SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX A
PRELIMINARY CIVIL ENGINEERING REPORT

APPENDIX A

CIVIL ENGINEERING REPORT

SPUNKY BOTTOMS PRESERVE
BROWN COUNTY, ILLINOIS

SCOPE

1. The purpose of the project is to enhance the ecosystem restoration for the major portion of the former Spunky Bottoms Drainage District which is now owned by The Nature Conservancy (TNC) and the Illinois Department of Natural Resources (IDNR).

2. On the TNC property, this will be accomplished by building a gated fish passage/water control structure in the main line levee. A containment berm will be constructed on the south end of the project area to prevent low level flooding of the private lands. A gated culvert will be constructed through the berm to maintain natural drainage from the area south of the berm into the protected area when water levels in the project area allow. A ponding area and portable pump will be provided outside the berm to store and remove surface runoff unable to drain due to the berm. The township road will also be raised to maintain access to cabins located near the river during operation of the project. Rip rap will be placed along the embankment toe of La Grange Rd., also known as County Road 12, in areas subject to wave action due to higher water management levels.

3. In general, the features described below were modeled in Microstation using InRoads. Embankment quantities were computed by comparing design surfaces to existing ground surfaces. Clearing and stripping quantities were based on the footprint of project features. Stone surfacing and rip rap quantities were computed using simple geometry calculations.

WATER CONTROL/FISH PASSAGE STRUCTURE

4. The structure will be constructed within the footprint of the existing levee. The structure will be constructed before the channel to the river so a minimal cofferdam will be required due to high riverside dredge fill. Cofferdams will be required on the interior due to the impracticality of draining the entire management area.

5. The previously excavated levee will be replaced and drainage ditch excavated after completion of the structure. The final earth slopes and all excavation slopes will be 1V on 3H in all locations. For temporary structural excavations the slopes shall be 1V on 1.5 H.

6. Required earth materials will be obtained from a borrow area on project lands identified in the plates.

ROAD RAISE

7. The township road will be raised to an elevation of 434.0. The additional roadway embankment will be placed on the south side of the existing road to avoid impacting trees to the north. Adjacent utility poles must be relocated to accommodate the additional road embankment.

8. The crown width will match the width of the existing township road. A 12-inch thick crushed stone surface will be provided. Side slopes will be 1V on 3H to facilitate mowing. Required earth materials will be obtained from a borrow area shown on the plates.

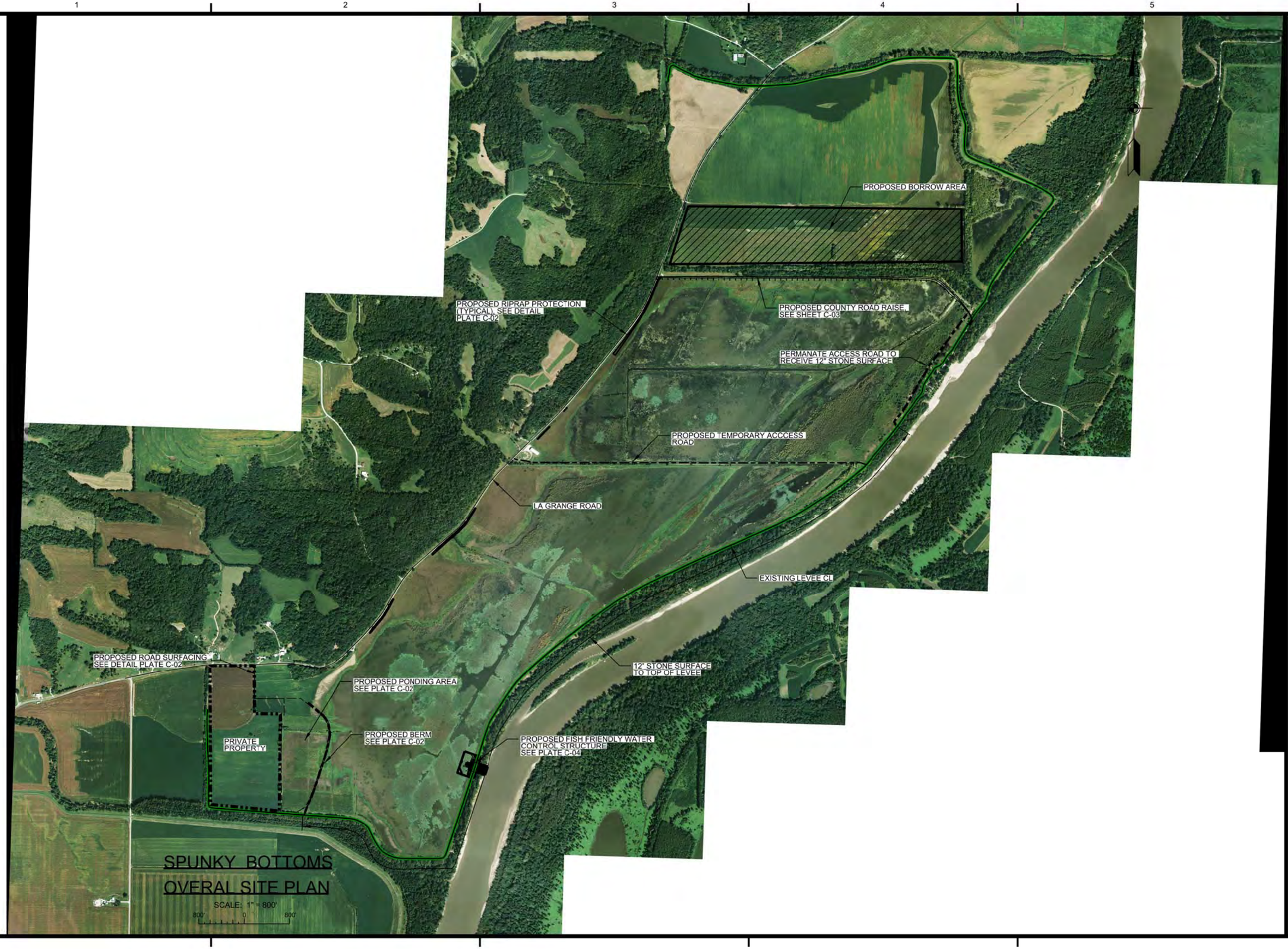
9. During construction, access to the private cabin area will be provided by placing crushed stone and a 48” culvert on the historical access road across the middle of the site. This temporary access can be accessed from La Grange Rd., with the entrance located behind the TNC maintenance shed.

10. 18” of 90 lb Riprap with 6” of 3” bedding material will be placed along the project side of La Grange Rd. embankment to protect the same during periods when water is impounded in the management area.

BERM / PONDING AREA

11. The berm will be built to el. 434.0. The berm will be constructed with a 10-foot crown and 1V on 3H side slopes. A 12-inch thick crushed stone road on the top of this berm will provide the primary access from La Grange Rd. to the water control structure. The material for the berm will be obtained from the borrow area identified on the plates.

12. A 36-inch diameter culvert with a flap gate will be provided to permit gravity drainage flow from the private properties on the south. A ponding area and portable pump will store and pump surface water from the protected private property when the project water level is too high to permit gravity flow.



US Army Corps of Engineers®
St. Louis District

MARK	DESCRIPTION	DATE	APPR.	MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI 63103

ILLINOIS RIVER BASIN
XXX, ILLINOIS
XXX COUNTY

DESIGNED BY: J. OSTERHAGE
DWN BY: JLO
CKD BY: X
SUBMITTED BY: X
PLOT SCALE: X
PLOT DATE: X
SIZE: ANSI D
FILE NAME:
DATE: MAY, 2011
SOLICITATION NO.: X
CONTRACT NO.: X
FILE NUMBER: XXX-XX-XXX

SPUNKY BOTTOMS
CIVIL
OVERALL SITE PLAN
TENTATIVE RECOMMENDED PLAN

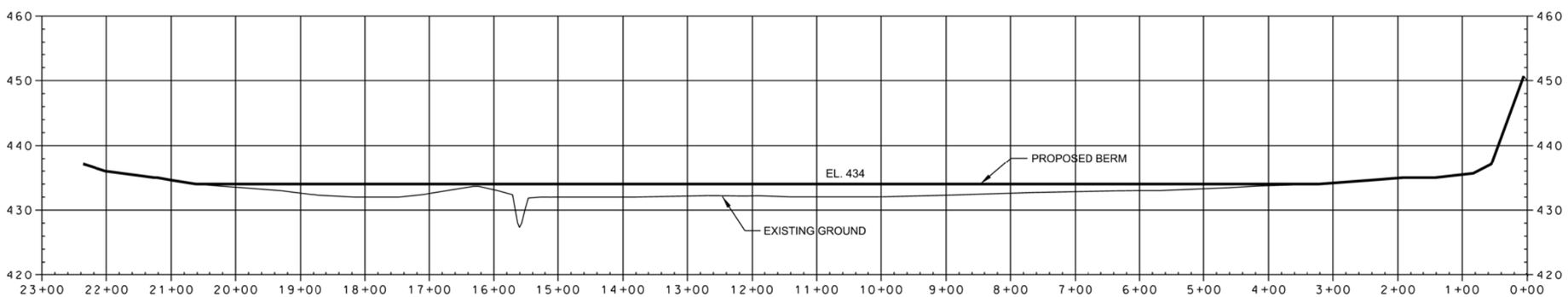
PLATE
C-01

$FILEL$
$DATE$

PLAN BERM AND PONDING AREA EL. 434

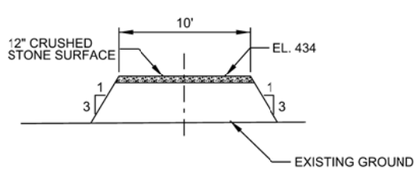
SCALE: 1" = 100'

100' 0 100'



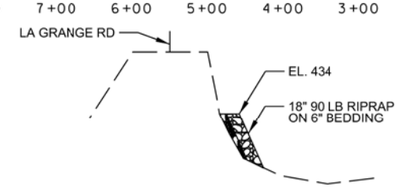
PROFILE BERM EL. 434

SCALE: HORIZ. 1"=100'
VERT. 1"=10'



TYPICAL BERM SECTION EL. 434

NO SCALE



TYPICAL SECTION RIPRAP LA GRANGE ROAD EL. 434

NO SCALE

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ST. LOUIS, MISSOURI 63103

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DWN BY: JLO
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SUBMITTED BY: X
PLOT SCALE: X
PLOT DATE: X
SIZE: ANSI D
FILE NAME:
DATE: MAY, 2011
SOLICITATION NO.: X
CONTRACT NO.: X
FILE NUMBER: 12XX-XXXX

ILLINOIS RIVER BASIN
XXX, ILLINOIS
XXX COUNTY

SPUNKY BOTTOMS
CIVIL
BERM AND PONDING AREA
MANAGEMENT EL 434

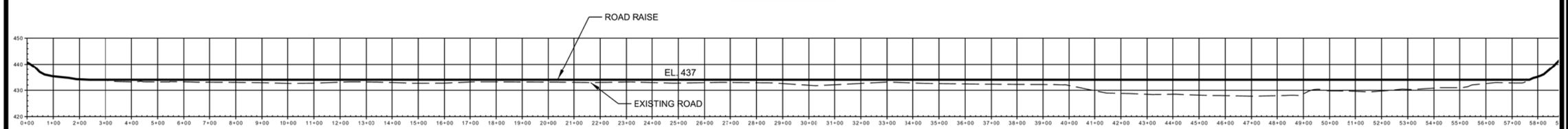
PLATE
C-02

$FILEL$
$DATE$

PLAN ROAD RAISE EL. 434

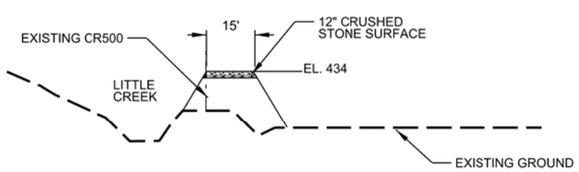
SCALE: 1" = 200'

200' 0 200'



PROFILE ROAD RAISE EL. 434

SCALE: HORIZ. 1"=200'
VERT. 1"=10'



TYPICAL SECTION
CR ROAD EL. 434

NO SCALE

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St. Louis District

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U.S. ARMY CORPS OF ENGINEERS
ST. LOUIS DISTRICT
ST. LOUIS, MISSOURI 63103

DESIGNED BY: J. OSTERHAGE
DWN BY: JLO
CKD BY: X
SUBMITTED BY: X
PLOT SCALE: X
PLOT DATE: X
SIZE: ANSI D
FILE NAME:
DATE: MAY 2011
SOLICITATION NO.: X
CONTRACT NO.: X
FILE NUMBER: XXXXXXXX

ILLINOIS RIVER BASIN
XXX, ILLINOIS
XXX COUNTY

SPUNKY BOTTOMS
CIVIL
PLAN ROAD RAISE EL. 434

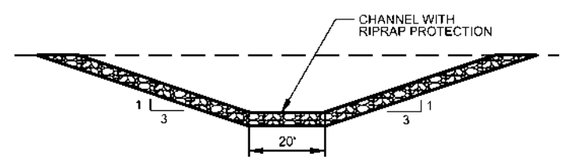
PLATE
C-03

$FILEL$
$DATE$

PLAN
FISH PASSAGE STRUCTURE

SCALE: 1" = 40'

40' 0 40'



TYPICAL CHANNEL SECTION

NO SCALE

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St. Louis District

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ST. LOUIS, MISSOURI 63103

DESIGNED BY: J. OSTERHAGE
DWN BY: JLO
CKD BY: X
SUBMITTED BY: X
PLOT SCALE: X
PLOT DATE: X
FILE NAME:
SIZE: ANSI D
DATE: MAY, 2011
SOLICITATION NO.: X
CONTRACT NO.: X
FILE NUMBER: KXXXXXXX

ILLINOIS RIVER BASIN
XXX, ILLINOIS
XXX COUNTY

SPUNKY BOTTOMS
CIVIL
OVERALL SITE PLAN
FISH PASSAGE STRUCTURE

PLATE
C-04

N:\ILLRIVER\Spunkey\Civil\2011\pltd\plate c-4.dgn
7/18/2011

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX B
PRELIMINARY STRUCTURAL ENGINEERING REPORT (WITH PLATE)

APPENDIX B

PRELIMINARY STRUCTURAL ENGINEERING REPORT

SPUNKY BOTTOMS PRESERVE
BROWN COUNTY, ILLINOIS

FISH PASSAGE/WATER CONTROL STRUCTURE

FEATURES

1. The fish passage/water control structure will be a double box culvert structure with concrete headwalls and sheet pile wingwalls. Two sluice gates will control water at the IL River side headwall. A galvanized steel platform shall extend from the crown of the levee to the sluice gate operators platform on the IL River side. The steel walkway and operator platform are composed of a combination of W-beam sections and channels with a metal grating. The walkway is founded on two concrete shallow foundation piers and the sluice gate headwall. The box culverts shall be 6ft x 6ft square boxes with an invert elevation of 425.0. Two 6ft x 6ft cast iron sluice gates will provide water control through the box culverts. Due to the existing ground elevations, a riprap channel will extend from the exterior headwall to the IL River at EL 425 to provide adequate flow and prevent siltation at the structure. To provide additional light to promote fish passage, a water-tight 3ft diameter manhole will extend from the top of each box to the ground surface at approximately mid-span between the headwalls. The headwalls are reinforced concrete, monolithically poured with the concrete slab. For economy, the wingwalls are composed of different sheet pile sections and wall types. The interior wingwalls are cantilever type walls with PZC18 sheets. Whereas, the IL River side wingwalls are composed of both PZ40 and PZC26 sheets. The innermost 20ft of each wingwall on the IL River side has a tie-rod/waler anchor system tying back to a concrete deadman. A sheet pile cutoff extends below the headwalls at both ends of the structure.

DESIGN CONSIDERATIONS

2. The box culverts were founded on a two foot layer of bedding stone with two biaxial geogrid layers within. These were considered to reduce bearing pressures and alleviate any potential differential settlement of the structure. However, due to the structure being built within the existing levee footprint, large settlements are not anticipated. In addition, the box culverts have the potential to be either precast or cast-in-place to provide the most cost-effective solution during the time of construction.

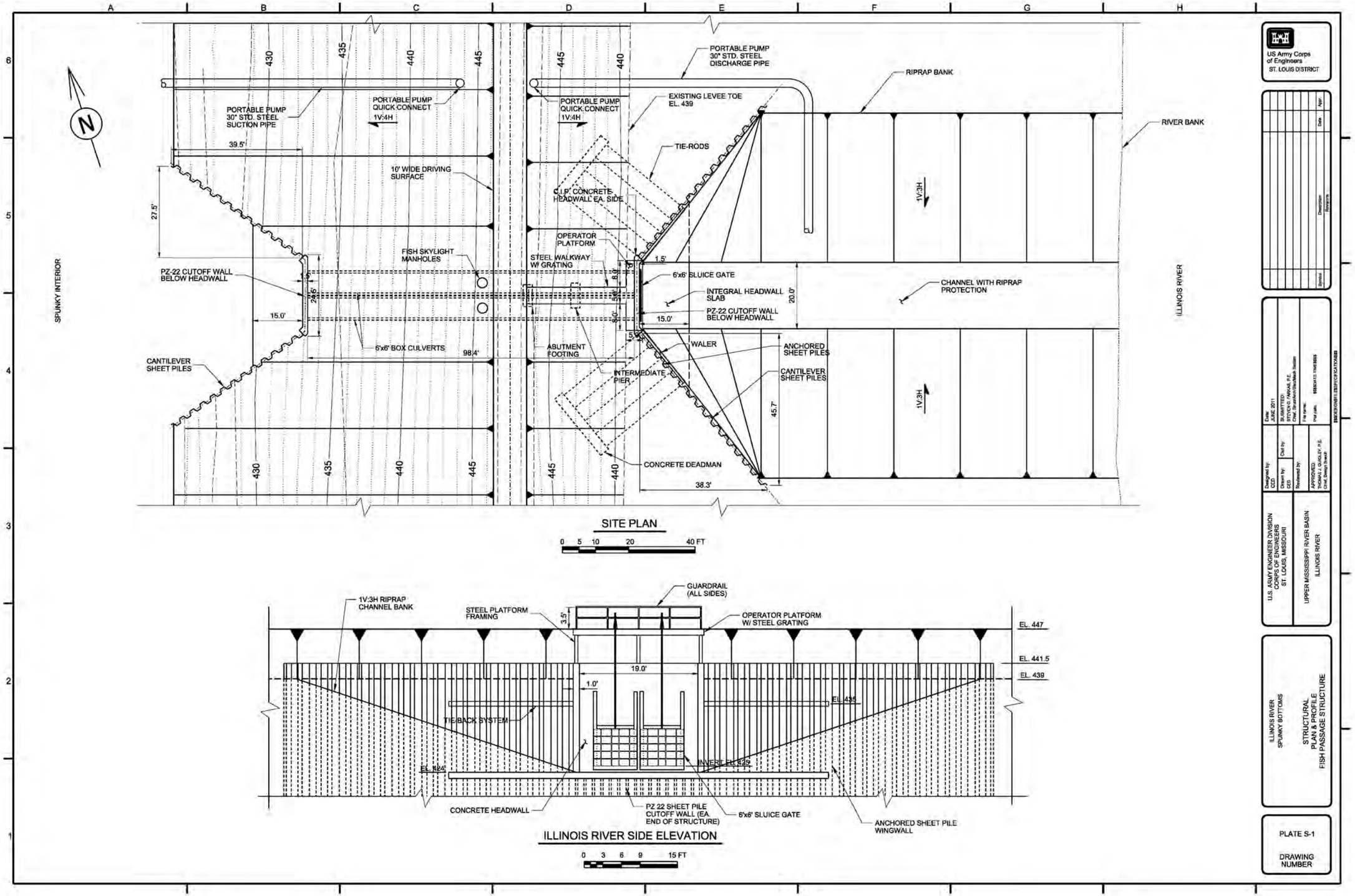
3. The steel walkway and platform shall be hot-dip galvanized to prevent excessive corrosion of the steel over the life of the structure. A588 weathering steel may be used in lieu of hot-dip galvanizing.

4. Wingwalls were designed for a single case with a combination of sand and clay layers. The IL River side wingwalls were analyzed as both cantilever and anchored retaining walls. Due to the channel embankment and concrete slab on the IL River side, which provide additional support to the sheet pile walls, a cantilever system was adequate for the outermost portions of the wingwalls. An anchor system was necessary on the interior portion of the wingwalls due to excessive deflections. A basic steel tie-rod, double channel waler, and concrete deadman system was assumed for a preliminary anchor design.

5. Due to the build-up of sand and soil on the IL River side, an extensive excavation will be required to create the inlet channel with a bottom elevation at or below 425.

6. Sheet pile cutoff walls will be necessary under the headwalls at both ends of the structure. A 20ft depth was assumed for the preliminary design. A seepage analysis will be necessary to determine final depths of any cutoff walls.

7. The headwall and concrete slab are reinforced and monolithically poured in order to act as a gravity retaining wall system capable of resisting the lateral loadings.


SITE PLAN
0 5 10 20 40 FT
PORTABLE PUMP 30" STD. STEEL SUCTION PIPE
PORTABLE PUMP QUICK CONNECT
1V:4H
39.5'
10' WIDE DRIVING SURFACE
27.5'
FISH SKYLIGHT MANHOLES
PZ-22 CUTOFF WALL BELOW HEADWALL
29.5'
15.0'
6'x6' BOX CULVERTS
98.4'
CANTILEVER SHEET PILES
SPUNKY INTERIOR
PORTABLE PUMP 30" STD. STEEL DISCHARGE PIPE
EXISTING LEVEE TOE EL. 439
TIE-RODS
C.I.P. CONCRETE HEADWALL EA. SIDE
OPERATOR PLATFORM
STEEL WALKWAY W/ GRATING
1.5'
6'x6' SLUICE GATE
INTEGRAL HEADWALL SLAB
PZ-22 CUTOFF WALL BELOW HEADWALL
15.0'
ABUTMENT FOOTING
INTERMEDIATE PIER
WALER
ANCHORED SHEET PILES
CANTILEVER SHEET PILES
CONCRETE DEADMAN
38.3'
45.7'
20.0'
RIPRAP BANK
RIVER BANK
CHANNEL WITH RIPRAP PROTECTION
1V:3H
ILLINOIS RIVER
ILLINOIS RIVER SIDE ELEVATION
0 3 6 9 15 FT
1V:3H RIPRAP CHANNEL BANK
STEEL PLATFORM FRAMING
3.5'
GUARDRAIL (ALL SIDES)
OPERATOR PLATFORM W/ STEEL GRATING
EL. 447
EL. 441.5
EL. 439
19.0'
1.0'
EL. 435
TIE BACK SYSTEM
EL. 424'
INVERT EL. 425
CONCRETE HEADWALL
PZ 22 SHEET PILE CUTOFF WALL (EA. END OF STRUCTURE)
6'x6' SLUICE GATE
ANCHORED SHEET PILE WINGWALL
US Army Corps of Engineers
ST. LOUIS DISTRICT
Symbol
Description
Date
Appr.
Designed by: CED
Drawn by: CED
Reviewed by:
Chkd by:
Date: JUNE 2011
SUBMITTED: STEVEN D. PARKER, P.E. Chief, Engineering Division
APPROVED: THOMAS J. CUROLOV, P.E. Chief, Design Branch
File name:
Plot date:
ENGENGINEERS\CPCATION\888
U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI
UPPER MISSISSIPPI RIVER BASIN ILLINOIS RIVER
ILLINOIS RIVER SPUNKY BOTTOMS
STRUCTURAL PLAN & PROFILE FISH PASSAGE STRUCTURE
PLATE S-1
DRAWING NUMBER

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX C
HYDROLOGIC/HYDRAULIC ANALYSIS AND DESIGN

APPENDIX C

HYDROLOGIC / HYDRAULIC ANALYSIS AND DESIGN REPORT

SPUNKY BOTTOMS PRESERVE
BROWN COUNTY, ILLINOIS

INTRODUCTION AND BACKGROUND INFORMATION

1. The Nature Conservancy (TNC), a local sponsor for the Spunky Bottoms project, has contacted the Corps of Engineers, St. Louis District, concerning project features requiring significant hydraulic investigation. This summary details the areas that were studied, and the methods of investigation and hydraulic analysis. The primary hydraulic concern for the wetland project is to safely move water into and out of the impounded area without causing induced flooding or creating levee safety issues.

2. Other important hydraulic concerns include the following: evaluating potential induced flooding issues, determining storage capabilities, designing and sizing culverts, water control structures, and other project features. An extensive interior flood hydrology study was also a component of the project.

SITE VISITS

REPORT ON EXISTING HYDROLOGIC CONDITIONS

3. The Spunky Bottoms project site lies on the Illinois River Floodplain in Brown County, Illinois. TNC and IDNR own an area of land behind the Little Creek Drainage and Levee District measuring about 2.5 square miles. Only one other landowner (Cox) owns property behind the main levee on the Illinois River, on a tract that covers 0.115 square miles of land other than TNC and IDNR. The levee district is bounded by Little Creek to the North, Camp Creek to the South, the Illinois River to the Southeast, and Spunky Ridge to the Northwest.

4. Hillside drainage from Spunky Ridge drains through culverts under the County Road to the West and Northwest of the project area. Much of the soil in the project site is composed of alluvial deposits of sediment from this drainage over several years time. The prevailing soil types on Spunky Ridge are loess deposits (wind-blown silt) and clay.

PUMP STATION OPERATIONS AND LAND USE

5. On a site visit and subsequent meetings with TNC, it was found that the pumps operating at the existing pump station on TNC property had capacities of 11,800 and 10,400 gallons per minute (gpm)—these are no longer functional. Since about 2002, the only functional pump station is the one on IDNR property. It currently drains water from the Little Creek Drainage District into the Illinois River. - Currently, the maximum elevation where water is intentionally ponded is at about 430 feet NGVD.

RIVER ELEVATION DATA

ILLINOIS RIVER HISTORICAL TRENDS

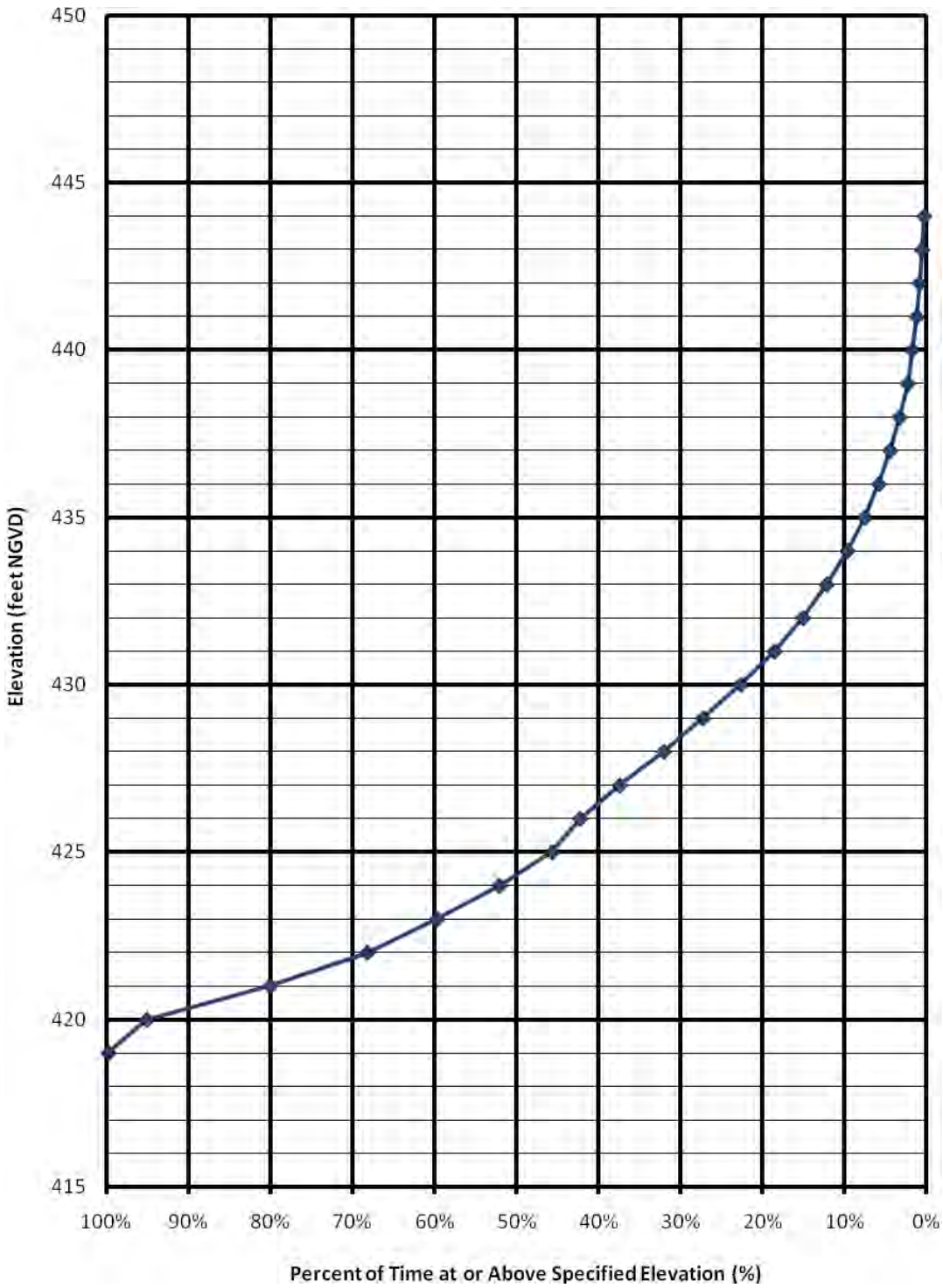
6. The Hydraulics Data Management Section of the St. Louis District was consulted for information regarding historical river elevation for the Illinois River. The Meredosia station contains the nearest record to the Spunky Bottoms site, just 4.5 miles downstream. An analysis was performed on the elevation records for the Meredosia gage, to determine information relating to frequency and duration of river stages.

7. Due to the Illinois River's location above Melvin Price Lock and Dam on the Mississippi River, the river gage reading at Meredosia is at or above 419 ft NGVD essentially 100 percent of the time. The duration analysis shows that the stage on the Illinois River near the project was above elevation 424.3 half of the time in the period of record. And 10 percent of the time, the river is at or above elevation 433.9 feet NGVD. The results of the statistical analysis for the year-round records are shown here in **TABLE C-1** and **FIGURE C-1**.

TABLE C-1: Elevation Duration Data for the Illinois River at Meredosia (percent of time at or above elevation shown, with locks and dams in operation, 1938-2010)

Elevation (feet NGVD)	Percent Duration
419.0	99.8
420.0	95.1
421.0	80.1
422.0	68.2
423.0	59.7
424.0	52.1
425.0	45.7
426.0	42.2
427.0	37.4
428.0	32.0
429.0	27.3
430.0	22.7
431.0	18.6
432.0	15.0
433.0	12.2
434.0	9.6
435.0	7.5
436.0	5.8
437.0	4.4
438.0	3.2
439.0	2.3
440.0	1.7
441.0	1.2
442.0	0.9
443.0	0.5
444.0	0.3

FIGURE C-1: Elevation Duration Curve for the Illinois River at Meredosia (1938-2010, all months of the year)



8. Additional statistical estimates were made for individual months of the record of river stages. The 90, 50, 10, and 1percent exceedance durations for each month of the year are shown below in **TABLE C-2**. This information is important to indicate the potential operation and ponding characteristics for the future project.

9. 90 percent duration is important in developing the minimum desired sill elevation of the water control and fish passage structure. The 50 percent duration represents an average stage that is useful for typical operation in the future. The 10 and 1 percent durations can be used to estimate higher, less frequent stages, which could potentially occur throughout the year.

TABLE C-2. Duration of Monthly Stages on the Illinois River at Meredosia (Elevations for 90, 50, 10, and 1 Percent Exceedance Durations)

Month	90 percent	50 percent	10 percent	1 percent
January	420.6	424.7	432.7	438.5
February	421.0	426.9	433.6	437.8
March	422.4	428.5	436.5	443.3
April	423.1	429.9	437.5	443.5
May	423.2	429.5	437.7	444.5
June	421.7	427.5	436.0	441.7
July	420.9	423.9	432.0	440.8
August	420.2	421.9	426.7	436.4
September	419.8	421.0	426.8	439.2
October	419.5	420.9	428.6	436.5
November	419.9	421.9	428.8	437.8
December	420.3	422.9	430.8	440.7
OVERALL	**420.3**	**424.3**	**433.9**	**441.6**

ILLINOIS RIVER FREQUENCY PROFILES

10. Frequency profiles from previous hydraulic analyses on the Illinois River are on file in the Hydrologic Engineering Section of the St. Louis District. The profiles were studied near the Little Creek Drainage and Levee District, and the elevations of different frequency events are summarized below in **TABLE C-3**. Note that the level of flood protection is also shown in this table. The Spunky Bottoms project area is protected from about a 12-year flood.

TABLE C-3. Frequency Profiles on the Illinois River (River Mile 76.5)

Return Period	Percent Chance Exceedance	Elevation (Feet NGVD)
*7.7-Year	13	443.3
10-Year	10	444.4
25-Year	4	447.1
50-Year	2	448.1
100-Year	1	448.9

(*- Approximate Level of levee protection)

11. The profile of the existing Little Creek Levee was found on the historical profile plots, and was verified by recent survey information. A 2-foot contour map was used to plot a new levee profile, and the elevations of the levee structure matched the information on the existing profile plots. The level of protection of the levee is not measured from the levee crown, but at a design level of effectiveness, which is about two feet below the levee surface. The 2-foot surcharge, or freeboard, is an added factor of safety to levee structures but is not considered to be effective as an additional flood control height.

12. Previous analysis showed that the level of protection provided by the levee was about an 8.3percent chance of exceedance in any given year, or the 12-year flood level. In the time since this report was last updated, newer Illinois River Flood Profiles were produced for the Upper Mississippi River Flood Frequency Study. The expected river profiles for the hypothetical frequencies shown in **TABLE C-3** have increased considerably. Therefore, the new level of protection is estimated at a 13percent chance of exceedance in any given year, or the 7.7-year flood level.

PROJECT SCOPE WITH THE NATURE CONSERVANCY

POSSIBLE WATER CONTROL PLANS

13. The non-Federal sponsor discussed the current land use of their property in the Spunky Bottoms project area, and determined methods of future operation they were interested in. Together with Corps representatives, they decided that a water control structure would be necessary to regulate flows between the Illinois River and the wetland area. Typical river levels have been estimated from studying historical and theoretical stage analyses. These water levels are a key factor in determining the typical available water supply for ponding in the wetland area. The stages were studied to determine the most efficient ponding elevation for the project. The final proposed alternative ponding levels are 432 and 435 feet NGVD.

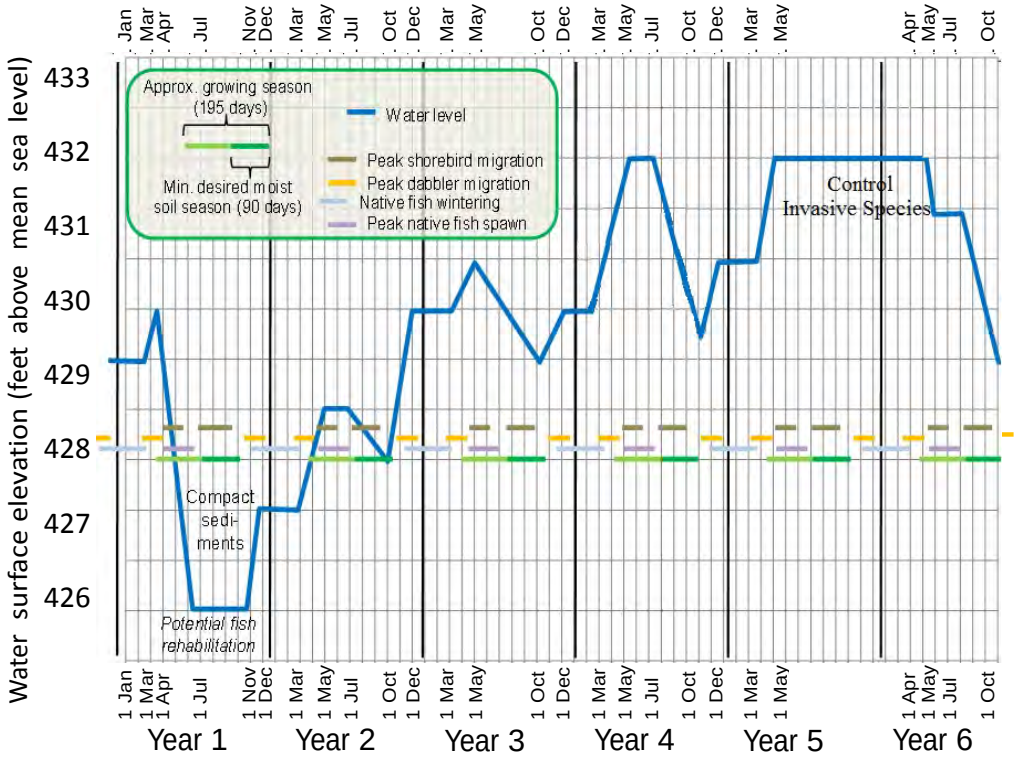
14. The goal of the sponsor, in ponding water in the wetland environment, is to maintain a connection between the Illinois River and the backwater or floodplain habitat. It is

anticipated that various aquatic organisms will use the Spunky Bottoms area for spawning, wintering, feeding, rearing areas for the young, etc. Therefore, during the high water months of the spring season, water would be allowed to pass through the levee section and fill the wetland to a desired elevation. However, long durations of flood flows can carry massive amounts of sediment, which reduces water quality, degrades habitats, and could possible clog the water control structure. Therefore, the wetland may be shut off from the river for a good portion of the year. During low flows in the Illinois River, the structure would also be closed, to prevent the loss of the flood pool in the wetland area.

