

**UMRR HREP
INSPECTION OF COMPLETED WORKS
2016**

I. PROJECT:

Potter's Marsh Habitat Rehabilitation and Enhancement Project (HREP)

II. AUTHORITY:

Upper Mississippi River Restoration (UMRR) Program

III. LOCATION:

Pool 13, Mississippi River Miles (RM) 522.5 to 526.0, Carroll and Whiteside Counties, IL

IV. PREVIOUS REPORTS:

Reports listed below are posted at this website:

<http://www.mvr.usace.army.mil/Missions/Environmental-Protection-and-Restoration/Upper-Mississippi-River-Restoration/Habitat-Restoration/Rock-Island-District/Potters-Marsh/>

U.S. Army Corps of Engineers, Rock Island District, Upper Mississippi River System, Environmental Management Program, Definite Project Report (R-9F) with Integrated Environmental Assessment, Potters Marsh Rehabilitation and Enhancement, April 1992.

U.S. Army Corps of Engineers, Rock Island District, Operation and Maintenance Manual, Potters Marsh Habitat Rehabilitation and Enhancement Program, October 1997.

U.S. Army Corps of Engineers, Rock Island District, Upper Mississippi River System, Environmental Management Program, Post-Construction Initial Performance Evaluation Report, Potters Marsh Habitat Rehabilitation and Enhancement, November 1998.

U.S. Army Corps of Engineers, Rock Island District, Upper Mississippi River Restoration, Environmental Management Program, 7 Year Post-Construction Performance Evaluation Report, Potters Marsh Habitat Rehabilitation and Enhancement, October 2003.

Potters Marsh HREP 2013 Annual Inspection Report, Upper Mississippi River National Wildlife Refuge; US Fish and Wildlife Service. August 2013.

V. PROJECT GOAL & OBJECTIVES:

The project goals and objectives were outlined in the original Definite Project Report and are summarized in the following table.

Table 1: Project Goals and Objectives

Project Goals and Objectives		
Goals	Objectives	Project Features
Rehabilitate and Enhance Aquatic Habitat	Restore and create fisheries habitat	Hydraulically dredged channel
	Reduce sediment input	Mechanically excavated sediment trap
Enhance Migratory Birds through Wetland Rehabilitation	Increase migratory bird feeding/resting areas	Managed marsh unit Grass/forb plantings
	Increase waterfowl brood habitat/fall feeding sites	Potholes

VI. MONITORING PLAN EVALUATION CRITERIA:

The following tables were copied from the following report: U.S. Army Corps of Engineers, Rock Island District, Upper Mississippi River Restoration, Environmental Management Program, 7 Year Post-Construction Performance Evaluation Report, Potters Marsh Habitat Rehabilitation and Enhancement, 2003.

No changes or discussion of these tables was made during this site assessment.

Table 2: Monitoring and Performance Evaluation Matrix

Activity	Purpose	Responsible Agency	Implementing Agency	Funding Source	Remarks
Sedimentation Problem Analysis	System-wide problem definition. Evaluates planning assumptions	USGS	USGS	LTRMP	Leads into pre-project monitoring; defines desired conditions for plan formulation
Pre-project monitoring	Identifies and defines problems at HREP site. Established need for proposed project feature	Sponsor	Sponsor	Sponsor	Attempts to begin defining baseline. See DPR.
Baseline monitoring	Establishes baselines for performance evaluation	USACE	Field station or sponsor thru Cooperative Agreements or Corps	HREP	See DPR for location and sites for data collection and baseline information. Actual data collection will be accomplished during Plans & Specification phase.
Data Collection for Design	Includes identification of project objectives, design of project, and development of performance evaluation plan	USACE	USACE	HREP	Comes after fact sheet. This data aids in defining the baseline
Construction Monitoring	Assesses construction impacts; assess permit conditions are met	USACE	USACE	HREP	Environmental protection specifications to be included in construction contract documents. Inter-agency field inspections will be accomplished during project construction phase
Performance Evaluation Monitoring	Determine success of project as related to objectives	USACE (quantitative), sponsor (field observations)	Field station or sponsor thru Cooperative Agreements or Corps	HREP	Comes after construction phase of project
Analysis of Biological Responses to Project	Evaluates predictions and assumptions of habitat unit analysis. Determine critical impact levels, cause-effect relationships, and effect on long-term losses of significant habitat	USACE	USACE	HREP	Problem Analysis and Trend Analysis studies of habitat projects

