INCIDENTAL TAKE AUTHORIZATION APPLICATION AND CONSERVATION PLAN: ILLINOIS CHORUS FROG (Pseudacris illinoensis)

City of Jacksonville

Raw Water Transmission Main Surge Suppression
Naples, Scott County, Illinois

July 2018

JOB #12e2461

BENTON & ASSOCIATES INC

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IL DESIGN FIRM REGISTRATION NO.: 184-000852

EXECUTIVE SUMMARY

The purpose of this document is to describe the proposed City of Jacksonville Raw Water Transmission Main Surge Suppression project and its potential effect on the Illinois Chorus Frog (pseudacris illinoensis). During the City's coordination with the Illinois Department of Natural Resources (IDNR) regarding the aforementioned project on May 2, 2018 (IDNR Project Number 1810554) IDNR determined that the proposed project is likely to have an adverse impact on the Illinois Chorus Frog and recommended the City of Jacksonville obtain Incidental Take Authorization (ITA) from the Departments Office of Resource Conservation. The information in this report came from various sources including Illinois Department of Natural Resources, Illinois Natural History Survey, United States Fish and Wildlife Service, USDA Natural Resources Conservation Service, and from on-site observation of the proposed project area and potential habitat.

This document shows that the possible taking of Illinois Chorus Frogs is incidental to the carrying out of the necessary City of Jacksonville Raw Water Transmission Main Surge Suppression project. This document also demonstrates that the potential impact will be minimal and explains the alternatives that were considered.

TABLE OF CONTENTS

EXHIBITS

1) DESCRIPTIONS

A) SITE DESCRIPTION: The site for the proposed improvements is located at the existing City of Jacksonville well site in Scott County, Illinois north of Naples, east of the Illinois River, and south of Lower Smith Lake in Section 12, Township 15 North, Range 14 West approximately at 39º46'00"N & 90º36'17"W. The existing well site and location of the proposed surge suppression equipment site is owned, controlled, and operated by the City of Jacksonville. Currently, the site contains the City's existing Ranney collector well, two gravel pack wells, raw water transmission main, connecting piping, and utilities. The entire City property encompasses approximately 90 acres, of which, approximately 0.25 acre will have subsurface disturbance and/or alteration, and an additional 0.25 acre may be utilized for staging of construction equipment and materials. **Exhibit A** includes a USGS Meredosia Quadrangle topographical map and an excerpt of said map showing the location of the proposed project site. **Exhibit B** is a proposed site layout plan showing existing and proposed infrastructure and equipment.

B) BIOLOGICAL DESCRIPTION: According the Illinois Natural History Survey website, the Illinois Chorus Frog (Pseudacris illinoensis) is a small (up to 4.7 cm SVL) tan to gray frog with dark brown or black lines on back, belly white and skin granular rather than smooth. Habitats include sand prairies and remnants such as sandy agricultural fields and waste areas. Sandy soils are required for the species to burrow underground, and much of the City property and proposed project site contain sand or sandy soils as shown on the soils maps included as **Exhibit C.** Ponded water is required for breeding pools during the spring when the species is above-ground. Except in years of very high rainfall causing flooding conditions, the proposed project site does not contain ponded or pooled water conducive to breeding. North of and adjacent to the site is Lower Smith Lake and accompanying wetlands that have the potential to be breeding grounds. Information received from Illinois Department of Natural Resources stated that the most recent evidence of the Illinois Chorus Frogs in the vicinity is an auditory observation from the year 2013, and located approximately 1,675 feet east of Carroll Street (2,375 feet east of the proposed project site). Further consultation with Illinois Department of Natural Resources indicates that the frogs are not known to burrow into the ground in as close proximity to the river as the proposed project site, and therefore are not anticipated to inhabit the site.

C) DESCRIPTION OF ACTIVITES: The activities that could possibly result in taking of Illinois Chorus Frogs are those that are required for the construction of the proposed water main surge suppression equipment and associated piping. A general description of those activities includes construction and heavy equipment traffic, excavation for connection to the existing water transmission main, installation of subsurface utilities, excavation for construction of the building and foundations, and miscellaneous on-site activities related to construction. Suitable habitat for the frogs to burrow appears to be present due to the sandy soils on approximately 85% of the City property and all of the proposed project site as indicated on the soil maps included as **Exhibit C.** The construction activities will encompass less than 1 acre, and when completed, the permanent structures will cover a footprint of approximately 0.01 acre. The daily operation of the equipment will not cause or require disturbance of the area. Construction in the sandy soil includes demolition of the existing generator building, connection to the existing transmission main, installation of an 18" – 20" diameter water main totaling approximately 120 linear feet, construction of a building with concrete footings and foundation, and the installation of electrical supply conduits. As stated previously, total subsurface disturbance and alteration of the sandy soil area is approximately 0.25 acre. The work will take place adjacent to the existing Ranney Well and associated underground piping and electrical lines. Due to the proximity of the proposed project site to Lower Smith Lake, the accompanying wetlands, the sandy soil

types, and documented records of frogs in the vicinity adverse effects to the species are anticipated. A National Wetlands Inventory Map indicating the proximity of the proposed project site to recognized wetlands is included as **Exhibit D**. The construction project is anticipated to begin in the fall/winter of 2018/2019 and will last for a duration of approximately 6 months. By the time the frogs emerge from below ground in the spring months, barriers around the site perimeter will be in place, thereby minimizing the possibility of frogs entering into or traveling through during construction activities.

