical-Chemistry Treatment Plant or the American Bottoms Wastewater Treatment Facility, a variable frequency drive for one pump at the Venice Pump Station; 5,770 linear feet of seepage berms; a small fill area along the levee; 17,340 linear feet of slurry trench cutoff wall through the riverside levee toe and to bedrock; 2,640 linear feet of shallow (40 ft deep) cutoff wall at the riverside levee toe; 3,640 linear feet of clay filled cutoff trench; 6,000 linear feet of 5-foot thick riverside clay blanket; environmental and archeological mitigation work; utility relocations (not yet defined); and easements for berms, relief wells in locations where there are no existing wells, three flowage areas, slurry trench cutoff wall staging areas and equipment access areas along the levee, disposal areas for material excavated for the slurry trench cutoff walls, and wetland and bottomland hardwood mitigation areas.

**Table EA-1. Updates in Project Features, between the East St. Louis Approved LRR Recommended Plan and the Supplemental LRR, by Design Reach**

Design Reach	Approved LRR (31AUG2010) Recommended Plan by Reach <sup>(1)</sup>	Supplemental LRR Tentative Recommended Plan by Reach	Comments
<b>NORTH FLANK LEVEE</b>			
45+60 to 48+90	- Seepage berm 5 ft thick at levee toe, 204 ft wide, 2.1 acres - Grout 2 existing wells	- Seepage berm 5 ft thick at levee toe, 44 ft wide, 1.0 acres - Grout 2 existing wells	Change due to berm redesign
52+00 to 55+50	- Seepage berm 5 ft thick at levee toe, 253 ft wide, 2.7 acres	No underseepage controls needed	Change due to additional subsurface data
68+70 to 72+00	- 2 relief wells at 330 ft spacing	- Seepage berm 5 ft thick at levee toe, 54 ft wide, 1.0 acre	Change due to berm redesign
174+30 to 180+90	- 5 relief wells at 165 ft spacing	- Reach is 174+30 to 177+60 - Seepage berm 5 ft thick at levee toe, 70 ft wide, 1.0 acre	Changes due to berm redesign and additional subsurface data
190+80 to 197+40	- 8 relief wells (4 at 82 ft and 4 at 110 ft spacing) - Grout 5 existing wells	- Reach is 194+10 to 197+40 - Seepage berm 5 ft thick at levee toe, 62 ft wide, 1.0 acre - Grout 5 existing wells	Changes due to berm redesign and additional subsurface data
207+30 to 217+20	- 9 relief wells (6 at 110 ft and 3 at 165 ft spacing)	- Reach is 204+00 to 217+20 - Seepage berm 5 ft thick at levee toe, 64 ft wide, 2.5 acres	Changes due to berm redesign and additional subsurface data
227+10 to 233+70	- 6 relief wells (2 at 165 ft and 4 at 110 ft spacing)	- Reach is 223+80 to 233+70 - Seepage berm 5 ft thick at levee toe, 58 ft wide, 2.0 acres	Changes due to berm redesign and additional subsurface data
240+30 to 243+60	(Reach not in LRR)	- Seepage berm 5 ft thick at levee toe, 54 ft wide, 1.0 acre	Change due to berm redesign
255+90 to 262+25	- 5 relief wells at 165 ft spacing	- 5 relief wells at 165 ft spacing	No change
<b>RIVERFRONT LEVEE</b>			
773+03 to 784+50	- 20 relief wells at 42 to 107 ft spacing - Grout 16 existing wells	- 20 relief wells at 42 to 107 ft spacing - Grout 16 existing wells	No change
784+50 to 791+10	- Slurry trench cutoff wall at levee centerline to bedrock from 781+10 to 794+30 including overlap at ends - Grout 8 existing wells	- Slurry trench cutoff wall 30 ft from riverside toe to bedrock from 781+10 to 794+30 including overlap at ends - Grout 8 existing wells	Cutoff wall 30 ft from riverside toe
791+10 to 804+60	- 20 relief wells at 51 to 103 ft spacing - Grout 11 existing wells	- 20 relief wells at 51 to 103 ft spacing - Grout 11 existing wells	No change
804+60 to 824+20	- 14 relief wells at 113 to 160 ft spacing - Grout 15 existing wells	- 14 relief wells at 113 to 160 ft spacing - Grout 15 existing wells	No change
824+20 to 844+00	- 12 relief wells at 113 to 330 ft spacing needed for aquifer - Grout 12 existing wells - Clay-filled cutoff trench at riverside levee toe connecting the levee through the 3 to 8 feet thick sand layer to the underlying clay layer. Cutoff trench extends from 824+20 to 860+60.	- 12 relief wells at 113 to 330 ft spacing needed for aquifer - Grout 12 existing wells - Clay-filled cutoff trench at riverside levee toe connecting the levee through the 3 to 8 feet thick sand layer to the underlying clay layer. Cutoff trench extends from 824+20 to 860+60.	No change