15. In an effort to restore water level fluctuations within their project known as Emiquon East (which lies northeast of Spunky Bottoms near Havana, Illinois) to something similar to predevelopment fluctuation, TNC developed a water level management plan. It is anticipated that a similar plan will be used at Spunky Bottoms. This water level management plan is shown in **FIGURE C-2**. Different water level management actions help to meet specific objectives of the project. For example, the drawdown in year one is critical to controlling invasive fish species, compacting sediments and providing a minimum 90-day growing season. These three objectives all work to reduce sediment resuspension and ultimately provide quality habitat for native fish species. Achieving these water level fluctuations cannot be met under the Illinois River's current hydrologic regime.

FIGURE C-2: Water Level Management Plan

Spunky Bottoms Section 1135
Diagrammatic representation of a water level management cycle

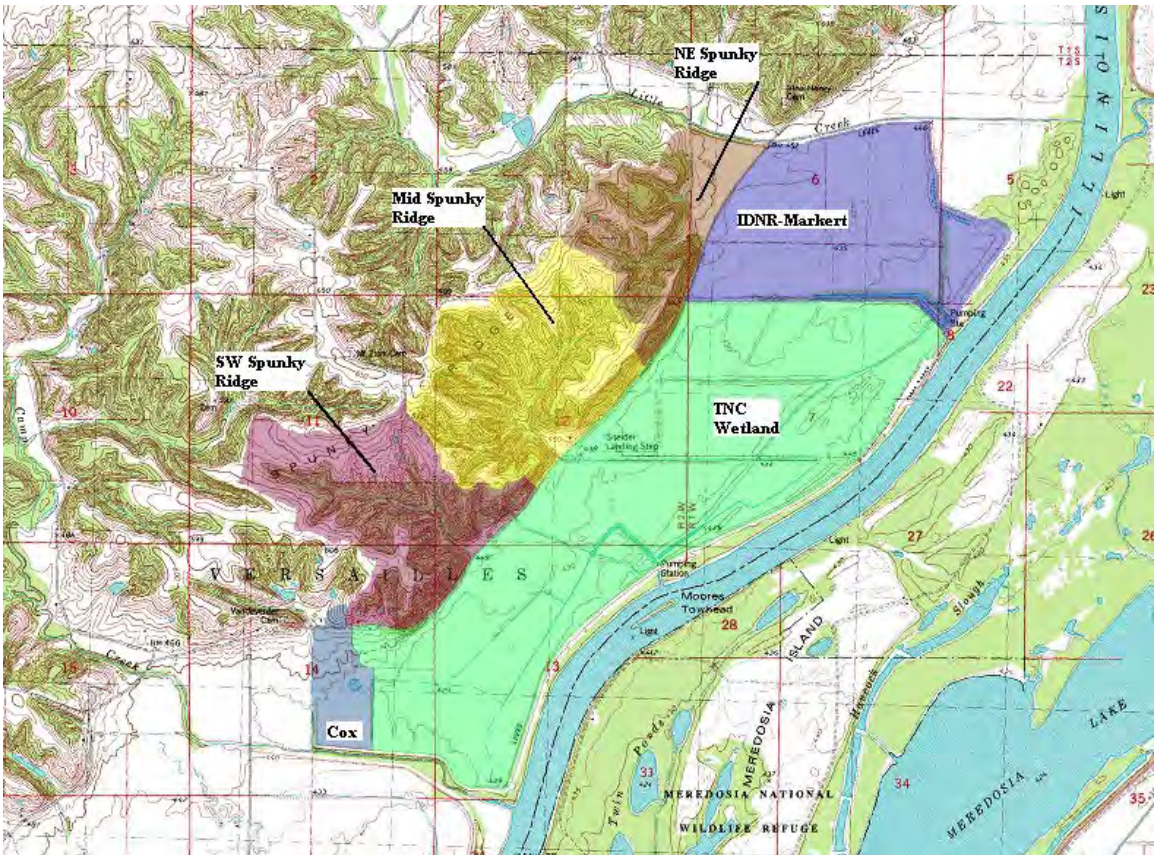


STRUCTURAL FEATURES

16. Due to the nature of the movement of water between two large areas, a significant sized water control and fish passage structure will be necessary. This structure will need to be placed within the alignment of the Little Creek Levee. The most important design factor for this structure is maintaining the integrity of the mainline flood protection from the Illinois River.

17. Since the Sponsor does not own all of the area protected by the Little Creek Levee, precautions must be taken to prevent unnecessary flooding of the neighboring property on the southwest corner of the project (the Cox property). Therefore, an interior berm will need to be built on the southwest end of TNC's land for the dual purpose of protecting the Cox property and creating a ponding area just downstream of the Cox property. The interior berm will temporarily pond rainfall runoff from the Cox property on its upstream side. A new pump will lift this runoff into the TNC wetland during periods of significant runoff. A gravity drain will also be constructed through the interior berm so that gravity drainage from the ponding area to the TNC wetland can be accomplished when hydraulic conditions permit such drainage.

FIGURE C-3: Spunky Bottoms Watershed Map



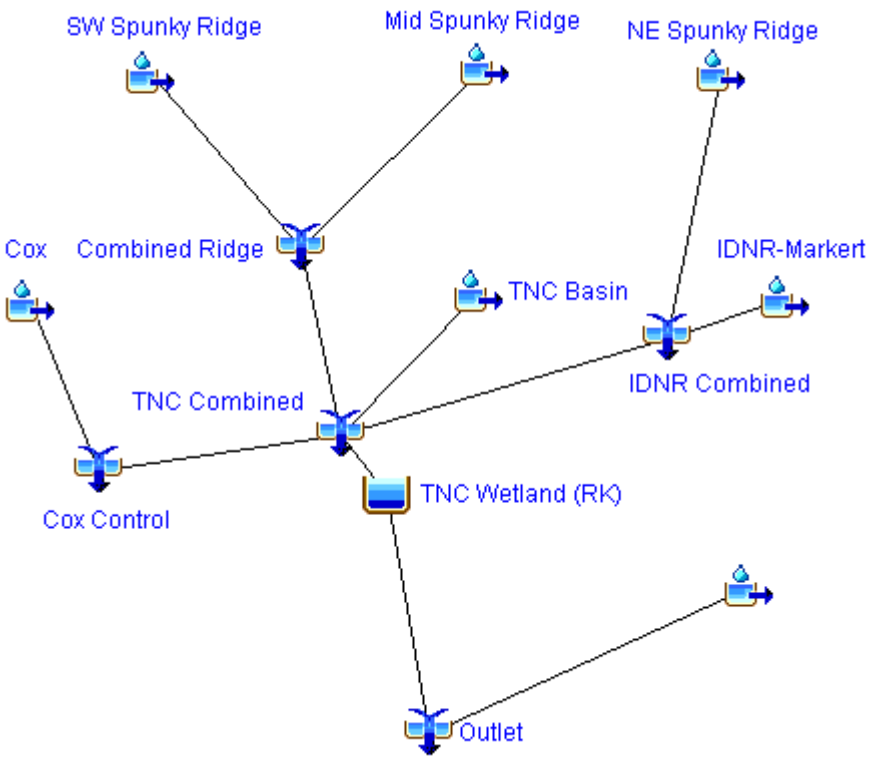
HYDROLOGIC ANALYSIS

DRAINAGE AREAS

18. The entire project area and upstream catchments were divided into six distinct areas. Three areas were outlined on Spunky Ridge, where drainage flowed through culverts in the county road. SW Spunky Ridge and Middle Spunky Ridge flow into the proposed wetland area, while NE Spunky Ridge enters the area formerly known as the Markert Property to the North of the TNC wetland. It was assumed that runoff from both NE Spunky Ridge and the Markert Property enters the Spunky Bottoms wetland since a physical connection exists between the TNC wetland and the former Markert Property and the Spunky Bottoms wetland contains the lowest-lying terrain on the entire site. Drainage was estimated for the Cox property at the Southwest corner of the project. The remaining drainage area is comprised of the Spunky Bottoms wetland. Information on the drainage areas and other hydrologic parameters can be found in this appendix, which describes hydrologic calculations.

19. The Cox property was studied to determine possible pumping requirements to protect the land from drainage being ponded behind the proposed interior berm. The Spunky Bottoms watershed map is given in **FIGURE C-3**. **FIGURE C-4** shows the watershed schematic that was used to represent the watershed in the hydrologic model.

FIGURE C-4: Spunky Bottoms Watershed Schematic



HYPOTHETICAL STORM FOR ANALYSIS

20. A major part of the hydrologic analysis was performed to determine how to protect against flooding the Cox property. This presents a major liability issue and potential injury or loss of life. Therefore, the 1percent chance exceedance storm event was studied.

21. To develop the rainfall event to study with the hydrologic model, Bulletin 71 was researched. This document is the Rainfall Frequency Atlas of the Midwest, distributed by the National Weather Service and the Illinois State Water Survey. The central area of Illinois was selected from a map, and the values for rainfall were selected for durations from 5 minutes to 24 hours. **TABLE C-4** lists the values selected for the 1 percent chance exceedance storm. The rainfall distribution was centered on the midpoint of the storm, or the 12th hour. At the time of the hydrologic analysis for this study, this was the only option available using the HEC-HMS program.

TABLE C-4: Rainfall Frequency Values – 1 Percent Chance Exceedance

Duration	Precipitation Depth (inches)
5 minutes	0.83
15 minutes	1.87
1 hour	3.25
2 hours	4.08
3 hours	4.43
6 hours	5.19
12 hours	6.02
24 hours	6.92

CONTRIBUTION OF HILLSIDE DRAINAGE TO TNC WETLAND

22. The HEC-HMS program was used to produce a hydrologic model for the entire drainage area behind the Little Creek Levee. As mentioned, the 1 percent chance exceedance storm event was calculated. All three Spunky Ridge basins contribute drainage to the TNC wetland area, and the wetland area itself is modeled with zero infiltration, to show that all rainfall contributes directly to the volume of water ponded.

23. The SCS Unit Hydrograph method was used to determine peak flows for each drainage basin. Estimates of the type of terrain and impervious area are used as input parameters. There is very little impervious area over the entire watershed behind the Little Creek Levee. There are only a few houses and county roads at the site, so values for impervious area ranged from 1 percent to 3 percent. For hydrologic modeling runs, the three Spunky Ridge basins and the Cox property were given an SCS curve number of 66. This value represents an area with average terrain and silty soils, with little or no development present. **TABLE C-5** at the end of this section summarizes all of the hydrologic parameters of each drainage basin with an SCS curve number of 66.

24. The resulting flow values from the HEC-HMS model for the subbasins with an SCS curve number of 66 were compared to regional regression equations, which generalize rainfall-runoff characteristics for a certain geographic area. The approximations were made using a local hydrologic document, the Regional Frequency Analysis for Streams in the St. Louis District. The resulting peak flows for the 1 percent chance exceedance event are tabulated and compared to HEC-HMS calculated flows here in **TABLE C-5**.

TABLE C-5: Hydrologic Parameters of Drainage Basins

Drainage Basin Name	Area (acres)	perc ent I	SCS Curve Number	SCS Lag Time (min)	Basin Slope (ft/mi)	HMS Peak Q (cfs)	Regress Peak Q (cfs)
Cox Property	83	3	66	9	120	320	460
NE Spunky Ridge	109	1	66	6	100	470	510
Mid. Spunky Ridge	403	2	66	14	94	1274	1385
SW Spunky Ridge	294	2	66	18	64	835	908

HYDRAULIC ANALYSIS

ELEVATION-AREA-STORAGE CURVE FOR TNC WETLAND

25. The relationships between elevation, area, and storage volume are used to determine how much time it will take to create a certain change of elevation in the wetland area with gate operations. These relationships are presented in **TABLE C-6** below. The data given in **TABLE C-6** were calculated by the HEC-GeoRAS toolbar in ArcMap 9.3.1. The estimated relationships were also used to determine how much flood runoff water can be ponded on top of a full pool in the TNC wetland before threatening to flood the Cox property.

26. Elevations at 1-foot contour intervals were reviewed on a topographic map. For each elevation, the flooded area was estimated to determine the available storage inside the TNC area for ponding stormwater runoff. The total area estimate was 1.73 square miles. The average area for a 1-foot range of elevations is multiplied a one-foot depth for the calculation of storage volume. The change in storage for each foot of rise in the pool level will be used to show the effects of storm runoff on the elevation of the wetland.

TABLE C-6: Spunky Bottoms Wetland Relationships: Elevation, Area, and Storage

Elevation (feet)	Area (acres)	Total Storage (acre-feet)
420.61	0	0
422.99	1	1
423.53	3	2
424.17	12	6
424.94	25	20
425.87	67	60
426.98	143	172
428.32	335	470
429.92	628	1,257
431.84	867	2,701
434.15	992	4,873
436.91	1,055	7,711
440.23	1,088	11,274

DESIGN STORM FALLING ON FULL TNC WETLAND

27. The effect upon the project wetland of the one-percent-chance exceedance storm was simulated with the HEC-HMS hydrologic model. The results of this analysis are needed from an operational standpoint and for the purpose of assessing induced flooding upon the Cox property. For this analysis, it was assumed that no water was being released from the project wetland. Also, two different initial elevations for the wetland were simulated. These elevations are the two possible management levels, 432 and 435 feet NGVD.

28. If the initial elevation of the project wetland is 432 feet NGVD, the simulation showed that the wetland elevation crested at 433.3 feet NGVD. For an initial elevation in the wetland of 435 feet NGVD, the elevation crested at 436.2 feet NGVD. Since the design elevation of the levee between the wetland and the Illinois River is 447 feet NGVD, this levee will adequately contain runoff from this storm.

29. The results from this analysis can be used as a partial basis for determining the top elevation of the interior berm that will be constructed to protect the Cox property. A more detailed analysis than the one discussed here will be necessary to account for the berm and water that will be pumped from the Cox property. During the Plans and Specifications Phase, a more detailed analysis of the effect of the one-percent-chance exceedance storm upon both the wetland and the Cox property will be performed.

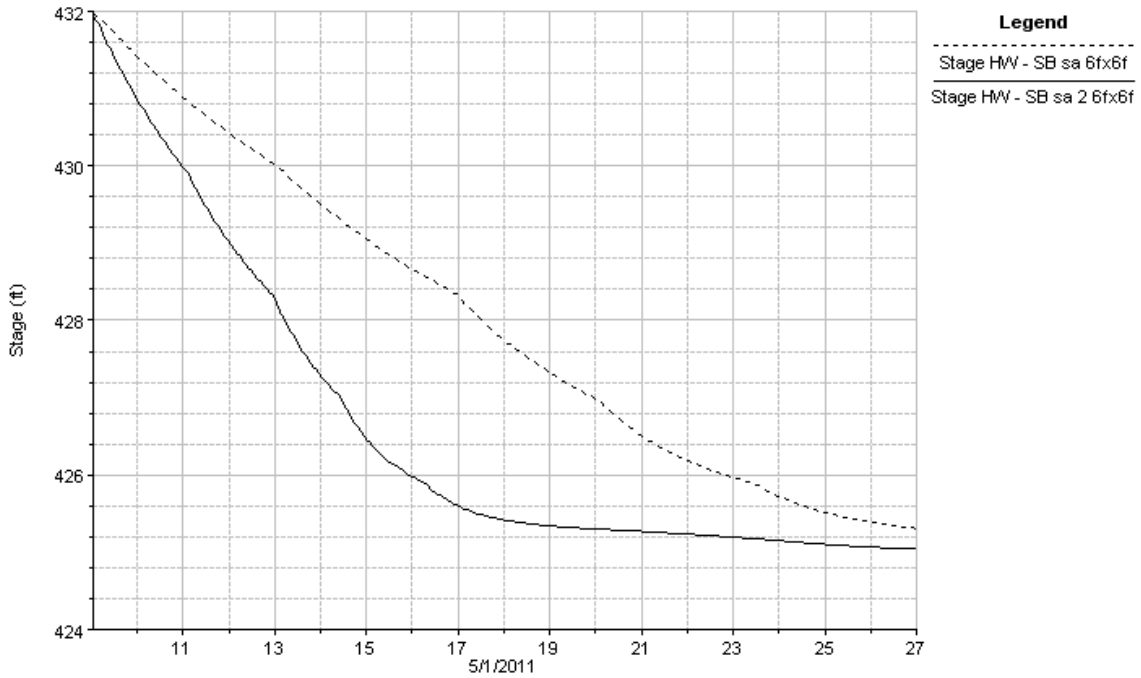
FISH PASSAGE / WATER CONTROL STRUCTURE

30. It is very important for the success of the project to maintain a clear flow path for water between the Illinois River and the project. The key feature for accomplishing this is the Fish Passage and Water Control Structure. Terrain elevations within the project were reviewed near the site of the proposed structure, which is located toward the southern end of the wetland and an invert elevation for the structure of 425 feet NGVD was selected.

31. Several configurations were investigated for the structure. Both circular and rectangular culverts were considered, as well as single or multiple culverts. A final design of two square culverts, both of which will have dimensions of six feet by six feet, was chosen. Having two culverts rather than one will enable draining or filling of the project even if one of the two does not operate properly or if it must be taken out of service for maintenance.

32. The USACE Hydrologic Engineering Center River Analysis System (HEC-RAS) computer program was used to develop a hydraulic model of water flow from the TNC wetland through the fish passage/water control structure to the Illinois River. Using this hydraulic model, simulations of drainage of the wetland into the Illinois River were performed. Assuming little or no inflow to the wetland as well as a very low level of the Illinois River (i.e., about five feet lower than the invert of the structure), the wetland will be able to be drained from elevation 432 to 425.5 feet NGVD in just over eight days with both culverts fully opened. With one culvert fully opened, the wetland will be able to be drained from elevation 432 to 425.5 feet NGVD in about sixteen days. The results of these simulations are shown in **FIGURE C-5**.

FIGURE C-5: Simulation of Drainage of TNC Wetland



INTERIOR BERM AND PUMP TO PROTECT COX PROPERTY

33. Two configurations for the interior berm were examined. A pump with a capacity of 20 cubic feet per second (cfs) was used with both interior berm configurations. It is planned that a portable pump will be used to move water from the upstream side of the interior berm to the TNC wetland. A portable pump is preferred to constructing a permanent pumping station since it will be less expensive. The extents of the two proposed interior ponding areas, depicted in light blue shading, are shown in **FIGURE C-6** (option 1) and **FIGURE C-7** (option 2). One ponding area has a linear berm, and the other has a curved berm. Each berm is located on the right side (i.e., the eastern side) of the ponding area. Also shown in **FIGURE C-6** and **FIGURE C-7** are elevation contours. The minimum land-surface elevation on the right side (i.e., eastern side) of the Cox property is about 434 feet NGVD, so the intent of the berm/pumping system is to maintain the elevation of water ponded on the upstream side of the berm at or below this elevation. Success in doing so will keep ponded water off of the Cox property. The design storm is the 100-year event.

34. The hydrologic model described above that was developed with HEC-HMS was modified to include the interior berm (both of its potential configurations) and the pump. The model was executed separately for both of the interior ponding areas to simulate the performance of each one while the 20-cfs pump was used. For option 1 of the internal ponding area, the peak elevation of the ponding area was 434.3 feet NGVD. This water-surface elevation would most likely cause water to flow onto the Cox property. For

option 2 of the internal ponding area, the peak elevation of the ponding area was 433.9 feet NGVD. Thus, option 2 would likely protect the Cox property from flooding for the 100-year rainfall event.

35. Options 1 and 2 for the interior berm and ponding area are initial iterations in the design process, as is the 20-cfs pump. During the Plans and Specifications Phase, it is anticipated that terrain data will be obtained near the Cox property and at the site of the proposed interior berm and ponding area. The design of the interior berm and ponding area, as well as the selection of pump size, will be refined after acquisition of the terrain data.

FIGURE C-6: Interior Ponding Area, Option 1

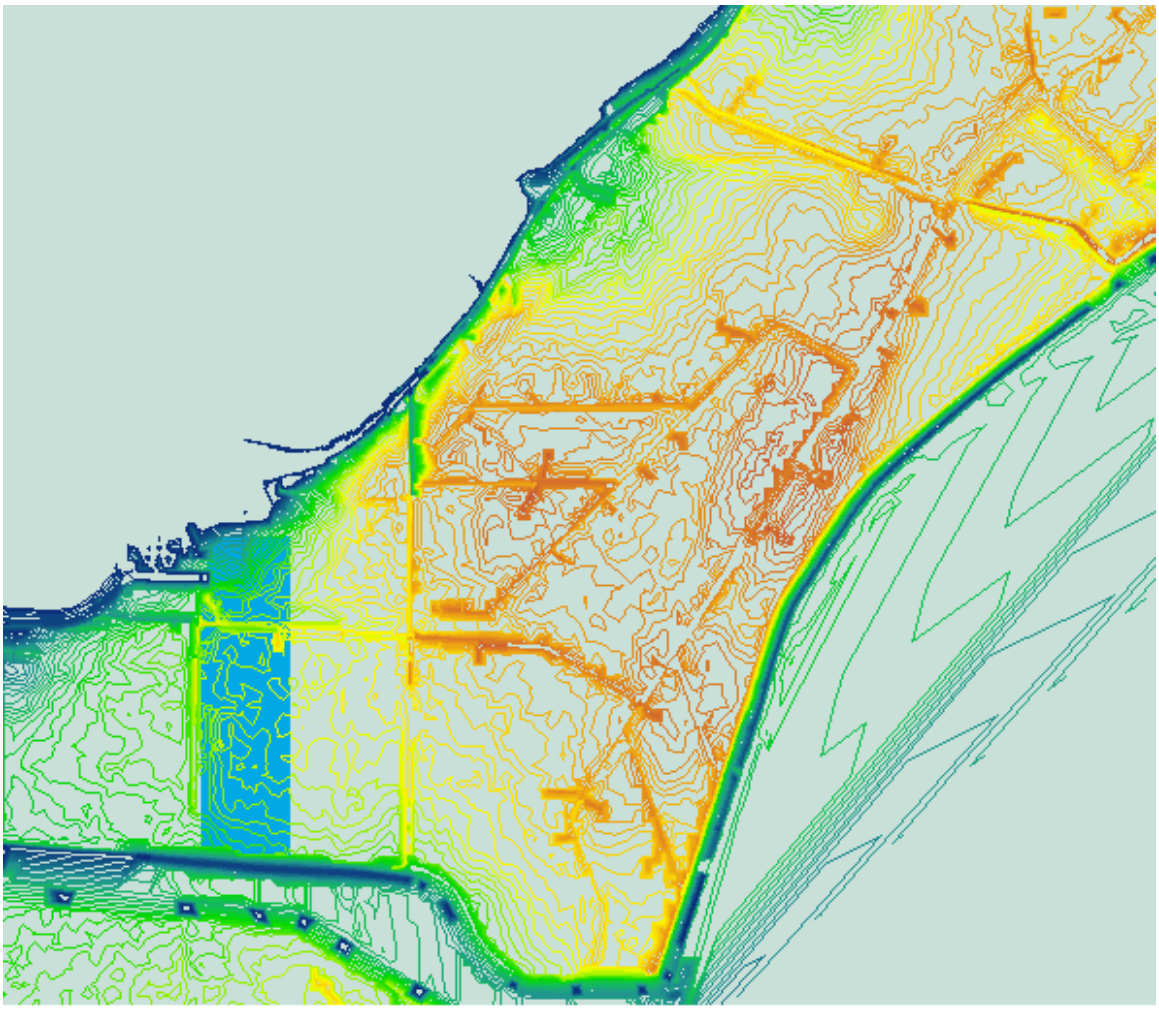
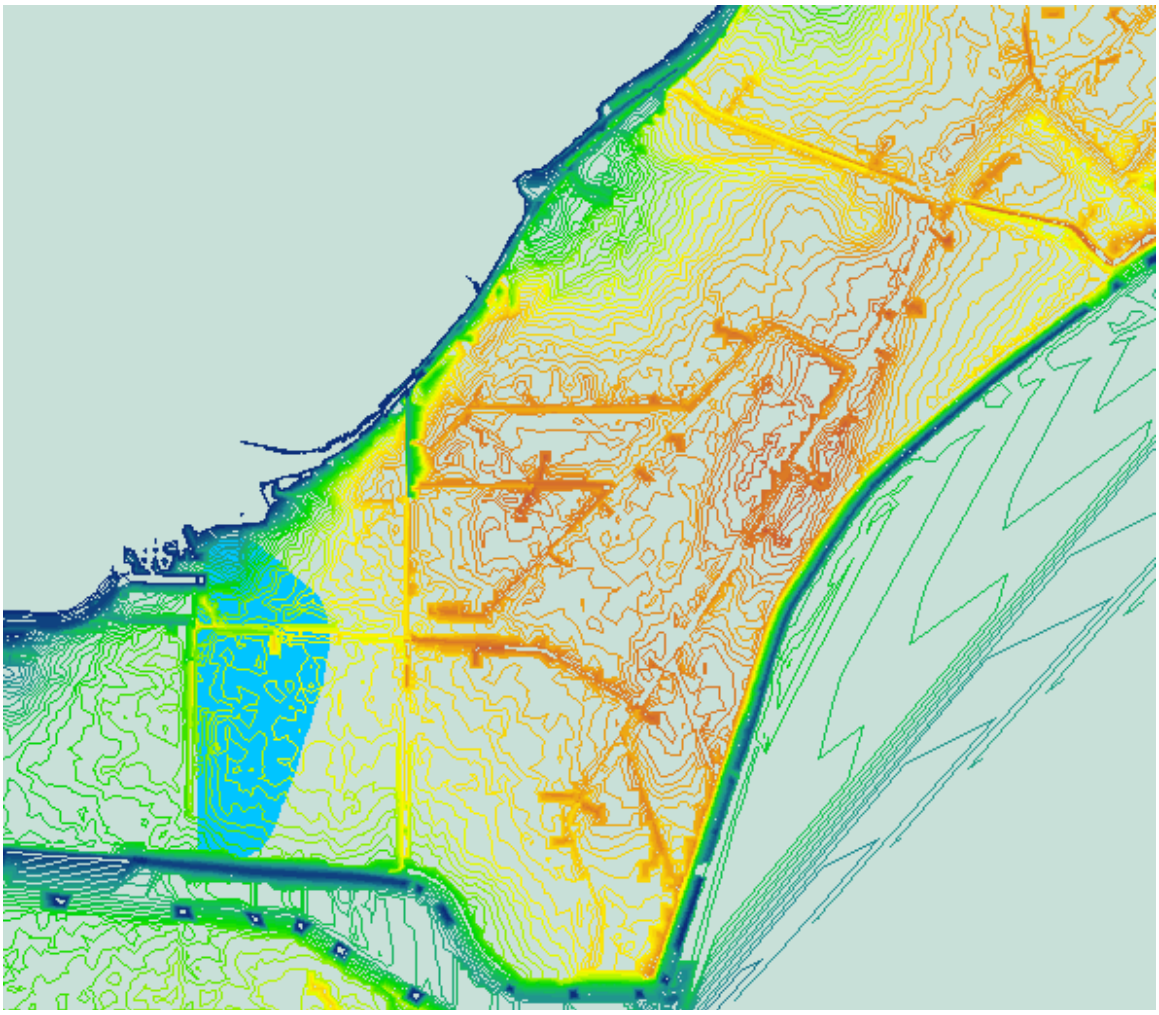


Figure C-7: Interior Ponding Area, Option 2



Gravity Drain

36. Since water will usually be ponded to elevation 432 or 435 feet NGVD in the TNC wetland, a gravity drain will not be useful much of the time. However, at times of TNC wetland drawdown, a gravity drain will be able to drain small storm events without pumping required. Therefore, a single 36-inch corrugated metal pipe was selected as a minimum acceptable pipe size.

CONTINUOUS SIMULATION OF THE PROJECT

37. During the Plans and Specifications Phase, a continuous simulation of the project will be performed to test the performance of the hydraulic components and to demonstrate the possible need to adjust the dimensions of the components. The continuous simulation will involve the execution and analysis of an integrated hydrologic

and hydraulic model of the project that will attempt to duplicate meteorologic and hydrologic conditions during a period of about 30 years. Precipitation data spanning this 30- year period will be used in the simulation. Wetting and drying of the soil within the Spunky Bottoms watershed will be simulated. Elevations of the Illinois River during the 30-year period will be a modeled parameter. The water control plan determined by TNC will guide the operation of the hydraulic components of the project. Simulating the project's behavior and performance by considering as many of the driving factors as possible will give the project team a basis for assessing how well the project would succeeded in producing the desired benefits in the past, and how well it will do so in the future.

DISCUSSION OF OPERATION AND MAINTENANCE OF PROJECT

38. The operation and maintenance of the hydraulic features of the Spunky Bottoms Ecosystem Restoration Project will be the responsibility of the non-Federal sponsors. The section describes the areas of maintenance that are important for the continued hydraulic efficiency of the project as it was designed.

39. It will be important for close attention to be focused on water entering and leaving the wetland area from the Illinois River, especially in the early life of the project. The operation of the gate structure should be given special preference to ensure that large flood flows of sediment are prevented from entering the wetland area. This sediment has the potential to block the fish passage and water control structure, reducing the effectiveness of the structure. Periodic inspection of the invert of the structure would be very important for verifying that water and aquatic life are flowing freely through as desired. Also, since the structure is a part of the mainline levee protection from the Illinois River, it is imperative that the structure is sealed completely during flood flows.

40. The pump and gravity drain for the Cox property should be tested and inspected often, especially during their first operation. It is important that a sponsor representative be readily available to observe that pumping is effective during large storm events. Also, the pump intake location should be inspected and kept free of sediment. Whenever low stages in the TNC wetland prevail, the gravity drain structure should be opened to allow ponded water behind the flank levee to drain, and the pipe should be inspected and kept clear to maintain effective flow.

41. In order to be sure that all maintenance issues are attended to, a schedule of warnings should be established for the individual(s) who will be performing important maintenance tasks. The Illinois River gage at Meredosia should be observed daily during threatening high water events. A rain gage would be useful near the pump station site. If a significant amount of rain is measured, the person responsible for maintenance should inspect the storage basin and check the ponding level and pump operations, if necessary. Interior rainfall is also a concern if the ponding elevation is relatively high and the control structure is closed. At this point, additional inflow would cause an unwanted rise

in the ponding level, and the water control structure should be opened until the ponding level is lowered to the desired elevation.

COMMENTS ON RECOMMENDED PLAN

42. As discussed during early stages of the Spunky Bottoms project, the recommended plan would be determined as the most cost effective for successful operation of the wetland area. The elevation of ponding for operation will be either 432 or 435 ft NGVD. These elevations were selected by the project teamas reasonable to maintain, considering the historical river records and statistical analysis of frequency of river stages.

43. In reviewing the recommended project components, it is important to remember that the project is intended to improve fish and wildlife habitat for normal river conditions, which prevail the majority of the time. It is not crucial to maintain the river-wetland connection 100percent of the time, and this will be impossible during very high or low water conditions. The recommended plan represents a water control plan that intends to be very beneficial to fish and wildlife.

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX D
PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

APPENDIX D

PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

SPUNKY BOTTOMS PRESERVE
BROWN COUNTY, ILLINOIS

GEOTECHNICAL CONSIDERATIONS/EVALUATION

1. The Spunky Bottoms Ecosystem Restoration Project consists of a fish passage/water control structure, a small portable pump with appurtenances, two low profile interior berms, and vegetative restoration. The project is to be constructed within an existing agricultural levee system.

SOILS DATA

2. As part of this study, four borings were taken near the proposed site of the fish passage/water control structure. The borings were taken to identify the soil stratigraphy and corresponding strengths. The borings were taken along the southeastern end of the existing levee. The boring logs are attached in this appendix. The borings were taken along a ridge that extended into the protected area. The foundation consists of 17 feet of lean clays over poorly graded, loose to medium dense sands, with bedrock at a depth of 60 feet.

3. A preliminary evaluation of the bearing capacity of the soil is estimated to be at least 1,000 pounds per square foot for support of the headwall structure, and at least 1,100 pounds per square foot for support of the culverts. The fish passage structure is not anticipated to exceed the current soil loading of the berm which will be replaced by the structure. The foundation requirements for the fish passage structure will be further evaluated with actual structure loadings during the preparation of plans and specifications.

4. The Sponsor provided shallow borings that had been taken throughout the interior of the berm system. The boring logs generally indicated twelve to fifteen feet of silty-clays overlying coarse sands, with two borings (SPB-03 and SPB-04) encountering refusal at depths of 62.5 feet and 63.1 feet respectively below the existing ground surface; rock cores drilled below these refusal depths for an additional 1 foot indicated that the bedrock is composed of limestone. Soil Conservation Service soils data identified the area as being comprised of alluvial deposits of low plasticity and residual soils of medium to high plasticity. There has been significant disturbance of the soils in the site due to deposition from runoff, ditch spoil, and dredge disposal.

a. Medium to High Plasticity Soils. These soils comprise roughly two-thirds of the project area. They have low permeabilties and have limited erosion potential. These

soils are located in the areas where deep water habitat is proposed. They will prevent loss of pool during low river stages and dry periods.

b. Low Plasticity Soils. This group is located primarily next to the bluff line. These materials are the result of run-off from the higher elevations on the bluff. These soils are suspect to erosion and are more permeable than the other soil group.

5. The materials for construction of additional berms will need to be sampled to determine which class they fall in. Changes in berm geometry could become necessary depending on the soil type.

SITE CHARACTERISTICS

6. The site has been used for dredge disposal on the northeastern portion of the site. Alluvial fans from bluff runoff historically occurred on the north and south portions of the site. The bluff drainage has been intercepted and collected in ditches. The central area of the site is depressed and generally wet. The ditches, continue to hold water over dry periods, maintaining deep water habitat for fish. Loss of pool has not been an issue during low river stages indicating no direct connection with the aquifer. Sedimentation is noticeably heavy off of the bluff while being diverted into the ditches. An interior berm with trash pump would need to be constructed to prevent induced flooding on the adjacent Cox property (see Figure ES-1). Depth to sands as indicated on the deep soil borings done by the St. Louis District were observed to be in the range of 16-19 feet below the existing ground surface.

GEOTECHNICAL ISSUES

FISH PASSAGE STRUCTURE

7. The structure as currently conceived should have a mat foundation. A sheetpile cutoff for scour and undercutting will be used on both the interior and exterior of the structure. Construction will be done using a cofferdam to prevent flooding of the construction site. A sump area & pumps should be adequate for dewatering.

INTERIOR BERMS

8. Interior berms will be constructed of local materials. The existing slopes are 1V:3H and will be further evaluated upon receipt of the soils test data from the borrow pits.

UNIFIED SOIL CLASSIFICATION ASTM D 2487

MAJOR DIVISION		TYPE	LETTER SYMBOL	SYMBOL	TYPICAL NAMES
COARSE-GRAINED SOILS More than half of materials larger than No. 200 sieve size	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size	CLEAN GRAVEL (Little or No fines)	GW		GRAVEL, Well Graded, gravel-sand mixtures, little or no fines
			GP		GRAVEL, Poorly Graded, gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES (Appreciable Amount of Fines)	GM		SILTY GRAVEL, gravel-sand-silt mixtures
			GC		CLAYEY GRAVEL, gravel-sand-clay mixtures
	SANDS More than half of coarse fraction is smaller than No. 4 sieve size	CLEAN SAND (Little or No fines)	SW		SAND, Well-Graded, gravelly sands
			SP		SAND, Poorly-graded, gravelly sands
		SAND WITH FINES (Appreciable Amount of Fines)	SM		SILTY SAND, sand-silt mixtures
			SC		CLAYEY SAND, sand-clay mixtures
FINE-GRAINED SOILS More than half the material is smaller than No. 200 sieve size		SILT AND CLAYS (Liquid Limit < 50)	ML		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity
			CL		LEAN CLAY; Sandy Clay; Silty Clay; of low to medium plasticity
			OL		ORGANIC SILTS and organic silty clays of low plasticity
		SILT AND CLAYS (Liquid Limit > 50)	MH		SILT, fine sandy or silty soil with high plasticity
			CH		FAT CLAY, inorganic clay of high plasticity
			OH		ORGANIC CLAYS of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt		PEAT, and other highly organic soil
WOOD			Wd		WOOD
SHELLS			Sl		SHELLS

NOTE: Soil possessing characteristics of two groups are designated by combinations of group symbols

FIGURES TO LEFT OF BORING UNDER COLUMN "W OR D_{10}"

Are natural water content in percent dry weight (FW denotes Free Water) ASTM D 2216

When underlined denotes D_{10} size in mm - ASTM C 136 *

FIGURES TO LEFT OF BORING UNDER COLUMNS "LL" AND "PL"

Are liquid and plastic limits, respectively - ASTM D 4318

SYMBOLS TO LEFT OF BORING

▽ Groundwater surface and date observed

Ⓒ Denotes location of consolidation test **

Ⓢ Denotes location of consolidation-drained direct shear test **

Ⓡ Denotes location of consolidation-undrained triaxial compression test **

Ⓤ Denotes location of unconsolidation-undrained triaxial compression test **

Ⓣ Denotes location of sample subjected to consolidation test and each of the above three types of shear tests **

↕ 5-50 Pressure Test Results Shown as 5 gals/min at 50 psi

○— Denotes proposed channel grade

* The D_{10} size of a soil is the grain diameter in millimeters of which 10% of the soil is finer, and 90% coarser than size D_{10} - ASTM C 136.

** Results of these tests are available for inspection in the U.S. Army Engineer District Office, if these symbols appear beside the boring logs on the drawings.