Table 3: Performance Evaluation and Monitoring Schedule

Potters Marsh Habitat Rehabilitation and Enhancement Project Post-Construction Performance Evaluation Plan ¹											
Enhancement Potential											
Goal	Objective	Alternative	Enhancement Feature	Unit	Year 0 (1995) Without Alternative	Year 0 (1995) With Alternative (As-Built)	Year 7 With Alt.	Year 7 With Alt.	Year 50 Target With Alt. ^{2/}	Feature Measurement	Annual Field Observations by Site Manager
Rehabilitate & Enhance Aquatic Habitat	Restore & create fisheries habitat in lower Potters Slough and embayment areas	Create deep water in lower channel & embayment areas	Hydraulically dredge channel seg. 2 & 3	Acre-feet of deep water	0	290	220	240	190	Soundings	Describe presence of snags, debris, channel sedimentation or vegetation
			Improved water quality	Mg/l DO	Approx. 1-4			Generally ≥5 at times	> 5	Perform water quality tests	Describe presence of fish stress or kills
				Fish Counts				49 fish, 7 species		Fish survey	Describe fish usage
	Reduce sediment input in the upper Potters Slough area	Create deep water above and below causeway	Hydraulically dredge Seg. 1 & mech. excav. hole below causeway	Acre-feet of deep water	0	37	32	27	24	Soundings	Describe presence of snags, debris, channel sedimentation or vegetation
Enhance Habitat for Migratory Birds Through Wetland Rehabilitation	Increase migratory bird feeding or resting area	Best use of Confined Placement Site surface	Managed marshland	Acres of managed water level	0	32.5	32.5	Not determined	32.5	Aerial survey	Presence of waterfowl
			Grass and forbs plantings	Acres of grassland		7		Not determined	7	Vegetation transect	Survival of plantings
	Increase waterfowl brood habitat & fall feeding sites	Pothole creation	Pothole Creation	Acres of potholes	Approx. 2.0		9.45	8.3	6.8	Sediment transects/aerial photography	Presence of vegetation and presence of waterfowl

VII. SIGNIFICANT EVENTS SINCE LAST INSPECTION

The U.S. Fish and Wildlife Service (USFWS) has listed significant events which have impacted the site since construction. A drought year was observed in 2012. High water was observed in 2013.

Table 4: Significant Events at the Refuge (Provided by USFWS)

Spring 1997	Significant flood
Spring 2001	Second largest flood event on record.
Spring 2008	High flows through LD 13 around 191,600 cfs on April 29. Approximate crest elevation at project location RM 524: 588.6 (about 5.6' above flat pool)
Summer and Fall 2010	High flows through LD 13 around 178,400 cfs on July 26, 2010; and around 186,600 cfs on October 6, 2010. Approximate crest elevations at project location: 586.6 and 587.3.
Spring 2011	High flows through LD 13 around 231,600 cfs on April 21, 2011; Pool 13 elevation 590.29 on April 22, 2011. Approximate crest elevation at project location 590.8.

VIII. PROJECT SPONSOR UPDATES

Project Sponsor contacts are listed in the following table.

Table 5: Project Sponsors

U.S. Fish and Wildlife Service, Upper Mississippi River Refuge				
Name	Position	Address	Phone	Email
Ed Britton	Wildlife Refuge Manager	7071 Riverview Thomson, IL 61285	815-273-2732	ed_britton@fws.gov
Sharonne Baylor, P.E.	Environmental Engineer	51 East Fourth St. Winona, MN 55987	507-494-6207	sharonne_baylor@fws.gov

IX. ONGOING MONITORING AND/OR REPORTS

Potters Marsh HREP Annual Inspection Reporting, Upper Mississippi River National Wildlife Refuge; USFWS.

X. DATE OF FIELD VISIT: July 21, 2016, Hot, sunny, mid 90's °F

XI. ATTENDEES:

The following table outlines the list of personnel who visited the site in 2016.

Table 6: 2016 Site Visit Attendees

Name	Office	Title	Number
Kara Mitvalsky	USACE – Rock Island	Environmental Engineer	309-794-5623
Ben Vandermyde	USACE – Rock Island	Lead Forester	309-794-4522
Chuck Theiling	USACE – Rock Island	Biologist	309-794-5636
Tom Kirkeeng	USACE – Rock Island	Civil Engineer	309-794-5433
Rebecca Laugen	USACE – Rock Island	Civil Engineer	309-794-5411
Ed Britton	U.S. Fish & Wildlife	District Manager	815-273-2732 Ext 111
Russell Engelke	U.S. Fish & Wildlife	Assistant District Manager	815-273-2732 Ext 113
Sharonne Baylor	U.S. Fish & Wildlife	Environmental Engineer	507-494-6207
Bill Davison	U.S. Fish & Wildlife	Maintenance Mechanic	815-273-3153
Mike Griffin	Iowa DNR	Wildlife Biologist	563-872-5700

XII. OBSERVATIONS:

Dredge Cuts: Some of the dredge cut locations could be observed by changed or lack of aquatic vegetation. Most of these cuts have filled in more than expected, especially at the downstream end of the site.

Sediment Trap: According to the USFWS, the excavation into the project (near the bridge/causeway) has significantly settled in. There are no recent hydrosurveys of the area.

Potholes: The potholes were not inspected since vegetation prevented the inspection team from easily finding and accessing the potholes.

Marsh: The confined placement site is in good condition. The containment dike remains in good condition, and is well maintained with little woody debris or erosion noted. The slopes are satisfactory with good vegetation cover, and the top of the dike is graded properly and mowed. The interior holds water and has diverse vegetation.

Marsh well pump: The water well and pump are maintained well and continues to operate adequately.

Access Road: The access road was in good condition.

Grassland: The grassland is full of mixed vegetation. At the time of inspection, much of the vegetation was in bloom, including lotus, purple coneflower, purple poppy mallow, rose marsh-mallow, and black eyed susan. The containment dike roadway was mowed for a clear path around the project site.