D) DESCRIPTION OF ANTICIPATED ADVERSE EFFECTS: Due to the proposed project location, soil types of the site, and proposed construction activities, the anticipated adverse effects are expected to be limited to the construction duration. Long-term adverse effects are not anticipated. With the exception of the new structures and associated piping, following construction the site will be returned to the same use and will be maintained the same as is currently practiced. The highest probability of adverse effects comes from the possibility of frogs entering in or traveling through the project area during construction activities, or from excavation in potential burrowing habitat. Adverse effects to breeding pools are not of concern during construction or operation of the proposed equipment because no pools are located on the site. The areas that hold water for extended periods include the Illinois River to the west, and Lower Smith Lake with associated wetlands to the north. As previously mentioned, approximately 0.25 acre of potential frog burrowing habitat (sandy soil) will be effected by construction, and permanent alteration of potential burrowing habitat is less than 0.01 acre.

2) MINIMIZATION AND MITIGATION MEASURES:

A) PLANS TO MINIMIZE THE AREA EFFECTED BY THE PROPOSED ACTION: Only the minimum area needed will be utilized for the construction of the proposed improvements and all work will take place within the limits of the existing City of Jacksonville property. Erosion control practices that will be utilized for construction will have the added benefit of deterring frogs from entering the project site while traveling from breeding to burrowing habitat if construction occurs during that time of year. Temporary silt fence will be constructed around the perimeter of the construction site at the beginning of construction, prior to earthwork. Typical silt fence installation includes the bottom of the fence being installed approximately 6” below ground surface, and the fence extends above-ground 24”, thereby creating a physical barrier whereas the frogs cannot enter the construction site. It is estimated that because of above-mentioned existing site conditions and construction practices that between zero (0) and five (5) frogs will be taken as a result of this project. As previously mentioned, approximately 0.25 acre of potential frog burrowing habitat (sandy soil) will be effected by construction, and permanent alteration of potential burrowing habitat is less than 0.01 acre. Breeding habitat will not be effected by this project.

B) PLANS FOR MANAGEMENT OF THE AREA EFFECTED BY THE PROPOSED ACTION: After construction, the site will continue to be maintained by the City of Jacksonville. Currently, approximately 50 acres of the City property that borders the project site on the North, East, and South is set-aside and not utilized for crop production. It is included in the City’s designated setback zone to protect the existing wells, and therefore no chemicals are used, the ground is not disturbed, and a mixture of grasses similar to IDOT Class 4 Native Grasses grow. The 50 set-aside acres are mowed once a year on or about August 1 to limit woody encroachment. Disturbed areas of the proposed project site will be re-seeded with IDOT Class 4 Native Grass Mixture which includes Big Blue Stem, Little Blue Stem, Side Oats Grama, Canada Wild Rye, Switchgrass, Indian Grass, Annual Ryegrass, Oats, and Perennial Ryegrass. If the initial planting of grass fails then additional plantings will be made to establish vegetation on the

proposed project site in order to return the site as near as practicable to its pre-construction condition, excepting those areas in which permanent structures will be constructed. The use and care of the site will be unchanged from current practices.

C) DESCRIPTION OF IMPLEMENTED MEASURES TO AVOID, MINIMIZE, AND MITIGATE THE EFFECTS OF THE PROPOSED ACTION: As stated above, areas on the site where there will be no permanent structures will be reseeded with IDOT Class 4 Native Grass Mixture such that vegetation like what is currently established will remain. Temporary silt fence will be removed after construction is complete and vegetation is established and the site will be maintained as is currently practiced. The location of the existing set-aside acres as shown on the attached **Exhibit E** provides a buffer zone between Lower Smith Lake, the associated wetlands, and the project area, such that frogs traveling from those areas would encounter the set-aside acres prior to reaching the proposed project area. The set-aside acres are also shown on the attached soils map included in **Exhibit E**. Due to the set-aside acres being utilized as a setback zone for protection of the City's water supply wells, it will remain in its current use. The City utilizes the wells as their primary water source, and no other well water supplies for the City are available, therefore this location will remain as their well water supply source. Development of the set-aside acres is also unlikely for the above-mentioned reasons and due to the fact that the entire property is located within the floodplain of the Illinois River. As mitigation for the potential take of the Illinois chorus frog, the City will provide compensatory funds to be placed in the Illinois Wildlife Preservation Fund earmarked to the conservation benefit of the Illinois chorus frog to support acquisition or protection of habitat, or research on the species life history needs.