FIGURES TO RIGHT OF BORING

Are values of cohesion in lbs./sq. ft. from unconfined compression tests

In parenthesis and not underlined are driving resistance in blows per foot determined with a standard split spoon sampler (1⅜" I.D., 2 " O.D.) and a 140 lb. driving hammer with a 30 " drop - ASTM D 1586. In parenthesis and underlined are for a 2 ½" I.D., 3 " O.D. split spoon sampler and 350 lb. driving hammer with an 18 " drop.

Where underlined with a solid line denotes laboratory permeability in centimeters per second of undisturbed sample.

Where underlined with a dashed line denotes laboratory permeability in centimeters per second of sample remolded to the estimated natural void ratio.

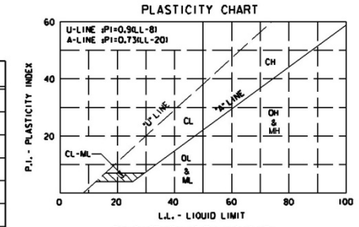
SYMBOLS TO RIGHT OF BORING

Ⓐ Denotes classification determined by process of drilling, no representative sample obtained.

CLASSIFICATION AND DESCRIPTION OF ROCK

GROUP	LETTER SYMBOL	SYMBOL	ROCK CLASSIFICATION
SEDIMENTARY ROCKS	CON		CONGLOMERATE
	SAN		SANDSTONE
	GRA		GRAYWACKE
	CLA		CLAYSTONE OR SILTSTONE
	SHA		COMPACTION SHALE
	CEM		CEMENTED SHALE
	COA		COAL
	LIM		LIMESTONE
	DOL		DOLOMITE
	CHA		CHALK (OR MARL)
	CT		CHERT
	CA		CAVITY
	GRN		GRANITE

PLASTICITY CHART



For classification of fine-grained soils
References: ASTM D 2487, Figure 3

BORING SUFFIX

LETTER SYMBOL	DESCRIPTION
A	Angle Core Boring
B	Bag Samples-Soil-Borings
C	Core Boring
O	Observation Boring
P	Piezometer
U	Undistrubed Sample-Soil-Boring

DESCRIPTIVE SYMBOLS

MODIFICATIONS

MODIFICATION	SYMBOL
Traces	Tr-
Fine	F
Very Fine	vF
Medium	M
Coarse	C
Calc. Concretions	cc
Rootlets	rt
Lignite fragments	lg
Shale fragments	shs
Sandstone fragments	sds
Shell fragments	slf
Organic matter	O
Clay strata or lenses	CS
Silt strata or lenses	SIS
Sand strata or lenses	SS
Sandy	S
Gravelly	G
Boulders	B
Slickensides	SL
Wood	Wd
Oxidized	Ox
Decomposed Limonite Concretions	DLC
Began use of drilling mud	B.D.M. →
Began use of casing	B.Ca. →
Beginning of Specified Core Size	NX Core →
Ground Surface Elev.	G.S.E.
Water Surface Elev.	W.S.E.

COLORS

COLOR	SYMBOL
TAN	T
YELLOW	Y
RED	R
BLACK	BK
GRAY	Gr
LIGHT GRAY	lGr
DARK GRAY	dGr
BROWN	Br
LIGHT BROWN	lBr
DARK BROWN	dBr
BROWNISH-GRAY	BRG
GRAYISH-BROWN	GYB
GREENISH-GRAY	GNG
GRAYISH-GREEN	Gyg
GREEN	Gn
BLUE	Bl
BLUE-GREEN	BLG
WHITE	Wh
MOTTLED	Mot
REDDISH	RD

CONSISTENCY FOR COHESIVE SOILS

CONSISTENCY	COHESION IN LBS./SQ.FT. FROM UNCONFINED COMPRESSION TEST	SYMBOL
VERY SOFT	< 250	vSo
SOFT	250-500	So
MEDIUM	500-1000	M
STIFF	1000-2000	St
VERY STIFF	2000-4000	vSt
HARD	> 4000	H

GENERAL NOTES :

While the borings are representative of subsurface conditions at their respective locations and fortheir respective verticalreaches, local variations characteristic of the subsurface materials of the region are anticipated and, if encountered, such variations will not be considered as differing materially within the purview of the contract clause entitled "Differing Site Conditions."

Groundwater elevations shown on the boring logs represent groundwater surface encountered in such borings on the date shown. Absence of water surface data on certain borings indicates that no groundwater data are available from the boring but does not necessarily mean that groundwater will not be encountered at the locations or within the verticalreaches of such borings. Groundwater elevation can vary from that shown on the logs with seasonal weather changes and depending on the length of time the bore hole is left open.

Consistency of cohesive soil shown on the boring logs is based on driller's log and visual examination and is approximate, except within those verticalreaches of the boring where shear strengths from unconfined compression tests are shown.

APPLICABLE PUBLICATIONS

American Society for Testing and Materials (ASTM) Standards
ASTM C 136 Method for Sieve Analysis of Fine and Coarse Aggregates.
ASTM D 1586 Method for Penetration Test and Split-Barrel Sampling of Soils.
ASTM D 2166 Test Methods for Unconfined Compressive Strength of Cohesive Soil.
ASTM D 2216 Method for Laboratory Determination of Water (Moisture) Content of Soil, Rock, and Soil-Aggregate Mixtures.
ASTM D 2487 Classification of Soils for Engineering Purposes.
ASTM D 2488 Description and Indentification of Soils (Visual-Manual Procedure).
ASTM D 4318 Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.

U.S. Army Engineer Manual (EM)

EM 1110-2-1906
Engineering and Design, Laboratory
Soils Testing, 30 November 1970
Revised 20 August 1986

DRILLING AND SAMPLING EQUIPMENT

AUG-AUGER
BKH-BACKHOE
CPT-CONE PENETROMETER
HDA-HAND AUGER
HSA-HOLLOW STEM AUGER
HSP-HAND SAMPLE PROBE
RB- ROLLER BIT
SSS-STANDARD SPLIT SPOON
VST-VACCUM SHELBY TUBE (5")
WB- WING BIT

US Army Corps of Engineers
ST. LOUIS DISTRICT

Symbol	Description	Date	Appr.
	Revisions		

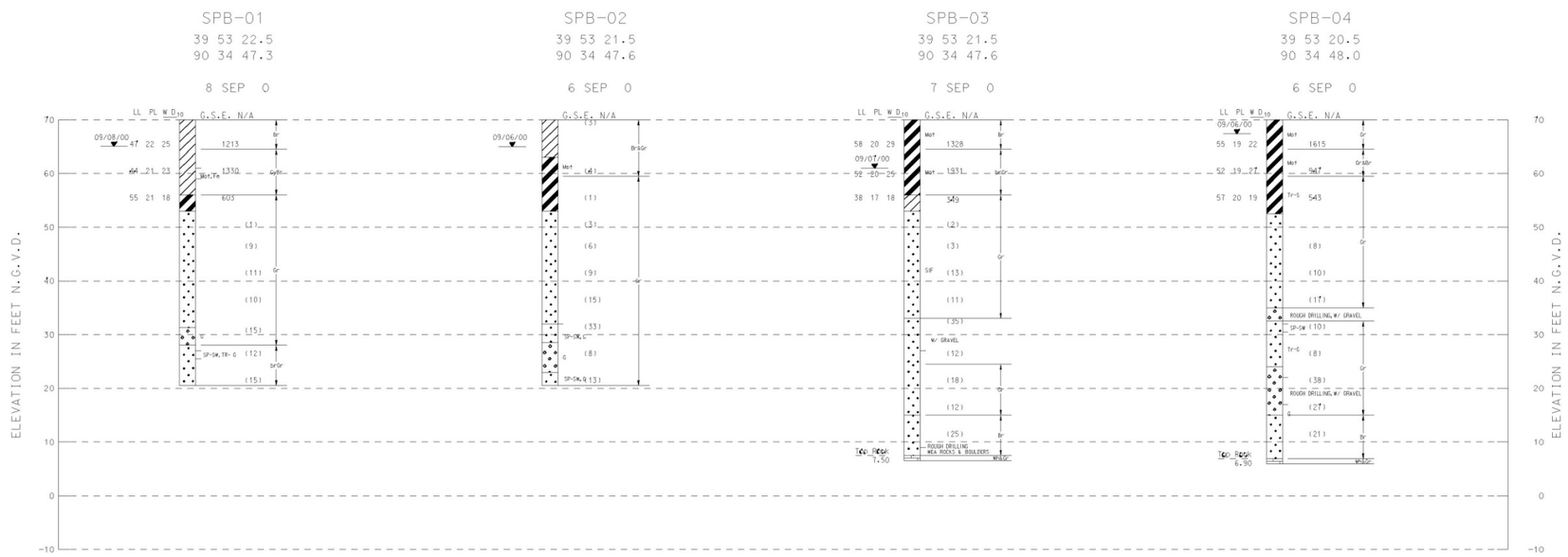
Designed by: SCP
Date: 2/2/2004
Drawn by: N. KIRD
Checked by: N. KIRD
Submitted: JOSEPH L. SCHREIN, P.E.
Chief, Foundations Section
Reviewed by: GEORGE J. POSTAL, P.E.
Chief, Geotech. Branch
Approved: JOHN W. BOSTICK, P.E.
Chief, Engineering Division
File Name: 03-0000-0000 Plot Date: 10/2/2003

U.S. ARMY ENGINEER DIVISION
CORPS OF ENGINEERS
ST. LOUIS, MISSOURI

UPPER MISSISSIPPI RIVER BASIN
ILLINOIS RIVER

ILLINOIS RIVER
SPUNKEY BOTTOMS
GEOTECHNICAL
SOIL AND ROCK LEGEND

D-1
PLATE NUMBER



US Army Corps of Engineers
ST. LOUIS DISTRICT

Symbol	Description	Date	Appr.
	Revisions		

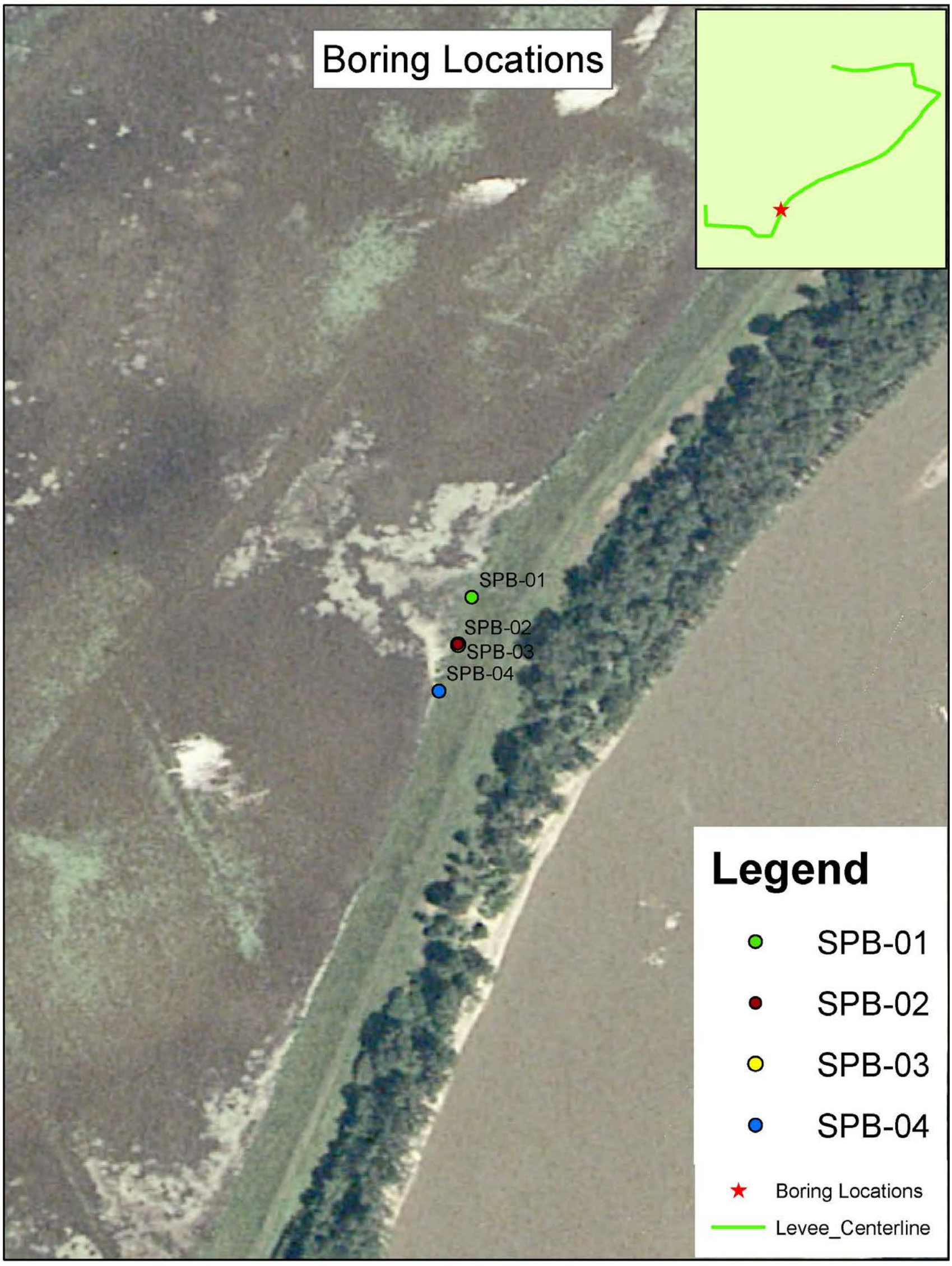
DATE: SEPT 2000
SUBMITTED: JOSEPH L. SCHMEIK, P.E. Chief, Foundations Section

Designed by: MARTIN W. WENTLUS
Drawn by: M. WENTLUS
Cad by: M. WENTLUS
Reviewed by: JOSEPH L. SCHMEIK
APPROVED: GEORGE J. POSTAL, P.E. Chief, Geotech. Branch
FILE/STORAGE: FILENAME/DESCRIPTION
Plot date: MONTH/YEAR

U.S. ARMY ENGINEER DIVISION CORPS OF ENGINEERS ST. LOUIS, MISSOURI
UPPER MISSISSIPPI RIVER BASIN
ILLINOIS RIVER

ILLINOIS RIVER
SPUNKEY BOTTOMS
GEOTECHNICAL
Boring Logs

D-2
PLATE NUMBER


Boring Locations
SPB-01
SPB-02
SPB-03
SPB-04
Legend
SPB-01
SPB-02
SPB-03
SPB-04
Boring Locations
Levee_Centerline

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX E
HABITAT BENEFIT ANALYSIS

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APPENDIX E
HABITAT BENEFIT ANALYSIS

1. INTRODUCTION

This appendix provides documentation of the habitat evaluation and quantification process that was conducted to evaluate the benefits of various habitat features for Spunky Bottoms Preserve. Active participants included biologists from the St. Louis District, Corps of Engineers, the U.S. Fish and Wildlife Service (Southern Illinois Ecological Service Office), the Illinois Department of Natural Resources, and The Nature Conservancy.

Quantification is needed in the project planning process to evaluate benefits of project features because traditional benefit/cost evaluation is not applicable. To determine environmental restoration project benefits, models have been developed to quantify habitat benefits of project features for selected species.

We used both wildlife and fisheries based models to evaluate the effects of project features on species at Spunky Bottoms. This was done because both wildlife and aquatic would be affected by some or all of the proposed features. For wildlife, we used the Wildlife Habitat Appraisal Guide (WHAG) developed by the Missouri Department of Conservation and the U.S. Department of Agriculture, Soil Conservation Service (now Natural Resources Conservation Service) (MDC and NRCS 1990). The WHAG was adapted from the U.S. Fish and Wildlife Service's Habitat Evaluation Procedures (USFWS 1976). WHAG is widely accepted by local agencies, and it has become the primarywetland habitat evaluation method used in the St. Louis District.

The aquatic model that has gained the most acceptance within the St. Louis District and along the entire Upper Mississippi River is the Aquatic Habitat Appraisal Guide (AHAG) (Killgore & Hardy 1992; Mathias et al. 1996). It was developed by the Corps of Engineers Waterways Experiment Station (WES) and the Rock Island District Corps of Engineers (Killgore & Hardy 1992; Mathias et al. 1996). The AHAG methodology follows that of the Wildlife Habitat Appraisal Guide (WHAG; MDC and USDA 1990).

2. HABITAT EVALUATION METHODOLOGY

The WHAG and AHAG are numerical models that evaluate the quality and quantity of particular habitats for species selected by team members. The qualitative component of the analysis is known as the habitat suitability index (HSI) and is rated on a 0 to 1.0 scale, with higher values indicating better habitat for that species. The HSI for a particular habitat type is determined by selecting values that reflect present and future project area conditions from a series of abiotic and biotic metrics. Each value corresponds to a suitability index for each species. Future values are determined using management plans, historical conditions, and best professional judgment. The quantitative component is the number of acres of the habitat being evaluated. From the calculated qualitative and quantitative values, the standard unit of measure, the habitat unit (HU) is calculated using the formula (HSI x Acres = HUs). Habitat units are calculated for specific target years to forecast changes in habitat values over the life of the project for with- and without-project conditions. Habitat Units are then annualized to yield the Average Annual Habitat Unit (AAHU). Target years are set to capture the change in habitat that occurs with habitat maturation and changes caused by constructed features. The benefits of each proposed

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project feature (net AAHUs) are then determined by subtracting with-project benefits from without-project benefits. The effects of various habitat improvement feature combinations (alternatives) can then be evaluated by comparing the net AAHUs and costs for each alternative considered.

2a. Iterations Process - There are two approaches to evaluating the with-project effects. Corps guidance requires that the team evaluate a suite of features that can be combined in various ways to form project alternatives. One approach to assess the benefits of project features and their combinations, alternatives, is to assess the effect of each feature and alternative independently. This process is called the iterations process. For Spunky Bottoms, the project development team (PDT) developed in excess of 20 feasible features to meet the project goals. To determine the habitat units created by each feature, the habitat (bottomland hardwood, non forested wetland, aquatic, etc.) affected by the feature would be evaluated using the applicable WHAG spreadsheet. For example, planting bottomland hardwood improves bottomland hardwood habitat. Therefore, this feature would be evaluated using the bottomland hardwood WHAG spreadsheet. This process would result in going through WHAG spreadsheets at least 20 times for each target year for each evaluation location and each alternative. Additionally for the Spunky Bottoms project, most of the features affect multiple habitats and thus one feature requires going through 2 or 3 spreadsheets per target year and evaluation location. Finally, when features are combined to form alternatives the habitat units created are not the sum of the habitat units generated by each feature. Therefore using the iterations process, WHAG spreadsheets should be completed for each feature. For the Spunky Bottoms project, this would result in hundreds of spreadsheets.

2b. Project Alternative Process - The second approach is to assess the collective effect of groups of features for the with-project evaluation. Project features are lumped into group of features that work together such as the water control structure to an elevation of 435 feet NGVD and all protection measures. Protection measures consist of road raises, catchment areas, etc. The PDT decides which project features can be stand alone and which project features can be separated out. Therefore, the with-project evaluation involves going through the WHAG and AHAG spreadsheets once for each alternative. This resulted in going through the analyses four times for the no action and the three project alternatives evaluated, as opposed to several. With project HUs are then subtracted from without HUs to yield net AAHUs. The no action alternative would generate HUs; however, it would not have any net AAHUs as there is no comparison to be made with the no action alternative. All other alternatives are compared to the no action alternative and thus generate net AAHUs. A major benefit of this approach is that it makes the habitat evaluation process manageable for the team. The team can evaluate an entire alternative at once and be able to see the connections between each feature. A second benefit is that this process is sensitive enough to reflect differences in habitat units between similar features (controlling a water control structure at 432 feet NGVD compared to 435 feet NGVD).

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3. EVALUATION SPECIES SELECTION

To begin the habitat evaluation process, the team reviewed the species in each model. They selected four fish species and eight wetland wildlife species (Table E-1). Species were selected because they utilize the current or are anticipated to use the future habitat at Spunky Bottoms, they represented different guilds from different taxonomic families, and they are of management interest.

Table E-1. Aquatic and wildlife evaluation species selected for analysis.

Species	Scientific Name	Family	Habitat Type Evaluated
Aquatic (AHAG)			
Paddlefish	*Polyodon spathula*	Polyodontidae	Lotic
Smallmouth Buffalo	*Ictiobus bubalus*	Catostomidae	Lentic
Largemouth Bass	*Micropterus salmoides*	Centrarchidae	Lentic
Northern Pike	*Esox lucius*	Esocidae	Lentic
Wetland(WHAG)			
Muskrat	*Ondatra zibethicus*	Ondatra	Nonforested Wetland
King Rail	*Rallus elegans*	Rallidae	Nonforested Wetland
Least Bittern	*Ixobrychus exilis*	Ardeidae	Nonforested Wetland
Green Backed Heron	*Protonotaria citrea*	Ardeidae	Bottomland Forest
Northern Parula	*Parula americana*	Parulidae	Bottomland Forest
Quail	*Colinus virginianus*	Odontophoridae	Grassland
Deer	*Odocoileus virginianus*	Cervidae	Grassland
Dickcissel	*Spiza americana*	Cardinalidae	Grassland

AHAG species include paddlefish, smallmouth buffalo, largemouth bass and northern pike for the shallow water wetlands throughout the preserve and in Little Creek.

Paddlefish, in the family Polydontidae, are planktivorous fish that dwell in open water more so than on the bottom, swimming about continuously, apparently aimlessly, near the surface or in shallow areas filtering water (Pflieger 1997). They were chosen due to their decreasing numbers and of greatest concern for The Nature Conservancy and Illinois Department of Natural Resources.

Smallmouth buffalo, in the family Catostomidae, are the among one of the most important commercial fishes in Illinois. These fish feed on organisms in the substrate of large rivers and lakes. Smallmouth buffalo were chosen for the project area because they are a common native species in the area and in the Illinois River.

Largemouth bass are in the family Centrarchidae. They are a predatory warm water sport fish that inhabit side channels and backwaters and utilize submerged structures for cover. These are commonly sought after by recreational fishermen within Spunky Bottoms and other nearby backwaters.

Northern Pike are in the in the family Esocidae. Northern pike inhabit a variety of lakes, reservoirs and large streams. Like the other pikes (chain and grass pickerel), it avoids strong currents and is partial to waters with dense growths of aquatic vegetation. While chances are

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extremely low that the Spunky Bottoms Preserve would provide benefits to the Northern Pike, its the grass pickerel (a close relative to Northern Pike), has been stocked by the Illinois Natural History Survey and may benefit from the project.

WHAG species include a wide variety of species representing a very diverse range of families. Migratory waterfowl, such as mallards, were selected for their ability to utilize early successional nonforested wetland habitat. They also forage in bottomland forest and cropland. The least bittern uses permanent wetlands as well as mid successional non-forested wetland habitats. Impacts to other species such as the muskrat and green-back heron were also evaluated to get the "big picture" of impacts on the most species possible. This will generally result in fewer AAHUs, but the Project Delivery Team (PDT) felt their inclusion was important to understand the larger impacts of the project. It will result in fewer AAHUs because specific measures that result in benefits for one species will likely result in impacts for another, nearly offsetting any benefits gained. So the more species analyzed, generally, the fewer AAHUs capable of being produced.

4. SITE SPECIFIC METHODOLOGY AND ASSUMPTIONS

For the purpose of planning, design, and impact analysis, project life was established as 50 years. The team determined target years to forecast habitat change: 0 (existing conditions), 1, 10 and 50 years post construction. HSIs and average annual habitat units (AAHUs) for each evaluation species were calculated at each of these target years.

4a. WHAG Analysis Locations - The team then determined what habitats would be affected by the project features and locations in the project area to evaluate these changes. The following WHAG spreadsheets were used: grassland, wetland non-forest, and wetland bottomland hardwoods. There were three primary evaluation locations. The first was the grassland located along County Highway 12 at the bluff's edge. This area would become impacted by increasing water management elevations. The second is the bottomland forest located along the levee at the northeastern portion of the property. The third is the largest segment and is the moist soil management area comprising mainly forested wetland and non-forested wetland. This area ranges in size depending on the current elevation and the elevation planned for the water control structure, either 430 feet NGVD, 432 feet NGVD, or 435 feet NGVD. However, each type of habitat was evaluated on its own comprising four terrestrial units including the forested wetland at the northeast, the non-forested wetland across most of the site, grassland along County Highway12, and a small tract of forested wetland adjacent to County Highway12 at the south.

4b. AHAG Analysis Locations - For the AHAG, the 1992 and 1996 AHAG were used to evaluate all aquatic areas. The primary difference between the 1992 and 1996 AHAG are the species included. There are some overlap of species between the two models. Any overlap between the two models that resulted in contradictory numbers, the 1996 values would be chosen due to updates throughout the planning process.

4c. Project Alternative Analysis - Once species, habitats, target years, and locations were chosen, the team determined that the "project alternative" method was the most suitable for the habitat benefits analysis at Spunky Bottoms. This was primarily driven by the reconnection structure elevation being a key piece of all alternatives. The main difference among the

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alternatives was water level management height. The team developed three alternatives that would be evaluated independently of one another. To determine the habitat benefits for each feature, the team used their extensive knowledge of the project area, its biology, and best professional judgment. The habitat benefits were determined by how well the alternative addressed the problems, goals, and objectives discussed in the ERR. For the Wildlife Habitat Appraisal Guide benefits, the team determined that improving the connection to the Illinois River was most important. Without the connection, sedimentation would likely continue and could potentially degrade all other habitat improvements. The secondary features associated with each alternative for providing access to areas or protection of the landowners provide little to no habitat units.

Aquatic habitat benefits were gained by the water reconnection structure to the Illinois River and the use of the backwater by large riverine species that would transit between the open river and the backwater area.

Prior to field evaluation, the evaluation team was briefed on the area's hydrogeomorphology, history, and management practices. They also reviewed aerial photography, topographic maps, and preliminary design drawings extensively to determine total of acres impacted and current habitats. During field evaluations, assumptions were developed regarding existing conditions and projected post-project conditions relative to limiting factors and management practices (see below). They then determined the WHAG and AHAG spreadsheet metric values for each target year for with project and without project conditions.

4d. General Assumptions and Habitat Characteristics. The following general assumptions and information were used to determine WHAG and AHAG values and acreages:

Under the proposed restoration plan it is anticipated that:

(1) Currently a maximum allowable management level exists at 430 feet NGVD

(2) Water input to the system is solely reliant on precipitation, hillside runoff, ground water, and some seepage through/under the levee

(3) Target years of 0, 1, 10, and 50 are sufficient to annualize HUs and to characterize habitat changes over the life of the project

(4) All species were given equal consideration

(5) The entire site was considered as four terrestrial units and one aquatic unit

(6) Maintenance of aquatic vegetation would be a priority. Water levels and connectivity would be managed to optimize conditions for a diversity of aquatic and terrestrial organisms. This would include reducing unnatural water level fluctuations and invasive species such as Asian and European carp to the extent practical

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(7) Sediment management would occur in all scenarios, but is somewhat limited without dredging capabilities

(8) The No Action Alternative assumed Spunky Bottoms water levels to be at an average elevation of 430 feet NGVD

(9) The existing HSI values developed are a fair representation of the habitat quality of habitat in all target years and for all future conditions with or without a project

(10) River level fluctuations would not result in level fluctuations within the Spunky Bottoms unit due to control with the closure structure

4e. HSI Calculation and Acreage Determination - Habitat suitability indices for each species were multiplied by the appropriate acreage to generate HUs. Topographical data, management plans, land coverage data files, and aerial photography were used to determine acreage (Tables E-2 and E-3). HUs were then annualized to yield AAHUs for with and without project (Table E-4). Figure E-1 shows the current habitat acreages across the site. The net AAHUs (with - without) were summed across target species. This was done because each species chosen by the team represents a unique guild that utilizes different micro-habitats and benefits differently from the proposed Spunky Bottoms features. Acreages are very restricted on the Spunky Bottoms site. Table E-2 shows the methods used to determine acreages, but since management practices such as row crops and some wetland management are already in place, the acreages only change slightly across the project life.

Table E-2. The methods used to determine the acreage of each of the different evaluation locations.

Aquatic Acres Calculation	
Spunky Aquatic Area	The aquatic area present throughout the preserve. The acreage is fairly limited to acres within the preserve itself; however, benefits would extend well beyond the Spunky Bottoms Preserve and into the Illinois and Mississippi Rivers.
Terrestrial Acres Calculation	
Total Acres	Calculated by taking the centerline of the exterior levee as the outside boundary, digitizing the approximate center of the existing roads and berms.
Existing Forest	From field surveys and use of a wide range NAIP imagery years.
Existing Grassland	From field surveys and use of a wide range NAIP imagery years.
Existing Non-forest	From field surveys and use of a wide range NAIP imagery years.
Future W/O forest	This was the same as existing forest.
Future W/O Grassland	This was the same as existing grassland.
Future W/O Non-forest	This was the same as existing non-forested wetland
Future W Bottomland Hardwood	Using NAIP imagery, known alternatives were overlayed over the imagery and lidar to determine changes in acres.
Future W Grassland	Under these alternatives, grassland would be reduced depending on the water elevation. As water levels rise, the grassland acres would decrease. Lidar data was used to calculate how

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	much acreage would decrease.
Future W Nonforested Wetland	Using NAIP imagery, known alternatives were overlayed over the imagery and lidar to determine changes in acres.
Future W (1, 10, 50)	Best professional judgment among the PDT was utilized to determine how quickly benefits would accrue. It was also assumed once full benefits were achieved, they would remain at this level through the remainder of the project life via management practices with the exception of conversion from non-forested wetland to forested wetland in specific areas.
Permanent Water	Calculated using the NAIP imagery.

Table E-3. The acres of habitat existing and at year 50 for all alternatives.

	Existing			Future Year 50		
Alternative	**Wetland Forest**	**Non-forest Wetland**	**Grassland**	**Wetland Forest**	**Non-forest Wetland**	**Grassland**
No Action	72	817	155	472	417	155
A	72	817	155	472	417	155
B	72	817	155	434	514	96
C	72	817	155	362	672	10

Table E-4. The acres of aquatic habitat existing and without the project. It was assumed that without the project, acreage would decrease slowly across the project area as sedimentation would occur filling in the aquatic areas. This is an inevitable process that occurs in the Future with-project as well.

AHAG Location	**Existing**	**Future Without (Yr 1, 10, 50)**	**Future With 430' (Yr 1, 10, 50)**	**Future With 432' (Yr 1, 10, 50)**	**Future With 435' (Yr 1, 10, 50)**
Spunky Aquatic Area	350	350, 330, 300	675, 625, 600	750, 700, 675	800, 750, 725

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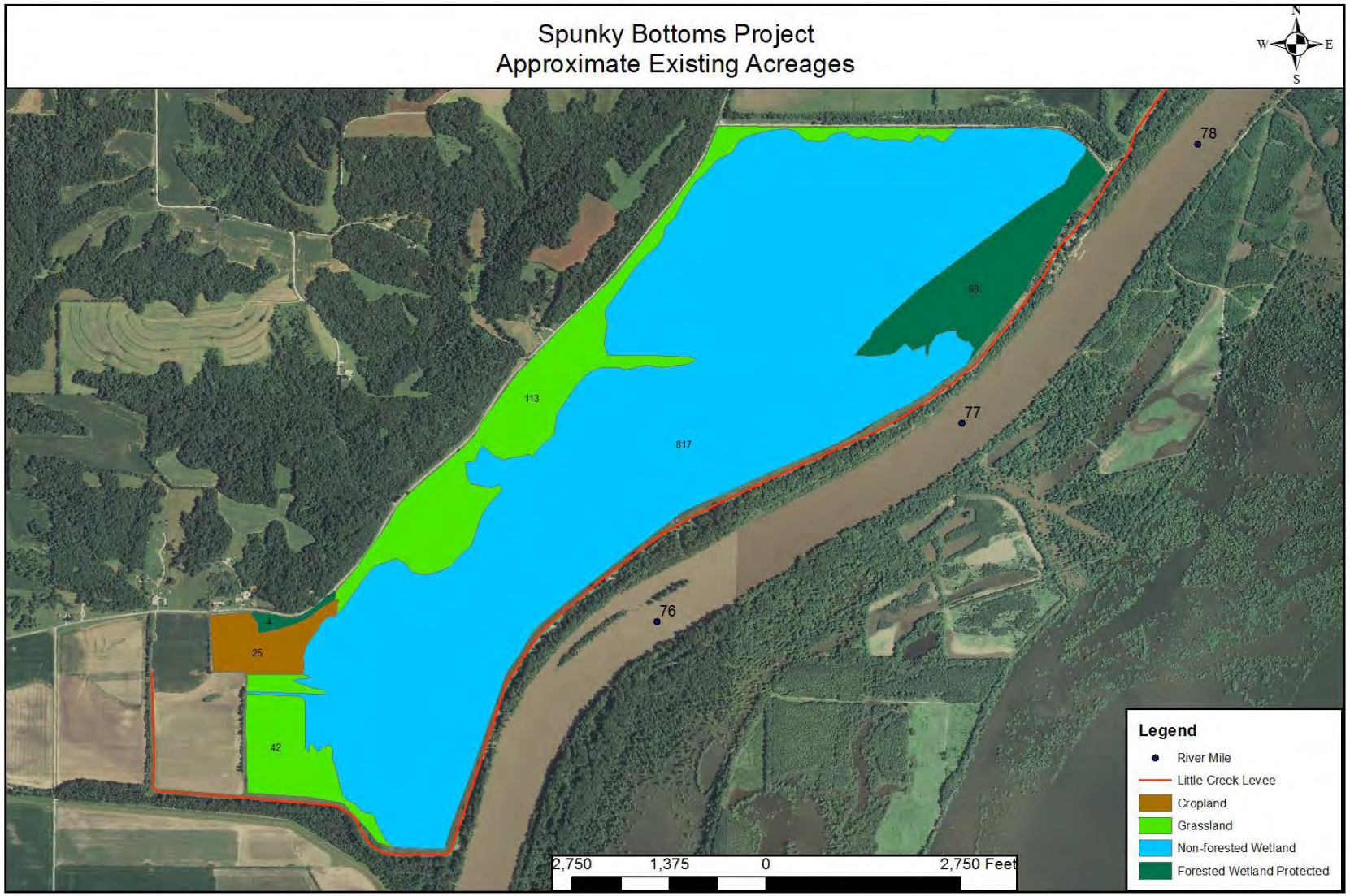

Figure E-1. Approximate acreages of existing habitat types for the Spunky Bottoms Project Area.

5. RESULTS

While each alternative uses the same total acreages, they produce slightly different HSIs and the acreages change between the different habitat types. One of the most difficult alternative measures to differentiate was between managing the project between the various elevations (430, 432, and 435). Use of GIS and available LiDAR data became invaluable for this. Using LiDAR data and site inspections to gather GPS coordinates, habitats could be differentiated between in GIS. Acreages were scaled by overlaying LiDAR data at the various elevations to mimic water elevations. Once the acreages were determined, habitat suitability indexes were calculated for each elevation and alternative. Table E-5 (located at the end of this appendix) displays the acres for each year of evaluation, habitat suitability index score, and habitat units. Table E-6 displays the total average annual habitat units and the net average annual habitat units.

As previously mentioned, the AAHUs would be lower since several species were being utilized. This means that gains for certain species would result in impacts for others. This was done to see the complete range of impacts on a wide variety of species and see habitat impacts instead of just single species impacts. This will result in a slightly higher cost per habitat unit, but provides a better understanding of impacts on the habitat. If a fewer number of species was used that only provided benefits, the AAHUs would be higher and the cost per habitat unit would be less, but key information regarding impacts would be left out.

For the Incremental Cost Analysis, the Net AAHUs shown in Table E-6 were used. No features can be combined as alternatives were already grouped together from possible features. Therefore, all possible combinations measures and wetland management levels were generated. These combinations were then incorporated into the ICA as alternatives.

Table E-6. Total AAHUs and Net AAHUs compared to the No Action Alternative.

Alternatives	Total AAHUs	Net AAHUs
No Action	755	-
A	1018	263
B	1234	479
C	1299	544

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Table E-5. Total Habit Units (HU), not annualized, for each alternative across upland, wetland, and aquatic habitats.

Upland (WHAG)													
	No Action			430			432			435			
Project Life (Yr)	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	
0	155	0.4267	66	155	0.4267	66	155	0.4267	66	155	0.4267	66	
1	155	0.4267	66	155	0.4267	66	96	0.4267	41	10	0.4267	4	
10	155	0.45	70	155	0.45	70	96	0.4367	42	10	0.4367	4	
50	155	0.4167	65	155	0.4167	65	96	0.4033	39	10	0.403	4	
Net HU (Yr 50 - Yr 0)			-2			-2			-27			-62	

Wetland (WHAG)													
	No Action			430			432			435			
Project Life (Yr)	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	
0	889	0.628	558	889	0.628	558	889	0.628	558	889	0.628	558	
1	889	0.636	565	889	0.636	565	948	0.716	679	1034	0.716	740	
10	889	0.612	544	889	0.612	544	948	0.706	669	1034	0.706	730	
50	889	0.458	407	889	0.458	407	948	0.696	660	1034	0.696	720	
Net HU (Yr 50 - Yr 0)			-151			-151			102			161	

Aquatic (AHAG)													
	No Action			430			432			435			
Project Life (Yr)	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	
0	350	0.6442	225	350	0.6367	223	350	0.6367	223	350	0.6367	223	
1	350	0.6633	232	675	0.755	510	750	0.755	566	800	0.755	604	
10	330	0.605	200	625	0.759	474	700	0.7592	531	750	0.7592	569	
50	300	0.610	183	600	0.7225	434	675	0.774	523	725	0.7842	569	
Net HU (Yr 50 - Yr 0)			-42			211			300			346	

Total													
	No Action			430			432			435			
Project Life (Yr)	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	**Acres**	**HSI**	**HU**	
0	1044		850	1044		847	1044		847	1044		847	
1	1044		864	1044		1141	1044		1286	1044		1349	
10	1044		813	1044		1088	1044		1243	1044		1304	
50	1044		655	1044		905	1044		1221	1044		1292	
Net Total HU (Yr 50-Yr 0)			-195			58			374			445	

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SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX G
LETTERS OF CORRESPONDENCE

The Nature Conservancy
Protecting nature. Preserving life.™

The Nature Conservancy in Illinois
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703.841.5300

04 13

August 27, 2013

Colonel Christopher G. Hall, Commander
Saint Louis District, US Army Corps of Engineers
122 Spruce Street
Saint Louis, MO 63103

Re: Spunky Bottoms 1135 Project

Dear Col. Hall:

This letter confirms The Nature Conservancy's continued interest in a Section 1135 Project to modify an existing Corps project for environmental benefit at the Little Creek Drainage District-Spunky Bottoms site along the Illinois River in Brown County, Illinois as described in the revised draft Ecosystem Restoration Report.