Waterfowl Use: The site is actively used by waterfowl. Hunting blinds are situated south of the Marsh.

XIII. SUMMARY

Overall the Potters Marsh HREP appears to be generally meeting its goals and objectives through continued operation and maintenance by the USFWS.

XIV. RECOMMENDATIONS

Continued HREP monitoring at this site. Conduct hydrosurveys of dredge cuts.

XV. LESSONS LEARNED

The sedimentation rate in the sediment trap and dredge cuts was underestimated.

Attachment A

2016 Photos



Photo 1: View from Thomson Causeway Recreation Area access road – Sediment Trap and Hydraulic Dredging



Photo 2: Containment Interior, looking south from the containment dike road



Photo 3: Containment Interior, looking southeast from the containment dike road



Photo 4: Well



Photo 5: Electrical equipment for the well



Photo 6: Well outlet pipe



Photo 7: Vegetation in the containment interior



Photo 8: Habitat channels



Photo 9: Mallard Bay, looking southwest from the containment dike road



Photo 10: Containment Interior vegetation, looking northeast from the road



Photo 11: Containment Dike and Interior, looking north from the containment dike road



Photo 12: Stoplog structure



Photo 13: Stoplog structure and gage



Photo 14: Containment dike interior and gage



Photo 15: Beaver lodge in the containment interior, looking east



Photo 16: Vegetation, looking north from the containment dike road

Attachment B
US FWS Annual Inspection Report

Upper Mississippi River National Wildlife and Fish Refuge

Potters Marsh HREP

2013 Annual Inspection Report



Old beaver lodge (covered in purple loosestrife) and staff gauge, looking from structure, August 2013.

Prepared by
Sharonne Baylor, Environmental Engineer
Upper Mississippi River National Wildlife and Fish Refuge
51 E Fourth St., Room 101
Winona, Minnesota 55987
December 2014



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INSPECTION DAY

Date(s) of Inspection	August 14, 2013
Inspector(s)	Sharonne Baylor, Environmental Engineer
Others Present	None
Project Location	Pool 13, RM 522.5-526, left descending bank of navigation channel
Weather	Warm, cloudy, calm, nice, mid 70's °F
River Level	<ul style="list-style-type: none"> Lock and Dam 12 tailwater at RM 556.7: 585.21 Lock and Dam 13 pool at RM 522.4: 583.09 Approximate elevation at project location RM 524: 583.2 (about 0.2' above flat pool) Lock and Dam 13 flow: 33,613 cfs

RECOMMENDATIONS

Recommended Actions to Take Immediately

1. Repair beaver damage to dike around stoplog structure. A layer of riprap next to the structure would help prevent future damage. Continued damage could lead to piping through the dike.
2. Repair interior slope damage approximately at STA 45+00. This is a safety hazard for mowing and other maintenance work.
3. Continue to remove woody vegetation growing next to stoplog structure.

Recommended Actions to Prolong Life of Project

1. Inspect inside of structures and stoplogs when repositioning stoplogs.
2. Continue to keep woody vegetation off containment dike and from around structure.
3. Continue to monitor project.

INSPECTION RESULTS

Item	Observations/Condition	Remarks/Recommendations
Containment Dike	<p>Generally good condition, though some beaver and other minor damage near stoplog structure and interior slope around STA 45. No apparent sloughing.</p> <p>Solid vegetation coverage.</p> <p>Top is graded properly.</p> <p>Photos 1-2, 4-6, 8-9.</p>	<p>Repair damage to dike around stoplog structure.</p> <p>Repair damage to dike interior around STA 45. This is a large hole.</p> <p>Continue to keep woody vegetation off dikes and monitor.</p>

Item	Observations/Condition	Remarks/Recommendations
Containment Interior (Duckfoot Marsh)	Heavy lotus and willow vegetation. Also areas of open water. There does not appear to be an active beaver around. Photos 1-10.	Management issue.
Stoplog Structure	Concrete, handrail, and grating in good condition. Heavy vegetation around structure. Stoplog area plugged. Outlet headwall clear. Beaver damage around structure into dike. Does not appear to be the beaver activity there has been in the past. Photo 11.	Repair damage to dike around stoplog structure. Remove woody vegetation around stoplog structure. Inspect inside of structures and stoplogs in fall when repositioning stoplogs.
Well	Visually ok. Did not operate. Photos 12-14.	Continue to consult with professional electrician or well installers if problems with well or electrical panel.
Potholes	Did not inspect.	Continue to monitor.
Access Road	Good condition.	Continue to monitor.
Dredge Cuts	Did not inspect. Photo 15.	Have Corp perform bathymetric surveys, perhaps for future Project Evaluation Report. Previously, the Corps provided their 2007 survey cross-sections which indicated cuts are continuing to fill in, especially cuts C and K.

OPERATION AND MAINTENANCE

Operation and Maintenance Responsibilities

See O&M manual, pages 13-19.

Operation and Maintenance Cost History and Activities

Costs before FY03 not all well documented.