D) PLANS FOR MONITORING THE EFFECTS OF MEASURES IMPLEMENTED: The City of Jacksonville understands that there will be post construction monitoring required to ensure that the site returns to a condition similar to pre-construction. Monitoring includes the re-establishment of vegetation disturbed by construction as well as the set-aside acreage. Post-construction frog surveys will also be conducted within the project area and on the 50 acre set-aside ground by a qualified consultant on the first and third years following completion of construction. The surveys will be conducted after February 1 and prior to April 30 of each year and the results will be reported to the Department of Natural Resources.

E) ADAPTIVE MANAGEMENT PRACTICES: The City understands that dependent on timing of the installation of the exclusionary silt fence, the possibility of trapping frogs inside the project site where they would emerge inside the fence exists. If the presence of Illinois Chorus Frogs is verified on site during construction, The City or their agents will contact IDNR immediately upon discovery to determine a plan to preserve and protect them. Work in the immediate vicinity of any discovered frogs will be halted until instruction is received from IDNR and appropriate action is taken. If frogs are discovered following project completion, the City will consult with IDNR to ensure appropriate conservation measures are taken to ensure the protection of the species. The possibility of frogs being encountered along the roadway to the project site through City property also exists. If construction takes place during the time of year when there is a high probability of frogs traveling across the roadway, or if unforeseen conditions would concentrate a large population of the frogs in the vicinity of the project site or roadway, construction personnel will be instructed to check for frogs on the roadway before entering and exiting the site, and if frogs are encountered they will be avoided. City of Jacksonville employees who perform routine maintenance of the proposed surge suppression equipment and existing well site equipment will be educated to the identification and avoidance of Illinois Chorus Frogs and informational sheets will be posted in the buildings for their reference. Following completion of construction, the disturbed areas will be re-seeded. If the initial seeding of the disturbed areas of the project site fails, the City of Jacksonville shall re-seed until vegetation is established.

F) VERIFICATION OF FUNDING: The funds needed to mitigate and minimize the impact on the Illinois Chorus Frog as stated in this document are minimal and are within the City's means. Portions of the funding, including the installation of exclusionary silt fence and re-seeding of the project area are included in the construction budget. Long term monitoring and maintenance will fall within the City's operating expenses for the well site. The City will privately fund the overall construction project and it cannot be implemented without said funding.

3) DESCRIPTION OF ALTERNATIVE ACTION:

A) NO ACTION: The existing water transmission main that extends from the well site to the City's water treatment facility in Jacksonville was constructed in the 1950's. The pipeline is the sole conduit to bring water from the wells to the City. Due to the age of the pipeline and the City's reliance on it, protection from pressure surges is a priority. "No Action" would leave the pipeline unprotected and more susceptible to future failures. The proposed improvements will help ensure that the transmission main is protected from potential pressure surges and failures that could ensue from high pressures. "No Action" is not an option because it does not provide the necessary protection of the transmission main.

B) CONSTRUCTION OF THE SURGE SUPPRESSION EQUIPMENT AT ALTERNATE LOCATION: The City owns the property at the proposed site, therefore alternate locations would require purchase of additional land. Also, due to the transmission main route being cross country along much of its length, access to the equipment for maintenance at another location could potentially be difficult. Required utilities are also present at the current location, plus having the equipment located adjacent the existing wells is hydraulically ideal for optimal protection of the transmission main. For these reasons, construction at an alternate location is discounted.

C) PIPELINE REPLACEMENT IN LIEU OF SURGE SUPPRESSION: Replacement of the pipeline would require the disturbance of more potential habitat and longer construction period than the proposed surge suppression. The existing pipeline extends from the propose project site approximately 24 miles to the Jacksonville Water Treatment Plant on the east side of the City. This option is also not viable due to the cost of replacement. Therefore, pipeline replacement is not feasible and maintenance and protection of the existing pipeline is the best option.

4) DATA / INFORMATION TO INDICATE NO REDUCTION OF SURVIVAL OF THE ILLINOIS CHORUS FROG: The proposed improvements are planned to be constructed at the City's existing well site on their property. As stated above, due to the location, current use, and soil types of the site, the anticipated adverse effects are expected to be limited to the construction period with no permanent adverse effects. Ponded water and recognized wetlands that are essential for breeding purposes do not exist on the site, but are located nearby as indicated by the National Wetlands Inventory Map included as **Exhibit D**. Due to the absence of wetlands and ponded areas, frogs will not inhabit the site for breeding purposes. The highest anticipated threat to the frogs is the possibility of harm from traveling through the project site which is minimized by the installation of silt fence around the site perimeter prior to construction, or from harm during excavation. Life History information on the species indicates that the chorus frogs are only seen above ground during the spring breeding season and spend the remaining portions of the year below ground. Sand and sandy soils which are prevalent in the proposed project location are required for the frogs to burrow below ground. According to the Natural Resources Conservation Service Soil Survey Maps included as **Exhibit C,** sandy soils encompass approximately 85% of the City property and all of the proposed project site, and the Expanded Soils Map indicates that approximately 50% of the soils in

