MEMORANDUM

To:	Michelle Carpenter *TPE IL MH405, LLC*
From:	Ashley Payne *Kimley-Horn and Associates, Inc.*
Date:	November 20, 2023
Subject:	*City of Crystal Lake, McHenry County, Illinois – MH405 Environmental Constraints Memorandum*

INTRODUCTION

Kimley-Horn was contracted by TPE IL MH405, LLC to review the MH405 Solar project for potential environmental constraints. See Figure 1 for project location and Figure 2 for the study area boundary. The study area is located in Crystal Lake, McHenry County, Illinois. The study area is approximately 78 acres in size and is located in Section 23, 24, 25, and 26 of Township 44N, Range 7E. Kimley-Horn reviewed available background data to assist in determining if there are any potential environmental constraints for the study area.

ENVIRONMENTAL CONSTRAINTS:

Aquatic Resources (Wetlands and Waterways)

Kimley-Horn reviewed available topographic maps, the National Wetlands Inventory (NWI), the National Hydrography Dataset (NHD), LiDAR, soil survey data, public waters, floodplain data, and aerial photography to identify potential wetlands or surface waters within the study area vicinity.

U.S. Geological Survey (USGS) Topographic Map

A review of the McHenry Illinois 7.5-minute topographic quadrangle depicted one pond within the study area. The study area is depicted as undeveloped land with a pond located on the northern boundary. The USGS topographic map is presented on Figure 3.

National Wetlands Inventory (NWI)

Based on a review of the U.S. Fish and Wildlife Service (USFWS) NWI,[1] portions of three wetland features are present within the study area. The NWI-mapped features include two freshwater emergent wetlands (PEM1F, PEM1C), and one freshwater pond (PUBGx). The NWI-mapped features are presented on Figure 4.

[1] USFWS. 2023. National Wetlands Inventory. Vector Digital Data. Published October 2023.

USGS National Hydrography Dataset (NHD)

Based on a review of the USGS NHD,[2] no unnamed flowline segments transect the study area. One unnamed waterbody is present within the study area and is classified as a lake/pond. The NHD-mapped waterbodies approximately align with NWI-mapped ponds. The NHD-mapped resources are presented on Figure 4.

2-ft LiDAR Contours

Two-foot contours[3] were reviewed to determine if any wetland areas or drainage swales may be present within the study area. The study area generally slopes to the north and east and is drained to the NWI-mapped wetland in the northeastern portion of the study area. The study area ranges in elevation from 918 to 944 feet above sea level. The 2-foot contours are presented on Figure 5.

McHenry County Soil Survey

A review of the McHenry County soil survey via the Soil Survey Geographic (gSSURGO) database[4] identified 10 soil types within the study area. Approximately 8 percent of the study area is mapped with a predominantly hydric soils rating of 90 percent. These areas are generally located in the vicinity of NWI-mapped and NHD-mapped features. Approximately 41 percent of the study area is mapped with a non-hydric rating of 0 percent. The remainder of the study area is mapped with a predominantly non-hydric soils rating at or below 15 percent. Hydric soils rating data are presented on Figure 6.

Illinois Department of Natural Resources (IDNR) Public Waters Inventory

A review of the IDNR Public Waters Inventory[5] was completed. No IDNR Public Waters are located within the study area vicinity.

FEMA Floodplain

The Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) Viewer[6] was reviewed to determine if FEMA 100-year floodplains are located within the study area. Based on Panels 17111C0200J and 17111C0215J (effective November 16, 2006), the study area is not located within a FEMA 100-year floodplain. The FEMA floodplain data are presented on Figure 7.

Previous Study Area Disturbance

Historic aerials from 1999 to 2021 were reviewed to determine previous land use and disturbance on the study area and are presented in Attachment A. The study area has been used for agricultural purposes since at least 1999.

Aquatic Resource Assessment

Based on the National Wetlands Inventory and National Hydrography Dataset, Kimley-Horn identified potential wetlands and waterway features within the property (see Figure 4). A Level 2 (field) wetland delineation was completed and one wetland was identified. Additional information will be included in the level 2 wetland delineation report.