Year	Years in O&M	Estimated Annual Cost w/ Inflation	Actual FWS Costs	Activities
1996	1	\$7,024	\$460	Operate WCS, install gauge
1997	2	\$7,185	\$1,485	Operate WCS, mow

Year	Years in O&M	Estimated Annual Cost w/ Inflation	Actual FWS Costs	Activities
1998	3	\$7,300	\$3,400	Operate WCS, prescribed burn, mow, maintain vegetation, cleanup after 1997 flood
FY 2003	8	\$8,243	\$650	Operate WCS, move, cleanout WCS
FY 2004	9	\$8,465	\$3,277	Remove downed trees, operate stoplogs, mow and grade levee
FY 2005	10	\$8,753	\$583	Well pumping, operate WCS
FY 2006	11	\$9,033	\$2,238	Well pumping, operate WCS, mow and grade levee
FY 2007	12	\$9,295	\$1,000	Prescribed burn, mow, remove trees, inspections, pump fall 2006
FY 2008	13	\$9,648	\$4,200	Prescribed burn, mow, tree removal, inspections, pump fall 2007
FY 2009	14	\$9,610	\$2,100	Inspections, mow
FY 2010	15	\$9,763	\$3,500	Inspections, mow
FY 2011	16	\$10,076	\$3,500	Inspections, mow, remove trees, pumping, operate WCS
FY 2012	17	\$10,287	\$10,800	Inspections, mow, remove trees, pumping, operate WCS, burning, weed control
FY 2013	18	\$10,442	\$6,100	Inspections, mow, remove trees, pumping, operate WCS, operate well, electricity, weed control

PROJECT HISTORY AND DOCUMENTS

Significant Past Project Events and Activities

Spring 1997	Significant flood.
Spring 2001	Second largest flood event on record.
Spring 2008	High flows through LD 13 around 191,600 cfs on April 29. Approximate crest elevation at project location RM 524: 588.6 (about 5.6' above flat pool)
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Construction History and Costs

Construction Complete	July 1996
Construction Contractor	J.F. Brennan Co., Inc.
Construction Cost	\$2,163,000
Total Project Cost	\$2,975,000

Project Documents

Definite Project Report/ Environmental Assessment	April 1992
Operation and Maintenance document	March 1997
Waterfowl and Wading Bird Use of Potholes at the Potters Marsh HREP	October 1997
Post-Construction Initial Performance Evaluation Report	November 1998
7-Year Post-Construction Performance Evaluation Report	October 2003

INSPECTION PHOTOS

Project inspection photos below taken by Sharonne Baylor on August 14, 2013 unless otherwise noted. See photo layout reference map below for photo locations.





Photo 1: Containment dike and interior, looking southwest from access road.



Photo 2: Containment dike and interior, looking northeast from access road.



Photo 3: Interior, looking south from access road area.



Photo 4: Containment dike and interior, southwest corner looking east.



Photo 5: Containment dike and interior, southwest corner looking northeast.



Photo 6: Containment dike and interior, southwest side looking east.



Photo 7: Interior, southwest corner looking northeast.



Photo 8: Containment dike and interior, northeast corner looking west (toward well).



Photo 9: Containment dike and interior, northeast corner looking southwest.



Photo 10: Interior, northeast corner looking southwest.



Photo 11: Stoplog structure outlet headwall.



Photo 12: Well electrical.



Photo 13: Well.



Photo 14: Well outlet pipe.



Photo 15: Dredge cut, looking west toward river from southwest corner of containment dike.



Photo 16: Potters Marsh project area, looking northwest from river. (2004 photo?)