the near vicinity of the proposed project site and Lower Smith Lake are either sand or sandy soils. Therefore, the small footprint of the project and the minimal disturbance that will take place for construction will not significantly impact overall Illinois Chorus Frog habitat. After the construction is completed, the project site will be much the same as its current state, though the new building structure and associated underground piping will be in place. The maintenance of the 50 acre set-aside habitat that borders the site on the North, East, and South is anticipated to encourage the frogs to remain further from the proposed equipment and project area in the future also. Current records for Illinois Chorus Frogs exist sporadically throughout the sandy soil areas along the east side of the Illinois River in Scott, Morgan, Cass, and Mason Counties, as well as in other parts of the state. Therefore, due to the current records and the information in this Conservation Plan specifically pertaining to the proposed project and its possible effects on the species, the proposed project will not reduce the likelihood of the survival of the threatened species in the wild in the State of Illinois.

5) **IMPLEMENTING AGREEMENT:**

The following parties certify their legal authority to carry out their respective obligations and responsibilities under this conservation plan (listed below) and comply with all other applicable federal state and local regulations:

NAME	TITLE	NAME (PRINT)	SIGNATURE	DATE
City of Jacksonville 200 West Douglas Ave. Jacksonville, IL 62650	**OWNER**	Jack Cosner	Jack Cosner	7-19-18
Benton & Associates, Inc. 1970 W. Lafayette Jacksonville IL, 62650	**ENGINEER**	Jamie L. Headen, P.E.		7-19-18
TO BE DETERMINED DURING THE AWARD OF THE CONTRACT	**CONTRACTOR**			

PROJECT CHECKLIST

Item	Description	Responsible Party	Completion Date	
			Estimated	Actual (Sign & Date)
1	Verify Receipt of All Required Permits for Overall Project	**OWNER**	10-1-2018	
2	Issue Notice for Project to Proceed	**OWNER**	11-1-2018	
3	Mark Construction Limits	**ENGINEER**	11-15-2018	
4	Exclusionary Silt Fence Installation	**CONTRACTOR**	11-30-2018	
5	Construction of Surge Suppression Equipment Completion	**CONTRACTOR**	3-1-2019	
6	Completion of Site Grading	**CONTRACTOR**	4-1-2019	
7	Completion of Seeding	**CONTRACTOR**	4-30-2019	
8	Completion of As-Built Drawings of Site	**ENGINEER**	5-15-2019	
9	Reseeding (if vegetation is not established)	**OWNER/ CONTRACTOR**	6-1-2019	
10	Conduct Post-Construction Frog Surveys	**OWNER/ ENGINEER**	March 1 Annually	
11	Submit Annual Progress Reports	**OWNER/ ENGINEER**	March 1 Annually	

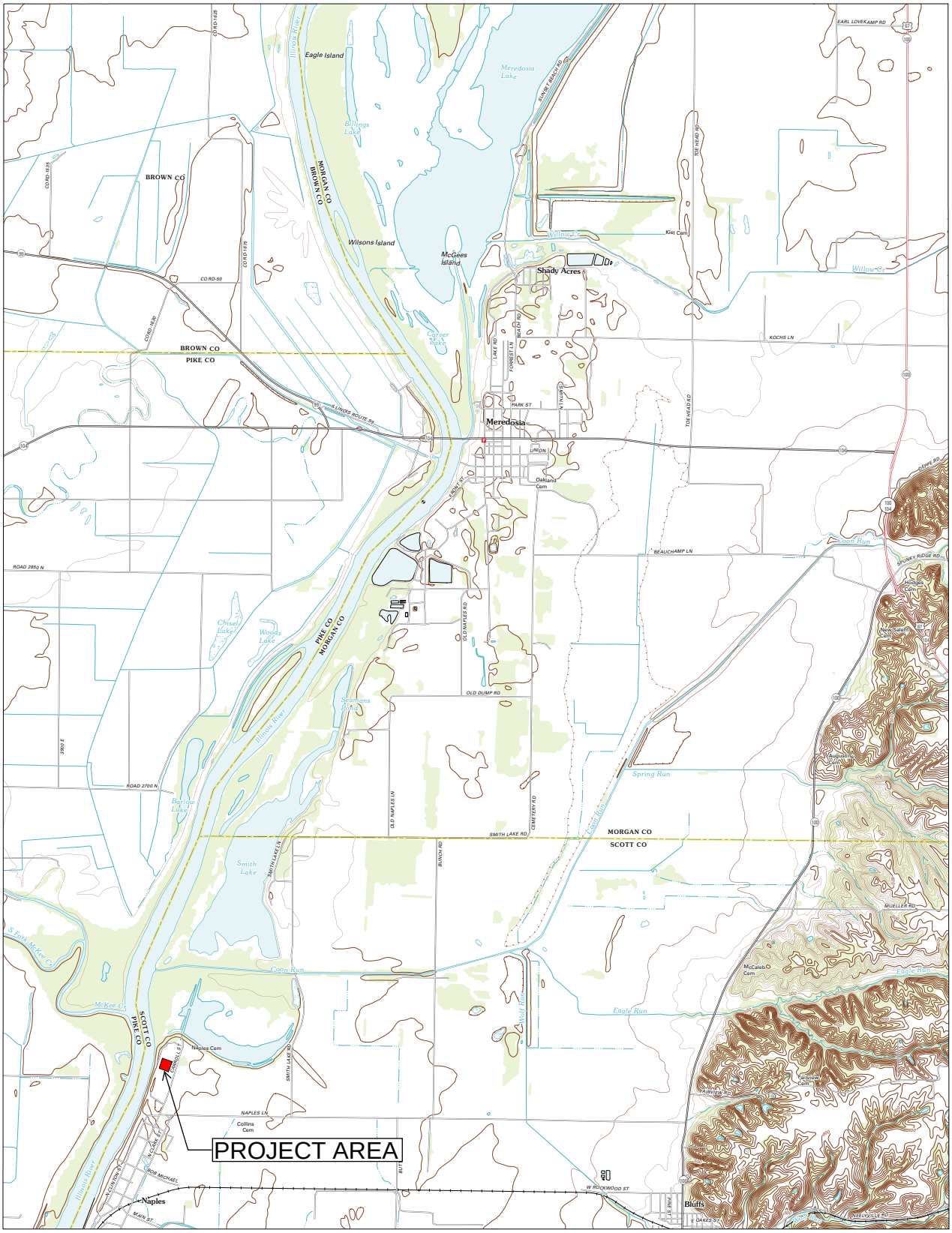
Note that the above Project Checklist will be updated as items are completed and will be re-submitted to the Department with annual progress reports.