844+00 to 860+60	- 19 relief wells at 41 to 330 ft spacing for aquifer - Grout 10 existing wells - Clay-filled cutoff trench from 824+20 to 860+60 as described in Decision Segment above.	- 19 relief wells at 41 to 330 ft spacing for aquifer - Grout 10 existing wells - Clay-filled cutoff trench from 824+20 to 860+60 as described in Decision Segment above.	No change
860+60 to 863+30	- 6 relief wells at 45 ft spacing - Grout 2 existing wells	- 6 relief wells at 45 ft spacing - Grout 2 existing wells	No change
863+80 to 890+20	-38 relief wells at 25 to 330 ft spacing - Grout 16 existing wells	-38 relief wells at 25 to 330 ft spacing - Grout 16 existing wells	No change
890+20 to 893+50	- 4 relief wells at 110 ft spacing - Grout 2 existing wells	- 4 relief wells at 110 ft spacing - Grout 2 existing wells	No change
903+40 to 913+30	- 11 relief wells at 55 to 165 ft spacing - Grout 10 existing wells	- 11 relief wells at 55 to 165 ft spacing - Grout 10 existing wells	No change
929+80 to 936+40	- 5 relief wells at 165 ft spacing	- 5 relief wells at 165 ft spacing	No change
956+20 to 959+50	- Fill in landside depression with clay	- Fill in landside depression with clay	No change
962+80 to 972+70	- Seepage berm 6.5 ft thick at levee toe, 350 ft wide, 8.0 acres	- Seepage berm 5 ft thick at levee toe, 165 to 193 ft wide, 5.0 acres	Change due to berm redesign
982+60 to 985+90	- 4 relief wells at 110 ft spacing	- 4 relief wells at 110 ft spacing	No change
987+50 to 1005+70	- Shallow slurry trench cutoff wall at riverside toe of levee (l-wall is at centerline) through a 40 ft thick sand layer between the bottom of the levee and an underlying clay layer. Cutoff wall extends from 987+50 to 1013+90.	- Shallow slurry trench cutoff wall at riverside toe of levee (l-wall is at centerline) through a 40 ft thick sand layer between the bottom of the levee and an underlying clay layer. Cutoff wall extends from 987+50 to 1013+90.	No change
1005+70 to 1018+90	- 12 relief wells at 50 to 330 ft spacing - Grout 5 existing wells - 61 cfs seepage pump station - Shallow cutoff wall to 1013+90 as described for reach 987+50 to 1005+70.	- 12 relief wells at 50 to 330 ft spacing - Grout 5 existing wells - 61 cfs seepage pump station - Shallow cutoff wall to 1013+90 as described for Decision Segment above.	No change
1022+20 to 1038+70	- 26 relief wells at 52 to 110 ft spacing - Grout 3 existing wells	- 26 relief wells at 52 to 110 ft spacing - Grout 3 existing wells	No change
1048+60 to 1051+90	- 3 relief wells at 165 ft spacing	- 3 relief wells at 165 ft spacing	No change
1065+10 to 1068+40	- 4 relief wells at 110 ft spacing	- 4 relief wells at 110 ft spacing	No change
1071+70 to 1078+30	- 5 relief wells at 165 ft spacing	- 5 relief wells at 165 ft spacing	No change
1081+60 to 1088+20	- 3 relief wells at 330 ft spacing	- 3 relief wells at 330 ft spacing	No change
1091+50 to 1098+10	- 2 relief wells at 330 ft spacing - Grout 2 existing wells	- 2 relief wells at 330 ft spacing - Grout 2 existing wells	No change
1098+10 to 1104+70	- 6 relief wells at 82 to 330 ft spacing	- 6 relief wells at 82 to 330 ft spacing	No change
1114+60 to 1137+70	- 40 relief wells at 37 to 110 ft spacing - Grout 16 existing wells	- 40 relief wells at 37 to 110 ft spacing - Grout 16 existing wells	No change
1144+30 to 1180+60	Four groups of relief wells: - 3 relief wells at 165 ft spacing - 5 relief wells at 82 ft spacing - 2 relief wells at 330 ft spacing - 3 relief wells at 165 ft spacing - 7 cfs lift station	Four groups of relief wells: - 3 relief wells at 165 ft spacing - 5 relief wells at 82 ft spacing - 2 relief wells at 330 ft spacing - 3 relief wells at 165 ft spacing - 7 cfs lift station	No change