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[2] USGS. 2023. National Hydrography Dataset. Vector Digital Data. Published September 2023.
[3] USGS. 2023. USGS 1 Meter DEM Panels. Published September 8, 2023.
[4] NRCS. 2023. National Soil Survey Geographic (gSSURGO). Illinois. Vector Digital Data. Published September 12, 2023.
[5] IDNR. 2023. Illinois Public Waters. Available online at https://idnr.maps.arcgis.com/apps/webappviewer/index.html?id=b64decfb69504164a46badb2841ebb11
[6] USGS. FEMA National Flood Hazard Layer Viewer. Available online at https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd

USFWS Federally Listed Threatened and Endangered Species

Kimley-Horn conducted a preliminary review of the potential for federally listed threatened, endangered, and proposed species to occur within the study area or be affected by the proposed project for the purposes of due diligence in compliance with the Endangered Species Act (ESA). A list of the threatened, endangered, and proposed species, and designated critical habitat that could occur in McHenry County was obtained and evaluated from the USFWS Information for Planning and Consultation (IPaC) online planning tool. The resource list is not considered official USFWS correspondence for ESA consultation. Habitat descriptions for the identified species were compared to the habitat within or near the study area. The resource list obtained via the USFWS IPaC for the project identified five species that should be considered in an effects analysis. The resource list is included in Attachment B and the identified species are reviewed below in Table 1.

Table 1. USWFS Listed Threatened and Endangered Species

Species	Status	Preferred Habitat	Findings
Myotis septentrionalis (Northern Long-Eared Bat [NLEB])	Endangered	During summer, NLEB roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. This bat uses tree species based on suitability to retain bark or provide cavities or crevices. It has also been found, rarely, roosting in structures like barns and sheds. Northern long-eared bats spend winter hibernating in caves and mines.	No critical habitat has been designated for this species. Minimal suitable habitat may be present within the study area due to the presence of forest corridors/forested areas located in the northern and southwestern portion of the study area. Any tree trimming or removal should be completed between October 1 and March 31.
Grus americana (Whooping crane)	Experimental population, Non-essential	The whooping crane breeds, migrates, winters and forages in a variety of habitats, including coastal marshes and estuaries, inland marshes, lakes, open ponds, shallow bays, salt marsh and sand or tidal flats, upland swales, wet meadows and rivers, pastures, and agricultural fields.	No critical habitat has been designated for this species. The study area contains agricultural fields which are listed as habitat for the whooping crane. Due to the non-essential, experimental nature of the population, no impacts are anticipated.
Danaus plexippus (Monarch butterfly)	Candidate	The monarch butterfly requires grassland habitats where milkweed and flowers are present. North American populations of the monarch butterfly typically follow a seasonal migration pattern.	No critical habitat has been designated for this species. Minimal preferred habitat may appear within the study area. Because the area is primarily active farmland and therefore disturbed, no adverse impacts anticipated. To

Species	Status	Preferred Habitat	Findings
			avoid potential impacts, reseeding with native seed mixes is recommended, although not required.
Bombus affinis (Rusty Patched Bumble Bee [RPBB])	Endangered	RPBB has been observed in a variety of habitats, including prairies, woodlands, marshes, agricultural landscapes and residential parks and gardens. RPBB requires areas that support sufficient food, including nectar and pollen from diverse and abundant flowers, as well as undisturbed nesting sites that are in proximity to those floral resources.	No critical habitat has been designated for this species. The study area is not within a RPBB high potential zone. Suitable habitat may be present in unmanicured areas as well as forested portions of the study area. Impacts to forested areas should be minimized or avoided. The area is primarily active farmland. No adverse impacts anticipated.
Platanthera leucophaea (Eastern Prairie Fringed Orchid)	Threatened	The eastern prairie fringed orchid occurs in a wide variety of habitats, from wet to mesic prairie, to wetland communities, including sedge meadow, fen, marsh and marsh edge. It can occupy a very wide moisture gradient of prairie and wetland vegetation. In general, the habitat is moist or moderately moist.	No critical habitat has been designated for this species. Minimal preferred habitat may appear within the study area. Wetlands may be within study area which are listed as habitat for the eastern prairie fringed orchid. The area is primarily active farmland. No adverse impacts are anticipated.

Migratory Birds

According to the IPaC resource list, 12 migratory species on the Birds of Conservation Concern (BCC) list have been identified within the study area. The BCC list was updated in 2021 by the USFWS and is an effort to "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act."

The Migratory Bird Treaty Act (MBTA) makes it illegal for anyone to "take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to Federal regulations by the USFWS". Typically, if active nests of bird species protected by the MBTA are identified, the USFWS recommends avoiding tree clearing or nest removal until at least the peak of the nesting season (generally March through August) has passed or until the nest is abandoned.