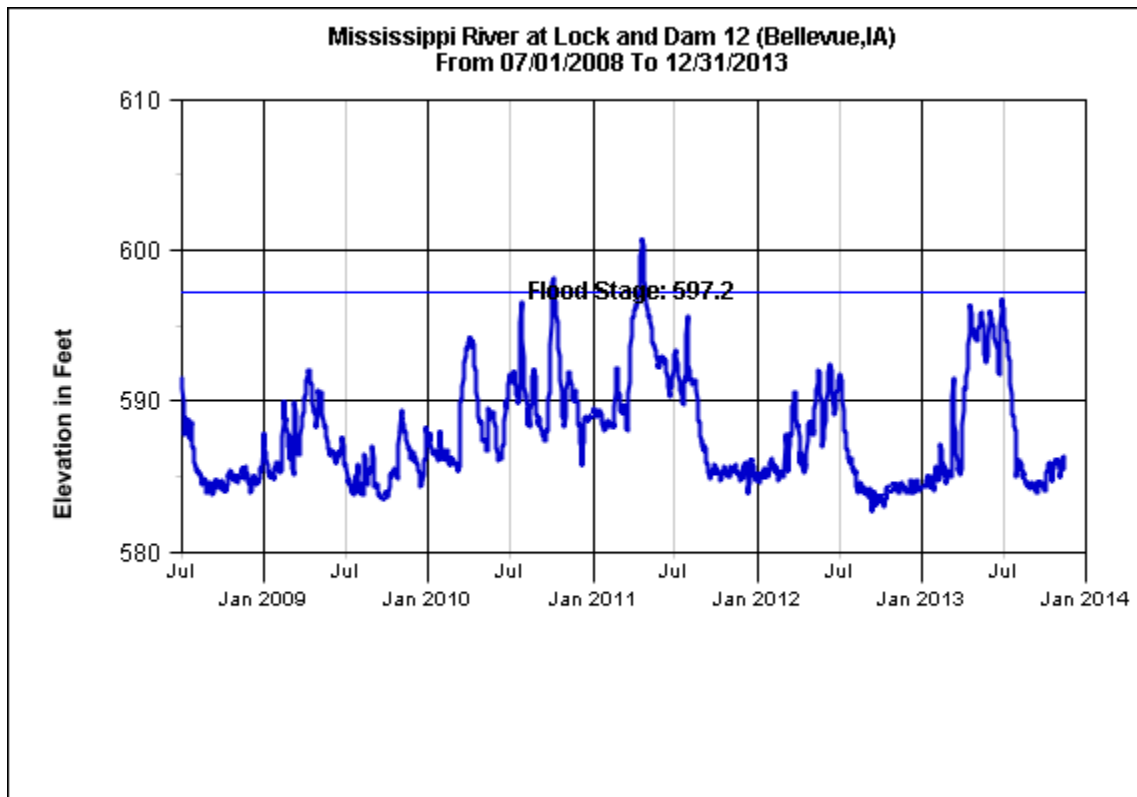
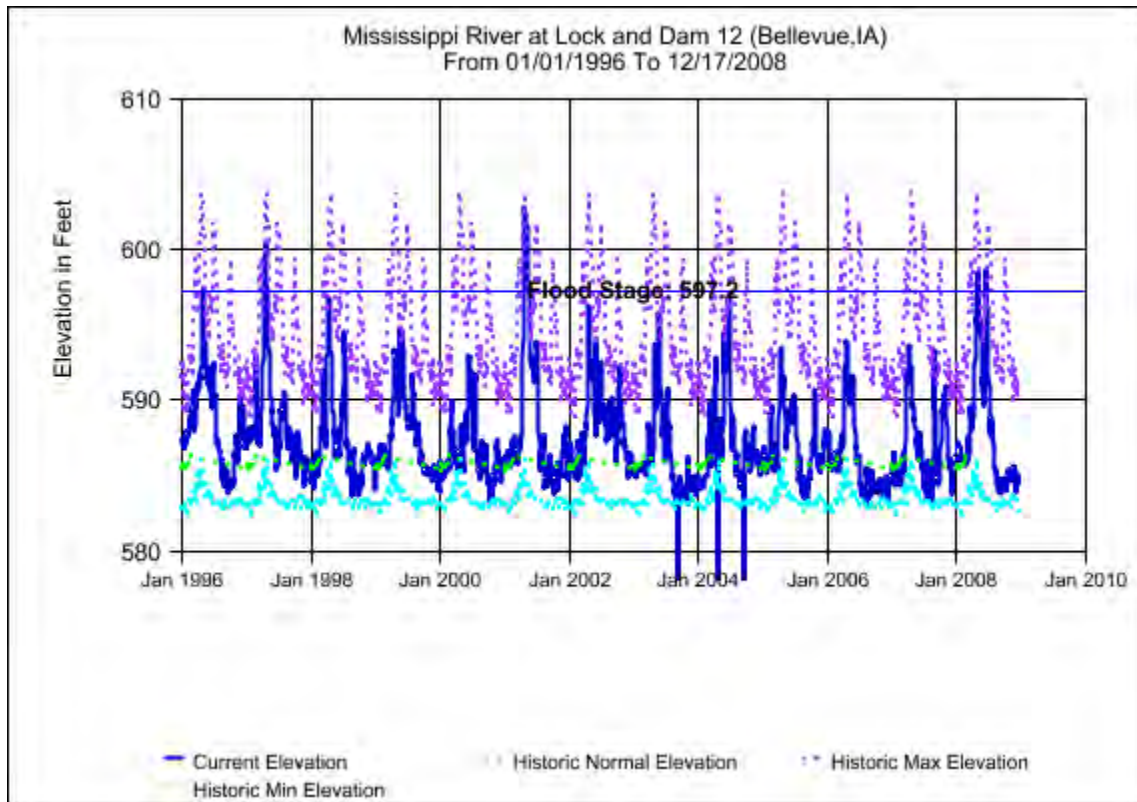
AERIAL PHOTO AND PROJECT FEATURES