1190+50 to 1193+80	- 2 relief wells at 165 ft spacing	- 2 relief wells at 165 ft spacing	No change
1193+80 to 1203+70	- 6 relief wells at 110 to 330 ft spacing	- 6 relief wells at 110 to 330 ft spacing	No change
1203+70 to 1207+00	- 3 relief wells at 165 ft spacing	- 3 relief wells at 165 ft spacing	No change
1207+00 to 1231+00	- Slurry trench cutoff wall at levee centerline to bedrock from 1203+70 to 1231+00 including overlap at north end. - Grout 31 existing wells	- Slurry trench cutoff wall 30 ft from riverside toe to bedrock from 1207+00 to 1231+00. - Grout 31 existing wells	Cutoff wall 30 ft from riverside toe
1231+00 to 1232+00	- Seepage berm from 1227+70 to 1235+30 12.0 ft thick at levee toe, 574 ft wide, 9.6 acres, required for 100 ft long window in slurry trench cutoff wall to bedrock.	- Seepage berm from 1227+70 to 1235+30. 9.0 ft thick at levee toe, 440 ft wide, __ acres, required for 100 ft long window in slurry trench cutoff wall to bedrock.	Change due to berm redesign
1232+00 to 1273+00	- Slurry trench cutoff wall at levee centerline to bedrock - Grout 32 existing wells	- 5-foot thick clay blanket on riverside levee slope to control the through-seepage problem (1245+00 to 1273+00). - Slurry trench cutoff wall 30 ft from riverside toe to bedrock - Grout 32 existing wells	Cutoff wall 30 ft from riverside toe
1273+00 to 1286+20	- 5 foot thick clay blanket on riverside levee slope to control the throughseepage problem. - 20 relief wells from 1269+70 to 1282+90 correspond to the opening in cutoff wall below the levee. - Grout 15 existing wells	- Reach is 1273+00 to 1286+00 - 5 foot thick clay blanket on riverside levee slope to control the throughseepage problem. - Slurry trench cutoff wall 30 ft from riverside toe to bedrock - Grout 15 existing wells	Cutoff wall 30 ft from riverside toe. Eliminated window (VE Design Suggestion No. 2)
1286+20 to 1312+60	- Slurry trench cutoff wall at levee centerline to bedrock. - Grout 24 existing wells	- Reach is 1287+00 to 1312+60. From 1286+00 to 1287+00 there is a 100-foot window in the cutoff wall to bedrock. - 5-foot thick clay blanket on riverside levee slope to control the through-seepage problem (1286+20 to 1305+00) - Slurry trench cutoff wall 30 ft from riverside toe to bedrock. - Grout 24 existing wells	Cutoff wall 30 ft from riverside toe
<b>SOUTH FLANK LEVEE</b>			
1312+60 to 1352+20	- Slurry trench cutoff wall at levee centerline to bedrock - Grout 49 existing wells	- Reach is 1312+60 to 1348+90 - Slurry trench cutoff wall 30 ft from riverside toe to bedrock - Grout 49 existing wells	Cutoff wall 30 ft from riverside toe. Reach change due to additional subsurface data.
1401+70 to 1408+30	- 4 relief wells, 2 rows of 2 wells at 330 ft spacing	No underseepage controls needed	Change due to additional subsurface data
1405+00 to 1421+50	- Slurry trench cutoff wall at levee centerline to bedrock including overlap at each end - Grout 6 existing wells	No underseepage controls needed	Change due to additional subsurface data
1418+20 to 1421+50	- 4 relief wells, 2 rows of 2 wells at 330 ft spacing	No underseepage controls needed	Change due to additional subsurface data
1474+30 to 1477+60	- 8 relief wells total: 2 rows of 4 wells at 82 ft spacing	- 10 relief wells total: 2 rows of 5 wells at 82 ft spacing.	Change due to additional subsurface data
1477+60 to 1487+50	- 6 relief wells total: 2 rows of 3 wells at 330 ft spacing	- Reach is 1477+60 to 1480+90 - 12 relief wells total; 6 at 66 ft spacing along land side toe and 6 at 66ft spacing close to the ditch (double row).	Change due to additional subsurface data

1484+20 to 1497+40	- Slurry trench cutoff wall at levee centerline to bedrock including overlap at each end. - Grout 19 existing wells	- Reach is 1477+60 to 1497+40 - Slurry trench cutoff wall 30 ft from riverside toe to bedrock - Grout 19 existing wells	Change due to additional subsurface data
1494+10 to 1500+70	- 14 relief wells total: 2 rows of 3 wells at 110 ft spacing (1494+10 to 1497+40); 2 rows of 4 wells at 110 ft spacing (1497+40 to 1500+70)	No underseepage controls needed	Change due to additional subsurface data

**NOTE:**

(1) The information shown in the column for the recommended plan is from Section 6, Description of Recommended Plan, East St. Louis LRR, August 31, 2010, pages 37 - 42.

**Table EA-2. Summary of Main Features of Tentatively Recommended Plan**

	Relief Wells	Seepage Berms (lin ft)	Cutoff Walls to Bedrock (lin ft)	Cutoff Wall Shallow (lin ft)	Clay-Filled Cutoff Trench (lin ft)	River-Side Clay Blanket (lin ft)	Grout Existing Wells
<b>North Flank</b>							
Phase 1	5	2,640	0	0	0	0	7
Phase 2	0	1,320	0	0	0	0	0
Subtotal	5	3,960	0	0	0	0	7
<b>Riverfront</b>							
Phase 1	249	1,810	11,680	2,640	3,640	6,000	220
Phase 2	29	0	0	0	0	0	10
Subtotal	278	1,810	11,680	2,640	3,640	6,000	230
<b>South Flank</b>							
Phase 1	22	0	5,660	0	0	0	77
<b>Totals</b>							
Phase 1	276	4,450	17,340	2,640	3,640	6,000	304
Phase 2	29	1,320	0	0	0	0	10
Grand Total	305	5,770	17,340	2,640	3,640	6,000	314

### **3.0 AFFECTED ENVIRONMENT**

This section and all of its fourteen subsections from the August 2010 EA and FONSI are incorporated by reference. There is no new information about existing resources within the project area that is relevant to previously identified environmental concerns that might bear on the proposed action or its impacts.

As an update for the section on Hazardous, Toxic, and Radioactive Wastes (3.5), the Remedial Investigation/Feasibility Studies (RI/FS) for Sauget Areas 1 & 2 that were to be completed in late 2010/early 2011 have not been completed as of the date of this reevaluation.

### **4.0 ENVIRONMENTAL CONSEQUENCES**

The subsections listed below from the Environmental Consequences section of the August 2010 EA are incorporated by reference. The reanalysis of alternatives described in this SEA and the probable impacts of those alternatives, including those of the proposed action, did not result in any substantial changes to the resources addressed in these subsections.

- 4.2 Air Quality
- 4.3 Surface Water and Surface Water Quality
- 4.4 Groundwater and Groundwater Quality
- 4.6 Hydrologic Conditions
- 4.7 Noise
- 4.10 Threatened and Endangered Species
- 4.11 Recreation
- 4.12 Aesthetics
- 4.14 Environmental Justice
- 4.15 Relationship of the Proposed Project to Land-Use Plans
- 4.16 Adverse Effects Which Cannot Be Avoided
- 4.17 Short-Term Use versus Long-Term Productivity
- 4.18 Irreversible or Irretrievable Resource Commitments
- 4.19 Cumulative Impacts

#### **Socioeconomics and Land Cover** (Section 4.1 of the August 2010 EA)

The discussions presented in the August 2010 EA for the no action and proposed action alternatives are incorporated by reference.