On 30 May 2013, I provided a similar letter of support conveying our interest in the project. At that time, in addition to our Conservancy property, the project design included adjacent lands of the Illinois Department of Natural Resources (IDNR), and IDNR was identified as a non-federal cost share sponsor of the project with the Conservancy. More recently, those plans have been modified and lands of the IDNR have been removed from the project design. Also, IDNR will not be sharing the role of non-Federal cost share sponsor with the Conservancy.

If found environmentally and economically feasible, it is our intent to work with the Corps to develop and sign a mutually agreeable Project Partnership Agreement that will allow The Nature Conservancy to be the non-Federal cost share sponsor for the project. We understand that as the non-federal cost share partner, we would be responsible for 25% of the total project costs and 100% of operation and maintenance.

As requested and in compliance with Engineer Regulation 1105-2-100 Appendix F-20c(5), this letter also conveys that as the non-Federal cost share partner, The Nature

100% post-consumer materials

Conservancy would voluntarily waive any reimbursement of LERRD credit in excess of the sponsor cost share requirements, in that while such reimbursement is allowed by law, it is not per Corps policy.

We are pleased the feasibility phase of planning is nearing completion, and we look forward to working with you and your staff to complete this ecosystem restoration project at Spunky Bottoms that will benefit our nation's natural resources. If you have questions or need additional information, please contact Doug Blodgett, our Director of River Conservation (email: dblodgett@tnc.org or phone: 309.547.2730 x112).

Respectfully yours,

Michelle Carr, Director

cc: Brian Johnson
Bob Moseley
Doug Blodgett

United States Department of Agriculture

NRCS

Natural Resources Conservation Service
2118 W. Park Court
Champaign, IL 61821-2986
(217) 353-6600

www.il.nrcs.usda.gov

August 13, 2013

Brian Johnson
Regional Planning and Environment Division North
Environmental Planning Branch (CEMVP PD-P)
St. Louis District, U.S. Army Corps of Engineers
1222 Spruce Street
St. Louis, MO 63103-2833

Dear Mr. Johnson:

We have reviewed the Spunky Bottoms Ecosystem Restoration Project Proposal May 2011 for the Spunky Bottoms Wetland Reserve Program (WRP) easement in Brown County, Illinois. The proposal includes a reconnection structure in the mainline levee, interior berms for water level management, protection for private land, vegetative restoration and removal of two pump stations. Many of these practices may be allowed on a WRP easement through a Compatible Use Authorization.

A Compatible Use Authorization outlines the type, frequency, duration and timing of the management practices that will be conducted on the WRP easement acres. The Compatible Use Authorization is also signed and agreed to by the easement owner and the Natural Resource Conservation Service. The authorization outlines specifically the activity that will take place on the easement.

While the Ecosystem Restoration Project proposal could be compatible with the purposes of WRP, we cannot support the project completely until we have specific details of exactly what will be installed on the property and when those items will be installed and/or managed.

With this letter we are agreeing that the Spunky Bottoms Ecosystem Restoration Project proposal, if properly installed, operated and maintained, could meet the requirements for an authorized compatible use. We will need to see detailed plans of the project before we will be able to confirm that the project fits the purpose of the WRP.

If you have any questions, please contact Paula Hingson, Assistant State Conservationist (Easements), at 217-353-6602.

Sincerely,

IVAN N. DOZIER
State Conservationist

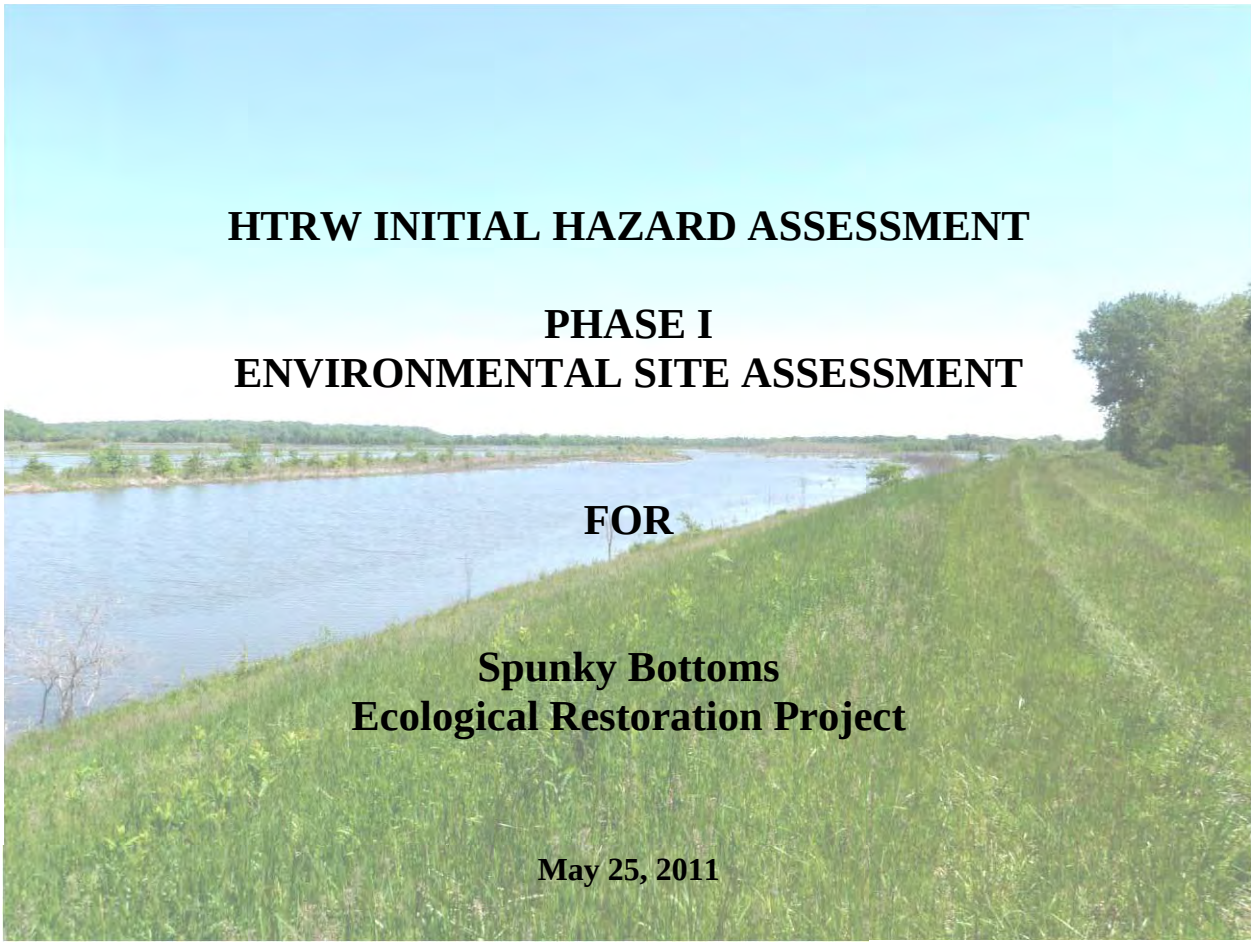
cc:
Douglas Blodgett, The Nature Conservancy, Lewistown, IL
Bob Moseley, The Nature Conservancy, Peoria
John Gunther, District Conservationist, NRCS, Mt. Sterling, IL
Annette Holmes, Area Assistant State Conservationist (Area 2), Springfield, IL
Dave Hiatt, Biologist, NRCS, Martinsville, IL
Brandon Schneider, US Army Corps of Engineers, St. Louis, MO

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX H
HTRW



HTRW INITIAL HAZARD ASSESSMENT

PHASE I
ENVIRONMENTAL SITE ASSESSMENT

FOR

Spunky Bottoms
Ecological Restoration Project

May 25, 2011

Prepared By
U.S. Army Corps of Engineers
St. Louis District

HTRW PHASE I – INITIAL SITE ASSESSMENT
Spunky Bottoms
Ecological Restoration Project

Prepared for:
U.S. Army Corps of Engineers
St. Louis District
1222 Spruce Street
St. Louis, MO 63103

Approved by:

_____
June Jeffries
Chief, Environmental Engineering Division

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in 40 CFR 312.10. I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

_____
Richard D. Archeski
Environmental Engineer

Table of Contents

	Executive Summary	ES
I.	**Introduction**	1
	1.1 Purpose	1
II.	**Project/Site Description**	1
	2.1 Location Description	1
	2.2 Site/Vicinity Characteristics	3
III.	**User Provided Information**	6
IV.	**Records Review**	6
	4.1 Environmental Sources	7
	4.1.1 Federal Records	7
	4.1.2 State and Local Records	8
	4.1.3 Tribal Records	9
	4.1.4 Proprietary Records	9
	4.1.5 Other Data Bases	9
	4.1.6 Results	9
	4.2 Historical Use Information	9
V.	**Site Reconnaissance**	9
VI.	**Interviews**	9
VII.	**Findings**	10
VIII.	**Opinion**	10
IX.	**Conclusions**	11
X.	**Limitation**	11
XI.	**References**	12
XII.	**Qualifications**	12
XIII.	**Appendices**	
	Appendix A Environmental Records	

Appendix B Historical Data

Appendix C Photographs

Appendix D

Appendix E

Figures

Figure 1	Vicinity map of Spunky Bottoms	2
Figure 2	Locator map of Spunky Bottoms	3
Figure 3	Aerial photograph of tract ownership	4
Figure 4	Topographic map of Spunky Bottoms	5
Figure 5	Project components	6

Executive Summary

The purpose of the Spunky Bottoms Ecological Restoration Project is to reconnect the Illinois River to approximately 2,000 acres. The project includes the construction of the following: a water control/fish passage structure, a southern berm, and ponding area. In addition, a township road requires raising, vegetative restoration will occur, and removal of two existing pump stations.

Two previous Phase I's were conducted by ARDL Inc. for portions of these tracts in 2001 and 2003. Nine recognized environmental conditions (REC) were found in or adjacent to the project area. In addition, a Phase II was conducted in 2003 at the two pump stations. Chemical analysis revealed low level concentrations of volatile, semi-volatile, pesticide and herbicide compounds, and total metals in the soil. The majority of the detected volatile, semi-volatile, pesticide and herbicide compounds were below the 2003 Tier 1 Tiered Approach Corrective Action Objective (TACO) with the exception of naphthalene, benzo (a) anthracene, benzo (b) flouranthene, benzo (a) pyrene, indeno (1,2,3-cd) pyrene, heptachlor epoxide and dieldrin. The concentrations of detected total metals were considered to be in the range of normal background concentrations with the exception of barium, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, thallium, vanadium, and zinc.

The current Phase I also found several RECs on or in close proximity to the project site. Two pump stations with spillage area, aboveground storage tanks (AST) at pump stations, underground storage tank (UST) at one pump station, and potential for pesticide/herbicide contamination. It is recommended that an additional Phase II be conducted in conjunction with the removal of the pump stations and associated tanks and equipment.

The objective of the Phase I Environmental Site Assessment (ESA) is to identify, to the extent feasible pursuant to the process described herein, recognized environmental conditions (RECs) in connection with a given property(s). This assessment revealed evidence of RECs in connection with this project.

I. Introduction

1.1 Purpose

The U.S. Army Corps of Engineers (USACE) regulations (ER 1165-2-132) and District policy requires procedures be established to facilitate early identification and appropriate consideration of potential hazardous, toxic, or radioactive waste (HTRW) in reconnaissance, feasibility, preconstruction engineering and design, land acquisition, construction, operations and maintenance, repairs, replacement, and rehabilitation phases of water resources studies or projects by conducting HTRW Initial Hazard Assessments (IHA). USACE specifies that these assessments follow the process/standard practices for conducting Phase I ESA's published by the American Society for Testing and Materials (ASTM).

This assessment was prepared using the following ASTM Standards:

- E1527-05: Standard Practice for Environmental Site Assessments – Phase I Environmental Site Assessment process

- E1528-06: Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (interview questionnaires)

The purpose of a Phase I – ESA (IHA) is to identify, to the extent feasible in the absence of sampling and analysis, the range of contaminants (i.e. RECs) within the scope of the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products.

The scope of this Phase I – Initial Site Assessment consists of the following four components:

a. Records review
b. Site reconnaissance
c. Interviews
d. Report

II. Project/Site Description

2.1 Location Description

The project is located approximately 5 miles north of Meredosia, Illinois and 1.5 miles downstream of the La Grange Lock & Dam. The Illinois River between river mile 75.0 and 78.3 is the eastern boundary of the project and County Road 12 delineates the western edge. Little Creek forms the northern boundary and Camp Creek the southern. See figure 1 and 2 for project location. The project area consists of 2 tracts totaling approximately 2,027 acres. One tract is owned by the Nature Conservancy which consists of approximately 1,195 acres and the 2nd tract of approximately 833 acres is owned by the Illinois Department of Natural Resources.

Figure 1
Location of project

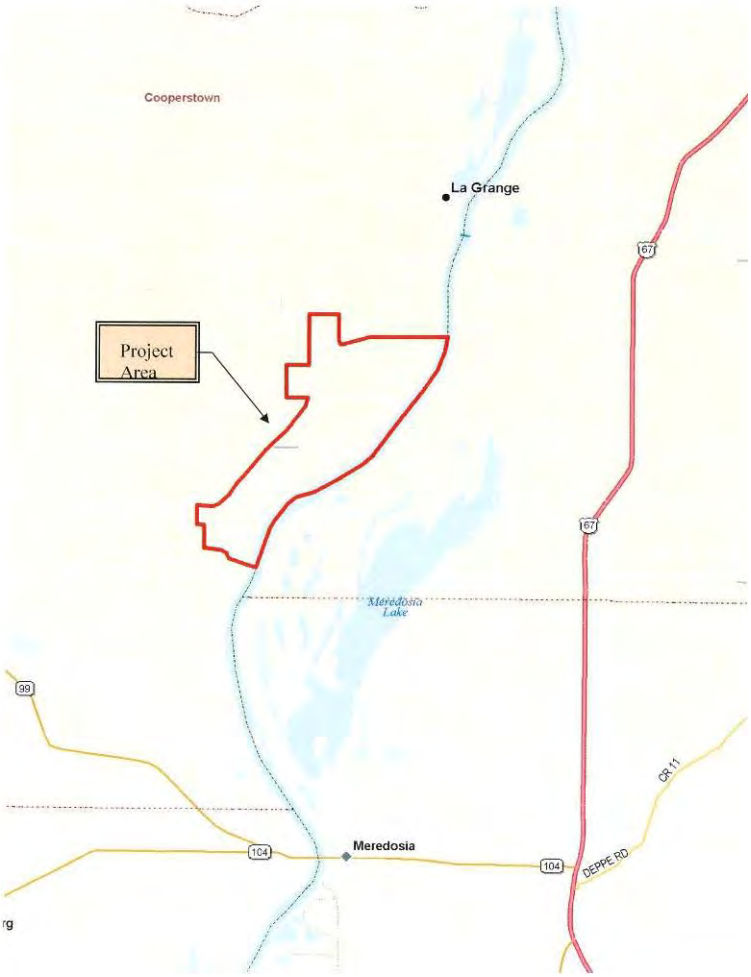


Figure 2
Location of project

2.2 Site/Vicinity Characteristics

The project area is rural with no commercial or industrial developments. Agriculture is the primary use of the subject properties. The properties are owned and managed by the Nature Conservancy and the Illinois Department of Natural Resources. See figure 3.

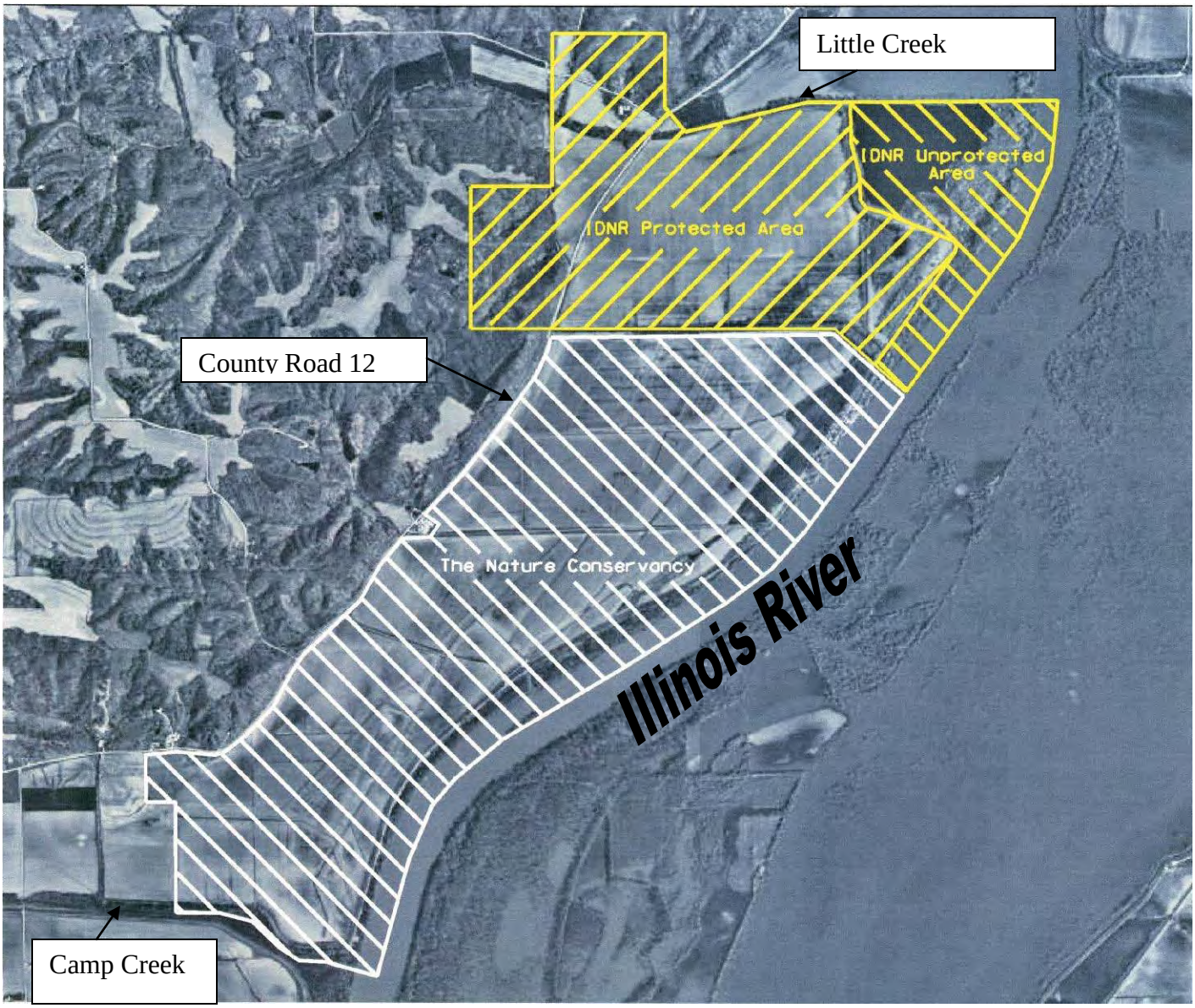


Figure 3
Ownership tract map

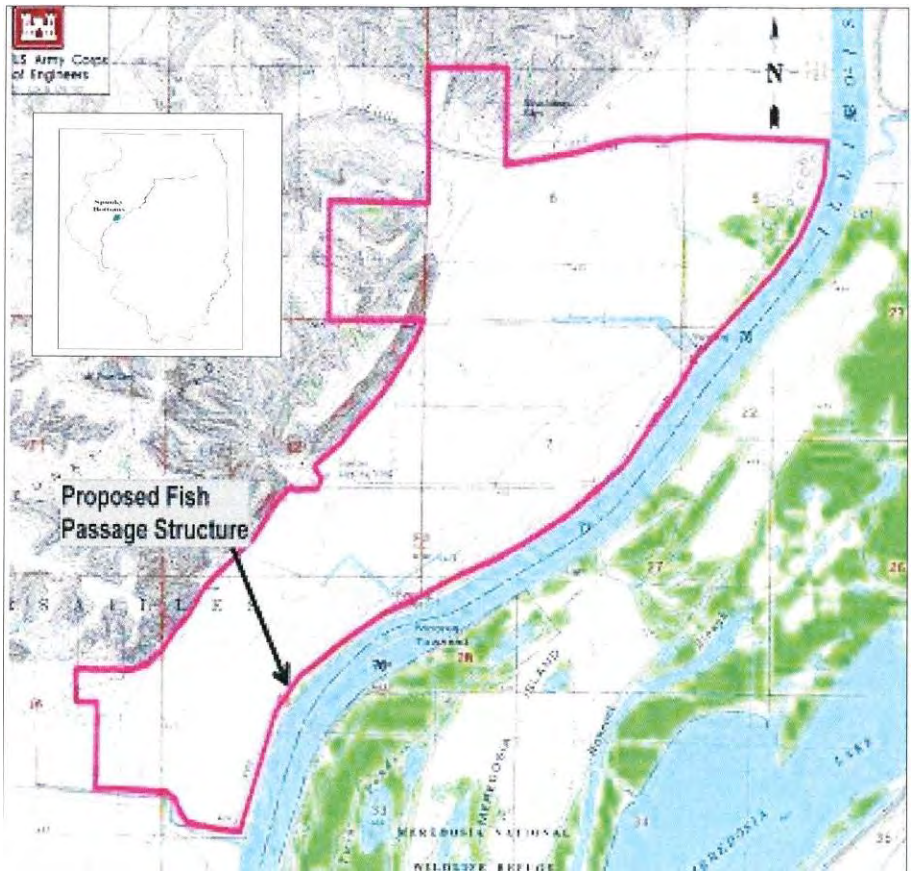


Figure 4
Topographic map of project area

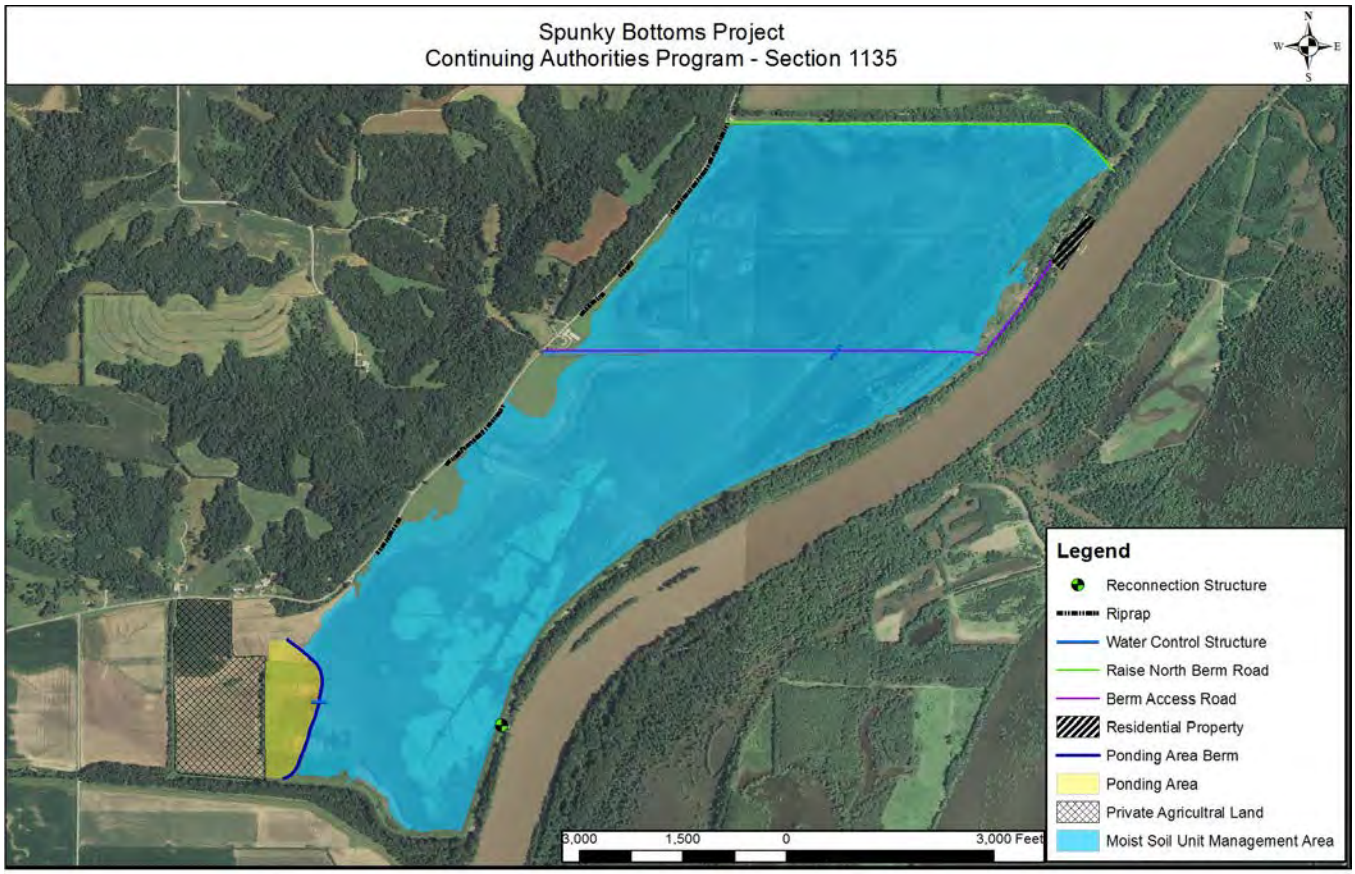


Figure 5
Project summary

III. User Provided Information

Site visits, records search, and personal interviews with persons familiar with the area and local hazardous response personnel revealed HTRW issues.

The environmental impact for the migration of off-site contaminants onto the project property is negligible. A Site Health and Safety Plan, and a Quality Control Plan should be required, discussed and implemented to avoid any environmental hazards.

IV. Records Review

For the purpose of this ESA, the following standard records sources were obtained and reviewed to assist in the identification of potential REC's in connection with this land exchange:

- Environmental Sources (Federal, State and Local, Tribal, and Proprietary)
- Historical Use

4.1 Environmental Sources

Commercially available environmental records were obtained and reviewed from Environmental Data Resources (EDR) Inc.

4.1.1 Federal Records

The following information sources (databases) were consulted and searched as a part of the federal agency review process:

a. United States Environmental Protection Agency's (USEPA) National Priorities List (NPL database – current and deleted sites);
b. USEPA Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS);
c. USEPA No Further Remedial Action Planned Sites (NFRAP);
d. USEPA Resource Conservation and Recovery Information System (RCRIS-LG)
e. USEPA Emergency Response Notification System (ERNS);
f. USDOT hazardous Materials Information Reporting System (HMIRS);
g. USEPA Corrective Action Report (CORRACTS);
h. USEPA Engineering Control Sites List (US ENG Controls, US INST CONTROL);
i. Department of Defense Sites (DOD);
j. Formerly Used Defense Sites (FUDS);
k. Brownfield Sites (US BROWNFIELDS);
l. USEPA Superfund (CERCLA) Consent Decrees (CONSENT);
m. USNTIS Records of Decision (ROD);
n. Uranium Mill Tailings Sites (UMTRA);
o. Open Dump Inventory (ODI);
p. USEPA Toxic Chemical Release Inventory System (TRIS);
q. USEPA Toxic Substances Control Act (TSCA);
r. Federal Insecticide, Fungicide, & Rodenticide Act (TSCA), FTTS;
s. Section 7 Tracking System, SSTS;
t. USEPA CERCLA Lien Information (LIENS 2);
u. Radiation Information Database RADINFO;
v. Clandestine Drug Labs CDL;
w. FIFRA/TSCA Tracking System Administration Case Listing HIST FTTS;
x. Integrated Compliance Information System ICIS;
y. Land Use Control Information System LUCIS;
z. Incident and Accident Data DOT OPS:
aa. USEPA PCB Activity Database System (PADS);
bb. USNRC Material Licensing Tracking System (MLTS);
cc. USDOL, MSHA Mines Master Index File (MINES);
dd. USEPA Facility Index System/Facility Identification Initiative Program

ee. Summary Report (FINDS);
ff. USEPA RECRA Administrative Action Tracking System (RAATS);
gg. RCRA-TSDF
hh. RCRA-LQG, RCRA-SQG, RCRA-CESQG & RCRA-NonGen

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). These records assist in meeting the requirements of EPA's Standards and Practices for All Appropriate Inquires (40 CFR Part 312), and the ASTM Standard Practice for Environmental Site Assessments (E 1527-05). For properties that contained inadequate address information for mapping purposes, reasonable efforts were made to identify the approximate location of the sites in relation to the target properties as part of the review process. In addition, the physical setting was assessed for the target properties by reviewing topographic maps to identify conditions in which hazardous substances or petroleum products could migrate. Refer to the site maps in Appendix A for the boundaries and description of said searches.

4.1.2 State and Local Records

The following information sources were consulted and searched as a part of the state and local agency review process:

a. Registry Annual Report MO HWS DETAIL
b. Solid and Hazrdous Waste Sites (SHWS);
c. Category List (IL CAT);
d. Solid Waste Facilities/Landfill Sites (SWF/LF);
e. Waste Management & Research Center Landfill Database (IL LF WMRC);
f. Underground Injection Wells (IL UIC);
g. Solid Waste Landfill Inventory (IL NIPC);
h. Solid Waste Facility Database List (MO HIST LF);
i. Leaking Underground Storage Tanks (LUST);
j. Underground Storage Tank Fund Payment Priority List (IL LUST TRUST);
k. Underground Storage Tanks (UST);
l. Aboveground Petroleum Storage Tanks (MO AST);
m. Leaking Aboveground Storage Tanks (MO LAST);
n. Spills and Rleases (SPILLS);
o. Listing of institutional and/or engineering controls (AUL);
p. Voluntary Remediation Program Sites (VCP);
q. Site Remediation Program Database (IL SRP);
r. Drycleaner Facility Listing (DRYCLEANERS);
s. Surface Impoundment Inventory (IL IMPDMENT);
t. Brownfields (IL BROWNFIELDS, MO BROWNFIELDS);
u. Environmental Emergency Response System (MO CDL):
v. Meth Drug Lab Site Listing (IL CDL);
w. Certified Hazardous Waste Resource Recovery Facilities (MO RRC);
x. Permited Facility Listing (NPDES);
y. Air Permits and Emissions Information (IL AIRS);

4.1.3 Tribal Records

a. Indian Reservations (INDIAN RESERV);
b. Leaking Underground Storage Tanks on Indian Land (INDIAN LUST);
c. Underground Storage Tanks on Indian Land (INDIAN UST);

4.1.4 Proprietary Records

EDR Proprietary Manufactured Gas Plants

4.1.5 Other Databases

a. Oil/Gas Pipelines
b. Electric Power Transmission Line Data
c. Sensitive Receptors (Schools, Hospitals, Nursing Homes, Daycare);
d. Flood Zone data
e. National Wetlands Inventory (NWI);

4.1.6 Results

No RECs were identified for this site from the records search/review presented above. The data packages reviewed are in Appendix A.

4.2 Historical Use Information

The following available historic information sources were obtained and reviewed: Historical aerial photographs for Spunky Bottoms from 1956, 1983, and 1998 were reviewed. Topographic maps for Spunky Bottoms from the years 1931, and 1980 were reviewed. No Sanborn maps were found for this area. Review of land use maps reveal that the majority of land adjacent to the project is rural and has been vacant or utilized as agriculture. Reviewed data is in Appendix B.

V. Site Reconnaissance

A site visit to Spunky Bottoms was conducted on May 18, 2011. Mr. Rick Archeski and Mr. Kevin Slattery of CEMVS-EC-HE participated in the site visit. Spunky Bottoms routinely floods from rising waters of the Illinois River.

In addition, the surrounding adjacent properties were also inspected as part of this survey. Photographs documenting the site visit are enclosed in Appendix C.

VI. Interviews

Interviews were conducted in order to obtain information indicating RECs in connection with this site. The content of the questions asked followed the questionnaire format of ASTM 1528. Interviews were conducted with the following persons:

- Kevin Slattery – COE Environmental Engineering
- Tharron Hobson – Nature Conservancy Land Manager
- Regan Ramsey - Illinois Department of Natural Resources

RECs were identified as result of these interviews. Mr. Tharron Hobson indicated that Roundup and anhydrous were used on the project site as well as on the adjacent agricultural property. Mr. Ragan Ramsey stated that the pump station on the IDNR property has an UST under the floor. Mr. Hobson stated that the pump station on the NC property only had AST's associated with its use.

VII. Findings

The project area contains sites of interest, which pose significant environmental concerns. The two pump stations with associated AST's and UST pose the most concern. The possible use of pesticides and herbicides on the project land and adjacent agricultural property appears to be of little concern as these products break down over time. Two previous Phase I's were conducted by ARDL Inc. for portions of these tracts in 2001 and 2003. Nine recognized environmental conditions (REC) were found in or adjacent to the project area. In addition, a Phase II was conducted in 2003 at the two pump stations. Chemical analysis revealed low level concentrations of volatile, semi-volatile, pesticide and herbicide compounds, and total metals in the soil. The majority of the detected volatile, semi-volatile, pesticide and herbicide compounds were below the 2003 Tier 1 Tiered Approach Corrective Action Objective (TACO) with the exception of naphthalene, benzo (a) anthracene, benzo (b) flouranthene, benzo (a) pyrene, indeno (1,2,3-cd) pyrene, heptachlor epoxide and dieldrin. The concentrations of detected total metals were considered to be in the range of normal background concentrations with the exception of barium, beryllium, cadmium, chromium, copper, iron, lead, mercury, nickel, selenium, thallium, vanadium, and zinc.

According to the National Response Center no incidences occurred on this site or on adjacent properties. The National Response Center Report is included in Appendix A. The site visit revealed evidence of recognized environmental conditions in connection with the property.

VIII. Opinion

A Phase I Environmental Site Assessment was conducted in conformance with the scope and limitations of ASTM Practice E for Spunky Bottoms. This assessment has revealed evidence of recognized environmental conditions in connection with the property. Therefore, a Phase II Environmental Site Assessment should be conducted in conjunction with the removal of the two pump stations and associated tanks and machinery. The possible use of pesticides and herbicides on the project land and adjacent

agricultural property appears to be of little concern as these products break down over time. In addition, because this area is routinely flooded debris such as drums containing hazardous material or petroleum products could be washed ashore. A contingency plan should be developed to handle these situations.

IX. Conclusions

A Phase I ESA was conducted in accordance with the scope and limitations of ASTM Practice E 1527 for Spunky Bottoms. The assessment has revealed RECs in connection with this site. The two pump stations with associated AST's and UST pose the most significant environmental concerns. These pump stations are propose to be removed as part of the project. As part of their removal site sampling should be conducted and this sampling can be used as a Phase II.

X. Limitations

U.S. Army Corps of Engineers, Environmental Quality Section, should be contacted with any known or suspected variations from the conditions described herein. If future development of the property indicates the presence of hazardous or toxic materials, USACE should be notified to perform a re-evaluation of the environmental conditions.

The scope of this assessment did not include any additional environmental investigation, not outlined herein, or analyses for the presence or absence of hazardous or toxic materials in the soil, ground water, surface water, or air, in on, under or above the subject tract.

This site assessment was performed in accordance with generally accepted practices of consultants undertaking similar studies at the same time and in the same geographical area, and USACE observed that degree of care and skill generally exercised by consultants under similar circumstances and conditions. The findings and conclusions stated herein must be considered not as scientific certainties, but rather as professional opinions concerning the significance of the limited data gathered during the course of the environmental site assessment. No other warranty, express or implied, is made.

Specifically, USACE does not and cannot represent that the site contains no hazardous waste or material, oil (including petroleum products), or other latent condition beyond that observed by USACE during its site assessment.

The observations described in this report were made under the conditions stated herein. The conclusions presented in the report were based solely upon the services described therein, and not on scientific tasks or procedure beyond the scope of described services or the time and budgetary constraints imposed by the client. Furthermore, such conclusions are based solely on site condition, and rules and regulations, which were in effect, at the time of the study.

In preparing this report, USACE relied on certain information provided by state and local officials and other parties referenced therein, and on information contained in the files of state and/or local agencies available to USACE at the time of the site assessment. Although there may have been some degree of overlap in the information provided by these various sources, an attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this site assessment was not made.

Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the site or to structures on the site was unavailable or limited, USACE renders no opinion as to the presence of indirect evidence relating to hazardous waste or material or oil, or other petroleum products in that portion of the site or structure. In addition, USACE renders no opinion as to the presence of hazardous waste or material, oil or other petroleum products or to the presence of indirect evidence relating to hazardous material, oil, or petroleum products where direct observation of the interior walls, floor, roof, or ceiling of a structure on a site was obstructed by objects or coverings on or over these surfaces.