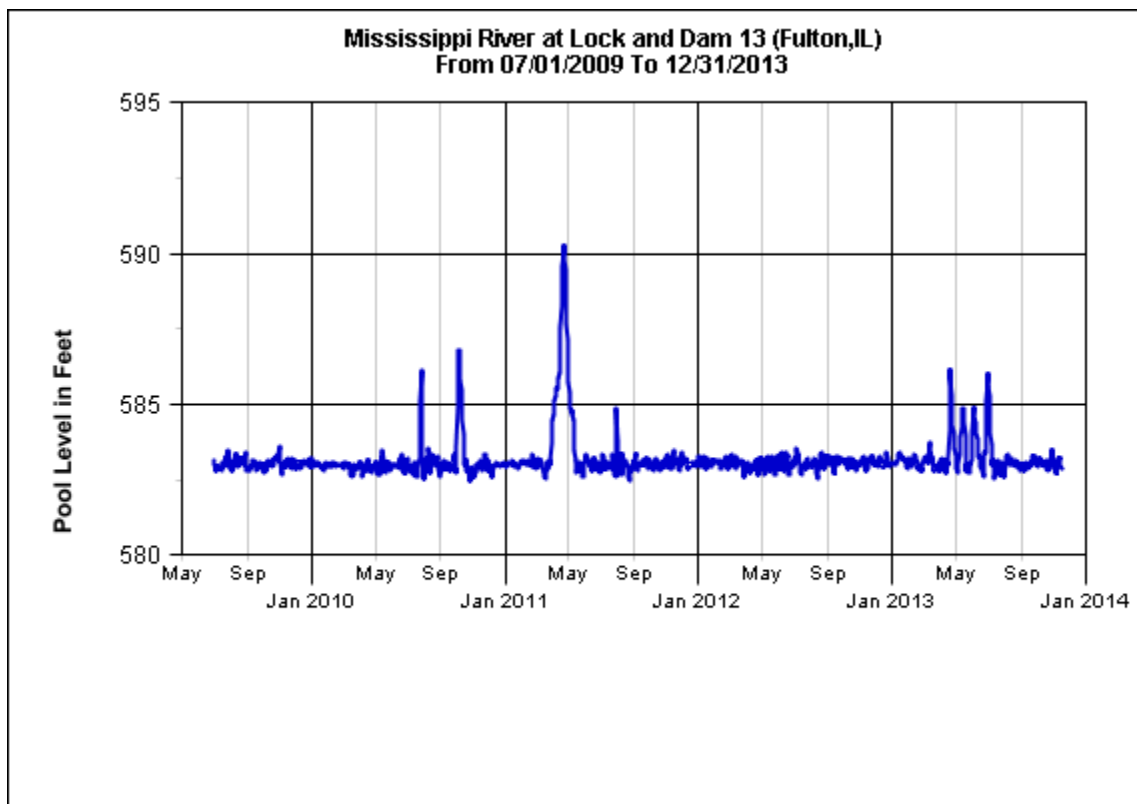
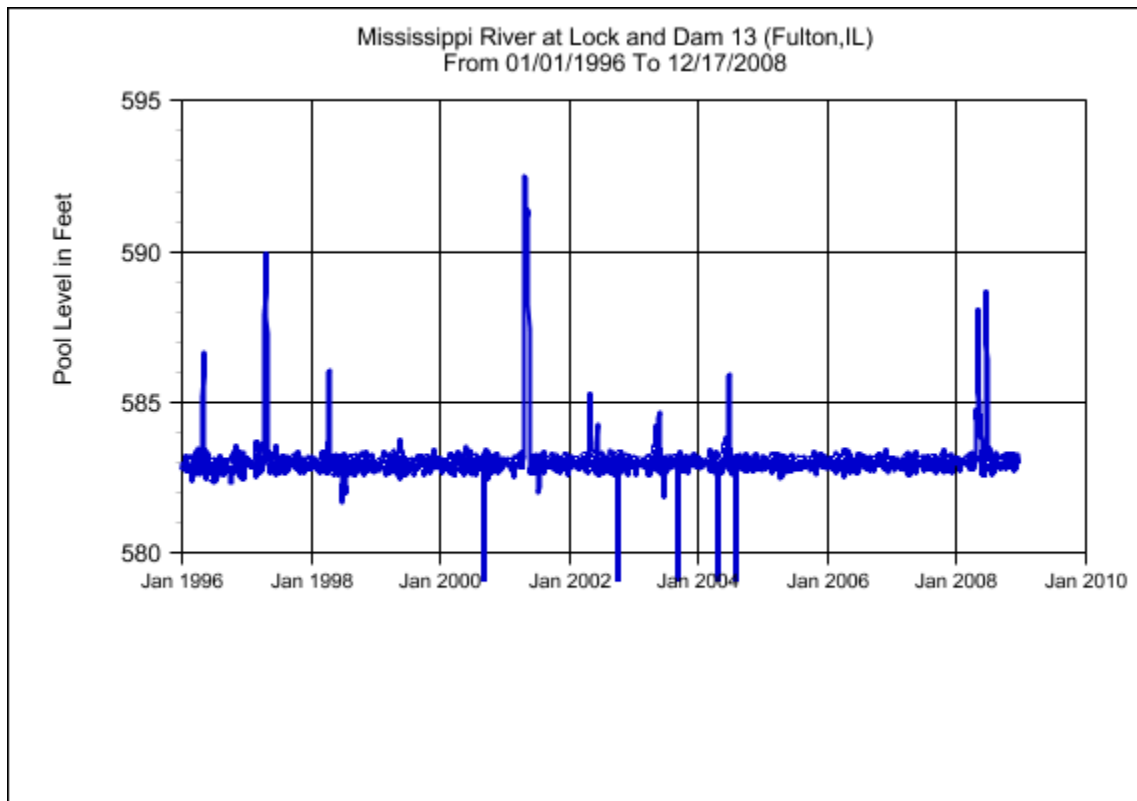