The impacts of removing 49 acres of cropland (including about 14 acres for berms and 35 acres for mitigation at Chouteau Island) are expected to have a minor effect on the local economy.

## **Hazardous, Toxic, and Radioactive Wastes** (Section 4.5 of the August 2010 EA)

The Phase II Environmental Site Assessment (ESA) report was completed on March 10, 2011 (*HTRW Preassessment Screen Phase II ESA Design Deficiency Corrections for East St. Louis Illinois Flood Protection Project Final Report, 2011*). The report describes soil and groundwater assessment from 24 developed wells (eight (8) monitoring well clusters with three wells by hydrologic unit). As the wells were drilled, soil samples were taken and tested. Additionally, after well development, water samples were collected and analyzed for the contaminants of concern identified in the original IHA/Phase I ESA . Identified contaminants encompassed a wide range of chemicals including, but not limited to, Volatile Organic Compounds (VOCs), Semi-Volatile Compounds (SVOCs), Inorganic Compounds (metals), pesticides, and Polychlorinated Biphenyls (PCBs).

Results of the Phase II ESA indicate limited potential exposure to several inorganic and some organic compounds that are present in the groundwater in the areas of the monitoring wells. However, neither soil nor groundwater samples that were tested exceeded the levels of the contaminants of concern listed in the USEPA's *Statement of Basis for Solutia, Inc., Sauget, Illinois* report. Contaminants present in the groundwater samples did exceed conservative TACO Tier I Groundwater Remediation Objectives for the Groundwater Component of the Groundwater Ingestion Route levels for some parameters tested. Based on the results of the Phase II ESA, the following is recommended:

- At a minimum, a Modified Level D level of PPE (Personal Protective Equipment) should be used for site workers in the area. Modified Level D PPE should include: standard work uniform, hard hat, safety glasses, safety boots, and latex or surgical gloves. The Level of Protection provided by this level of PPE could be upgraded or downgraded based upon a change in site conditions.
- When construction activities commence, the Project Industrial Hygienist, or other safety representative, periodically monitor the immediate area with an HNu meter, or equivalent, to verify working conditions are acceptable.
- Prior to the start of any construction activity, another round of groundwater sampling will be conducted to verify the level of HTRW contaminants that were observed in the original study.
- The soil samples analyzed for this Phase II did not identify any contaminants of interest that would require special worker precautions, and

Continued coordination regulatory agencies and local stakeholders are strongly recommended to determine potential HTRW impacts from pending remedial solutions. (e.g. impacts to proposed relief wells from Site R and the W.G. Krummrich facility (D.S. 1140+00 – 1180+00 approx.), and for proposed alignment changes for the cutoff wall in the area of a proposed landfill cover for Site R-south (D.S. 1210 +00 –1240+00 approx.)

additional soil samples are recommended at a minimum as the Phase II ESA is an iterative process).

#### **Prime Farmland** (Section 4.8 in the August 2010 EA)

The discussion presented in the August 2010 EA for the no action alternative is incorporated by reference, as are the discussions under the action alternative about Cutoff Walls and Access Easement Areas, Staging and Disposal Areas, Relief Wells and Flowage Easement Areas, and the Mitigation Area.

Areas considered to be prime farmland that would be converted to nonagricultural use would total about 40 acres (the August 2010 EA stated 31 acres). This includes about 14 acres to construct proposed seepage berms (5 acres in the August 2010 EA) and 26 acres to establish the proposed mitigation site. The proposed action would not affect any areas that support the production of horseradish, a locally important crop.

Coordination. The selection of potential stockpile and disposal areas would include the avoidance of prime and important farmland to the greatest extent practicable.

Coordination with NRCS and IDOA would continue during this site selection process. The National Environmental Policy Act (NEPA) process would also continue once stockpile and borrow areas are identified. A 2<sup>nd</sup> Supplemental Environmental Assessment would be prepared and circulated to fulfill this requirement for public disclosure and involvement.

#### **Biological Resources** (Section 4.9 in the August 2010 EA)

The discussion presented in the August 2010 EA for the no action alternative is incorporated by reference.

The proposed action would result in permanent losses of about 8.6 acres of various wetlands and nonwetlands natural habitats that require mitigation. (In the August 2010 EA and FONSI, the amount of permanent losses was stated as 9 acres; the estimate of 8.6 acres for the currently proposed plan reflects the effect of all corrective measures for the entire levee system, and is not an amount to be added to the estimate for the August 2010 plan.) Table EA-3 displays these losses by the type of proposed project feature and levee segment location. Based on best professional judgment, the affected habitats are of low to moderate quality. For example, nearly all affected emergent wetlands consist of farmed wetlands located in cropland.

Following the requirements of the Clean Water Act, all appropriate and practicable steps have been taken to first avoid impacts to aquatic resources, then to minimize the impacts, and as a last resort to mitigate the impacts. At most locations, alternatives other than seepage berms were the lowest cost alternatives and the environmental impacts of seepage berms were avoided. In the locations where berms were included in the proposed plan, the cost savings was sufficient to justify not avoiding the minor environmental impacts. The lowest cost alternatives, whether they involve berms, wells,

cutoff walls and trenches, or temporary access easements, did not cause significant adverse environmental impacts. Therefore, the lowest cost alternatives were selected, as there was not a sufficient reason to select any alternative except the lowest cost alternative. Mitigation for unavoidable adverse impacts to wetlands and bottomland hardwoods is part of the recommended plan.