Unless otherwise specified in the report, USACE did not perform testing or analyses to determine the presence or concentration of asbestos, radon, formaldehyde, lead-based paint, lead in drinking water, electromagnetic fields (EMFs) or polychlorinated biphenyls (PCBs) at the site or in the environment at the site.

The purpose of this report was to assess the physical characteristics of the subject site with respect to the presence in the environment of hazardous waste or material, oil, or petroleum products. Except as otherwise described in this report, no specific attempt was made to check on the compliance of present or past owners or operators of the site with federal, state, or local laws and regulations, environmental or otherwise.

XI References

- *E1527-05: Standard Practice for Environmental Site Assessments – Phase I Environmental Site Assessment Process, ASTM*

- *E1528-06: Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (interview questionnaire), ASTM*

XII Qualifications

USACE EC-HQ has the specific qualifications based on education, training and experience to assess a property of the nature, history, and setting of the subject properties and declare that, to the best of our professional knowledge and belief meet the definitions of Environmental Professionals as defined under 40 CFR 312.

XIII Appendices

Appendix A - EDR Database Search Report
Appendix B - Historic Records
Appendix C – Photographs

Appendix A
Environmental Records

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Spunky Bottoms
County Road 12
Versailles, IL 62378

Inquiry Number: 3065571.9s
May 12, 2011

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

FORM-PST-MXW

TABLE OF CONTENTS

SECTION	PAGE
Executive Summary	ES1
Overview Map	2
Detail Map	3
Map Findings Summary	4
Map Findings	7
Orphan Summary	8
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	A-12

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

COUNTY ROAD 12
VERSAILLES, IL 62378

COORDINATES

Latitude (North):	39.902700 - 39° 54' 9.7"
Longitude (West):	90.566000 - 90° 33' 57.6"
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	708076.8
UTM Y (Meters):	4419584.0
Elevation:	429 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	39090-H5 COOPERSTOWN, IL
Most Recent Revision:	1980

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

EXECUTIVE SUMMARY

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent CERCLIS

SSU..... State Sites Unit Listing

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Available Disposal for Solid Waste in Illinois - Solid Waste Landfills Subject to State Surcharge
LF SPECIAL WASTE..... Special Waste Site List
IL NIPC..... Solid Waste Landfill Inventory
CCDD..... Clean Construction or Demolition Debris

State and tribal leaking storage tank lists

LUST..... Leaking Underground Storage Tank Sites
LUST TRUST..... Underground Storage Tank Fund Payment Priority List
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Underground Storage Tank Facility List
INDIAN UST..... Underground Storage Tanks on Indian Land

FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS..... Sites with Engineering Controls
INST CONTROL..... Institutional Controls

State and tribal voluntary cleanup sites

SRP..... Site Remediation Program Database
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Municipal Brownfields Redevelopment Grant Program Project Descriptions

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
CDL..... Meth Drug Lab Site Listing
US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information
LUCIS..... Land Use Control Information System

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
SPILLS..... State spills

Other Ascertainable Records

RCRA-NonGen..... RCRA - Non Generators
DOT OPS..... Incident and Accident Data
DOD..... Department of Defense Sites
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
MINES..... Mines Master Index File

EXECUTIVE SUMMARY

TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
UIC	Underground Injection Wells
NPDES	A Listing of Active Permits
DRYCLEANERS	Illinois Licensed Drycleaners
IMPDMENT	Surface Impoundment Inventory
AIRS	AIRS
TIER 2	Tier 2 Information Listing
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
PCB TRANSFORMER	PCB Transformer Registration Database
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
COAL ASH DOE	Sleam-Electric Plan Operation Data
PIMW	Potentially Infectious Medical Waste
FINANCIAL ASSURANCE	Financial Assurance Information Listing

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

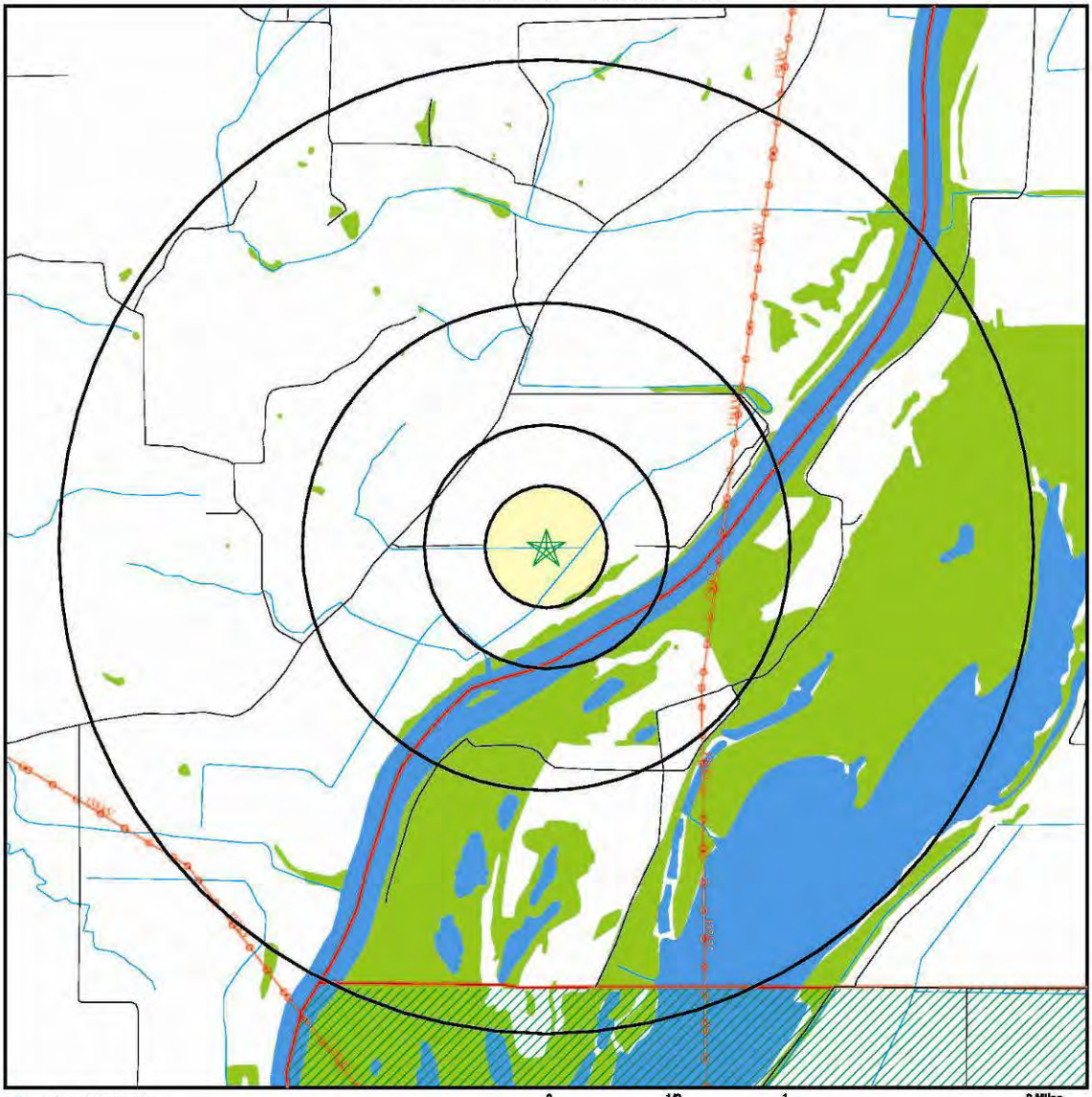
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 19 records.

Site Name	Database(s)
BEARDSTOWN, CITY OF	SWF/LF
TRAVIS, HELM	SWF/LF
VERSAILLES TWP #1	SWF/LF
MARKERT, HAROLD	SWF/LF
ANDREW'S MART	UST
MCCORMICK GARY E	UST
J-M TIRE SER	UST
SQEEKY CLEAN CAR WASH	UST
TWO RIVERS FS, INC.	UST
BUS GARAGE AREA BROUN CO H SCH	UST
RON TIRE SER	UST
LOGSDON JAMES D	UST
JUDYS DINER	UST
CROP PRODUCTION SERVICES	RCRA-SQG
WAL-MART STORE 06 1451	RCRA-NonGen, FINDS
TRINITY INDUSTRIES INC	RCRA-NonGen, FINDS
BROWN CNTY UNIT NO 1	RCRA-NonGen, FINDS
RIVER VALLEY ROD SHOP	RCRA-CESQG
ARMY COE LOCK DAM 08	RCRA-CESQG

OVERVIEW MAP - 3065571.9s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- County Boundary
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

0 1/2 1 2 Miles

SITE NAME: Spunky Bottoms ADDRESS: County Road 12 Versailles IL 62378 LAT/LONG: 39.9027 / -90.5660	CLIENT: U.S. Army Corps of Engineers CONTACT: Rick Archeski INQUIRY #: 3065571.9s DATE: May 12, 2011 8:32 am

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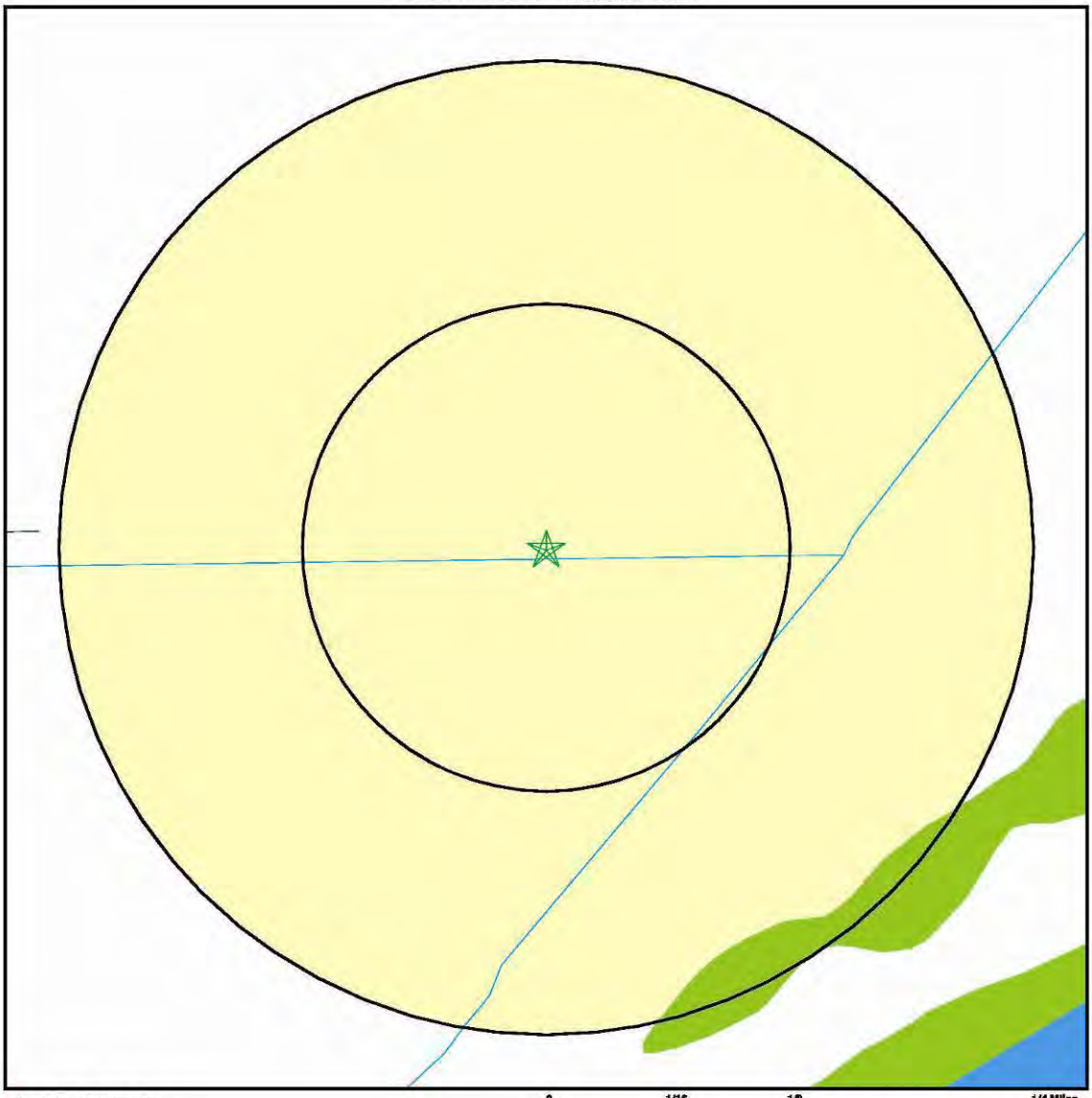
DETAIL MAP - 3065571.9s



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- National Wetland Inventory

0 1/16 1/8 1/4 Miles

SITE NAME: Spunky Bottoms ADDRESS: County Road 12 Versailles IL 62378 LAT/LONG: 39.9027 / -90.5660	CLIENT: U.S. Army Corps of Engineers CONTACT: Rick Archeski INQUIRY #: 3065571.9s DATE: May 12, 2011 8:33 am

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MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL		2.000	0	0	0	0	0	0
Proposed NPL		2.000	0	0	0	0	0	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL		2.000	0	0	0	0	0	0
Federal CERCLIS list								
CERCLIS		2.000	0	0	0	0	0	0
FEDERAL FACILITY		2.000	0	0	0	0	0	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP		2.000	0	0	0	0	0	0
Federal RCRA CORRACTS facilities list								
CORRACTS		2.000	0	0	0	0	0	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF		2.000	0	0	0	0	0	0
Federal RCRA generators list								
RCRA-LQG		2.000	0	0	0	0	0	0
RCRA-SQG		2.000	0	0	0	0	0	0
RCRA-CESQG		2.000	0	0	0	0	0	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS		2.000	0	0	0	0	0	0
US INST CONTROL		2.000	0	0	0	0	0	0
Federal ERNS list								
ERNS		TP	NR	NR	NR	NR	NR	0
State- and tribal - equivalent CERCLIS								
SSU		2.000	0	0	0	0	0	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF		2.000	0	0	0	0	0	0
LF SPECIAL WASTE		2.000	0	0	0	0	0	0
IL NIPC		2.000	0	0	0	0	0	0
CCDD		2.000	0	0	0	0	0	0
State and tribal leaking storage tank lists								
LUST		2.000	0	0	0	0	0	0
LUST TRUST		2.000	0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN LUST		2.000	0	0	0	0	0	0
State and tribal registered storage tank lists								
UST		2.000	0	0	0	0	0	0
INDIAN UST		2.000	0	0	0	0	0	0
FEMA UST		2.000	0	0	0	0	0	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS		2.000	0	0	0	0	0	0
INST CONTROL		2.000	0	0	0	0	0	0
State and tribal voluntary cleanup sites								
SRP		2.000	0	0	0	0	0	0
INDIAN VCP		2.000	0	0	0	0	0	0
State and tribal Brownfields sites								
BROWNFIELDS		2.000	0	0	0	0	0	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS		2.000	0	0	0	0	0	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI		2.000	0	0	0	0	0	0
DEBRIS REGION 9		2.000	0	0	0	0	0	0
INDIAN ODI		2.000	0	0	0	0	0	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
US HIST CDL		TP	NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2		TP	NR	NR	NR	NR	NR	0
LUCIS		2.000	0	0	0	0	0	0
Records of Emergency Release Reports								
HMIRS		TP	NR	NR	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA-NonGen		2.000	0	0	0	0	0	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
DOD		2.000	0	0	0	0	0	0
FUDS		2.000	0	0	0	0	0	0
CONSENT		2.000	0	0	0	0	0	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
ROD		2.000	0	0	0	0	0	0
UMTRA		2.000	0	0	0	0	0	0
MINES		2.000	0	0	0	0	0	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
UIC		TP	NR	NR	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
DRYCLEANERS		2.000	0	0	0	0	0	0
IMPDMENT		2.000	0	0	0	0	0	0
AIRS		TP	NR	NR	NR	NR	NR	0
TIER 2		TP	NR	NR	NR	NR	NR	0
INDIAN RESERV		2.000	0	0	0	0	0	0
SCRD DRYCLEANERS		2.000	0	0	0	0	0	0
PCB TRANSFORMER		TP	NR	NR	NR	NR	NR	0
COAL ASH EPA		2.000	0	0	0	0	0	0
COAL ASH DOE		TP	NR	NR	NR	NR	NR	0
PIMW		2.000	0	0	0	0	0	0
FINANCIAL ASSURANCE		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
EDR Proprietary Records								
Manufactured Gas Plants		2.000	0	0	0	0	0	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

NO SITES FOUND

Count: 19 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
BEARDSTOWN	U003971672	ANDREW'S MART	1705TH GRAND AVE & RT 125	62618	UST
BEARDSTOWN	S108110746	BEARDSTOWN, CITY OF	1ST & 2M OF S	62618	SWF/LF
BEARDSTOWN	1004694763	WAL-MART STORE 06 1451	RT 2	62618	RCRA-NonGen, FINDS
BEARDSTOWN	1010784297	RIVER VALLEY ROD SHOP	6925 RT 67	62618	RCRA-CESQG
BEARDSTOWN	1000316461	TRINITY INDUSTRIES INC.	BUSINESS ROUTE 67 EAST	62618	RCRA-NonGen, FINDS
MEREDOSIA	U001139295	MCCORMICK GARY E	HWY 104	62665	UST
MEREDOSIA	U001139293	J-M TIRE SER	RT 104	62665	UST
MEREDOSIA	U001139300	SQEEKY CLEAN CAR WASH	RT 104	62665	UST
MOUNT STERLING	U001964821	TWO RIVERS FS, INC.	RT 24 E	62353	UST
MOUNT STERLING	U001964801	BUS GARAGE AREA BROUN CO H SCH	RT 24 E	62353	UST
MOUNT STERLING	U001964819	RON TIRE SER	JUNCT 99 & RT 4	62353	UST
MT STERLING	1014390192	CROP PRODUCTION SERVICES	RT 24 W	62353	RCRA-SQG
MT STERLING	1001078968	BROWN CNTY UNIT NO 1	RTE 24 E	62353	RCRA-NonGen, FINDS
RIPLEY	U001964873	LOGSDON JAMES D	RT 3	62353	UST
RIPLEY	S108113277	TRAVIS, HELM	RR	62353	SWF/LF
VERSAILLES	S108113358	VERSAILLES TWP #1	RR 1	62378	SWF/LF
VERSAILLES	U001964942	JUDYS DINER	RT 99	62378	UST
VERSAILLES	1004695026	ARMY COE LOCK DAM 08	FAS RTE 582	62378	RCRA-CESQG
VERSAILLES	S108112250	MARKERT, HAROLD	RR	62378	SWF/LF

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 12/31/2010	Source: EPA
Date Data Arrived at EDR: 01/13/2011	Telephone: N/A
Date Made Active in Reports: 01/28/2011	Last EDR Contact: 04/13/2011
Number of Days to Update: 15	Next Scheduled EDR Contact: 07/25/2011
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1 Telephone 617-918-1143	EPA Region 6 Telephone: 214-655-6659
EPA Region 3 Telephone 215-814-5418	EPA Region 7 Telephone: 913-551-7247
EPA Region 4 Telephone 404-562-8033	EPA Region 8 Telephone: 303-312-6774
EPA Region 5 Telephone 312-886-6686	EPA Region 9 Telephone: 415-947-4246
EPA Region 10 Telephone 206-553-8665	

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 12/31/2010	Source: EPA
Date Data Arrived at EDR: 01/13/2011	Telephone: N/A
Date Made Active in Reports: 01/28/2011	Last EDR Contact: 04/13/2011
Number of Days to Update: 15	Next Scheduled EDR Contact: 07/25/2011
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 02/14/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 05/30/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/31/2010	Source: EPA
Date Data Arrived at EDR: 01/13/2011	Telephone: N/A
Date Made Active in Reports: 01/28/2011	Last EDR Contact: 04/13/2011
Number of Days to Update: 15	Next Scheduled EDR Contact: 07/25/2011
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/25/2011	Source: EPA
Date Data Arrived at EDR: 03/01/2011	Telephone: 703-412-9810
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 04/29/2011
Number of Days to Update: 62	Next Scheduled EDR Contact: 06/13/2011
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing
A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPAa??s Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 12/10/2010	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/11/2011	Telephone: 703-603-8704
Date Made Active in Reports: 02/16/2011	Last EDR Contact: 04/15/2011
Number of Days to Update: 36	Next Scheduled EDR Contact: 07/25/2011
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/25/2011	Source: EPA
Date Data Arrived at EDR: 03/01/2011	Telephone: 703-412-9810
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 04/29/2011
Number of Days to Update: 62	Next Scheduled EDR Contact: 06/13/2011
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 05/25/2010
Date Data Arrived at EDR: 06/02/2010
Date Made Active in Reports: 10/04/2010
Number of Days to Update: 124

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 02/14/2011
Next Scheduled EDR Contact: 05/30/2011
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 312-886-6186
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 312-886-6186
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 312-886-6186
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 03/11/2011
Date Data Arrived at EDR: 04/05/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 312-886-6186
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List
A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls
A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/05/2011
Date Data Arrived at EDR: 01/14/2011
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 01/07/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 73

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SSU: State Sites Unit Listing
The State Response Action Program database identifies the status of all sites under the responsibility of the Illinois EPA's State Sites Unit.

Date of Government Version: 03/08/2011
Date Data Arrived at EDR: 03/16/2011
Date Made Active in Reports: 04/06/2011
Number of Days to Update: 21

Source: Illinois Environmental Protection Agency
Telephone: 217-524-4826
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

LF WMRC: Waste Management & Research Center Landfill Database
The Waste Management & Research Center Landfill Database includes records from the Department of Public Health, Department of Mines & Minerals, Illinois Environmental Protection Agency, State Geological Survey, Northeastern Illinois Planning Commission and Pollution Control Board.

Date of Government Version: 12/31/2001
Date Data Arrived at EDR: 10/06/2006
Date Made Active in Reports: 11/06/2006
Number of Days to Update: 31

Source: Department of Natural Resources
Telephone: 217-333-8940
Last EDR Contact: 09/18/2009
Next Scheduled EDR Contact: 12/28/2009
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Available Disposal for Solid Waste in Illinois - Solid Waste Landfills Subject to State Surcharge
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 03/02/2010
Date Made Active in Reports: 04/07/2010
Number of Days to Update: 36

Source: Illinois Environmental Protection Agency
Telephone: 217-785-8604
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Annually

LF SPECIAL WASTE: Special Waste Site List
These landfills, as of January 1, 1990, accept non-hazardous special waste pursuant to the Illinois EPA Non-Hazardous Special Waste Definition. List A includes landfills that may receive any non-hazardous waste, Non-Regional Pollution Control Facilities are so noted. List B includes landfills designed to receive specific non-hazardous wastes. List B landfills are designated as a Regional Pollution Control Facility by RPCF, or Non-Regional Pollution Control Facility by Non-RPCF.

Date of Government Version: 01/01/1990
Date Data Arrived at EDR: 06/17/2009
Date Made Active in Reports: 07/15/2009
Number of Days to Update: 28

Source: Illinois EPA
Telephone: 217-782-9288
Last EDR Contact: 06/10/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

IL NIPC: Solid Waste Landfill Inventory
Solid Waste Landfill Inventory. NIPC is an inventory of active and inactive solid waste disposal sites, based on state, local government and historical archive data. Included are numerous sites which previously had never been identified largely because there was no obligation to register such sites prior to 1971.

Date of Government Version: 08/01/1988
Date Data Arrived at EDR: 08/01/1994
Date Made Active in Reports: 08/12/1994
Number of Days to Update: 11

Source: Northeastern Illinois Planning Commission
Telephone: 312-454-0400
Last EDR Contact: 05/23/2006
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CCDD: Clean Construction or Demolition Debris
Construction and demolition (C and D) debris is nonhazardous, uncontaminated material resulting from construction, remodeling, repair, or demolition of utilities, structures, and roads.

Date of Government Version: 01/10/2011
Date Data Arrived at EDR: 02/03/2011
Date Made Active in Reports: 02/17/2011
Number of Days to Update: 14

Source: Illinois EPA
Telephone: 217-524-3300
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Sites
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 04/06/2011
Number of Days to Update: 27

Source: Illinois Environmental Protection Agency
Telephone: 217-782-6762
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

LUST TRUST: Underground Storage Tank Fund Payment Prioirty List
In case sufficient funds are not available in the Underground Storage Tank Fund, requests for payment are entered on the Payment Priority List by "queue date" order. As required by the Environmental Protection Act, the queue date is the date that a complete request for partial or final payment was received by the Agency. The queue date is "officially" confirmed at the end of the payment review process when a Final Decision Letter is sent to the site owner.

Date of Government Version: 01/14/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 02/17/2011
Number of Days to Update: 16

Source: Illinois EPA
Telephone: 217-782-6762
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 11/05/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 84

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 11/04/2009
Date Data Arrived at EDR: 05/04/2010
Date Made Active in Reports: 07/07/2010
Number of Days to Update: 64

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 05/04/2010
Next Scheduled EDR Contact: 05/16/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Facility List
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 02/03/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 02/17/2011
Number of Days to Update: 13

Source: Illinois State Fire Marshal
Telephone: 217-785-0969
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 03/03/2011
Date Data Arrived at EDR: 03/18/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 45

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Semi-Annually

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 48

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 02/04/2011
Date Data Arrived at EDR: 02/04/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 45

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Quarterly

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 01/01/2011
Date Data Arrived at EDR: 02/23/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 68

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 11/01/2010	Source: EPA Region 7
Date Data Arrived at EDR: 12/02/2010	Telephone: 913-551-7003
Date Made Active in Reports: 01/28/2011	Last EDR Contact: 02/03/2011
Number of Days to Update: 57	Next Scheduled EDR Contact: 05/16/2011
	Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 02/03/2011	Source: EPA Region 6
Date Data Arrived at EDR: 02/04/2011	Telephone: 214-665-7591
Date Made Active in Reports: 03/21/2011	Last EDR Contact: 05/02/2011
Number of Days to Update: 45	Next Scheduled EDR Contact: 08/15/2011
	Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/01/2010	Source: EPA, Region 1
Date Data Arrived at EDR: 11/05/2010	Telephone: 617-918-1313
Date Made Active in Reports: 01/28/2011	Last EDR Contact: 05/03/2011
Number of Days to Update: 84	Next Scheduled EDR Contact: 08/15/2011
	Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/03/2011	Source: EPA Region 10
Date Data Arrived at EDR: 02/04/2011	Telephone: 206-553-2857
Date Made Active in Reports: 03/21/2011	Last EDR Contact: 05/02/2011
Number of Days to Update: 45	Next Scheduled EDR Contact: 08/15/2011
	Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 04/18/2011
Number of Days to Update: 55	Next Scheduled EDR Contact: 08/01/2011
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Sites with Engineering Controls
Sites using of engineered barriers (e.g., asphalt or concrete paving).

Date of Government Version: 03/04/2011	Source: Illinois Environmental Protection Agency
Date Data Arrived at EDR: 03/10/2011	Telephone: 217-782-6761
Date Made Active in Reports: 04/06/2011	Last EDR Contact: 04/26/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 08/08/2011
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Inst Control: Institutional Controls
Legal or administrative restrictions on land use and/or other activities (e.g., groundwater use restrictions) which effectively limit exposure to contamination may be employed as alternatives to removal or treatment of contamination.

Date of Government Version: 03/04/2011
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 04/06/2011
Number of Days to Update: 27

Source: Illinois Environmental Protection Agency
Telephone: 217-782-6761
Last EDR Contact: 04/26/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Quarterly

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/01/2010
Date Data Arrived at EDR: 01/05/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 75

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 04/05/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

SRP: Site Remediation Program Database
The database identifies the status of all voluntary remediation projects administered through the pre-notice site cleanup program (1989 to 1995) and the site remediation program (1996 to the present).

Date of Government Version: 03/04/2011
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 04/06/2011
Number of Days to Update: 27

Source: Illinois Environmental Protection Agency
Telephone: 217-785-9407
Last EDR Contact: 04/26/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Semi-Annually

State and tribal Brownfields sites

BROWNFIELDS: Municipal Brownfields Redevelopment Grant Program Project Descriptions
The Illinois Municipal Brownfields Redevelopment Grant Program (MBRGP) offers grants worth a maximum of $240,000 each to municipalities to assist in site investigation activities, development of cleanup objectives, and performance of cleanup activities. Brownfields are abandoned or underused industrial and/or commercial properties that are contaminated (or thought to be contaminated) and have an active potential for redevelopment.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/08/2011
Date Made Active in Reports: 04/06/2011
Number of Days to Update: 29

Source: Illinois Environmental Protection Agency
Telephone: 217-785-3486
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

BROWNFIELDS: Redevelopment Assessment Database
The Office of Site Evaluations Redevelopment Assessment database identifies the status of all properties within the State in which the Illinois EPA's Office of Site Evaluation has conducted a municipal Brownfield Redevelopment Assessment.

Date of Government Version: 01/31/2011
Date Data Arrived at EDR: 02/01/2011
Date Made Active in Reports: 02/17/2011
Number of Days to Update: 16

Source: Illinois Environmental Protection Agency
Telephone: 217-524-1658
Last EDR Contact: 05/03/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 12/29/2010
Date Data Arrived at EDR: 12/30/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 81

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/22/2011
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 02/02/2011	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 03/17/2011	Telephone: 202-307-1000
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 03/08/2011
Number of Days to Update: 46	Next Scheduled EDR Contact: 06/20/2011
	Data Release Frequency: Quarterly

CDL: Meth Drug Lab Site Listing

A listing of clandestine/meth drug lab locations.

Date of Government Version: 01/20/2011	Source: Department of Public Health
Date Data Arrived at EDR: 01/21/2011	Telephone: 217-782-5750
Date Made Active in Reports: 02/17/2011	Last EDR Contact: 04/18/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 08/01/2011
	Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 11/19/2008	Telephone: 202-307-1000
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 03/23/2009
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/22/2009
	Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/04/2011	Telephone: 202-564-6023
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 05/02/2011
Number of Days to Update: 87	Next Scheduled EDR Contact: 08/15/2011
	Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005	Source: Department of the Navy
Date Data Arrived at EDR: 12/11/2006	Telephone: 843-820-7326
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 02/22/2011
Number of Days to Update: 31	Next Scheduled EDR Contact: 06/06/2011
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2010	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 01/05/2011	Telephone: 202-366-4555
Date Made Active in Reports: 02/25/2011	Last EDR Contact: 04/05/2011
Number of Days to Update: 51	Next Scheduled EDR Contact: 07/18/2011
	Data Release Frequency: Annually

SPILLS: State spills
A listing of incidents reported to the Office of Emergency Response.

Date of Government Version: 01/18/2011	Source: Illinois EPA
Date Data Arrived at EDR: 01/21/2011	Telephone: 217-558-1677
Date Made Active in Reports: 02/17/2011	Last EDR Contact: 04/18/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 08/01/2011
	Data Release Frequency: Varies

Other Ascertainable Records

RCRA-NonGen: RCRA - Non Generators
RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 03/11/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/05/2011	Telephone: 312-886-6186
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 04/05/2011
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/18/2011
	Data Release Frequency: Varies

DOT OPS: Incident and Accident Data
Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/12/2011	Source: Department of Transporation, Office of Pipeline Safety
Date Data Arrived at EDR: 02/11/2011	Telephone: 202-366-4595
Date Made Active in Reports: 05/02/2011	Last EDR Contact: 05/11/2011
Number of Days to Update: 80	Next Scheduled EDR Contact: 08/22/2011
	Data Release Frequency: Varies

DOD: Department of Defense Sites
This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 703-692-8801
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 04/21/2011
Number of Days to Update: 62	Next Scheduled EDR Contact: 08/01/2011
	Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites
The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2009	Source: U.S. Army Corps of Engineers
Date Data Arrived at EDR: 08/12/2010	Telephone: 202-528-4285
Date Made Active in Reports: 12/02/2010	Last EDR Contact: 03/15/2011
Number of Days to Update: 112	Next Scheduled EDR Contact: 06/27/2011
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CONSENT: Superfund (CERCLA) Consent Decrees
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 10/01/2010
Date Data Arrived at EDR: 10/29/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 91

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/18/2011
Data Release Frequency: Varies

ROD: Records Of Decision
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 02/25/2011
Date Data Arrived at EDR: 03/16/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 5

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/16/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites
Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/21/2010
Date Made Active in Reports: 01/28/2011
Number of Days to Update: 99

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 03/04/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Varies

MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/08/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/09/2011
Next Scheduled EDR Contact: 06/20/2011
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/17/2010
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 94

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 05/02/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 01/07/2011
Date Data Arrived at EDR: 01/21/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 59

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 03/28/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2010
Date Data Arrived at EDR: 11/10/2010
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 98

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 04/22/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/18/2010
Date Data Arrived at EDR: 04/06/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 51

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/11/2011
Date Data Arrived at EDR: 01/13/2011
Date Made Active in Reports: 02/16/2011
Number of Days to Update: 34

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 04/13/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/14/2010
Date Data Arrived at EDR: 04/16/2010
Date Made Active in Reports: 05/27/2010
Number of Days to Update: 41

Source: EPA
Telephone: (312) 353-2000
Last EDR Contact: 03/14/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 62

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/01/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Biennially

UIC: Underground Injection Wells

Injection wells are used for disposal of fluids by "injection" into the subsurface. The construction of injection wells range from very technical designs with twenty-four hour monitoring to simply a hole dug in the ground to control runoff. As a result of this diversity, the UIC Program divides injection wells into five different classes.

Date of Government Version: 03/09/2011
Date Data Arrived at EDR: 03/29/2011
Date Made Active in Reports: 04/26/2011
Number of Days to Update: 28

Source: Illinois EPA
Telephone: 217-782-9878
Last EDR Contact: 03/21/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Varies

NPDES: A Listing of Active Permits

A listing of facilities currently active in the state. The types of permits are public, private, federal and state.

Date of Government Version: 04/12/2011
Date Data Arrived at EDR: 04/12/2011
Date Made Active in Reports: 04/26/2011
Number of Days to Update: 14

Source: Illinois EPA
Telephone: 217-782-0610
Last EDR Contact: 04/11/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Varies

DRYCLEANERS: Illinois Licensed Drycleaners

Any retail drycleaning facility in Illinois must apply for a license through the Illinois Drycleaner Environmental Response Trust Fund. Drycleaner Environmental Response Trust Fund of Illinois.

Date of Government Version: 02/27/2011
Date Data Arrived at EDR: 03/01/2011
Date Made Active in Reports: 03/31/2011
Number of Days to Update: 30

Source: Drycleaner Environmental Response Trust Fund of Illinois
Telephone: 800-765-4041
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Varies

IMPDMENT: Surface Impoundment Inventory

Statewide inventory of industrial, municipal, mining, oil & gas , and large agricultural impoundment. This study was conducted by the Illinois EPA to assess potentail for contamination of shallow aquifers. This was a one-time study. Although many of the impoundments may no longer be present, the sites may be contaminated.

Date of Government Version: 12/31/1980
Date Data Arrived at EDR: 03/08/2002
Date Made Active in Reports: 06/03/2002
Number of Days to Update: 87

Source: Illinois Waste Management & Research Center
Telephone: 217-333-8940
Last EDR Contact: 02/20/2002
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

AIRS: AIRS

A listing of air permits and emissions information.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 04/15/2011
Date Made Active in Reports: 04/26/2011
Number of Days to Update: 11

Source: Illinois EPA
Telephone: 217-557-0314
Last EDR Contact: 04/11/2011
Next Scheduled EDR Contact: 07/25/2011
Data Release Frequency: Varies

TIER 2: Tier 2 Information Listing
A listing of facilities which store or manufacture hazardous materials and submit a chemical inventory report.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/20/2010
Date Made Active in Reports: 07/30/2010
Number of Days to Update: 10

Source: Illinois Emergency Management Agency
Telephone: 217-785-9860
Last EDR Contact: 02/22/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Annually

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing
The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 05/09/2011
Next Scheduled EDR Contact: 08/08/2011
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 04/21/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: N/A

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 01/01/2008
Date Data Arrived at EDR: 02/18/2009
Date Made Active in Reports: 05/29/2009
Number of Days to Update: 100

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 05/05/2011
Next Scheduled EDR Contact: 08/15/2011
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/18/2011
Next Scheduled EDR Contact: 06/27/2011
Data Release Frequency: Varies

COAL ASH DOE: Steam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 04/19/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Varies

PIMW: Potentially Infectious Medical Waste
Potentially Infectious Medical Waste (PIMW) is waste generated in connection with the diagnosis, treatment (i.e., provision of medical services), or immunization of human beings or animals; research pertaining to the provision of medical services; or the provision or testing of biologicals.