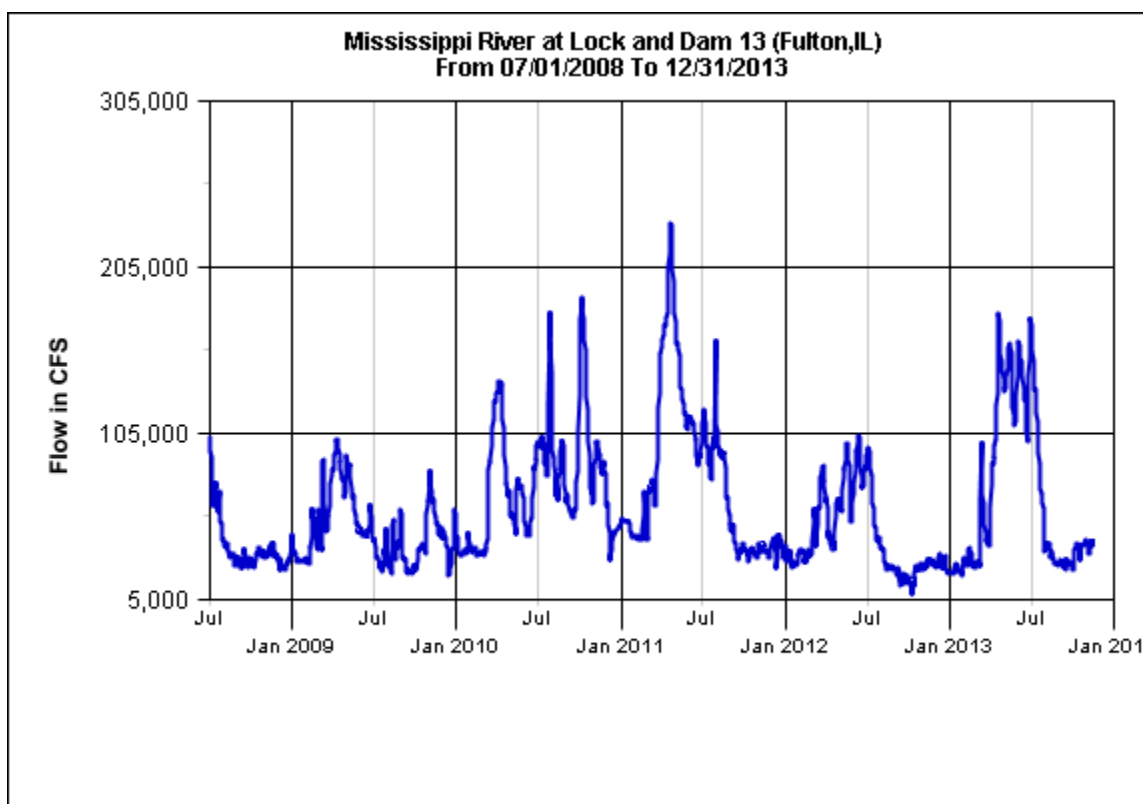
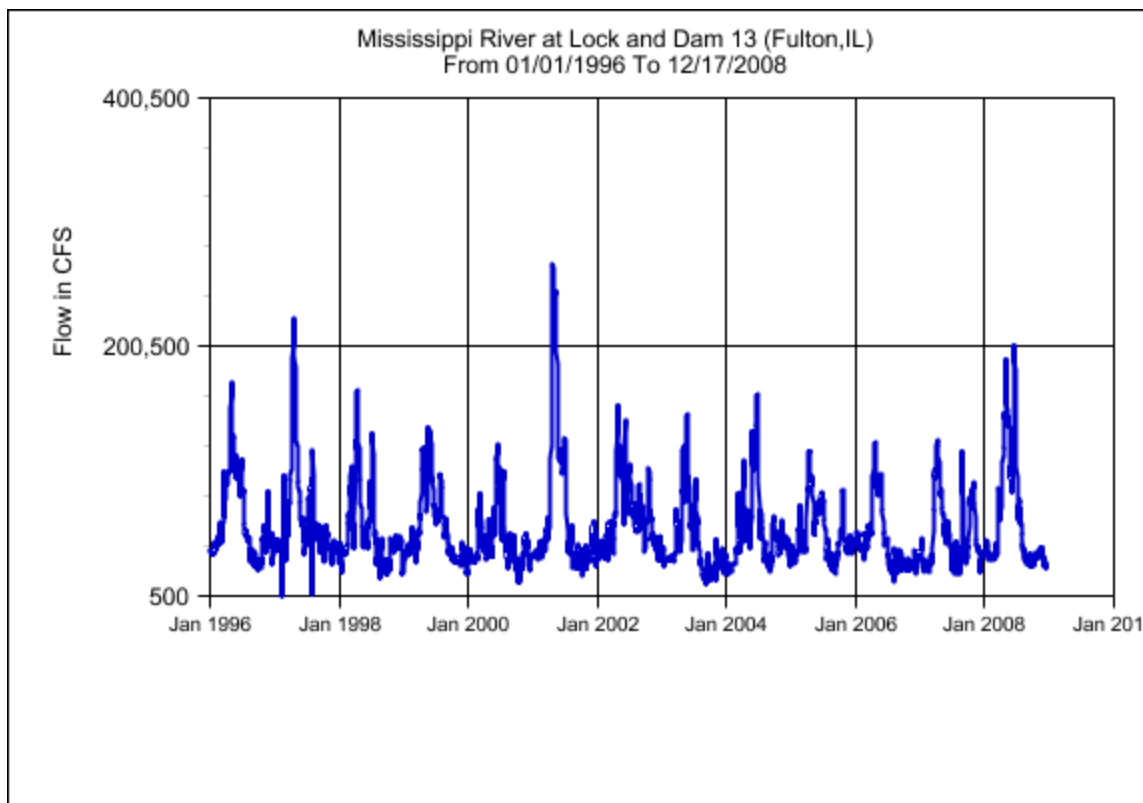
Potters Marsh aerial view, National Ag Program 2014 imagery.