The permanent loss of approximately 9 acres of wetlands and nonwetland bottomland forest would require mitigation as compensation for these losses. The compensatory mitigation plan included in the August 2010 EA is incorporated by reference. The project would also require authorization under Section 404 of the Clean Water Act. The Section 404(b)(1) Guidelines Evaluation included in the August 2010 EA is incorporated by reference.

**Table EA-3. Permanent Losses of Various Wetland and Nonwetland Habitats (in acres) by Project Feature for the Proposed Action**

Feature and Location by Levee Station	Wetland			Nonwetland
	Emergent	Forest (older)	Forest (young)	Bottomland Forest
<b>Berms</b>				
45+60 – 48+90	0.05			
68+70 – 72+00	0.60*			
174+30 – 180+90			0.15	
190+80 – 197+40	0.50*			
207+30 – 217+20	0.30*	1.00		
227+10 – 233+70	0.10*			
255+90 – 262+25		1.70		
956+20 – 959+50		0.80		
962+80 – 972+70				0.55
1231+00 – 1232+00	2.50*			
<b>Wells</b> – no permanent impacts				
<b>Cutoff Walls, Clay Blankets</b> – no permanent impacts				
<b>Temporary Access Easements</b>				
1207+00 – 1231+00				0.15
1286+20 – 1312+60				0.15
<b>Total - 8.55 acres</b>	<b>4.05</b>	<b>3.50</b>	<b>0.15</b>	<b>0.85</b>

\* Affected area is farmed wetlands

Construction of proposed riverside clay blankets as well as the trenches for all proposed cutoff walls would be limited to the existing grassy levee right of way, and impacts to natural resources would be very minor. Establishment of the temporary access easements for the construction of the proposed deep and shallow cutoff walls would also affect the grassy right of way for the most part. However, small impacts to bottomland forest are expected (Table EA-3).

Temporary and minor impacts are expected to biological resources from the establishment of staging and disposal areas. No mitigation for these impacts is expected. No indirect impacts to biological resources are expected. The details of these impacts that were presented in the August 2010 EA are incorporated by reference.

Adverse and beneficial indirect impacts are expected to the hydrology of various wetland and floodplain resources at several locations, and these effects are considered to be minor. Details of these impacts that were presented in the August 2010 EA are incorporated by reference.

The direct and indirect impacts described in this SEA (including information incorporated by reference from the August 2010 EA and FONSI), along with the inclusion of this mitigation as part of the proposed action, would not have a significant impact on biological resources.

#### **Historic Properties** (Section 4.13 of the August 2010 EA)

The discussions presented in the August 2010 EA for the no action and proposed action alternatives are incorporated by reference. With respect to the proposed action, it would not affect any potentially eligible sites or known sites for which no determination of NRHP eligibility has been made.

### **5.0 RELATIONSHIP OF RECOMMEND ALTERNATIVE TO ENVIRONMENTAL REQUIREMENTS**

The National Environmental Policy Act (NEPA) process would continue once stockpile and borrow areas are identified. The NEPA process would be followed to coordinate and account for any changes in environmental impacts. A 2<sup>nd</sup> Supplemental Environmental Assessment would be prepared by the St. Louis District and circulated to fulfill this requirement for public disclosure and involvement.

### **6.0 LITERATURE CITED**

This section of the August 2010 EA is incorporated by reference. A new citation is:

U. S. Army Corps of Engineers (USACE). 2010. Environmental Assessment with Signed Finding of No Significant Impact, Limited Reevaluation Report on Design Deficiency Corrections for East St. Louis, IL Flood Protection Project. FONSI signed 20 August 2010.

### **7.0 ENVIRONMENTAL ASSESSMENT PREPARERS**

This section of the August 2010 EA is incorporated by reference

## 8.0 COORDINATION, DISTRIBUTION LIST, PUBLIC VIEWS, AND RESPONSES

**Coordination.** The reanalysis described in this SEA has been coordinated with the Southwest Illinois Flood Prevention Council, the Illinois Department of Natural Resources, the U.S. Fish and Wildlife Service, and U.S. Environmental Protection Agency.

**Distribution List.** The Draft Supplemental Environmental Assessment and Unsigned Finding of No Significant Impact will be sent to the following elected officials, agencies, organizations and individuals for review and comment. All responses will be filed with this document.

### ELECTED OFFICIALS FEDERAL

Honorable Richard J. Durbin  
United States Senator

525 South 8th St.  
Springfield, IL 62703

Honorable Roland Burriss  
Springfield Senate Office  
607 East Adams, Suite 1520  
Springfield, IL 62701

Honorable John K. Shimkus  
Representative in Congress  
240 Regency Centre  
Collinsville, IL 62234

Honorable Jerry Costello  
Representative in Congress  
144 Lincoln Place Court, Suite 4  
Belleville, IL 62221

### STATE

Senator David Luechtefeld  
103B Capitol Building  
Springfield, IL 62706

Senator Gary Forby  
417 Capitol Building  
Springfield, IL 62706

Representative Mike Bost  
202-N Stratton Office Building  
Springfield, IL 62706

Representative Dan Reitz  
200-9S Stratton Office Building  
Springfield, IL 62706

### GOVERNMENT OFFICES FEDERAL

Ken Westlake  
US EPA, REGION 5  
77 West Jackson Blvd.  
Chicago, IL 60604-3507

Joyce Collins  
US Fish & Wildlife Service  
Marion Illinois Sub-Office (ES)  
8588 Rte 148  
Marion, IL 62959