EXHIBIT A

U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

The National Map US Topo

MEREDOSIA QUADRANGLE
ILLINOIS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 15S
10 000-foot ticks: Illinois Coordinate System of 1983 (west zone)

Imagery.....NAIP, August 2011
Roads.....©2006-2011 TomTom
Names.....GNIS, 2011
Hydrography.....National Hydrography Dataset, 2011
Contours.....National Elevation Dataset, 2007
Boundaries.....Census, IBWC, IBC, USGS, 1972 - 2010

UTM GRID AND 2012 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
YE
Grid Zone Designation
15S

SCALE 1:24 000

KILOMETERS 0 0.5 1 2
METERS 0 500 1000 2000
MILES 0 0.5 1
FEET 1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000

CONTOUR INTERVAL 10 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the
National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.3

ILLINOIS
QUADRANGLE LOCATION

Versailles	Cooperstown	Arenzville West
Perry East	Meredosia	Chapin
Griggsville	Florence	Winchester

ADJOINING 7.5' QUADRANGLES

ROAD CLASSIFICATION
Interstate Route
US Route
Ramp
State Route
Local Road
4WD
Interstate Route
US Route
State Route

MEREDOSIA, IL
2012

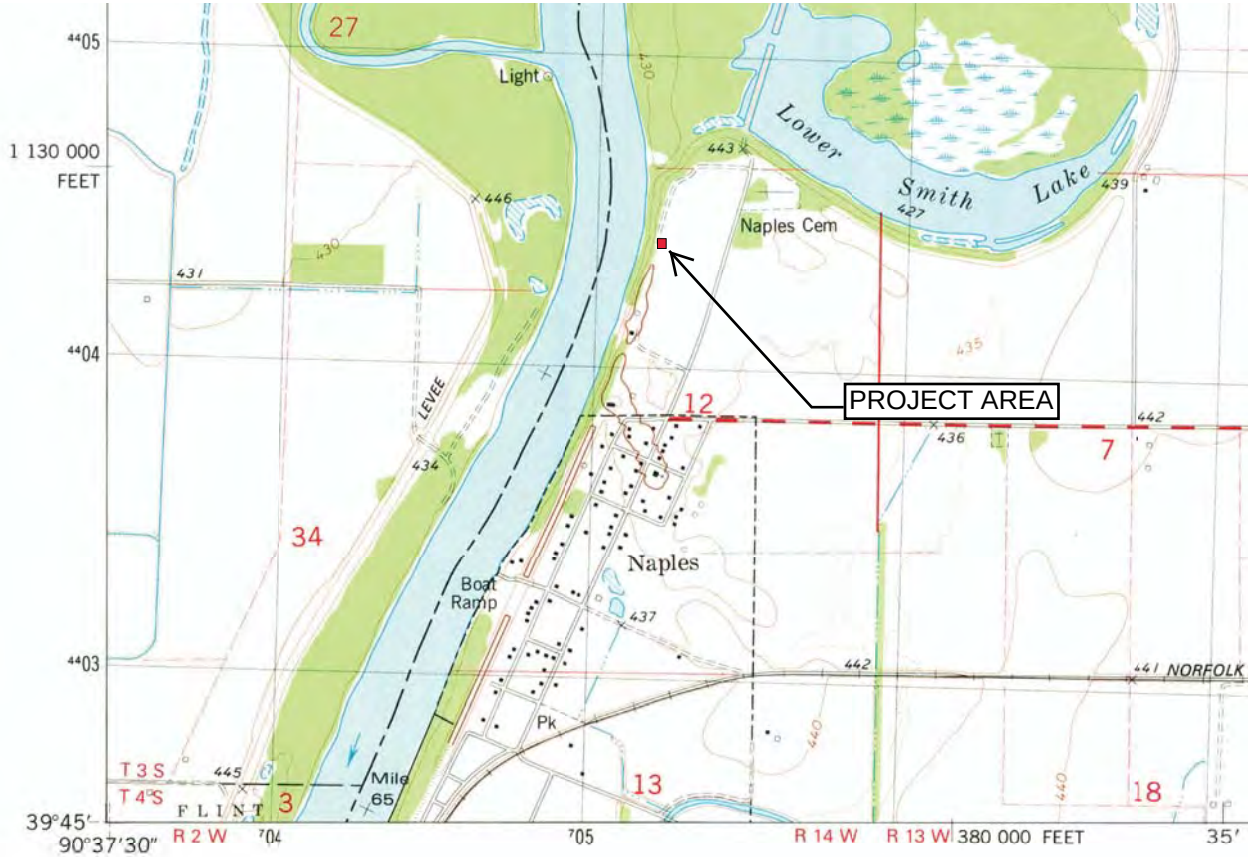

PROJECT AREA
Naples
Naples Cem
Lower Smith Lake
Light
Boat Ramp
LEVEE
Pk
NORFOLK
Mile 65
FLINT
27
34
12
7
13
18
3
T 3 S
T 4 S
R 2 W
R 14 W
R 13 W
1 130 000 FEET
380 000 FEET
39°45'
90°37'30"

EXHIBIT B

5/31/2018 11:35:24 AM afox AFOX-WIN7 60:0.00 ':" / in. P:\12e2461\Design\Design\Prelim Site.dgn

Job No. 12E2461

This Line is 2" Long on a 22x34 Sheet

Approved by: Approved

Reviewed by: J. Headen

Drawn by: A. Fox

Designed by: A. Fox

Date: May 2018

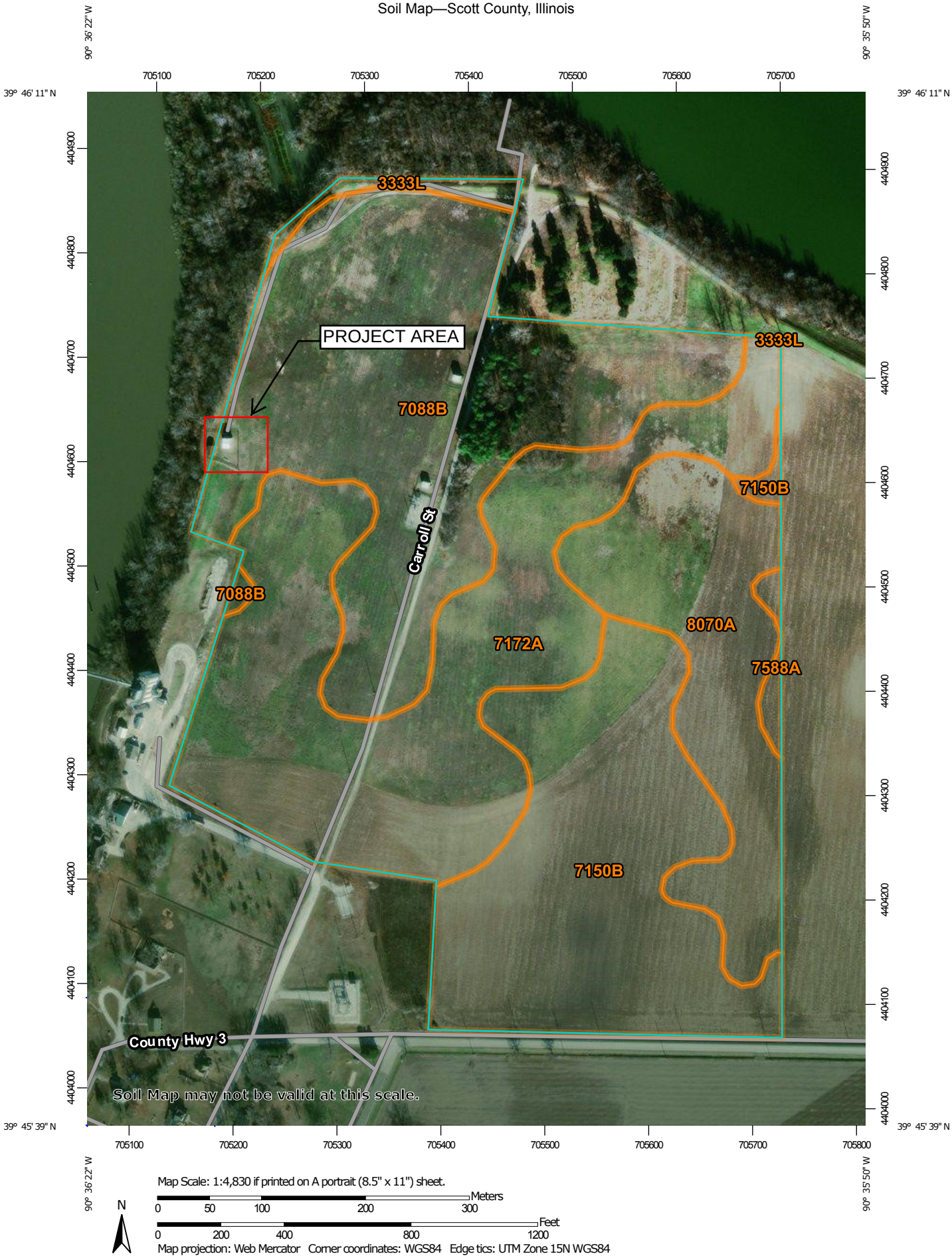
PRELIMINARY SITE PLAN
CITY OF JACKSONVILLE
TRANSMISSION MAIN SURGE SUPPRESSION
NAPLES, ILLINOIS