Date of Government Version: 03/29/2011
Date Data Arrived at EDR: 03/31/2011
Date Made Active in Reports: 04/26/2011
Number of Days to Update: 26

Source: Illinois EPA
Telephone: 217-524-3289
Last EDR Contact: 03/29/2011
Next Scheduled EDR Contact: 07/11/2011
Data Release Frequency: Varies

FINANCIAL ASSURANCE: Financial Assurance Information Listing
Information for hazardous waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 06/01/2010
Date Data Arrived at EDR: 06/03/2010
Date Made Active in Reports: 07/14/2010
Number of Days to Update: 41

Source: Illinois Environmental Protection Agency
Telephone: 217-782-9887
Last EDR Contact: 06/02/2010
Next Scheduled EDR Contact: 09/13/2010
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

EDR Proprietary Records

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 12/31/2007
Date Data Arrived at EDR: 08/26/2009
Date Made Active in Reports: 09/11/2009
Number of Days to Update: 16

Source: Department of Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/25/2011
Next Scheduled EDR Contact: 06/06/2011
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/22/2010
Date Made Active in Reports: 08/26/2010
Number of Days to Update: 35

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/19/2011
Next Scheduled EDR Contact: 08/01/2011
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 02/09/2011
Date Made Active in Reports: 03/04/2011
Number of Days to Update: 23

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 02/09/2011
Next Scheduled EDR Contact: 05/23/2011
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2008
Date Data Arrived at EDR: 12/01/2009
Date Made Active in Reports: 12/14/2009
Number of Days to Update: 13

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 04/04/2011
Next Scheduled EDR Contact: 07/06/2011
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/19/2010
Date Made Active in Reports: 08/26/2010
Number of Days to Update: 38

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/28/2011
Next Scheduled EDR Contact: 06/13/2011
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 07/06/2010
Date Made Active in Reports: 07/26/2010
Number of Days to Update: 20

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/21/2011
Next Scheduled EDR Contact: 07/04/2011
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Homes & Centers Listing
Source: Department of Children & Family Services
Telephone: 312-814-4150

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

SPUNKY BOTTOMS
COUNTY ROAD 12
VERSAILLES, IL 62378

TARGET PROPERTY COORDINATES

Latitude (North):	39.9027 - 39' 54' 9.7"
Longitude (West):	90.566 - 90" 33' 57.6"
Universal Tranverse Mercator:	Zone 15
UTM X (Meters):	708076.8
UTM Y (Meters):	4419584.0
Elevation:	429 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	39090-H5 COOPERSTOWN, IL
Most Recent Revision:	1980

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

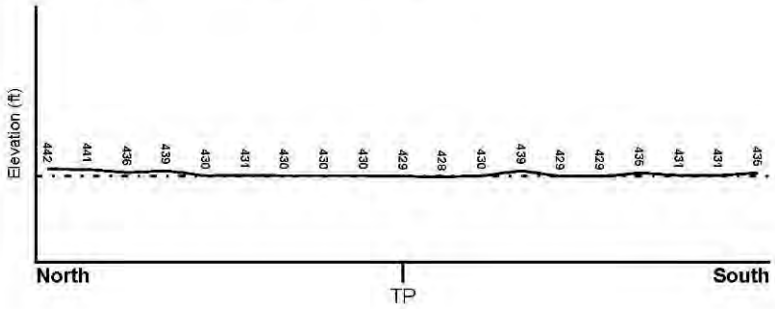
TOPOGRAPHIC INFORMATION

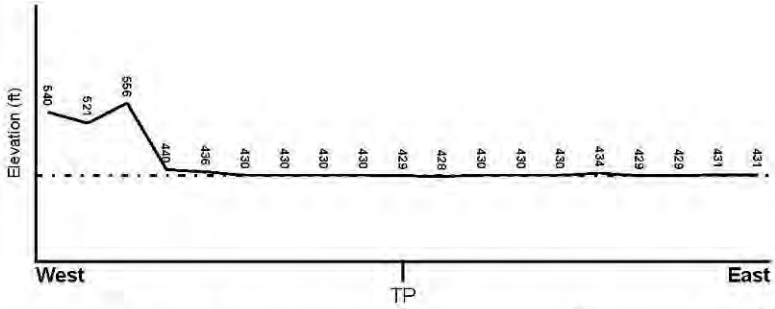
Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General West

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES





Target Property Elevation: 429 ft.

0 1/2 1 Miles

Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
BROWN, IL	Not Available

Flood Plain Panel at Target Property: Not Reported

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
COOPERSTOWN	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius: 1.25 miles
Status: Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1998 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT		GEOLOGIC AGE IDENTIFICATION	
Era:	Paleozoic	Category:	Stratified Sequence
System:	Mississippian		
Series:	Osagean and Kinderhookian Series		
Code:	M1 *(decoded above as Era, System & Series)*		

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	BEAUCOUP
Soil Surface Texture:	silty clay loam
Hydrologic Group:	Class B/D - Drained/undrained hydrology class of soils that can be drained and are classified.
Soil Drainage Class:	Not reported

Hydric Status: Soil meets the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel:	HIGH
Depth to Bedrock Min:	> 60 inches
Depth to Bedrock Max:	> 60 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	15 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.60 Min: 0.20	Max: 7.80 Min: 5.60
2	15 inches	35 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.60 Min: 0.20	Max: 7.80 Min: 5.60
3	35 inches	48 inches	stratified	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.60 Min: 0.20	Max: 7.80 Min: 5.60
4	48 inches	60 inches	stratified	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.60 Min: 0.20	Max: 8.40 Min: 6.10

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silt loam
clay loam
silty clay
fine sandy loam

Surficial Soil Types: silt loam
clay loam
silty clay
fine sandy loam

Shallow Soil Types: silt loam
clay loam

Deeper Soil Types: silt loam
silty clay loam
clay

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	2.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	2.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

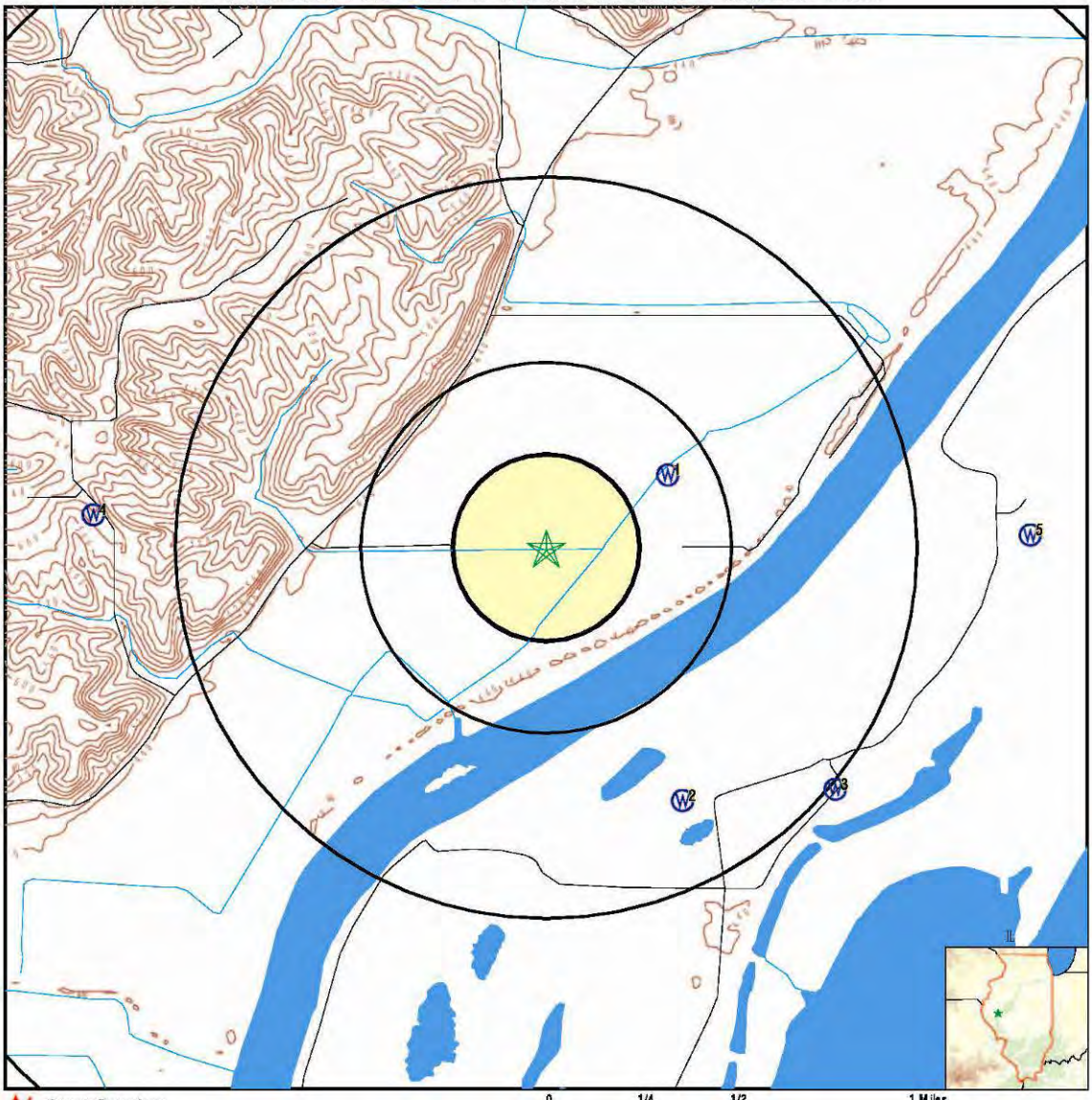
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	ILSG10000079626	1/4 - 1/2 Mile ENE
2	ILSG10000078976	1/2 - 1 Mile SSE
3	ILSG10000078997	1 - 2 Miles SE
4	ILSG10000079540	1 - 2 Miles West
5	ILSG10000079484	1 - 2 Miles East
6	ILSG10000080872	1 - 2 Miles North

PHYSICAL SETTING SOURCE MAP - 3065571.9s



County Boundary
Major Roads
Contour Lines
Earthquake epicenter, Richter 5 or greater
Water Wells
Public Water Supply Wells
Cluster of Multiple Icons

0 1/4 1/2 1 Miles

Groundwater Flow Direction
Indeterminate Groundwater Flow at Location
Groundwater Flow Varies at Location
Closest Hydrogeological Data

N

SITE NAME: Spunky Bottoms ADDRESS: County Road 12 Versailles IL 62378 LAT/LONG: 39.9027 / -90.5660	CLIENT: U.S. Army Corps of Engineers CONTACT: Rick Archeski INQUIRY #: 3065571.9s DATE: May 12, 2011 8:33 am

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID Direction Distance Elevation			Database	EDR ID Number
1 **ENE** **1/4 - 1/2 Mile** **Lower**			**IL WELLS**	**ILSG10000079626**

Api number:	120092048200		
Longitude:	-90.559825		
Latitude:	39.905544		
Section:	7	Twp:	2
Tdir:	S	Rng:	1
Rdir:	W	Farm name:	Sister John
Farm num:	Not Reported	Company na:	Reynold, Joseph R.
Status:	Water Well	Elevation:	0
Elevref:	Not Reported	Total dept:	23
Wformation:	Not Reported	Wfmfrom:	0
Wfmto:	0	Pumpgpm:	0
Site id:	ILSG10000079626		

---

2 **SSE** **1/2 - 1 Mile** **Higher**		**IL WELLS**	**ILSG10000078976**

Api number:	120170008900		
Longitude:	-90.559077		
Latitude:	39.892818		
Section:	27	Twp:	17
Tdir:	N	Rng:	13
Rdir:	W	Farm name:	Meredosia Farm Club,
Farm num:	2	Company na:	owner
Status:	Water Well	Elevation:	0
Elevref:	Not Reported	Total dept:	65
Wformation:	sand & gravel	Wfmfrom:	55
Wfmto:	65	Pumpgpm:	200
Site id:	ILSG10000078976		

---

3 **SE** **1 - 2 Miles** **Higher**		**IL WELLS**	**ILSG10000078997**

Api number:	120172035300		
Longitude:	-90.551333		
Latitude:	39.89326		
Section:	27	Twp:	17
Tdir:	N	Rng:	13
Rdir:	W	Farm name:	Meredosiea Farm Club
Farm num:	Not Reported	Company na:	owner
Status:	Water Well	Elevation:	0
Elevref:	Not Reported	Total dept:	42
Wformation:	sand & gravel	Wfmfrom:	38

Wfmto:	42	Pumpgpm:	25
Site id:	ILSG10000078997		

4
West
1 - 2 Miles
Higher

IL WELLS **ILSG10000079540**

Api number:	120090036700		
Longitude:	-90.588969		
Latitude:	39.903987		
Section:	11	Twp:	2
Tdir:	S	Rng:	2
Rdir:	W	Farm name:	McGlasson Ormande
Farm num:	1	Company na:	Johnson, J. P.
Status:	Water Well	Elevation:	0
Elevref:	Not Reported	Total dept:	360
Wformation:	Not Reported	Wfmfrom:	0
Wfmto:	0	Pumpgpm:	0
Site id:	ILSG10000079540		

5
East
1 - 2 Miles
Higher

IL WELLS **ILSG10000079484**

Api number:	120172033100		
Longitude:	-90.541437		
Latitude:	39.903196		
Section:	26	Twp:	17
Tdir:	N	Rng:	13
Rdir:	W	Farm name:	Schliter, Bill
Farm num:	Not Reported	Company na:	owner
Status:	Water Well	Elevation:	0
Elevref:	Not Reported	Total dept:	62
Wformation:	sand & gravel	Wfmfrom:	54
Wfmto:	62	Pumpgpm:	10
Site id:	ILSG10000079484		

6
North
1 - 2 Miles
Higher

IL WELLS **ILSG10000080872**

Api number:	120090034700		
Longitude:	-90.569461		
Latitude:	39.929223		
Section:	36	Twp:	1
Tdir:	S	Rng:	2
Rdir:	W	Farm name:	Surrett Vernon D
Farm num:	Not Reported	Company na:	Duge & Clark
Status:	Water Well	Elevation:	0
Elevref:	Not Reported	Total dept:	51
Wformation:	Not Reported	Wfmfrom:	0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Wfmto:	0	Pumpgpm:	0
Site id:	ILSG10000080872		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for BROWN County: 1

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for BROWN COUNTY, IL

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	Not Reported	Not Reported	Not Reported	Not Reported
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	12.800 pCi/L	0%	100%	0%

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2009 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW[R] Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Records
Source: Illinois Geological Survey
Telephone: 217-333-4747

Illinois Private Well Database and PICS (Public, Industrial, Commercial Survey)
Source: Illinois State Water Survey
Telephone: 217-333-9043

Water Well Location Information
Source: Illinois Environmental Protection Agency
Telephone: 217-782-0810

OTHER STATE DATABASE INFORMATION

RADON

State Database: IL Radon
Source: Department of Nuclear Safety
Telephone: 217-785-9958
County Radon Results

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

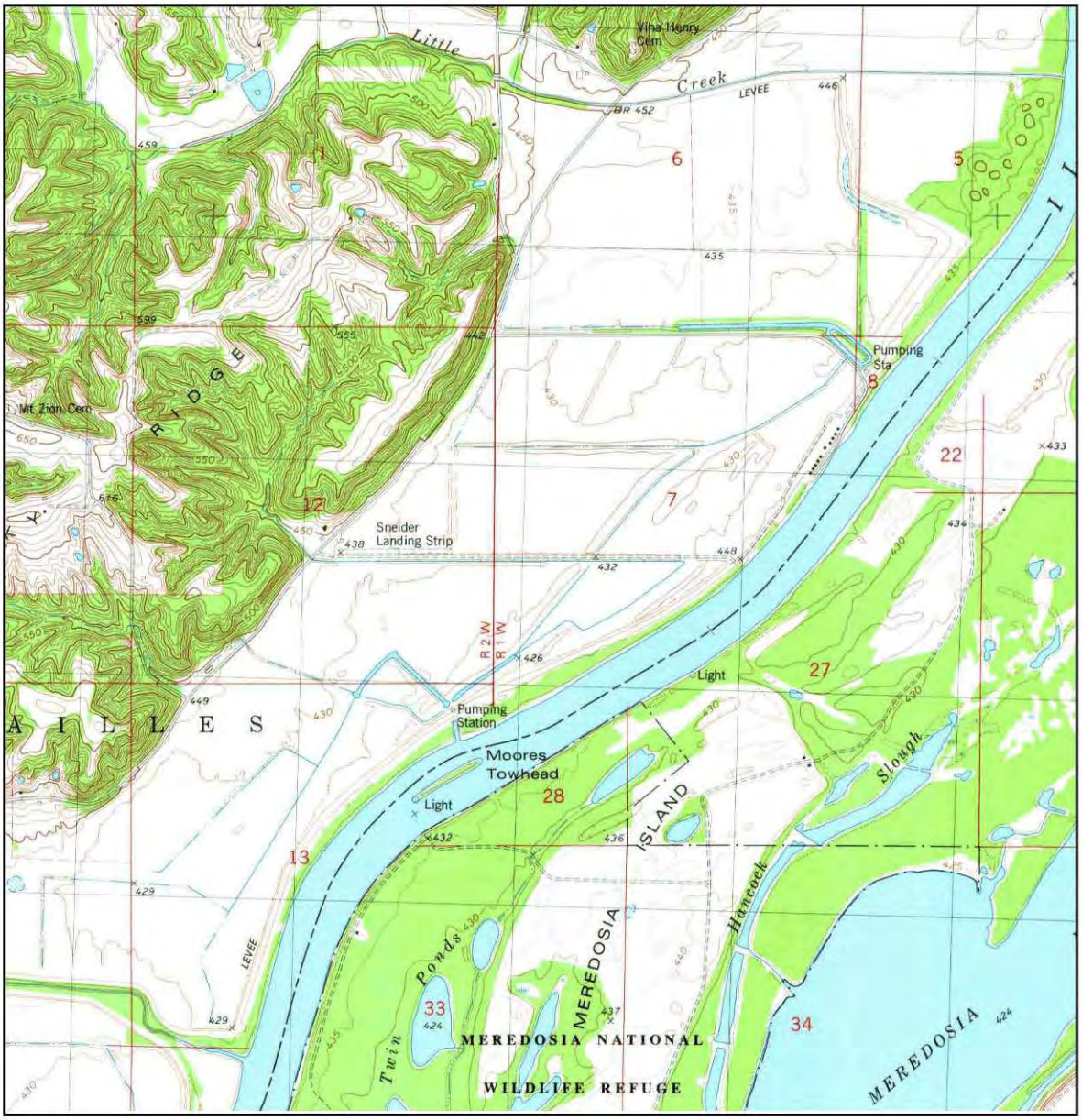
OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

Appendix B
Historical
Documents

Historical Topographic Map



N	TARGET QUAD NAME: COOPERSTOWN MAP YEAR: 1980 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Spunky Bottoms ADDRESS: County Road 12 Versailles, IL 62378 LAT/LONG: 39.9027 / -90.566	CLIENT: U.S. Army Corps of Engineers CONTACT: Rick Archeski INQUIRY#: 3065571.11 RESEARCH DATE: 05/11/2011

Spunky Bottoms
County Road 12
Versailles, IL 62378

Inquiry Number: 3065571.11
May 11, 2011

EDR Historical Topographic Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Historical Topographic Map Report

Environmental Data Resources, Inc.s (EDR) Historical Topographic Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topographic Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the early 1900s.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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Historical Topographic Map

N	TARGET QUAD NAME: MEREDOSIA MAP YEAR: 1931 SERIES: 15 SCALE: 1:62500	SITE NAME: Spunky Bottoms ADDRESS: County Road 12 Versailles, IL 62378 LAT/LONG: 39.9027 / -90.566	CLIENT: U.S. Army Corps of Engineers CONTACT: Rick Archeski INQUIRY#: 3065571.11 RESEARCH DATE: 05/11/2011

Spunky Bottoms
County Road 12
Versailles, IL 62378

Inquiry Number: 3065571.10
May 12, 2011

Certified Sanborn® Map Report

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

5/12/11

Site Name:
Spunky Bottoms
County Road 12
Versailles, IL 62378

Client Name:
U.S. Army Corps of Engineers
Svc. Base,
St. Louis, MO 63118

EDR Inquiry # 3065571.10

Contact: Rick Archeski

EDR® Environmental Data Resources Inc.

The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by U.S. Army Corps of Engineers were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Spunky Bottoms
Address: County Road 12
City, State, Zip: Versailles, IL 62378
Cross Street:
P.O. # NA
Project: Spunky Bottoms
Certification # 4797-4EC7-A72D

Sanborn® Library search results
Certification # 4797-4EC7-A72D

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1866™

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USGS
science for a changing world

USGS
science for a changing world

NAPP
10341-38
04-11-98
FS125 1/ 500 f/4.0 FF2.0 EC-1/3* SP- v/h-01294 00% dt046.4 ds003 27.2V -72mb ER00 CAMS281

NAPP
10341-77
04-11-98
5454
FS125 1/ 556 f/4.0 FF2.0 EC-1/3* SP- v/h.02112 00% dt028.9 ds086 26.9V -70mb ER00 CAM15281

Appendix C
Photographs

Pump house on County Road (CR) 500.

South side of pump station on CR 500.

West side of pump station.

Interior of pump station.

East side of pump station.

Looking west along CR 500 from pump station.

Looking south from CR 500 in front of pump station.

AST in background behind pump station. Discharge pipe in foreground.

Trailer and generator in front of pump station.

Looking northeast from CR 500. Discharge pipe from pump station to Illinois River.

Looking southwest at pump station on Nature Conservancy property.

Looking northwest at pump station on Nature Conservancy property.

AST to south of pump station. Transformer on pole in water.

AST to south of pump station.

Looking west from levee road near pump station.

Looking north from levee road just north of pump station.

Looking east from levee road east of pump station.

Residences along CR 500.

Residences along CR 500.

Looking southwest from northeast corner of levee.

Looking west from levee road in northeast corner of property.

Deteriorating sand bags in northeast corner of property just east of levee.

Looking south along levee from northern portion of property.

Looking southeast from levee at northern property boundary.

Looking north from levee at northern boundary of property.

Looking west along levee from northern boundary of property.

Looking east along levee from CR 12.

Looking southeast from CR 12.

Looking south along CR 12 near intersection of CR 1805.

Looking north along CR 12 from intersection of CR 1805.

Barn on south side of CR 1805 just west of CR 12.

Interior of barn.

Interior of barn.

Metal shed just to west of barn.

Interior of metal shed.

Equipment behind barn.

Rear of barn looking from metal shed.

Barn on north side of CR 1805 just west of CR 12.

Barn on north side of CR 1805 just west of CR 12.

Interior of barn.

North side of barn.

Shed in front of barn.

Looking west along CR 1805 from in front of barns.

Lavina Henry Cemetery on top of hill behind barn.

Looking east along CR 500 at the intersection of CR 500 and CR 1800E.

Looking southeast from intersection of CR 500 and CR 1800E.

Looking northeast from intersection of CR 500 and CR 1800E.

Looking north along CR 1800E from intersection of CR 500 and CR 1800E.

Looking south along CR 1800E from intersection of CR 500 and CR 1800E.

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX J
PRELIMINARY MECHANICAL ENGINEERING REPORT

APPENDIX J

PRELIMINARY MECHANICAL ENGINEERING REPORT

SPUNKY BOTTOMS PRESERVE
BROWN COUNTY, ILLINOIS

PURPOSE AND SCOPE

The purpose of this appendix is to present preliminary designs for the mechanical project features at Spunky Bottoms Preserve. Engineering Manual 1110-2-3105 Mechanical and Electrical Design of Pumping Stations, equipment manufacturers' engineering data, and known project site data were used to develop the information presented in this appendix.

WATER CONTROL STRUCTURE

FEATURES

1. The water control structure will incorporate two 6 foot by 6 foot cast iron sluice gates as a primary feature. These gates will be heavy duty type, with ribbed discs, bronze wedging devices, and resilient bottom seals. Gates will be manually operated, as electricity is not available at the site. The Sponsor will be provided with a portable electric operator to actuate the gates, or they may be operated with a hand crank.

DESIGN CONSIDERATIONS

2. Gate sizing has been determined through coordination between Hydraulics and Structural sections. The culverts in the proposed water control structure have been designed to be 6 foot square as this results in one of the most efficient designs to drain the management area acceptably.

PUMP CAPABILITY

FEATURES

3. The Sponsor will be provided with two portable, trailer mounted pumps, one for the purposes of removing water from the ponding area adjacent to the neighboring Cox property at the southwest end of the project, and one for lowering the water elevation inside the management area. The ponding area pump is anticipated to be a 20 cfs unit, and will use temporary flexible suction and discharge lines to pump from the ponding area into the management area. The pump to be used to regulate the water elevation in the management area is anticipated to be a 45 cfs unit. This pump will use a temporary

flexible hose for the connections to fixed suction and discharge pipes running over the levee, adjacent to the water control structure.

DESIGN CONSIDERATIONS

4. Fixed discharge pipe at the water control structure will be 30 inch steel pipe, vinyl paint coated on the inside, coal tar epoxy paint on the outside. The most likely lowest cost option for the discharge pipe installation is to tie the discharge into the water control structure at some point after the sluice gates on the river side. This will eliminate the need for rip-rap around the pump discharge and decrease the length of discharge pipe needed. Anticipated static head for the ponding area pump installation is 5 ft; anticipated static head for the water control structure installation is 15 ft.

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX K
ADAPTIVE MANAGEMENT / MONITORING PLAN

SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
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APPENDIX K
ADAPTIVE MANAGEMENT / MONITORING PLAN

I. INTRODUCTION K-1
- A. Authorization for Monitoring and Adaptive Management K-1

II. ADAPTIVE MANAGEMENT
- A. Procedure for Drafting Adaptive Management Plans K-2
- B. Communication Structure for Implementation of Adaptive Management K-2

III. PROJECT ADAPTIVE MANAGEMENT PLANNING K-6
- A. Project Goals and Objectives K-6
- B. Management and Restoration Actions K-7
- C. Conceptual Ecological Model for Monitoring and Adaptive Management K-8
- D. Sources of Uncertainty K-9

IV. RATIONALE FOR ADAPTIVE MANAGEMENT K-10

V. MONITORING K-12
- A. Rationale for Monitoring K-12
- B. Monitoring Plan for the Spunky Bottoms Ecosystem Restoration Project K-13
- C. Monitoring Procedures K-19
- D. Use of Monitoring Results and Analyses K-21

VI. DATABASE MANAGEMENT K-21
- A. Description and Location K-21
- B. Data Storage and Retrieval K-21
- C. Analysis, Summarizing, and Reporting K-21

VII. ASSESSMENT K-22
- A. Assessment Process K-22
- B. Variances and Success K-22
- C. Frequency of Assessments K-23
- D. Documentation and Reporting K-23

VIII. DECISION MAKING K-24

A. Decision Criteria K-24
B. Potential Adaptive Management Measures K-24
C. Project Close-Out K-24

IX. COSTS FOR MONITORING AND ADAPTIVE MANAGEMENT PROGRAM K-25
A. Costs for Implementation of Monitoring Program K-25
B. Cost Assumptions K-28

X. LITERATURE CITED K-29

FIGURES

K-1 Set-up Phase of the Spunky Bottoms Adaptive Management Framework K-3
K-2 Implementation Phase for the Spunky Bottoms Adaptive Management Framework K-4
K-3 Spunky Bottoms Communication Structure for Implementation of Adaptive Management K-5
K-4 The Proposed 6-year Water Level Management Cycle K-15

TABLES

K-1 Preliminary Cost Estimates for Implementation of the Monitoring Program for the Project K-27
K-2 Water Quality Monitoring Estimated Costs K-29
K-3 Continuous Monitoring and Calibration Activities K-29

I. INTRODUCTION

This document outlines the feasibility level monitoring and adaptive management plan (AMP) for the *Section 1135 Spunky Bottoms Ecosystem Restoration Project* (Project). This plan identifies and describes the monitoring and adaptive management activities proposed for the Project and estimates their cost and duration. The Project Delivery Team (PDT) would refine the plan in the preconstruction, engineering, and design (PED) phase as the PDT develops specific design details.

The goal of the Project is to restore, to the extent practical, quality, functional floodplain habitat and ecological processes sustaining plant and animal communities native to the Illinois River Valley prior to construction of the Illinois Waterway (IWW) 9-Foot Navigation Channel Project and the Little Creek Drainage and Levee District. Approximately 917 acres of floodplain habitat of a total of TNC's 1,195 within the project area would be restored within the Little Creek Drainage and Levee District as a result of this Project.

A. Authorization for Monitoring and Adaptive Management. The Project is proposed under Section 1135 of the 1986 Water Resources Development Act (WRDA), as amended. The purpose of this program is to make modifications to the structure and/or operation of existing water resources projects that will improve the quality of the environment, but must be feasible and consistent with the original project purpose(s).

Section 2039 of the 2007 WRDA states when conducting a feasibility study for a project or component of a project for ecosystem restoration, the recommended Project includes a plan for monitoring the success of the ecosystem restoration. The implementation guidance for Section 2039, in the form of a CECW-PB Memo dated 31 August 2009, also requires the U.S. Army Corps of Engineers, St. Louis District (District) to develop an adaptive management plan for all of their ecosystem restoration projects. In addition, Section 3064(d) of 2007 WRDA states that not less than $500,000 shall remain available for a period of 5 years after the date of completion of construction of the modifications for use in carrying out post construction monitoring and adaptive management of Spunky Bottoms.

At the programmatic level, knowledge gained from monitoring one project can be applied to other projects. Opportunities for this type of adaptive management are common among other ecosystem restoration projects along the Illinois River as part of the Upper Mississippi River System (UMRS) region. This collective knowledge base builds upon lessons learned in other related efforts, such as the UMRS Environmental Management Program.

II. ADAPTIVE MANAGEMENT

A. Procedure for Drafting Adaptive Management Plans. The District and The Nature Conservancy (TNC), collaborated, establishing a general framework for adaptive management to be applied to this Project. The framework for adaptive management is consistent with the previously mentioned implementation guidance and Corps implementation guidance for adaptive management. The Spunky Bottoms adaptive management framework includes both a set-up phase (Figure K-1) and an implementation phase (Figure K-2).

B. Communication Structure for Implementation of Adaptive Management. To execute an adaptive management strategy for the Project, the District and TNC have identified a communication structure (Figure K-3). The structure includes an establishment of clear lines of communication between Project Management and stakeholders. Successful implementation would require the right resources coupled at the right time to support the framework components.

As part of the Project communication structure for implementation of adaptive management (Figure K-3), the PDT including St. Louis District specialists and members from TNC provide support for the project based on their knowledge of ecosystem restoration, Illinois River backwater ecosystems and adaptive management. The PDT would use other resources and expertise as needed. This team would be responsible for presenting project and program adaptive management action recommendations to the St. Louis District.

Under the adaptive management framework, there are five primary elements in the Project, and each element differs in emphasis and requirements. These elements include science information needs, data acquisition and monitoring, modeling, research, and data management and reporting (assessment).

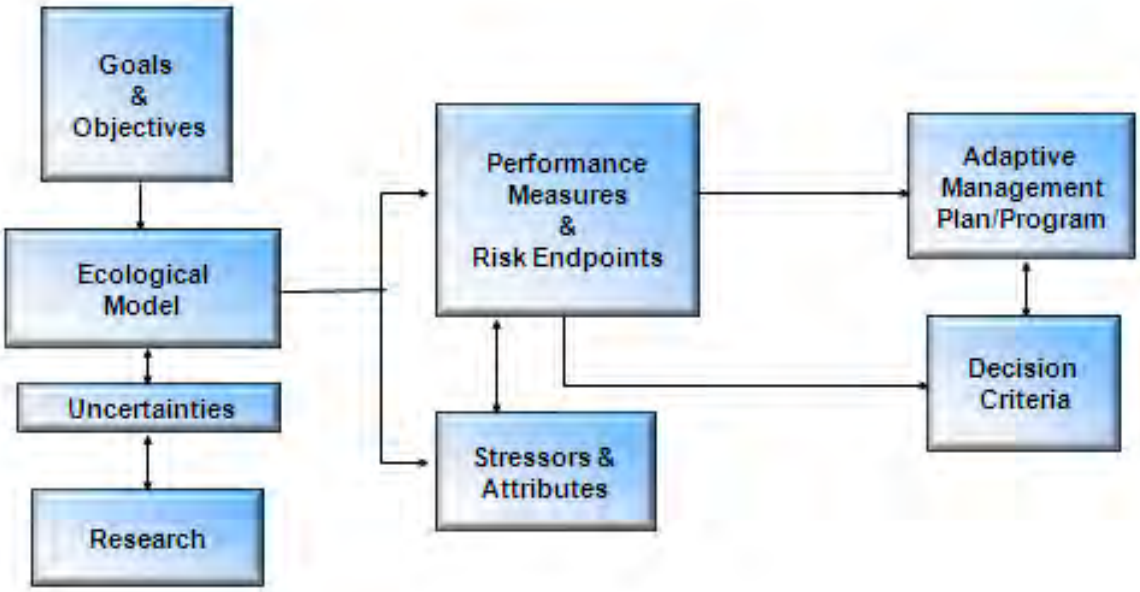

Figure K-1. Set-up Phase of the Spunky Bottoms Adaptive Management Framework

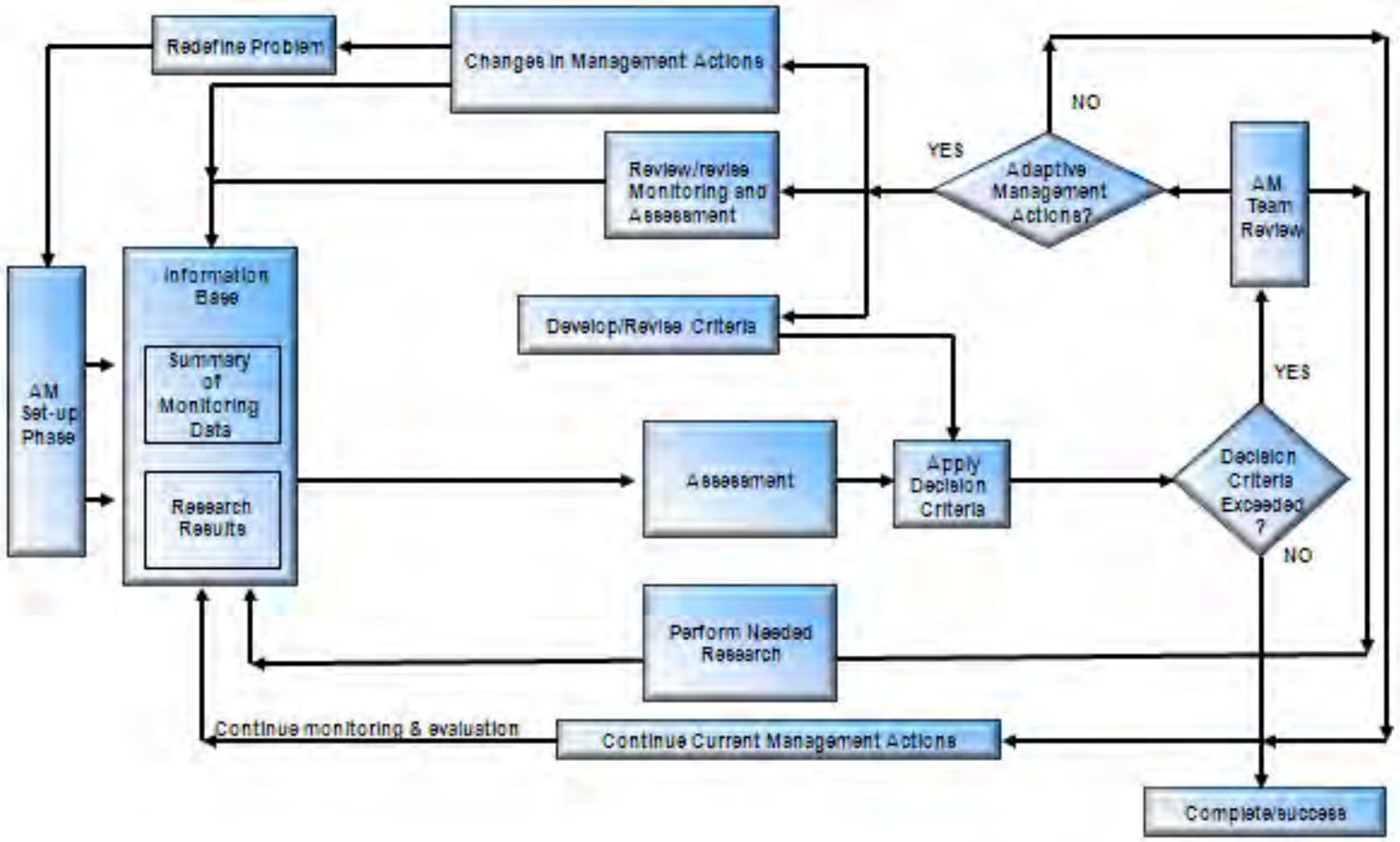

Figure K-2. Implementation Phase for the Spunky Bottoms Adaptive Management Framework

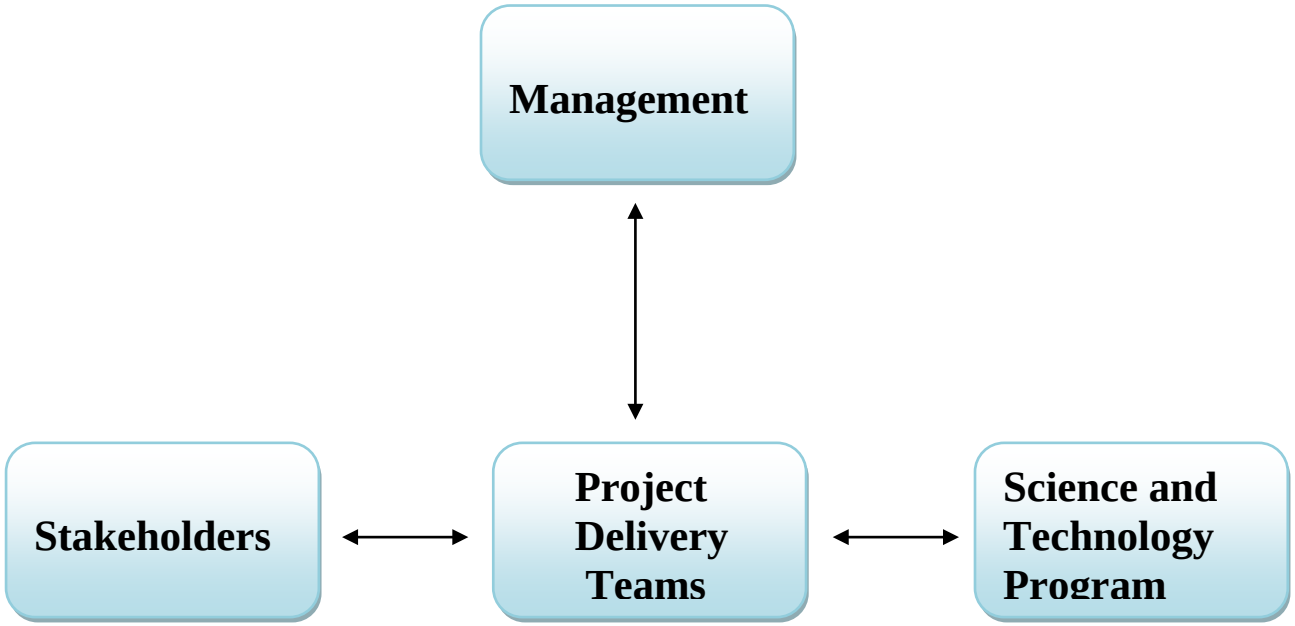

Figure K-3. Spunky Bottoms Communication Structure for Implementation of Adaptive Management

III. PROJECT ADAPTIVE MANAGEMENT PLANNING

The adaptive management plan for the Project describes and justifies whether adaptive management is needed in relation to the proposed project management alternatives identified in the project feasibility study. The plan also identifies how the District and TNC would use adaptive management for the project and who would be responsible for this project-specific AMP. The plan outlines how the results of the project-specific monitoring program would be used to adaptively manage the project, including specification of conditions demonstrating project success.