Richard Nelson  
US Fish & Wildlife Service  
Rock Island Ecological Services Field  
Office  
1511 47th Avenue  
Moline, IL 61265

Amanda Ratliff  
Federal Emergency Management  
Agency  
536 South Clark St., 6th Floor

Chicago, IL 60605

Donald W. McCallon, District  
Conservationist  
Anna Field Office  
USDA-Natural Resources Conservation  
Service  
201 Springfield Avenue, Suite C  
Anna, IL 62906

STATE

Marc Miller, Director  
Illinois Department of Natural Resources  
One Natural Resources Way  
Springfield, IL 62702

Karen Miller  
Impact Assessment Section  
Realty and Planning Division  
Illinois Department of Natural Resources  
One Natural Resources Way  
Springfield, IL 62702-1271

Douglas P. Scott, Director  
Illinois Environmental Protection  
Agency  
1021 North Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Bruce Yurdin  
Illinois Environmental Protection  
Agency  
Bureau of Water  
Watershed Management Section  
1021 N. Grand Avenue East  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Anne E. Haaker  
Deputy State Historic Preservation  
Officer  
Preservation Services Division  
Illinois Historic Preservation Agency  
1 Old State Capitol Plaza

Springfield, Illinois 62701-1507

Terry Savko  
Illinois Department of Agriculture  
Bureau of Land and Water Resources  
P.O. Box 19281  
State Fairgrounds  
Springfield, IL 62794-9281

Stanley W. Krushas  
Illinois Emergency Management Agency  
2105 Vandalia, Suite 6A  
Collinsville, IL 62234-4859

David Shryock  
Illinois Emergency Management Agency  
State Regional Office Building  
2309 West Main St., Suite 110  
Marion, IL 62959-1196

ORGANIZATIONS

The Nature Conservancy  
2800 S. Brentwood Blvd.  
St. Louis, MO 63144

Robert D. Shepherd  
Izaak Walton League of America  
16 Juliet Ave  
Romeoville, IL 60446

Christine Favilla  
Sierra Club  
Piasa Palisades Group  
223 Market  
Alton, IL 62002  
Ted Horn  
Sierra Club  
Belleville Group  
30 S. 87th St.  
Belleville, IL 62223

Kathy Andria  
American Bottoms Conservancy  
PO Box 4242  
Fairview Heights, IL 62208

Bob Shipley  
Metro East Sanitary District  
P.O. Box 1336  
1800 Edison  
Granite City, Illinois 62040

Les Sterman  
Chief Supervisor of Construction  
104 United Drive  
Collinsville, IL 62234

Belleville News-Democrat  
P.O. Box 427  
120 South Illinois  
Belleville, IL 62220

St. Louis Post-Dispatch  
Terry Hillig – Illinois Bureau  
101 W. Vandalia – Suite 305J  
Edwardsville, IL 62025

The Telegraph  
P.O. Box 278  
111 E. Broadway  
Alton, IL 62002

Ruth Graves  
American Bottoms  
Regional Wastewater Treatment Facility  
1 American Bottoms Road  
Sauget, Illinois 62201-1075

Steven Smith  
Director, Remediation  
Solutia Inc.  
575 Maryville Centre Drive  
St. Louis, Missouri 63141

## DRAFT FINDING OF NO SIGNIFICANT IMPACT

### REVISED DESIGN DEFICIENCY CORRECTIONS FOR EAST ST. LOUIS, ILLINOIS FLOOD PROTECTION PROJECT

1. I have reviewed and evaluated the Supplemental Limited Reevaluation Report and Supplemental Environmental Assessment concerning the proposed East St. Louis Levee Design Deficiency Correction Project. The purpose of this project is to correct deficiencies in the design of underseepage and through-seepage controls for the East St. Louis Flood Protection System, which is administered by the Metro East Sanitary District (MESD).
2. Alternatives were considered in correcting design deficiencies for each distinct problem area or “decision segment” along the levee system. After consideration of logistical, environmental, and cost factors, the proposed action is the least cost option for all of these problem areas. By not making any design corrections, the "No Action" alternative would not eliminate the unacceptable level of risk associated with these deficiencies.
3. The tentative recommended plan includes 305 new relief wells; filling 314 existing wood stave relief wells with grout; ditching and pipe collector systems; a 61 cfs seepage pump station that pumps the flow from relief wells over the levee and discharges into the North Pump Station emergency closure gatewell structure; a 7 cfs lift station to get relief well flows to the Village of Sauget’s Physical-Chemistry Treatment Plant or the American Bottoms Wastewater Treatment Facility, a variable frequency drive for one pump at the Venice Pump Station; 5,770 linear feet of seepage berms; a small fill area along the levee; 17,340 linear feet of slurry trench cutoff wall through the riverside levee toe and to bedrock; 2,640 linear feet of shallow (40 ft deep) cutoff wall at the riverside levee toe; 3,640 linear feet of clay filled cutoff trench; 6,000 linear feet of 5-foot thick riverside clay blanket; environmental and archeological mitigation work; utility relocations (not yet defined); and easements for berms, relief wells in locations where there are no existing wells, three flowage areas, slurry trench cutoff wall staging areas and equipment access areas along the levee, disposal areas for material excavated for the slurry trench cutoff walls, and wetland and bottomland hardwood mitigation areas. Implementation will occur over nine fiscal years (2012 – 2020). The plan’s components are divided into two phases – first those in levee segments that need work to achieve 100-year flood certification (Phase 1), and then those in levee segments that only need work to achieve protection from the design flood at 54 feet on the St. Louis gage (Phase 2).
4. The recommended plan has been studied for physical, biological and socioeconomic effects. Major findings of this investigation include the following:
  - a. The recommended plan was selected because it provides an engineering solution to the problem consistent with the preservation of the environment.
  - b. Because avoidance of contaminants is not practical due to the heavily industrialized nature of the area along the Riverfront levee, contaminants are likely to be encountered in the vicinity of two adjacent Superfund sites during the construction and operation phases in these areas, and are expected in earthen materials excavated from cutoff wall trenches, groundwater or precipitation that fills these excavations during construction, and