BENTON & ASSOCIATES, INC.
1970 W. Lafayette Ave., Jacksonville IL 62650
(217) 245-4146 (217) 245-4149 Fax
Kirksville Missouri
Macomb Illinois

No.	Description	Date	Appr.

BENTON & ASSOCIATES INC
Illinois Design Firm
Registration No. 184-000852

EXHIBIT C



Map Scale: 1:4,830 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Scott County, Illinois
Survey Area Data: Version 9, Sep 21, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

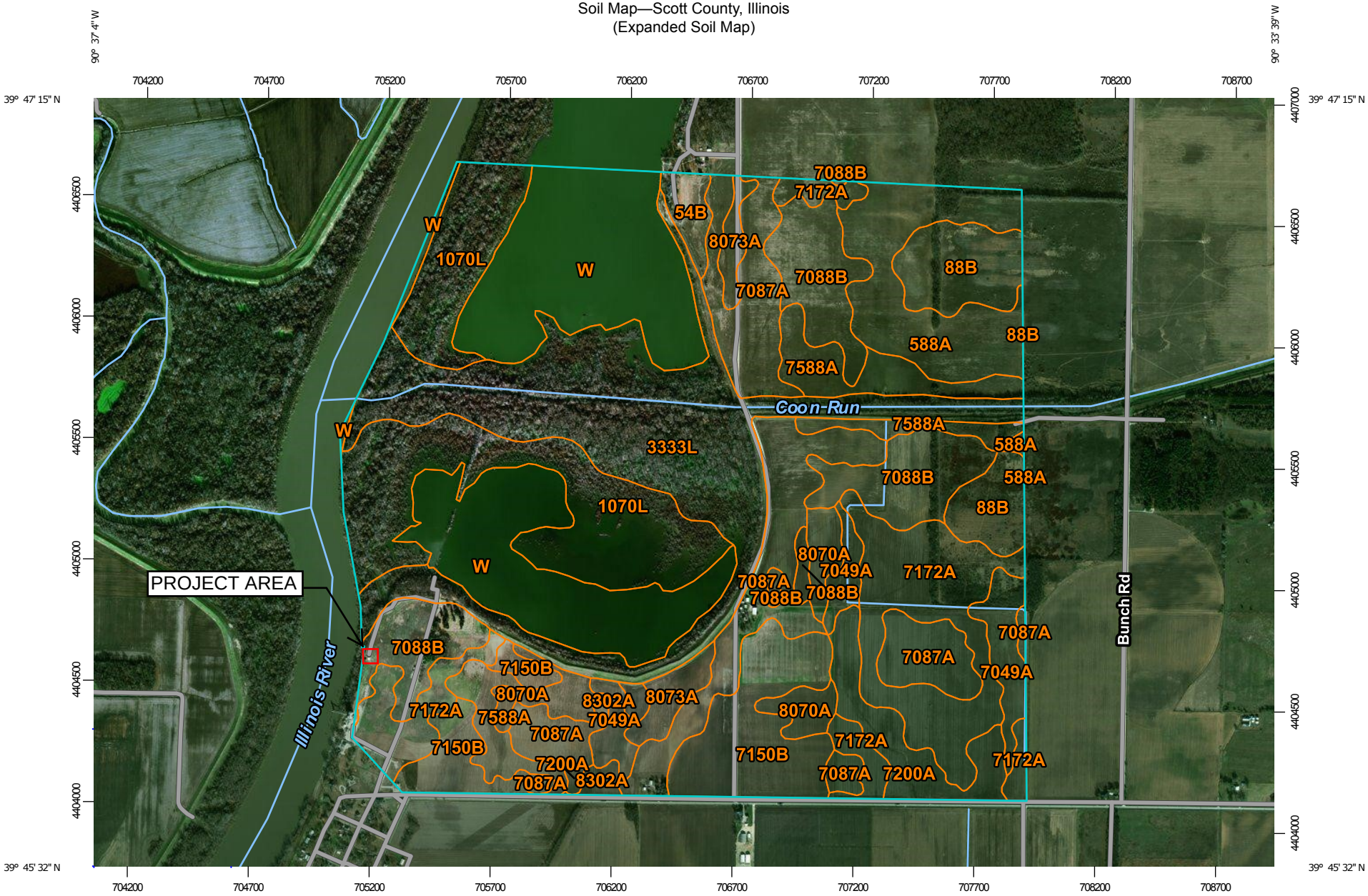
Date(s) aerial images were photographed: Sep 25, 2013—Mar 6, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3333L	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, long duration	1.0	1.0%
7088B	Sparta loamy sand, 1 to 6 percent slopes, rarely flooded	28.9	31.9%
7150B	Onarga fine sandy loam, 2 to 5 percent slopes, rarely flooded	20.8	22.9%
7172A	Hoopeston sandy loam, 0 to 2 percent slopes, rarely flooded	26.6	29.4%
7588A	Sparta loamy sand, loamy substratum, 0 to 2 percent slopes, rarely flooded	0.6	0.7%
8070A	Beaucoup silty clay loam, cool mesic, 0 to 2 percent slopes, occasionally flooded	12.7	14.1%
Totals for Area of Interest		**90.6**	**100.0%**