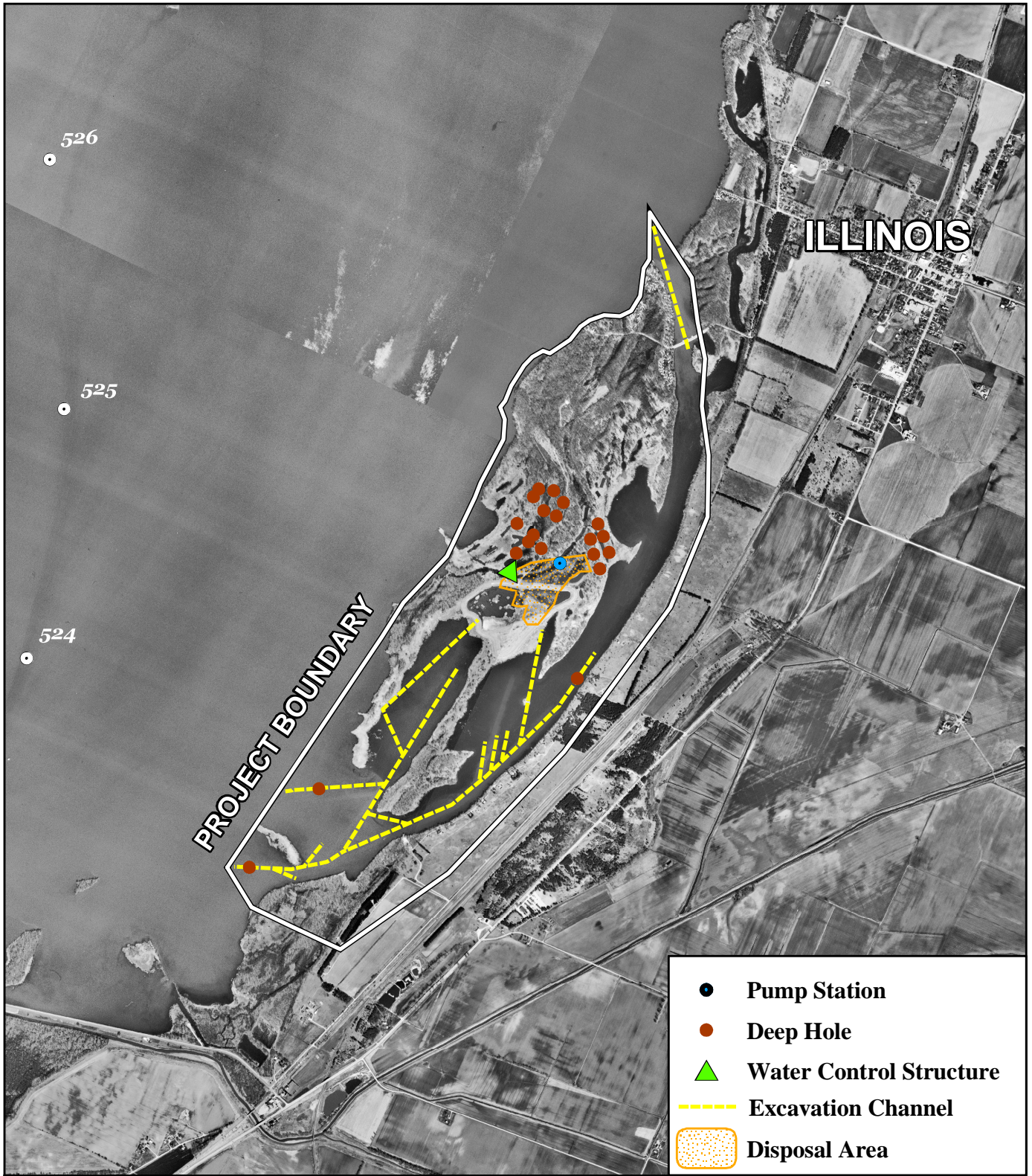
HYDROGRAPHS



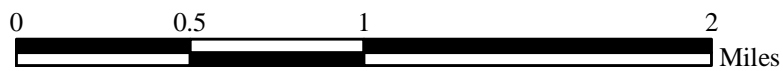




Attachment C
Site Plan and Monitoring Plan Plates



Potters Marsh



Project Location