The adaptive management plan for this project reflects a level of detail consistent with the project feasibility study. The District's primary intent was to develop monitoring and adaptive management actions appropriate for the project's restoration goals and objectives. The specified management actions permit the District to estimate the adaptive management program (AMP) costs and duration for the project.

The following section:

- identifies the restoration goals and objectives identified for the Project;
- outlines possible management actions to achieve the Project goals and objectives;
- presents a conceptual ecological model relating management actions to desired Project outcomes;
- lists sources of uncertainty recommending the use of adaptive management for this Project.

Subsequent sections describe monitoring, assessment, decision-making, and data management in support of adaptive management.

The level of detail in this plan is based on currently available data and information developed during plan formulation as part of the feasibility study. Uncertainties remain concerning the exact project features, monitoring elements, and adaptive management opportunities. The District estimated components of the monitoring and adaptive management plan using currently available information. The District would address uncertainties in the PED phase in the detailed monitoring and adaptive management plan, including a detailed cost breakdown.

A. Project Goals and Objectives. During initial stages of project development, the project delivery team, with stakeholder input, developed restoration goals and objectives for the Project. The primary opportunity of the project is to restore, to the extent practical, quality, functional floodplain habitat and ecological processes sustaining plant and animal communities native to the Illinois River Valley prior to construction of the IWW 9-Foot Navigation Channel Project and the Little Creek Drainage and Levee District. The District and TNC planned this project to help achieve and sustain a larger-scale floodplain backwater ecosystem and protect the environment, economy, and culture of central Illinois and thereby contribute to the wellbeing of the Nation.

The specific restoration objectives for the Project are to:

- Restore a more natural hydrograph of the Spunky Bottoms project area and Illinois River backwater to approximate pre-settlement conditions
- Restore native aquatic habitat and ecological processes
- Increase the presence of a reliable food source and quality habit for migratory waterfowl, shorebirds, and other breeding birds
- Improve water quality of the project area and local impacts to the Illinois River through processing of nutrients and sediments and reducing sediment resuspension
- Restore hydrologic river floodplain connectivity
- Increase quality fish spawning and nursery habitats within the Illinois River
- Export biological productivity to river
- Maximize sustainability of aquatic habitat.

B. Management and Restoration Actions. The PDT performed a thorough plan formulation process to identify potential management measures and restoration actions addressing the project objectives. Many alternatives were considered, evaluated, and screened in producing a final array of alternatives. The PDT subsequently identified a National Ecosystem Restoration (NER) Plan. The District developed this alternative from an array of project features. The main project feasibility report details each feature of this alternative as well as those features the District also considered. The tentatively selected plan includes:

Reconnection/Fish Passage structure. The reconnection structure would be a double box culvert structure with concrete headwalls and sheet pile wingwalls. Two sluice gates would control water at the Illinois River side headwall.

Southern berm with portable diesel-powered trash pump and ponding area. A new berm would protect the landowner located south of TNC property from project water levels to allow fine-scale water level management within the project area. Because construction of the berm would block natural drainage of the neighboring landowner's property into the project area, a catchment area would be constructed.. In addition, a portable diesel-powered trash pump will be provided to pump excess runoff into the project area when interior water levels preclude gravity drainage through a gated pipe in the berm. The proposed berm height is two feet above the maximum proposed interior water management level elevation, i.e. 434 feet NGVD for the 432 feet NGVD management level. The berm would be approximately 2,400 linear feet as constructed.

Rock protection for the County Highway 12 at the base of the bluff. Rock protection is proposed on the east side of County Highway 12 at the maximum water elevation that the project would be managed for. County Road 12 is maintained by Brown County and would require protection from the increased water elevations possible within the TNC property. Rock protection would be added along the roadbed (not the road itself) for approximately 3,350 linear feet to provide the needed protection.

Northern berm. This proposed berm would raise an existing township road between TNC property and the IDNR property to the north. The road is approximately 5,900 linear feet. Proposed berm height is two

feet above the maximum proposed interior water management level elevation, i.e. 434 feet NGVD for the 432 feet NGVD management level.

C. Conceptual Ecological Model for Monitoring and Adaptive Management. As part of the planning process, members of The Nature Conservancy developed the document, *Key Attributes and Indicators for Illinois River Conservation Targets at The Nature Conservancy's Emiquon Preserve*, 2006 which serves as the major elements of their conceptual ecological model for the Emiquon Preserve; however, due to the similarities in nature the information contained within that report was used for the Spunky Bottoms project. This document outlines four core components:

- identification of a limited number of focal targets,
- identification of key ecological attributes for these targets,
- identification of an acceptable range of variation for each attribute as measured by properly selected indicators, and
- the rating of target status based on whether the target's key attributes are within acceptable ranges of variation.

The approach provides a foundation for setting conservation objectives, assessing threats to targets, identifying monitoring and research needs, and evaluating conservation progress, conceptual ecological model to represent current understanding of ecosystem structure and function in the project area, identify performance measures, and help select parameters for monitoring. The key attributes illustrate the affects of important natural and anthropogenic activities resulting in different ecological stressors on the system. The effects of concern can be measured for selected performance measures defined as specific physical, chemical, and biological attributes of the system.

The TNC's key attributes were the results of the earlier document, *Illinois River Site Conservation Plan for The Nature Conservancy of Illinois*, (1998). This document set the original management plan goals of objectives for Spunky Bottoms based on two conceptual models:

- the large floodplain river system (Sparks, 1995)
- the floodpulse concept model (Junk, et al., 1989)

These two models outline the physical and hydrological connection between a river and its floodplain. The models also demonstrate how these physical phenomena relate to biological responses, both aquatic and terrestrial, and both local and continental in scope.

D. Sources of Uncertainty. Adaptive management provides a coherent process for making decisions in the face of uncertainty. Scientific uncertainties and technological challenges are inherent with any large-scale ecosystem restoration project. The uncertainties associated with restoration of the floodplain/backwater connectivity to its large river include:

- the Illinois River's unpredictable hydrology;
- the presence and introduction of invasive species;
- the measurable off site value of primary productivity from the Spunky Bottoms Project to the overall quality of the Illinois River; and
- measurable fish movement between the backwater and river habitats.

In addition, potential climate change issues, such as growing season lengths, ice cover, and waterfowl migration patterns, are significant scientific uncertainties for all Illinois River projects. These issues were incorporated in the plan formulation process and would be monitored by gathering data on water levels. These data would inform adaptive management actions, but future climate change projections remain highly uncertain at this time.

In the future, investigations should include at least three important biological improvements resulting from this project:

- A Spunky Bottoms primary production study should be developed to quantify its contributions to the Illinois River ecosystem. This should include both zooplankton and phytoplankton production;

- Determine the potential contribution this project should have on river fish utilizing the preserve for overwintering and nursery habitat. This may include quantity of fish movement between the two habitats and also the condition of fish moving from the preserve to the river either in the spring, or after the post rearing season; and

- Throughout the 6-year water management cycle, there should be excellent opportunity for migrating shorebird feeding and nesting habitat. Because of the variety of water levels and the location of the preserve in the migration flyway, studies should include what species are utilizing specific water level regimes for feeding and migration conditioning, and what species are staying for nesting/rearing habitat through the fluctuating water level management.

IV. RATIONALE FOR ADAPTIVE MANAGEMENT

The primary incentive for implementing an AMP is to increase the likelihood of achieving desired project outcomes given the identified uncertainties. All projects face uncertainties with the principal sources of uncertainty including:

- incomplete description and understanding of relevant ecosystem structure and function;
- imprecise relationships between project management actions and corresponding outcomes;
- engineering challenges in implementing project alternatives; and
- ambiguous management and decision-making processes.

Given these uncertainties, adaptive management provides an organized, coherent, and documented process defining management actions in relation to measured project performance compared to desired project outcomes. In the case of the Project, the AMP would use the results of continued project monitoring to manage the project in order to achieve the previously stated project goals and objectives. Adaptive management establishes the critical feedback of information from project monitoring to inform project management and promote learning through reduced uncertainty.

The PDT considered several questions to determine if adaptive management should be applied to the Project:

- Are the ecosystems to be restored sufficiently understood in terms of hydrology and ecology, and can project outcomes be accurately predicted given recognized natural and anthropogenic stressors?

- Can the most effective project design and operation to achieve project goals and objectives be readily identified?

- Are the measures of this restoration project's performance well understood and agreed upon by all parties?

- Are project management actions sufficiently flexible to be adjusted in relation to monitoring results?

A 'NO' answer to first three questions and a "YES" answer to the last question identifies the project as a candidate benefiting from adaptive management. The PDT decided this Project meets these qualifications, and, therefore, is a candidate for adaptive management.

For this Project, there are a number of uncertainties associated with ecosystem function and how the ecosystem components of interest would respond to the restoration Project. In addition, there are associated uncertainties about the best design and operation for the Project. Using an adaptive management approach during Project planning provided a mechanism for building flexibility into Project design and for providing new knowledge to better define anticipated ecological responses. This also enabled better selection of appropriate design to meet the Project objectives.

Additionally, an adaptive management approach would help define Project success and identify outcomes realistically expected for the Project.

An AMP for the Project needs to ensure proper implementation of the adaptive management plan. The Spunky Bottoms PDT would lead all project and program adaptive management recommendations and actions. This team is responsible for ensuring monitoring data and assessments are properly used in the adaptive management decision making process. If this team determines adaptive management actions are needed, the team would coordinate a path forward with project planners and project managers. Other PDT members may be solicited as needed; for instance, if the adaptive management measure is operational, operations and hydraulics representatives might be asked to participate.

The Spunky Bottoms PDT is also responsible for project documentation, reporting, and external communication. No costs were prepared for adaptive management as the PDT decided that the main contributor for adaptive management would be water control and/or design. The final Water Control Plan will allow flexibility to achieve the projected ecosystem goals through active adaptive management..

V. MONITORING

Independent of adaptive management, the PDT would require an effective monitoring program to determine if the project outcomes are consistent with original project goals and objectives and achieve ecosystem success criteria. The power of a monitoring program developed to support adaptive management lies in the establishment of feedback between continued project monitoring and corresponding project management. A carefully designed monitoring plan is a central component to the Spunky Bottoms AMP.

A. Rationale for Monitoring. Project and system level objectives must be identified to determine appropriate indicators to monitor. In order to be effective, monitoring designs must be able to distinguish between ecosystem responses resulting from project implementation (i.e., management actions) and natural ecosystem variability. Monitoring must be conducted across a range of carefully selected scales to

assess short-term project performance and to characterize longer-term, system-wide trends and conditions.

Achieving monitoring objectives and meeting ecosystem success criteria would require monitoring to focus on different spatial and temporal scales. Spatially, a project might achieve local objectives, but have little or no measurable effect at larger scales. Temporally, monitoring designs need to consider the amount of time it could take for slowly changing ecological variables to respond to management actions. Additionally, monitoring should be designed to measure the persistence of near-term effects. Larger-scale effects would generally take longer to develop and longer to detect than more localized effects.

Monitoring for large scale effects can be more difficult than for local effects because the ecological linkages become more complicated as factors outside project boundaries influence processes and biota affecting desired project outcomes. The benefits of improved habitat in one location may be counteracted by degradation at another location, thus showing no overall benefit at large scales. In addition, monitoring at large scales can involve changes in underlying conditions over time or space and be very labor intensive. When possible, specific monitoring and large scale information needs should be interrelated. In some cases, large scale monitoring may be just an extension of local monitoring in space and time, but it may also involve designs and procedures separate from site specific monitoring and extend beyond the purview of the Project teams.

When possible, the PDT should integrate specific monitoring and large scale information needs with existing monitoring efforts underway in the UMR. Spunky Bottoms monitoring plans should benefit from existing monitoring networks to the extent practicable. Such use of existing monitoring can help maintain the data consistencies necessary to conduct project and programmatic adaptive management.

B. Monitoring Plan for the Spunky Bottoms Ecosystem Restoration Project. According to the CECW-PB Memo dated 31 August 2009, "Monitoring includes the systemic collection and analysis of data providing information useful for assessing project performance, determining whether ecological success has been achieved, or whether adaptive management may be needed to attain project benefits." The following discussion outlines key components of a monitoring plan supporting the project AMP.

The plan identifies performance measures along with desired outcomes (i.e. targets) in relation to specific project goals and objectives. A performance measure includes specific feature(s) to be monitored to determine project performance. In addition, if applicable, a risk endpoint was identified. Risk endpoints measure undesirable outcomes of a management or restoration action. The PDT established a monitoring design to determine if the desired outcome or risk endpoint is met.

Upon completion of the Project, the PDT would monitor for ecological success and the PDT would initiate and continue adaptive management until ecological success is achieved, as defined by the project-specific objectives. This monitoring plan includes the minimum monitoring actions to evaluate success and to determine adaptive management needs. Although the law allows for a ten-year cost-shared monitoring plan, ten years of monitoring may not be required to adequately evaluate the project's success. This monitoring plan calls for a 5 year plan to assess the success of the water management cycle. Although, the complete water management cycle takes 6 years to complete, the emphasis on aquatic resources should be realized within the first five years. Once ecological success has been achieved, no further monitoring would be performed. Additional monitoring beyond 5 years, but less than 10 years, shall be coordinated with the St. Louis District to ensure monitoring success has not been met and funding can be provided at the 75/25 cost share. Although the law allows for a ten-year cost-shared monitoring plan, ten years of monitoring may not be required to adequately evaluate the project's success. If success cannot be determined within a 10-year period of monitoring, any additional monitoring would be a non-Federal responsibility. This plan estimated monitoring costs for a period of 5 years because this

is perceived as being an acceptable timeframe to achieve ecological success. As soon as ecological success is achieved, monitoring would cease.

The monitoring plan identifies performance measures along with desired outcomes and monitoring designs in relation to specific project goals and objectives. Specific success criteria are identified in the desired outcome underneath each objective. The PDT would identify additional monitoring as supporting information needs to help further understand and corroborate project effects.

Objective 1. Restore the natural hydrograph of Spunky Bottoms/ Illinois River backwater to approximate pre-settlement conditions.

Performance Measure**.** The PDT would use the 6-year water level management cycle (Figure K-4) as the primary goal for management. This 6-year cycle is one reasonable representation of how the TNC might manage given a corresponding set of potential or even likely physical conditions and biotic responses.

Desired outcome. Mimic a somewhat predictable presettlement spring flood pulse in the backwater. Fish life histories are closely tied to the floodpulse. And nutrients are released from the newly inundated soils, stimulating the base of the river's food webs. The expanded aquatic habitats are utilized as feeding sites by migratory birds and as breeding areas and nurseries by fish and other aquatic life.

Following a low flow period in the summer, the water level begins to rise in the fall and the summer's production of seeds and tubers are made available to dabbling ducks, such as mallards and teal. Later migrants benefit from the advance of waters in the fall as new areas of food become gradually available. Fish may use the fall flood to find wintering areas with adequate dissolve oxygen levels, water temperatures several degrees higher than in the main channel, and relatively slow currents. These conditions help prevent the fish from exhausting their energy reserves over the winter months.

Monitoring Design. While the 6-year water management cycle is the primary objective to meet the project's goal of a predictable flood pulse, they anticipate they would use adaptive management as their primary water level tool. The Nature Conservancy will not be able to manage precisely as represented because their predictions of physical conditions and biotic responses will not be exactly right. Flexibility will be used in the Water Control Plan to allow for these small deviations. For example, if woody encroachment in not a problem, the TNC may not carry out the extreme high-water "treatment" as indicated in years 5-6. Likewise if the submersed aquatic plants and water quality seem to be good, the TNC might not do such a drastic drawdown every 6 years. If they do have woody encroachment problems and don't get the results needed after such as years' 5-6 extreme flooding event, they might go for a more prolonged flood. In large deviations from the Water Control Plan would require USACE approval. Vegetation monitoring would be a principal driver in determining what water level management the TNC would implement for the following year.

Likewise if a 1-year drawdown doesn't do the trick, they might try for a two-year drawdown. The actual management would be based on:

- the actual physical conditions and the biotic responses (neither of which we can predict with much (any) confidence, especially in terms of timing), and
- the ongoing learning and growing understanding of cause-effect relationships and management solutions.

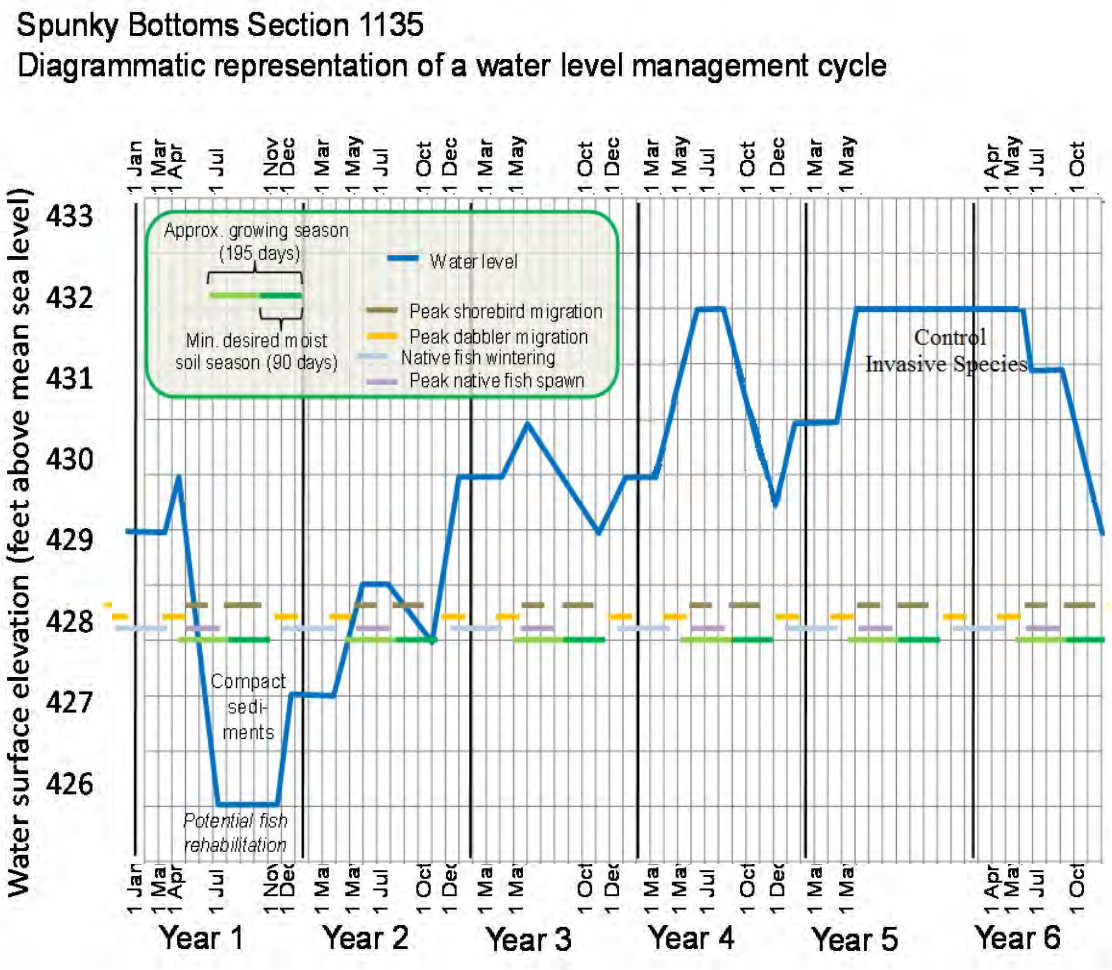

Figure K-4. The Proposed 6-year Water Level Management Cycle

Objective 2. Restore native aquatic habitat and ecological processes.

Performance Measure 2(a) Aquatic Habitat. Provide adequate habitat for aquatic dwelling species such as fish (lake and river), mussels, zooplankton, and phytoplankton. The habitat attributes should provide at least one, if not all life requisites for these species.

Desired outcome. Monitoring should determine the level of the following aquatic ecological conditions:

- Rich native fish species assemblage
- Balanced fish community with an adequate predator prey ratio
- Fish spawning conditions with adequate oxygen levels, substrate variability, connection to the river, nursery feeding and escape cover, overwintering habitat
- Primary production delivery to the river
- Possible mussel habitat conditions including low blue/green algae, reproduction success, and species richness.

Success criteria is defined as an increase by >20% of native species and should be realized within 5 years of completion for safe passage, both into the backwater and back to the river. Fish surveys of the project area shall reveal recruitment to the project area through analysis of young-of-the-year and juveniles from native large river species.

Monitoring Design. Aquatic habitat monitoring should include but is not limited to the following:

- Fish surveys to determine species composition, spawning success, age distribution, and biomass
- Mussel community assemblage, and age distribution
- Primary production species diversity and biomass

Performance Measure 2(b) Ecological process. There is a close relationship between the annual migration and the annual flood cycle of the river. The floodplain-river functions as a corridor for long-distance migrants, mostly birds, but also fish. Most aquatic animals, however, use the Illinois floodplain-river system as a permanent home, undertaking short migrations within the system for spawning, rearing, or feeding areas in rapids, tributaries, backwaters, or on the floodplain. Since the floodplain would be reconnected to the river, those species whose life requisites require flood plain connectivity should benefit from this project.

Desired outcome. Connectivity would be suitable for allowing fish passage and conveying primary production (zooplankton and phytoplankton) to the river. Flows at the water control structure should be suitable to allow small, and large, young and mature fish to pass. This means the gate and egress/exit zones on either side allow for safe passage. Water flows should not exceed 5 feet per second and there should be randomly placed structures (rocks) for resting zones. Success criteria is defined as an increase by > 20% of native species and should be realized within 5 years of safe passage through the water control structure.

Monitoring Design. Fish surveys should demonstrate river fishes utilizing the gate for access to the backwater complex. Primary production samples in the river should test for quantities of biomass the backwater is contributing to the river. Additional studies should investigate how much of the river is influenced by fish migration and downstream primary production benefits.

Objective 3. Increase the presence of a reliable food source and quality habitat for migratory waterfowl, shorebirds, and other breeding birds.

Performance Measure 3(a). Reliable Food Source.

Desired outcome. The project would provide a reliable food source for spring and fall migrants as well as summer residents. A reliable food source includes the proper vegetation and invertebrates in an adequate quantity to accommodate each season. This food source would be diverse and with diverse physical conditions to meet the variety of waterfowl species. Success criteria is defined as wetland vegetation surveys revealing that appropriate vegetation used for food sources is available >70% of the time within 6 years construction completion during annual migrations. Adaptive management strategies such as herbicide application will be utilized if necessary.

Monitoring Design. Monitoring should include vegetation dispersion, community composition, invertebrate assemblages, and variation stem height.

Performance Measure 3(b). Quality habitat.

Desired outcome. Migratory and breeding birds require a diverse vegetation community for loafing, escape, and nesting cover not only for adults, but for juveniles as well. Success criteria is defined as the project area consisting of >80% diverse habitats, i.e. not monotypic fields of one species, within 7 years of construction completion.

Monitoring Design. Vegetation surveys should include nesting cover from emergent plants such as bull rush, sedges, and cattails, to woody nest cavities and rookery potential. The habitat should have enough buffer to avoid human disturbance.

Objective 4. Improve water quality through processing of nutrients and sediments and reducing sediment resuspension

Performance Measure 4(a). Nutrient processing.

Desired Outcome. Reduction in nutrient concentrations in the water flowing through the project into the Illinois River system. In particular, reduce total nitrogen and total phosphate into the UMR system, as they relate to the Gulf Hypoxia problem. Success criteria is defined as a reduction of 15% of nutrient concentrations during times when flows would be from the project area to the Illinois River within 10 years of construction completion.

Monitoring Design. Grab samples would be collected at 2 fixed sampling points, a northwest location and a southeast location adjacent to the water control structure, to determine nutrient processing. Nutrient processing sampling frequency would follow water quality monitoring procedures detailed in section IV. C.

Performance Measure 4(b). Sediment processing and sediment resuspension.

Desired Outcome. Reduction in suspended solids and consolidation of substrate sediment. Success criteria is defined as an increase of >30% wetland quality (diversity, health, size) within 10 years of construction completion including >15% increase in water quality within 10 years of construction completion.

*Monitoring Design***.** Multiparameter water quality monitoring sondes would be used to continuously monitor the parameters of turbidity, dissolved oxygen, specific conductance, water temperature, and pH at 3 sites within the project. Field data collection at the time of sonde calibration would gather measurements of Secchi disk transparency, water depth, water elevation, wind direction, wind velocity, and wave height. Sediment processing and sediment resuspension sampling frequency would follow water quality monitoring procedures detailed in section IV.C.

Objective 5. Restore hydrologic river floodplain connectivity.

Performance Measure. Based upon the 6-year water level management cycle (Figure K-4) seasonal connectivity between the river and Spunky Bottoms would be met.

*Desired outcome***.** Connectivity would be suitable for allowing fish passage and conveying primary production (zooplankton and phytoplankton) to the river. Flows at the water control structure should be suitable to allow small, and large, young and mature fish to pass. This means the gate and egress/exit zones on either side allow for safe passage. Water flows should not exceed 5 feet per second and there should be randomly placed structures (rocks) for resting zones. For additional information see Objective 2.

Monitoring Design. Fish surveys should demonstrate river fishes utilizing the gate for access to the backwater complex. Primary production samples in the river should test for quantities of biomass the backwater is contributing to the river. Additional studies should investigate how much of the river is influenced by fish migration and downstream primary production benefits. For additional information see Objective 2.

Objective 6. Increase IL River connectivity to quality fish spawning and nursery habitats.

Performance Measure. See Objective 2

Objective 7. Export biological productivity to river and maximize sustainability of aquatic habitat.

Performance Measure. See Objective 2

C. Monitoring Procedures. The following monitoring procedures would provide the information necessary to evaluate the previously identified project objectives for the Spunky Bottoms Ecosystem Restoration Project. This plan proposes 5 years of intensive post construction monitoring, to evaluate influences of the project on the Illinois River system. The data obtained from pre-construction will used from TNC and other various agencies that have conducted surveys of the area since the late 1990s.

The data collection program, a collaborative program between the TNC and the St. Louis District is designed to monitor the Project. Variables monitored by the program include water quality, vegetation, waterfowl, zooplankton, phytoplankton, and fish. Baseline data collection began once the TNC began managing the project area. The PDT would use this information as a basis for the project specific monitoring.

The purpose of this project is to restore, to the extent practical, quality, functional floodplain habitat and ecological processes sustaining plant and animal communities native to the Illinois River Valley prior to construction of the IWW 9-Foot Navigation Channel Project and the Little Creek D&LD. This plan proposes monitoring accordingly, by focusing on the resources and functions of the Project.

Objective 1. Restore the natural hydrograph of the Spunky Bottoms/ Illinois River backwater to approximate pre-settlement conditions. Even though the 6- year management plan appear to be static and easily repeatable, real world conditions would dictate how the management cycle is economized, and embellished to take advantage of vegetation management and water conveyance in and out of the preserve. Monitoring would document the events leading to TNC's decision making on why the water level was managed. Although the 6-year management cycle may not be followed in consecutive fashion, the overall goals of the management cycle should be met in the same time frame. This adaptive approach mimics the unpredictable character of the flood pulse cycle now and in the past. Flexibility will be used in the Water Control plan to allow for these small deviations. Any large deviations will require approval from USACE. The Nature Conservancy would continue three vegetation monitoring practices currently in place:

- Annual (August) aerial photos for vegetation cover amounts and dispersion
- Long Term Resource Monitoring Programs (LTRMP) for sampling emergent and submergent vegetation
- INHS annual vegetation transect monitoring

Objective 2. In cooperation with the Illinois Department of Natural Resources (ILDNR) and the LTRMP's river monitoring efforts, the TNC would manage data collection through fish survey sites. Additional sampling sites on either side of the water control gate would be used to monitor fish passage use and success and the floodplain primary production entering the river. The ILDNR and LTRMP would use their established fish collection protocols.

Objective 3. For waterfowl monitoring, the Illinois Natural History Survey (INHS) staff would continue their aerial surveys in the fall. They would also continue their brood and behavior studies using established protocols.

The St. Louis District, USFWS, and TNC would coordinate visual surveys at the project site and shore line sites downstream of the project area. Possible future studies should include DNA testing to determine if the Spunky Bottoms population is a contributor to river populations.

Objective 4. Water Quality Monitoring. To determine nutrient processing at the Spunky Bottoms Project, grab samples for total suspended solids, total phosphorus, orthophosphates, nitrate/nitrite, and total kjeldahl nitrogen would be collected at a frequency of: every 2 weeks during the months of April to September, once a month for October and March, and every 2 months during the non-growing season of November to February. Grab samples would be collected at 2 different locations; one sample in the northwest region of the project to measure nutrients flowing into the project and the other collected near the pump house in the southeast region of the project to measure nutrients released into the Illinois River system. Using multiparameter water quality monitoring sondes, continuous data pertaining to turbidity,

dissolved oxygen, specific conductance, water temperature, and pH would be monitored at three locations within the Spunky Bottoms Project area. Continuous data collection sites would determined in the field within the 1st year of post-construction. The sonde instruments would be calibrated and data collected every 2 weeks during the growing season months of March to October and every 2 months during November to February. Another part of continuous data monitoring would be the field collection of Secchi disk, water depth, water elevation, wind direction, wind velocity, and wave height, which would all occur concurrent with the sonde calibration effort. It is expected that continuous monitoring data would provide information on sediment resuspension and processing to evaluate the created islands' ability to break wind fetch and prevent sediment resuspension; as well as evaluate water level management performance, particularly with the success of water level draw downs to consolidate sediment. Grab sample results would be analyzed to determine project success in processing nutrients.

Objective 5. Restore hydrologic river floodplain connectivity. The Nature Conservancy would establish new fish sampling stations land side and river side of the water control structure. River fish species would be the primary concern including species, size, and age information. The Nature Conservancy would also sample primary production in the preserve and compare this to the contribution to the Illinois River.

D. Use of Monitoring Results and Analyses. Project monitoring is the responsibility of the TNC and the St. Louis District. With the need to integrate monitoring for programmatic adaptive management, extensive interagency coordination is required.

The PDT would communicate the results of the monitoring program with the TNC who would use the information to assess system responses to management, evaluate overall project performance, construct project report cards, and recommend modifications (i.e., adaptation) of the Projects appropriate.

VI. DATABASE MANAGEMENT

Database management is an important component of the monitoring plan and the overall AMP. The St. Louis District and TNC would archive the data collected as part of the monitoring and adaptive management plans for the Project.

Where applicable, the Spatial Data Standards for Facilities, Infrastructure and Environment (SDSFIE) standards would be used to facilitate data sharing among interested parties. Data analysis and reporting responsibilities would be shared between project assessment and adaptive management efforts in order to provide Project reports for the project stakeholders.

A. Description and Location. The data management plan should identify the computing hardware and any specialized or custom software used in data management for an AMP. Opportunities exist to develop either a centralized or distributed data management system. With input from the Spunky Bottoms PDT, the data managers should determine which approach best suits the needs of the overall AMP.

The PDT should identify those individuals with responsibility for data management activities (data managers) in support of an adaptive management plan. The data managers should collaborate with the PDT in developing a data management plan to support the AMP. The PDT should incorporate the data management plan into the overall program adaptive management plan, either in the main body of the adaptive management plan or as an appendix.

B. Data Storage and Retrieval. The Data Management Working Group would prescribe the data standards, quality assurance and quality control procedures and metadata standards. Data would be served using an industry standard like SDSFIE.

C. Analysis, Summarizing, and Reporting. The Project Assessment Team, project managers, and decision-makers would share data analysis and reporting responsibilities for project and programmatic adaptive management efforts in order to provide reports.

VII. ASSESSMENT

The assessment phase of the framework compares the results of the monitoring efforts to the desired project performance measures and/or acceptable risk endpoints (i.e., decision criteria) reflecting the goals and objectives of the management or restoration action. The assessment process addresses the frequency and timing for comparison of monitoring results to the selected measures and endpoints. The nature and format (e.g., qualitative, quantitative) of these comparisons are defined as part of this phase. The PDT should document the resulting methods for assessment as part of the overall adaptive management plan.

The results of the Spunky Bottoms Project monitoring program would be regularly assessed in relation to the desired project outcomes as described by the previously specified project performance measures. This assessment process continually measures the progress of the project in relation to the stated project goals and objectives and is critical to the project's AMP. The assessments would continue through the life of the project or until it is decided the project has successfully achieved (or cannot achieve) its goals and objectives.

A. Assessment Process. The PDT assigned to the Project would identify a combination of qualitative (i.e., professional judgment) and quantitative methods for comparing the values of the performance measures produced by monitoring with the selected values of these measures defining criteria for decision-making.

The PDT would use the appropriate statistical comparisons (e.g., hypothesis testing, ANOVA, multivariate methods, etc.), when necessary, to summarize monitoring data and compare these data with the Project decision criteria. The PDT would document these continued assessments as part of the project reporting and data management system.

B. Variances and Success. The Project Assessment Team would collaborate with project managers and decision-makers to define magnitudes of difference (e.g., statistical differences, significance levels) between the values of monitored performance measures and the desired values (i.e., decision criteria) constituting variances. Meaningful comparisons between monitoring results and desired performance would require characterization of historical and current spatial-temporal variability defining baseline conditions. Variances (or their absence) would be used to recommend adaptive management actions, including

- continuation of the project without modification,
- modification of the project within original design specifications,
- development of new alternatives, or
- successful close-out of the Project.

The TNC has developed key environmental attributes describing the linkages between stressors and performance measures. The assessment would help determine if the observed responses are linked to the project. The project has been formulated to address as many system stressors as feasible. If the stressors

targeted by the project have changed and the performance measure has not, the linkages in the key attributes should be examined to determine what other factors may be influencing the performance measure response.

The assessments would also determine if the responses are undesirable (e.g., are moving away from restoration goals) and if the responses have met the success criteria for the project. If performance measures are not responding as desired because the stressor has not changed enough in the desired direction, then recommendations should be made concerning modifications to the project. If the stressor has changed as expected/desired and the performance measure has not, additional research may be necessary to understand why.

From a system-wide perspective, scientific and technical information gathered from this project would be used, in part, to evaluate systemic trends on the Illinois River and contribute to the system-wide monitoring effort. Information generated from this effort should be linked to other environmental restoration efforts, performance, and system response. From a project-level perspective, monitoring plans should be designed to inform adaptive management decision making by providing monitoring data relevant to addressing uncertainty.

Similarly, for given multiple performance measures and corresponding monitoring results, the PDT would determine the number and magnitude of variances within a single assessment required to recommend modifications to the Project.

C. Frequency of Assessments. Ideally, the frequency of assessments for the Project would be determined by the relevant ecological scales of each performance measure. The Project's technical support staff would identify for each performance measure the appropriate timescale for assessment. The project should have a combination of short-, medium-, and long-term performance measures. Assessments should be performed at a six year interval at a minimum; however, depending on the timescale of expected responses of the specific measure and frequency of data collection, it may be determined during PED as much as a 12 year reporting may be necessary.

D. Documentation and Reporting. The PDT would document each of the performed assessments and communicate the results of its deliberations to the managers and decision-makers designated for the Project. The PDT would work with the project monitoring team and monitoring workgroup to produce periodic reports measuring progress towards project goals and objectives as characterized by the selected performance measures. The results of the assessments would be communicated regularly to the project managers and decision-makers.

VIII. DECISION MAKING

Adaptive management is distinguished from more traditional monitoring in part through implementation of an organized, coherent, and documented decision process. For the Spunky Bottoms AMP, the decision process includes:

- anticipation of the kinds of possible management decisions within the original project design;
- specification of values of performance measures used as decision-criteria;
- establishment of a consensus approach to decision making; and
- a mechanism to document; report; and archive decisions made during the timeframe of the AMP.

A. Decision Criteria. Decision criteria, also referred to as adaptive management triggers, are used to determine if and when adaptive management opportunities should be implemented. These criteria are usually ranges of expected and/or desirable outcomes. They can be qualitative or quantitative based on the nature of the performance measure and the level of information necessary to make a decision. Desired outcomes can be based on reference sites, predicted values, or comparison to historic conditions. A potential decision criterion is identified below, based on the project objectives and performance measures. More specific decision criteria would be developed during the pre-construction engineering and design phase of the project. Some criteria already developed include:

- aerial photography for habitat classification can detect vegetation coverage, extent of water inundation at various water levels.
- compare pre-project vegetation coverage (in acres) with vegetation coverage for 12 years after construction to determine if vegetation is propagating as predicted,
- compare vegetation coverage for 2 water level management cycles (12 years) to determine if the proper habitat conditions are being maintained.