groundwater flowing from relief wells during operation. A Phase II Environmental Site Assessment has been conducted for the initial portion of the construction phase to obtain baseline soil and groundwater information in the vicinity of two adjacent Superfund sites. This assessment will facilitate the proper handling and treatment of excavated materials and associated surface water and groundwater, and thereby prevent the spreading of contaminated substances.

c. With respect to air quality, exhaust and dust from construction activities are expected to have minor short term effects. Care will be taken to minimize all impacts on air quality. Volatilization of contaminants from relief wells that discharge groundwater seepage from areas known to have groundwater contamination will likely be minimal as these discharges will be piped directly to a treatment facility. As independent soil and groundwater cleanups of hazardous/toxic substance sites that impact relief wells are completed, the potential for post-construction impacts to air quality will be further diminished.

d. Planned activities during construction are not expected to cause impacts to any surface waters as long as proper stormwater pollution prevention practices are enacted during construction and disturbed areas are reseeded to restore levee turf or other groundcover. If necessary, groundwater or precipitation that fills excavations during construction will be treated and/or properly disposed of if environmental contamination is present. There is the potential for groundwater mounding on the landside of cutoff walls during low or normal river flows, and the creation of localized groundwater gradients that may trend perpendicular to the walls. Openings to be constructed in these walls will minimize these effects. The Phase II Environmental Site Assessment will provide data that can be used to assess the potential for cutoff walls to change the movement and distribution of contaminated groundwater.

e. Minor intermittent noise impacts will be created by machinery during construction. Any impacts in the vicinity of residential areas will be alleviated by confining construction operations to daylight hours when practicable.

f. Unavoidable impacts to biological resources include the loss of about 9 acres of various wetlands and bottomland hardwoods of low quality. To offset these losses, the recommended plan includes a compensatory mitigation plan involving the purchase and enhancement of an approximately 35 acre parcel of farmland near the project. Because site conditions at this parcel cannot accommodate the total mitigation requirement, a mitigation bank or willing seller will be located for the remaining 7 acres of forested wetland mitigation. Minor indirect impacts are expected to biological resources at the three proposed flowage easement areas, where changes in surface hydrology will lead to a gradual shift to more flood tolerant plant species. Minor indirect impacts to surface hydrology of the Borrow Pit Lake wetland complex are expected from construction of several adjacent cutoff walls, where it is expected that seasonal fluctuations in the wetland's water surface elevation will be dampened to a minor degree.

g. None of the seven federally listed threatened and endangered species for the project area will be adversely affected, provided that measures to protect the Indiana bat and decurrent false aster are implemented.

h. About 40 acres of prime farmland will be converted to nonagricultural use.

i. In consultation with the Illinois State Historic Preservation Officer, a Programmatic Agreement is in development to achieve Section 106 compliance. One known cultural site will potentially be impacted. The site will require further testing as well as coordination and consultation with the Illinois State Historic Preservation Officer and interested Native American Tribes to determine its eligibility for the National Register of Historic Places.

j. For the final design of slurry trench cutoff walls and relief wells in the vicinity of two Superfund sites, a Phase II Environmental Site Assessment has provided baseline soil and groundwater information. The stockpile and disposal areas also have yet to be identified, and their locations will be determined in late FY 2011.

k. The National Environmental Policy Act (NEPA) process would continue once stockpile and borrow areas are identified. The NEPA process would be followed to coordinate and account for these changes. A 2<sup>nd</sup> Supplemental Environmental Assessment would be prepared and circulated to fulfill this requirement for public disclosure and involvement. If new information leads to the conclusion that one or more environmental effects may indeed be significant, a contingency plan for continuing the NEPA process would include the preparation of an Environmental Impact Statement and rearrangement of the project implementation schedule to delay construction of the feature(s) associated with such environmental effects, thereby allowing additional time for completion of that type of NEPA document.

l. During construction, should the contractor suspect the presence of HTRW based on visual inspection, all work in the suspected area shall stop and the construction representative will be notified and the Environmental Quality Section of the St. Louis District Corps of Engineers shall be contacted to further determine the presence or absence of HTRW material based on sampling. Once the onsite inspection and sampling occur, proper handling and disposal of materials will be determined.

m. In the event that any cultural properties are located during construction, all activity in the immediate area will halt until the site can be evaluated in accordance with Sec. 800.13(b) of the National Historic Preservation Act. The site will be protected from construction impacts until its eligibility for the National Register is determined, in consultation with the Illinois Historic Preservation Agency, and appropriate mitigation measures are completed. Should an inadvertent discovery of human remains occur, then the Illinois Human Skeletal Remains Protection Act (Illinois Comp. Stat. Ann. 20 ILCS 3440/0:01, et seq.) will be followed.

5. Based on my analysis and evaluation of the alternative courses of action presented in these documents, I have determined that the reevaluated East St. Louis Levee Design Deficiency Correction Project will not have significant effects on the quality of the human environment. Therefore, no Environmental Impact Statement will be prepared prior to proceeding with this action.