Soil Map—Scott County, Illinois
(Expanded Soil Map)



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Area of Interest (AOI)
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- Gravelly Spot
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- Mine or Quarry
- Miscellaneous Water
- Perennial Water
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- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
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- Streams and Canals

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- Rails
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- US Routes
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- Local Roads

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- Aerial Photography

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Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

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Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
54B	Plainfield sand, 1 to 7 percent slopes	13.7	0.8%
88B	Sparta loamy sand, Illinois till plain, 2 to 6 percent slopes	66.6	3.9%
588A	Sparta loamy sand, loamy substratum, 0 to 2 percent slopes	91.2	5.3%
1070L	Beaucoup silty clay loam, undrained, 0 to 2 percent slopes, frequently flooded, long duration	197.8	11.6%
3333L	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, long duration	266.5	15.6%
7049A	Watseka loamy fine sand, 0 to 2 percent slopes, rarely flooded	44.5	2.6%
7087A	Dickinson sandy loam, 0 to 2 percent slopes, rarely flooded	182.9	10.7%
7088B	Sparta loamy sand, 1 to 6 percent slopes, rarely flooded	131.5	7.7%
7150B	Onarga fine sandy loam, 2 to 5 percent slopes, rarely flooded	106.6	6.2%
7172A	Hoopeston sandy loam, 0 to 2 percent slopes, rarely flooded	151.9	8.9%
7200A	Orio sandy loam, 0 to 2 percent slopes, rarely flooded	44.2	2.6%
7588A	Sparta loamy sand, loamy substratum, 0 to 2 percent slopes, rarely flooded	52.0	3.0%
8070A	Beaucoup silty clay loam, cool mesic, 0 to 2 percent slopes, occasionally flooded	56.8	3.3%
8073A	Ross loam, 0 to 2 percent slopes, occasionally flooded	24.9	1.5%
8302A	Ambraw clay loam, 0 to 2 percent slopes, occasionally flooded	8.3	0.5%
W	Water	266.8	15.6%
Totals for Area of Interest		**1,706.4**	**100.0%**

EXHIBIT D

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands

May 3, 2018

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

EXHIBIT E


PROJECT AREA
CITY PROPERTY BOUNDARY
SET-ASIDE ACREAGE (HIGHLIGHTED FOR CLARITY)
Carroll St
Naples Ln
3
Google Earth
© 2018 Google
N
1000 ft

Soil Map—Scott County, Illinois
(City of Jacksonville - Set Aside Acreage)

Map Scale: 1:4,120 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Scott County, Illinois
Survey Area Data: Version 9, Sep 21, 2017

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 25, 2013—Mar 6, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3333L	Wakeland silt loam, 0 to 2 percent slopes, frequently flooded, long duration	0.1	0.3%
7088B	Sparta loamy sand, 1 to 6 percent slopes, rarely flooded	23.2	46.3%
7150B	Onarga fine sandy loam, 2 to 5 percent slopes, rarely flooded	3.0	6.0%
7172A	Hoopeston sandy loam, 0 to 2 percent slopes, rarely flooded	19.3	38.6%
8070A	Beaucoup silty clay loam, cool mesic, 0 to 2 percent slopes, occasionally flooded	4.4	8.8%
Totals for Area of Interest		**50.0**	**100.0%**