To effectively implement adaptive management, the PDT may need to revisit and recalibrate, in the light of field observations and field data, predicted outcomes from modeling so the PDT can develop appropriate recommendations for changes. Additional modeling might be required to understand and manage observed biological and vegetative responses. An adaptive management action should include incorporation of findings into future design templates.

B. Potential Adaptive Management Measures. The project report card, drafted by the PDT, would be used to evaluate project status and adaptive management needs. The PDT may submit recommendations for adaptive management actions to the stakeholders. The stakeholders would investigate and further refine adaptive management recommendations and present them to the Program Management Team. Some potential adaptive management actions for this project may include capitalizing on the river hydrology to economize water level changes landward of the levee.

C. Project Close-Out. Close-out of the project would occur when the PDT determines the project has been successful or when the maximum 10 year monitoring period has been reached. Success would be considered to have been achieved when project objectives have been met or when it is clear they would be met based upon the trend for the site conditions and processes. Project success would be based on the following:

- reconnectivity with the river resulting in fish passage and primary productivity moving into the river;
- adequate vegetation growth and control for nesting and migratory bird use; and
- nutrient reduction within the project area.

There may be issues related to the sustainability of the project requiring some monitoring and management beyond achieving the project objectives. Due to variable nature of the Illinois River hydrology, the monitoring baseline may change during the period of analysis. Consequently, it may be appropriate to consider extending project-specific monitoring and adaptive management beyond ten years.

IX. COSTS FOR IMPLEMENTATION OF MONITORING AND ADAPTIVE MANAGEMENT PROGRAM

The PDT estimated the costs associated with implementing the monitoring and adaptive management plans based on currently available data and information developed during plan formulation as part of the

feasibility study for the first 5 years. Because uncertainties remain as to the exact project features, monitoring elements, and adaptive management opportunities, the costs estimated in Tables K-1, K-2, and K-3 (below) need to be refined in the PED phase during the development of the detailed monitoring and adaptive management plans.

Costs were estimated based on monitoring efforts in pre-, during, and post-construction for water quality, vegetation/biological response, and engineering performance. The total cost for implementing the monitoring and adaptive management programs is $682,520.

A. Costs for Implementation of Monitoring Program. Costs to be incurred during the PED and construction phases include drafting of the detailed monitoring plan, monitoring site establishment and pre-construction and construction data acquisition to establish baseline conditions. Cost calculations for post-construction monitoring are displayed as a 13-year (maximum) total. If ecological success is determined earlier (prior to 10 years post-construction), the monitoring program would cease and costs would decrease accordingly.

It is intended the monitoring conducted for the Project would utilize centralized data management, data analysis, and reporting functions. All data collection activities follow consistent and standardized processes regardless of the organization responsible for monitoring. Cost estimates include monitoring equipment, monitoring station establishment, data collection, quality assurance/quality control, data analysis, assessment, and reporting for the proposed monitoring elements (Table K-1). These estimates account for a 2.6% annual inflation rate. The current total estimate for implementing the monitoring program is $682,520. Unless otherwise noted, costs would begin at the onset of the PED phase and would be budgeted as construction costs.

Table K-1. Preliminary Cost Estimates for Implementation of the Monitoring Program for the Project

Monitoring Activity Number	Activities	PED Data Acquisition (annual cost)	5 Year Total (cost shared)
1	Develop and maintain monitoring plan and schedule	$5,000	$25,000
2	Document Annual Water Level Decisions	$1,134	$5,670
3	Vegetations Surveys (Transect, Aerial Surveys, LTRMP Sampling)	$31,000	$155,000
4	Aquatic Processes Monitoring	$5,000	$25,000
5	Fisheries and Mussel Monitoring	$11,000	$55,000
6	Waterfowl Surveys and Monitoring	$15,000	$75,000
7	Water Quality Monitoring (Grab Samples)	$3,600	$18,000
8	Water Quality Monitoring (Continuous Monitoring)	$13,500	$67,500
Database Management	Database development, management, and maintenance, Communication efforts (i.e., meetings, webpage, conferences)	$51,270	$256,350
	TOTAL	**$136,504**	**$682,520**

B. Cost Assumptions

Monitoring Activity 1– Monitoring Plan and Schedule

- Coordinate and track monitoring plan and schedule: 50 hours x $100 per year = $5,000

Monitoring Activity 2 - Water Level Management

- Document Annual Water Level Decision: 40 hours x $50 per year = $2,000

Monitoring Activity 3 – Vegetation Surveys

- Vegetation Surveys: 9 transects x $2,000 = $18,000
- 1 aerial survey/photo/photo interpretation = $8,000
  Random LTRMP surveys $5,000/year

Monitoring Activity 3 – Aquatic Processes Monitoring

- 5 samples per year x $1000 each = $5,000

Monitoring Activity 4 – Fisheries and Mussel Monitoring

- 2 fisheries survey per year x $2,500 = $5,000
- 1 mussel survey per year x $6,000 = $11,000

Monitoring Activity5 – Waterfowl Surveys and Monitoring.

- Annual aerial waterfowl surveys: $10,000
- Annual waterfowl use survey: $5,000

Monitoring Activities 6 and 7- Water Quality Monitoring Estimated Costs. Grab sample costs were calculated using the assumption that 16 samples would be collected throughout the year at 2 sites (Table K-2).

Table K-2. Water Quality Monitoring Estimated Costs

Grab Sample Water Quality Parameter	Annual Cost	5 Year Total Amount	Total Federal Cost	Total non-Federal Cost
Total Suspended Solids	$400	$2,000	$1,500	$500
Total Phosphorous	$900	$4,500	$3,375	$1,125
Orthophosphates	$700	$3,500	$2,625	$875
Nitrate/Nitrite	$800	$4,000	$3,000	$1,000
Total Kjeldahl Nitrogen	$800	$4,000	$3,000	$1,000
Grab Sample Total Costs	$3,600	$18,000	$13,500	$4,500

Continuous monitoring costs for gathering and processing data were calculated by assuming a full work day required to gather and process the data, 18 collection and processing events, and a daily labor rate of $500. Calibration and maintenance costs used the assumptions that sonde calibration and maintenance would require a half a day of labor, 18 times a year, at a daily labor rate of $500 (Table K-3).

Table K-3. Continuous Monitoring and Calibration Activities

Continuous Monitoring and Calibration Activity	Annual Cost	5 Year Total Amount	Total Federal Cost	Total non-Federal Cost
Data Gathering and Processing	$9,000	$45,000	$33,750	$11,250
Instrument Maintenance and Calibration	$4,500	$22,500	$16,875	$5,625
Total Continuous Monitoring	$13,500	$67,500	$50,625	$16,875

The estimated total water quality monitoring cost, to encompass the entire data collection span of 5 years is $67,500. Therefore, the total amount of cost-shared water quality monitoring is $50,625.

X. LITERATURE CITED

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SECTION 1135
SPUNKY BOTTOMS

ECOSYSTEM RESTORATION PROJECT

ECOSYSTEM RESTORATION REPORT
WITH
INTEGRATED ENVIRONMENTAL ASSESSMENT

APPENDIX L
REAL ESTATE
INCLUDING REAL ESTATE PLAN

Ecosystem Restoration Report
Spunky Bottoms Preserve
Brown County, Illinois

Appendix L

Real Estate
Including Real Estate Plan

Real Estate Plan for Ecosystem Restoration Report (ERR)
For the Spunky Bottoms Preserve
The Nature Conservancy

1. Purpose

This Real Estate Plan (REP) covers lands involved in the Spunky Bottoms Ecosystem Restoration Project. This report was prompted in response to a request for Federal assistance from The Nature Conservancy for an ecosystem restoration project. The purpose of this project will be ecosystem restoration in addition to the original project purpose of flood protection. The REP is in support of the Ecosystem Restoration Report 's (ERR) presentation of a proposal for the restoration of wetlands habitat to modern historic conditions.

The Spunky Bottoms Section 1135 Habitat Restoration Project is situated approximately 5 miles north of Meredosia, Illinois. Section 1135 study efforts were continued under new legislation for Section 3064 of the Water Resources Development Act of 2007 that included environmental restoration as a project purpose and allows for continued eligibility for emergency assistance under PL 84-99 as determined in accordance with ER 500-1-1. The proposed project would be funded and constructed under this authorization. The site is across the river from the U.S. Fish and Wildlife Service Meredosia National Wildlife Refuge, and it is about one and one-half miles downstream of the U.S. Corps of Engineers operated La Grange Lock and Dam. The township road dividing TNC from IDNR forms the northern boundary of the project area and the channel of Camp Creek forms the southern boundary. County Road 12 delineates the western edge (and is adjacent to a section of river bluff known locally as Spunky Ridge) of the southern two-thirds of the property, while the Illinois River (between river mile 75.0 and river mile 78.3) delineates the eastern boundary of the area. The project area also lies within the Little Creek Drainage and Levee District (D&LD).

2. Lands, Easements, and Rights-of-Way (LER) Required for Construction

a. Description of Lands, Easements, and Rights-of-Way required for the construction, operation, and maintenance of the project

The tentatively selected plan, EL 432', consists of construction of a reconnection structure that would allow fish passage and controlled interior water level management up to elevation 432 NGVD while still keeping the flood protection integrity of the mainline levee. A 2,400 linear foot south berm to protect the district's southernmost landowner would be constructed along with a ponding area and provision for pumping. This ponding area would also allow for fine-scale water level management throughout the project through use of a portable trash pump. A flowage easement was considered in place of the south berm, however landowner opposition and the lack of sponsor condemnation authority led us to constructing a berm. A township road between the TNC and IDNR property would be raised in order to retain access for property owners along the levee and provide construction access. Approximately 3,350 linear feet of riprap would be placed on the lower section of County Road 12 to prevent damage from maintaining a water level managed at elevation 432. In addition, a single portable, diesel-

powered pump would be used in the project area to assist with water level management. The Land needed for the project is owned by the Non Federal Sponsor (NFS,) The Nature Conservancy (TNC). Borrow material will come from the TNC fee owned property.

b. Provide description of total LER required for each project purpose and feature.

Fee:
916.80 acres will be required for the management area of this project.

TNC owns 1,194.61 acres in fee in this area.
The Little Creek Drainage and Levee District owns the current levees via permanent easement.

The plan includes installing water supply and control facilities, two portable pumps, 2,400 linear foot berm/ponding area, and 3,350 linear feet of protection along County Road 12. TNC holds the underlying fee ownership where project features are located. No additional interest is required. For the purposes of cost estimation, project features located on Little Creek Levee District easement are considered "non-creditable" due to previous federal credit being received.

c. Estates to be acquired

Fee excluding minerals (with restriction on use of the surface) is the only estate required for this project. TNC has already acquired this interest.

1. FEE EXCLUDING MINERALS (With Restriction on Use of the Surface).

The fee simple title to the land, subject, however, to existing easements for public roads and highways, public utilities, railroads and pipelines; excepting and excluding all (coal) (oil and gas), in and under said land and all appurtenant rights for the exploration, development, production and removal of said (coal) (oil and gas), but without the right to enter upon or over the surface of said land for the for the purpose of exploration, development, production and removal therefrom of said (coal) (oil and gas).

3. <u>Land Required Owned by the Sponsor</u>

TNC owns 1,194.61 acres in fee. 972 of those acres are under a Wetland Reserve Program Easement from Natural Resources Conservation Service (NRCS), a USDA organization. We believe the purpose of this project and the WRP easements are well-matched as we restore and enhance this area to a wetland habitat.

The WRP easement on TNC property was purchased with Federal funds. However, the TNC will be requesting credit for the encumbered value of the property needed for project purposes. TNC will request credit for the 938 acres of the management area of the project; 800.6 acres are encumbered by the WRP easement and 137.8 acres are unencumbered.

4. Non-Standard Estates

No non-standard estates are required for the project.

5. Existing Federal Project within LER Required for the Project

The original Little Creek Drainage and Levee District flood protection project was a Federal project. The existing project is a flood protection project. TNC owned land will be provided for this wetland restoration project. Additional legislation has allowed the existing project to maintain their eligibility for emergency assistance under PL 84-99 while adding this habitat restoration project. TNC is the non federal sponsor. The value of the federally funded WRP easement on TNC property is not eligible for credit. However, the non federal sponsor owns the land in fee and the encumbered value of that land is eligible for credit.

6. Federally Owned Land Required for the Project

No federally owned lands are included in the LER required for this project.

7. Navigation Servitude

Navigation Servitude is not needed on this project.

8. Map depicting area

See exhibit A.

9. Possibility of Induced Flooding Due to the Project

Flooding will be induced by the construction and OMRR&R of this project. A reconnection structure will be constructed to facilitate flooding. Neighboring landowners will be protected by the South Berm.

10. Baseline Cost Estimate

Cost Estimate: $3,425,000.00

EC 405-1-04 states that Continuing Authorities Program (CAP) projects generally require a cost estimate level of valuation effort as opposed to a gross appraisal. This is because the planning efforts for these projects require a limited product in a timely and cost-effective manner. Additionally, practicality and professional judgment must also be utilized in determining cost estimate level of effort. The LER contributed by the non-federal sponsor is fee-owned. Gross appraisals have been done for this project in the past and were utilized to produce the current cost estimate. The risk of the sponsor not being able to meet the cost share

requirements is low; the sponsor already owns the land needed for the project. Therefore, a simplified procedure was adopted.

The cost share requirement for this project allows a maximum of 25% contribution for the non-federal sponsor. While the cost estimate indicates non-federal project costs of more than 25% of the project cost; the sponsor is willing to waive credit in excess of 25% of the project.

See Exhibit C for more details.

11. Relocation Assistance Benefits

No landowners will be displaced as a result of this project.

12. Mineral Activity in Project Area

There are no known present or anticipated mineral activity or timber harvesting in the project area that will affect construction, operation or maintenance of the project.

13. Sponsor Legal and Professional Capability to Acquire LER

Please see assessment attached as Exhibit B. TNC does not have power of eminent domain or quick-take. As this project does not require any acquisition of property, TNC is fully capable of providing the necessary LER.

14. Zoning Ordinances Proposed

There will be no zoning ordinances enacted to facilitate acquisition of land for this project.

15. Schedule of Land Acquisition Milestones

Normally, a period of one-year is allowed for the sponsor to acquire the ROW after receipt of the final ROW limits from the Real Estate Division. This one-year period does not include land which may have to be condemned. The Non-Federal Sponsors already own the necessary ROW for this project.

16. Facility or Utility Relocations

Potential relocations include: Township road raise and power line relocation. A preliminary attorney opinion of compensability will be developed as the proposed relocations are developed and defined. Further details will be developed during plans and specs. For planning purposes the township road raise and the power line relocation have been included in the real estate cost estimate.

17. Impacts of Suspected or Known Contaminants

A Phase I Environmental Assessment was performed in 2011. Areas of known contamination will be avoided to the extent possible. If an area cannot be avoided, the non-federal sponsor will be responsible for clean-up.

18. Landowner Support or Opposition to the Project

Concerns for landowners within this flood protection system are adequate future flood protection performance and federal certification of the system, There is no known opposition to the project.

19. Notification to the Non Federal Sponsor Regarding the Risks Associated with Land Acquisition before Execution of the Project Cooperating Agreement (PPA)

The sponsor does not intend to acquire any additional real estate.

20. Other Real Estate Issues Relevant to the Project

Privately-owned cabins are built into the levee footprint. While this may be an issue for the levee district to continue in the PL-84-99 program; this does not directly affect this Ecosystem Restoration project.

NRCS, agent of USDA and holder of the WRP easements, has expressed concern that the Ecosystem Restoration project may not be compatible with their easements. The immediate remedy is issuance of a compatibility agreement. While a compatibility agreement is 5 years in length, this issue will be handled through a letter of intent from NRCS indicating that they intend to issue additional compatibility agreements. Documentation will be provided when it is received.

TNC does not have eminent domain authority and it will not be necessary for this project.

TNC traditionally utilizes its lands as a revenue source. As this project is federally funded, exclusive use will not be permitted.

Timothy J. Nelson
Chief, Real Estate Division
USACE, St. Louis District

Exhibit A

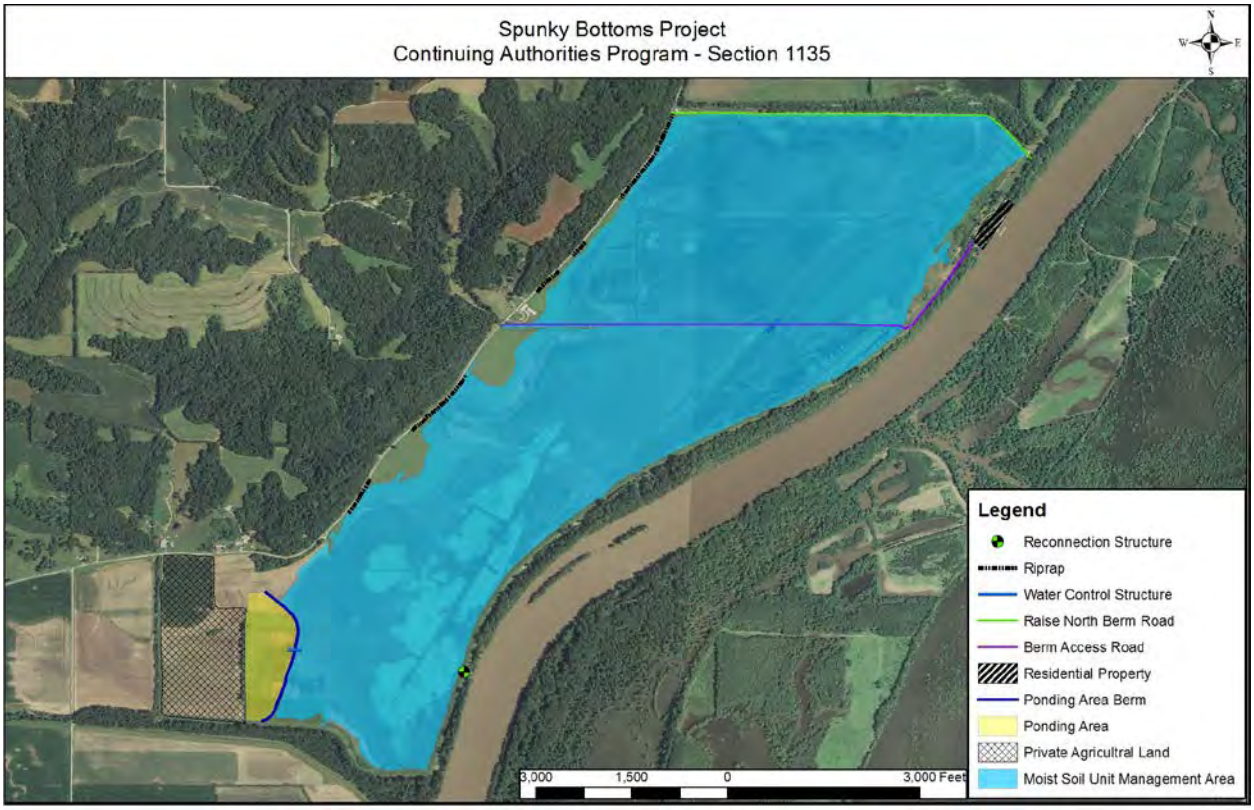
Spunky Bottoms Project
Continuing Authorities Program - Section 1135
N
W
E
S
Legend
Reconnection Structure
Riprap
Water Control Structure
Raise North Berm Road
Berm Access Road
Residential Property
Ponding Area Berm
Ponding Area
Private Agricultral Land
Moist Soil Unit Management Area
3,000
1,500
0
3,000 Feet

Exhibit B

ASSESSMENT OF NON-FEDERAL SPONSOR'S
REAL ESTATE CAPABILITY
TNC

I. Legal Authority:

a. Does the sponsor have legal authority to acquire and hold title to real property for project purposes? **Yes.**
b. Does the sponsor have the power of eminent domain for this project? **No.**
c. Does the sponsor have "quick-take" authority for this project? **No.**
d. Are any of the lands/interests in land required for the project located outside the sponsor's political boundary? **Yes.**

II. Human Resource Requirements:

a. Will the sponsor's in-house staff require training to become familiar with the real estate requirements of the Federal project including P.L. 91-646, as amended? **No.**
b. If the answer to II.a. is "yes," has a reasonable plan been developed to provided such training? **N/A.**
c. Does the sponsor's in-house staff have sufficient real estate acquisition experience to meet its responsibilities for the project? **Yes.**
d. Is the sponsor's projected in-house staffing level sufficient considering its other workload, if any, and the project schedule? **Yes.**
e. Can the sponsor obtain contractor support, if required in a timely fashion? **Yes.**
f. Will the sponsor likely request USACE assistance in acquiring real estate? **No.**

III. Other Project Variables:

a. Will the sponsor's staff be located within reasonable proximity to the project site? **Yes.**
b. Has the sponsor approved project/real estate schedule/milestones? **N/A.**

IV. Overall Assessment:

a. Has the sponsor performed satisfactorily on other USACE projects? **Yes.**
b. With regard to this project, the sponsor is anticipated to be fully capable. **Yes.**

Exhibit C

ALTERNATIVE - El. 432'				
Spunky Bottoms - Ecosystem Restoration				
Brown County, IL		Date of Value:	19-Sep-13	
(a) Lands and Damages		**Unit**	**Unit Value**	**Total**
		(acres)		
MANAGEMENT AREA (Fee)				
Levee Protected (Unencumbered)		137.80	$3,700	$509,860
Levee Protected (Encumbered - WRP)		779.00	$2,300	$1,791,700
		916.80		
PROJECT FEATURES				
Levee Surfacing				
Pump Station				
Berm/Ponding				
(b) Total Lands, Easements, and Right-of-Way (Rounded)				**$2,302,000**
(c) Improvements				**$0**
(d) Acquisition (Administrative) Costs		1 owner		**$8,000**
Planning	$6,000			
Acquisition	$0			
Appraisal	$2,000			
Total	$8,000			
(e) Relocation Assistance Costs (PL99-646)				**$0**
(f) Utility/Facility Relocation Costs				
Road Raise and Powerline Relocation				**$1,115,000**
(g) Total Non-Federal Project Cost (Rounded)				**$3,425,000**
Cost Estimte by: James T. Lovelace				
Note: The subject is encumbered with a 30-yr, Wetland Reserve Program (WRP) easement having a remaining term of approximately 16 yrs from the date of this estimate.				

1. The NFS holds the underlying fee ownership where project features are located. No additional interest is required.

2. For the purpose of this Cost Estimate, project features located on Little Creek Levee District easement are considered "non-creditable" due to previous federal credit being received.

Quality Control Plan Checklist

Real Estate Plans

And other similar Feasibility-Level Real Estate Planning Documents

ER 405-1-12, Section 12-16, Real Estate Handbook, 1 May 1998

A Real Estate Plan (REP) is prepared in support of a decision document for full-Federal or cost shared specifically authorized or continuing authority projects. It identifies and describes lands, easements and rights-of-way (LER) required for the construction, operation, maintenance, repair, replacement, and rehabilitation (OMRR&R) of a proposed project including requirements for mitigation, relocations, borrow material, and dredged or excavated material disposal. It also identifies and describes facility/utility relocations, LER value, and the acquisition process. The REP does not just cover LER to be acquired by the non-Federal sponsor (NFS) or Government. The report covers all LER needed for the project, including LER already owned by the NFS, Federal Government, other public entities, or subject to the navigation servitude.

The REP must contain a detailed discussion of the following 20 topics, as set out in Section 12-16 of the ER, including sufficient description of the rationale supporting each conclusion presented. If a topic is not applicable to the project, this should be stated in the REP. The pages of a REP should be numbered.

PROJECT _____Spunky Bottoms_____

REPORT TITLE _____Ecosystem Restoration Report_____

Date of Report_____ Date of REP _____09/01/2011_____

1. **Purpose of the REP.** __x___
   a. Describe the purpose of the REP in relation to the project document that it supports.
   b. Describe the project for the Real Estate reviewer.
   c. Describe any previous REPs for the project.

2. **Describe LER.** ___x___
   a. Account for all lands, easements, and rights-of-way underlying and required for the construction, OMRR&R of the project, including mitigation, relocations, borrow material and dredged or excavated material disposal, whether or not it will need to be acquired or will be credited to the NFS.
   b. Provide description of total LER required for each project purpose and feature.
   c. Include LER already owned by the Government, the NFS and within the navigation servitude.
   d. Show acreage, estates, number of tracts and ownerships, and estimated value.
   e. Break down total acreage into fee and the various types and durations of easements.
   f. Break down acreage by Government, NFS, other public entity, and private ownership, and lands within the navigation servitude.

3. **NFS-Owned LER.**___x___

a. Describe NFS-owned acreage and interest and whether or not it is sufficient and available for project requirements.

b. Discuss any crediting issues and describe NFS views on such issues.

4. Include any proposed **Non-Standard Estates.** __x___

a. Use Standard Estates where possible.

b. Non-standard estates must be approved by HQ to assure they meet DOJ standards for use in condemnations.

c. Provide justification for use of the proposed non-standard estates.

d. Request approval of the non-standard estates as part of document approval.

e. If the document is to be approved at MSC level, the District must seek approval of the non-standard estate by separate request to HQ. This should be stated in the REP.

f. Exception to HQ approval is District Chiefs of RE approval of non-standard estate if it serves intended project purposed, substantially conforms with and does not materially deviate from the standard estates found in the RE Handbook, and does not increase cost or potential liability to the Government. A copy of this approval should be included in the REP. (See Section 12-10c. of RE 405-1-12)

g. Although estates are discussed generally in topic 2, it is a good idea to also state in this section which standard estates are to be acquired and attach a copy as an appendix. The duration of any temporary estates should be stated.

5. **Existing Federal Projects.** __x___

a. Discuss whether there is any existing Federal project that lies fully of partially within LER required for the project.

b. Describe the existing project, all previously-provided interests that are to be included in the current project, and identify the sponsor.

c. Interest in land provided as an item of local cooperation for a previous Federal project is not eligible for credit.

d. Additional interest in the same land is eligible for credit.

6. **Federally-Owned Lands** __x___

a. Discuss whether there is any Federally owned land included within the LER required for the project.

b. Describe the acreage and interest owned by the Government.

c. Provide description of the views of the local agency representatives toward use of the land for the project and issues raised by the requirement for this land.

7. **Navigation Servitude.** __x___

a. Identify LER required for the project that lies below the Ordinary High Water Mark, or Mean High Water Mark, as the case may be, of a navigable watercourse.

b. Discuss whether navigation servitude is available

c. Will it be exercised for project purposes? Discuss why or why not.

d. Lands over which the navigation servitude is exercised are not to be acquired nor eligible for credit for a Federal navigation or flood control project or other project to which a navigation nexus can be shown.

e. See paragraph 12-7 of ER 405-1-12.

8. **Map** __x___

a. An aid to understanding

b. Clearly depicting project area and tracts required, including existing LER, LER to be acquired, and lands within the navigation servitude.

c. Depicts significant utilities and facilities to be relocated, any known or potential HTRW lands.

9. **Induced Flooding** can create a requirement for real estate acquisition. ___x___

a. Discuss whether there will be flooding induced by the construction and OMRR&R of the project.

b. If reasonably anticipated, describe nature, extent and whether additional acquisition of LER must or should occur.

c. Physical Takings Analysis (separate from the REP) must be done if significant induced flooding anticipated considering depth, frequency, duration, and extent of induced flooding.

. d. Summarize findings of Takings Analysis in REP. Does it rise to the level of a taking for which just compensation is owed?

10. **Baseline Cost Estimate** as described in paragraph 12-18. __x___

a. Provides information for the project cost estimates.

b. Gross Appraisal includes the fair market value of all lands required for project construction and OMRR&R.

c. PL 91-646 costs

d. Incidental acquisition costs

e. Incremental real estate costs discussed/supported.

f. Is Gross Appraisal current? Does Gross Appraisal need to be updated due to changes in project LER requirements or time since report was prepared?

11. **Relocation Assistance Benefits** Anticipated. ___x__

a. Number of persons, farms, and businesses to be displaced and estimated cost of moving and reestablishment.

b. Availability of replacement housing for owners/tenants

c. Need for Last Resort Housing benefits

d. Real Estate closing costs

e. See current 49 CFR Part 24

12. **Mineral Activity**. ___x__

a. Description of present or anticipated mineral activity in vicinity that may affect construction, OMRR&R of project.

b. Recommendation, including rationale, regarding acquisition of mineral rights or interest, including oil or gas.

c. Discuss other surface or subsurface interests/timber harvesting activity

d. Discuss effect of outstanding 3rd party mineral interests.

e. Does estate properly address mineral rights in relation to the project?

13. **NFS Assessment** __x___

a. Assessment of legal and professional capability and experience to acquire and provide LER for construction, OMRR&R of the Project.

b. Condemnation authority

c. Quick-take capability

d. NFS advised of URA requirements

e. NFS advised of requirements for documenting expenses for credit.

f. If proposed that Government will acquire project LER on behalf of NFS, fully explain the reasons for the Government performing work.

g. A copy of the signed and dated Assessment of Non-Federal Sponsor's Real Estate Acquisition Capability (Appendix 12-E) is attached to the REP.

14. **Zoning** in Lieu of Acquisition __x___

a. Discuss type and intended purpose

b. Determine whether the proposed zoning proposal would amount to a taking for which compensation will be due.

15. **Schedule** __x___

a. Reasonable and detailed Schedule of land acquisition milestones, including LER certification.

b. Dates mutually agreed upon by Real Estate, PM, and NFS. _____

16. **Facility or Utility Relocations** ___x__

a. Describe the relocations, identity of owners, purpose of facilities/utilities, whether owners have compensable real property interest.

b. A synopsis of the findings of the Preliminary Attorney's Investigation and Report of Compensable Interest is included in the REP as well as statements required by Sections 12-17c.(5) and (6).

c. Erroneous determinations can affect the accuracy of the project cost estimate and can confuse Congressional authorization.

d. Eligibility for substitute facility

1. Project impact
2. Compensable interest
3. Public utility or facility
4. Duty to replace
5. Fair market value too difficult to determine or its application would result in an injustice to the landowner or the public.

e. See Sections 12-8, 12-17, and 12-22 of ER 405-1-12.

17. **HTRW** and Other Environmental Considerations ___x___

a. Discussion the impacts on the Real Estate acquisition process and LER value estimate due to known or suspected presence of contaminants.

b. Status of District's investigation of contaminants.

c. Are contaminants regulated under CERCLA, other statues, or State law?
d. Is clean-up or other response required of non-CERCLA regulated material?
e. If cost share, who is responsible for performing and paying cost of work?
f. Status of NEPA and NHPA compliances
g. See ER 1165-2-132, Hazardous, Toxic, and Radioactive Waste (HTRW) Guidance for Civil Works Projects.

18. **Landowner Attitude**. __x___
a. Is there support, apathy, or opposition toward the project?
b. Discuss any landowner concerns on issues such as condemnation, willing seller provisions, estates, acreages, etc.?

19. A statement that the **NFS has been notified in writing about the risks of acquiring LER before the execution of the PPA**. If not applicable, so state. __x___

20. **Other Relevant Real Estate Issues**. Anything material to the understanding of the RE aspects of the project. ___x____

A copy of the completed Checklist is attached to the REP. _____
(Draft REPs must contain a draft checklist and draft Technical Review Guide)

I have prepared and thoroughly reviewed the REP and all information, as required by Section 12-16 of ER 405-1-12, is contained in the Plan.

Preparer — Date: 01 Sep 2011

A copy of the Real Estate Internal Technical Review Guide for Civil Works Decision Documents is attached and signed by me as the Reviewer

RE Internal Technical Reviewer — Date: 9/1/2011

The REP has been signed and dated by the Preparer and the District Chief of Real Estate.

_____

REAL ESTATE INTERNAL TECHNICAL REVIEW GUIDE FOR CIVIL WORKS DECISION DOCUMENTS

Real Estate Guide for Review of Civil Works Decision Documents

1. Initially, read the entire Real Estate Plan (REP). After reading the REP:

   a. Do you have a good idea of the scope of the project?

   b. Did you note any omissions?

   c. What questions do you have regarding the project?

   d. Were all the elements of an REP as listed in Chapter 12 covered?

   e. Do you have a completed Quality Control Plan for the REP?

2. Next, read the main body of the decision document (including the chapter on the recommended plan), paying particular attention to the overall scope of the project, proposed facility relocations, environmental investigations, mitigation requirements, navigational servitude, and possibility of induced flooding.

3. Then, read the REP again, noting any discrepancies between the REP and the main report. Pay particular attention not only to what the report says, but also to what the report does not say. Many review comments are due to items being omitted or not discussed in enough detail in the REP.

4. Finally, ask yourself specific questions about the project such as the following. You should be able to answer them by reading the REP.

   a. What is the project's purpose and have there been prior real estate planning documents for this project?

   b. Is the purpose of the report to gain Congressional authorization (e.g., a Feasibility Report)? If not, what is the real estate acquisition authority for the project and is the proper authority cited in the report?

   c. Who is the sponsor that will execute the PPA? Has an assessment of the sponsor's capability been completed and included in the report? Does the sponsor have eminent domain and quick take authority? If not, does the report address how acquisition will be accomplished if condemnation is required? Does the sponsor currently own any lands required for the project? If so, were any of these lands obtained as part of another Federal project or funded with Federal funds in whole or in part?

d. Are there any lands currently owned by the Federal government involved in this project? If so, has it been coordinated with the

e. Does the project involve a navigable waterway and could the navigational servitude be utilized for purposes of the project? If the project is not a navigation project and asserting navigational servitude is proposed, does the report state the legal basis for asserting navigational servitude?

f. Is there a possibility of induced flooding, and has a taking analysis been completed? What was the outcome of that analysis? Are flowage easements required because the anticipated flooding will rise to the level of a taking?

g. Are the interests and estates sufficient to provide for construction, operation, maintenance, repair, replacement and rehabilitation (OMRR&R) of the project? Do the estates not only grant the interest needed for construction and maintenance, but do they prohibit practices that might interfere with the project in the future? Is the term for any temporary easements defined and are they for an appropriate duration?

h. How do we physically access the project site? Is an additional real estate interest required for construction access and/or OMRR&R access?

i. Is there a need to dispose of borrow material? If so, are these areas included in the report as LERRD items or, if proven cost efficient, contractor provided items? Are the environmental issues associated with borrow/disposal effectively addressed?

j. Will a contractor's staging area be required?

k. Are any persons being displaced from their homes as a result of the project? If so, how many? Is replacement housing available? Will standard PL 91-646 benefits be provided? Will any businesses require relocation assistance? Has a replacement housing survey been accomplished?

l. Are there any public facilities to be altered or relocated? Do the below relocations meet all of the following five tests?

(1) The project design requires the facility to be moved in whole or in part (temporarily or permanently), or the project will negatively impact the ongoing function or operation of the facility.

(2) The owner of the facility has a compensable real property interest in the land on which the impacted portion of the facility is located.

(3) The facility serves a public purpose.

(4) The owner of the facility has a duty to replace the facility as a result of legal or factual necessity (continuing need).

(5) The fair market value of the interest that must be acquired due to project impact is too difficult to ascertain, or payment of fair market value instead of providing a substitute facility would result in manifest injustice to the owner or the public. Have preliminary opinions of compensability be completed for each facility? If the REP is part of a decision document that will serve as the basis for Congressional authorization, does it contain the disclaimer language required by ER 405-1-12, para. 12-17c(6)?

m. Are any cemeteries in the project area? If so, how will they be impacted? If they are allowed to remain in place, how will permanent access be provided? If they are to be relocated, the report should address the preparation of a cemetery relocation plan.

n. Does the report address the types of ownership, number of tracts and acres, and estates to be acquired? Does the report address mineral activity and whether the minerals will be acquired, subordinated, or left outstanding?

o. Does the report state if any nonstandard interest or estate will be utilized? If so, is a copy of the estate in the report?

p. Do the acres, values, and estates contained in the baseline cost estimate agree with those contained in an approved gross appraisal for the project? If not, any discrepancy should be discussed with the Appraisal Branch and reconciled. Does the acreage and cost presented in the REP agree with real estate acreage and costs shown elsewhere in the main report or MCACES estimate? Does the cost estimate show the estimated cost by estate, contingency, administrative cost, and relocation assistance? The cost should be shown for both Federal and non-Federal, where appropriate.

q. Does the report address the status of all environmental considerations and approvals, HTRW assessments, NEPA compliance, and NHPA compliance? If any land required for the project is contaminated, is it CERCLA or non-CERCLA regulated material?

r. Does the report contain a reasonable schedule for acquisition, and has the schedule been coordinated with the sponsor? Is the project to be accomplished in more than one phase?

s. Does the report contain a map depicting all of the tracts and estates to be acquired? Does it show any known or potential HTRW lands?

t. Obviously, all of the above items will not apply to every project; however, if the REP fails to address an item, the reviewer does not know if it is considered. If the individual preparing the document is aware that an item is not applicable, but fails to include that information in the REP, the report should contain a statement that this item is not applicable.

u. The Reviewer should verify that the real estate requirements shown in the REP are in consort with the latest design drawings.

v. The Reviewer should consult with the other team members and Real Estate employees, as necessary, to resolve questions or misunderstandings prior to preparing comments to the Report Preparer.

I have reviewed _____
(Report Name)
and have considered all of the above.

_____ _____
Real Estate Internal Technical Reviewer Date
(DOUG YOUNG)