Date

/unsigned/\_  
Thomas E. O'Hara, Jr.  
Colonel, U.S. Army  
District Engineer

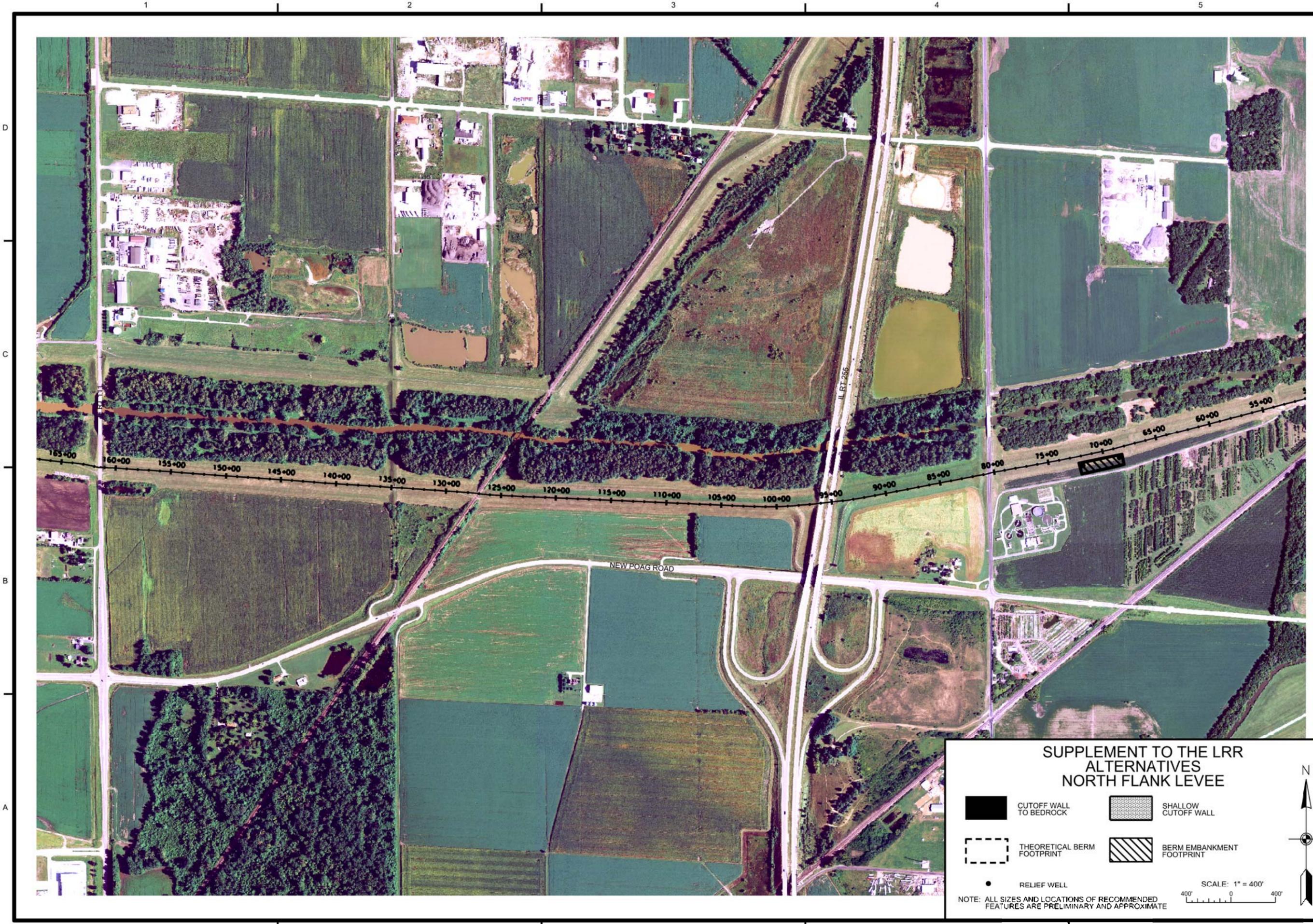
## **Appendix EA-1**

Plates Displaying  
Location of Alternatives





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3/17/2011



### SUPPLEMENT TO THE LRR ALTERNATIVES NORTH FLANK LEVEE

<p> CUTOFF WALL TO BEDROCK</p> <p> THEORETICAL BERM FOOTPRINT</p> <p> RELIEF WELL</p>	<p> SHALLOW CUTOFF WALL</p> <p> BERM EMBANKMENT FOOTPRINT</p>
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NOTE: ALL SIZES AND LOCATIONS OF RECOMMENDED FEATURES ARE PRELIMINARY AND APPROXIMATE

SCALE: 1" = 400'

US Army Corps of Engineers  
St. Louis District

MARK	DATE	APPR	MARK	DATE	APPR	DESCRIPTION

DESIGNED BY:	X	DRAWN BY:	X	CHECKED BY:	X
U.S. ARMY CORPS OF ENGINEERS		ST. LOUIS DISTRICT		ST. LOUIS, MISSOURI 63103	
UPPER MISSISSIPPI RIVER BASIN		MISSISSIPPI RIVER, ILLINOIS		MADISON AND ST. CLAIR COUNTIES	
FILE NO.:		PROJECT NO.:		FILE NAME:	

METRO EAST SANITARY DISTRICT  
LEVEE UNDER SEEPAGE ANALYSIS  
CIVIL

NORTH FLANK LEVEE REACH  
52 PLUS 2 FEET  
ALTERNATIVES  
STA 60+00 TO STA 160+00

PLATE  
**B02**