The U.S. Department of the Interior, Office of the Solicitor, published a memorandum (M-37050) dated December 22, 2017 regarding the MBTA and how "incidental take" is viewed by the Department. The memorandum analyzes whether the MBTA prohibits the accidental or "incidental" taking or killing of migratory birds. "Incidental take" is take that results from an activity, but is not the purpose of that activity. In this memorandum, the Department of the Interior concluded that "the MBTA's prohibition on pursuing, hunting, taking, capturing, killing, or attempting to do the same applies only to direct and affirmative purposeful actions that reduce migratory birds, their eggs, or their nests, by killing or capturing, to human control." Therefore, according to the Department of the Interior, the MBTA does not prohibit "incidental take." Courts have different opinions and decisions with respect to including or excluding "incidental take" when considering the prohibitions under the MBTA. In 2015, the Fifth Circuit in United States v. Citgo Petroleum Corp. issued an opinion that agreed with the Eighth and Ninth circuits that a taking is limited to deliberate acts done directly and intentionally to migratory birds. Therefore, the Fifth Circuit decided that the MBTA only prohibits intentional take and does not prohibit incidental take. This decision by the Fifth Circuit set precedent within the Fifth Circuit's jurisdiction.

On January 7, 2021, the USFWS published a final rule ("MBTA rule") defining the scope of the MBTA which excluded incidental take of migratory birds from being unlawful. This interpretation of the MBTA was effective as of March 8, 2021. On May 7, 2021, the USFWS proposed to revoke the January 7, 2021 final regulation and opened a public comment period which closed on June 7, 2021. On September 29, 2021, the U.S. Department of Interior announced a series of actions to unwind the most recent rulemaking in an effort "to ensure that the MBTA conserves birds today and into the future." On October 4, 2021, the USFWS published a final rule revoking the most recent rule enacted by the Trump Administration that limited the scope of the MBTA. According to the Federal Register, the final MBTA revocation rule went into effect on December 3, 2021.

In addition, on October 4, 2021, the USFWS published an Advanced Notice of Proposed Rulemaking announcing the intent to solicit public comments and information to help develop proposed regulations that would establish a permitting system to authorize the incidental take of migratory birds in certain circumstances. The USFWS issued a Director's Order establishing criteria for the types of conduct that will be a priority for enforcement activities with respect to incidental take of migratory birds.

It should be noted that the regulatory climate with respect to the MBTA is changing; however, it is our understanding that as of December 3, 2021 incidental take of migratory birds would be liable under the MBTA. This should be considered until a rulemaking process is complete. Kimley-Horn recommends evaluating the MBTA regulation prior to ground disturbance activities commencing.

Kimley-Horn downloaded the Trust Resources Report Migratory Bird List from the IPaC online planning tool. The IPaC results are included in Attachment B. Kimley-Horn conducted a preliminary desktop review of the potential for migratory bird habitat (focusing primarily on trees and shrubs) to occur on the proposed study area or be affected by the proposed study area for the purposes of due diligence in complying with the MBTA. The desktop review revealed the presence of minimal potential migratory bird habitat within the study area. It is our understanding that as of December 3, 2021, incidental take would be enforceable under the MBTA.

IDNR State Listed Threatened, Endangered, and Species of Special Concern

The IDNR identified two state listed threatened or endangered species (Blanding's Turtle, Rusty Patched Bumble Bee), no Illinois Natural Area Inventory sites, no dedicated Illinois Nature Preserves, and one Groundwater site (Gladstone Fen Class III) in the vicinity of the study area; therefore, the IDNR provided recommendations to avoid adversely impacting the species and protected natural areas. The IDNR recommends using the lightest weight equipment possible, using balloon or large tires, de-

compacting the surface after the final soil is placed, and naturalizing permeable basins and swales to increase infiltration to avoid impact to the Gladstone Fen Class 3 Groundwater. The IDNR found that adverse impacts to the Blanding's Turtle and Rusty Patched Bumble Bee are unlikely. The IDNR Consultation Letter is included in Attachment B.

Historic Resources Database Review

Kimley-Horn reviewed the Illinois Inventory of Archaeological Sites (IIAS) database for known historic resources within the project vicinity. According to the IIAS database, there are no previously identified archaeological sites, archaeological surveys, or cemeteries within the study area (see Attachment C). Within 0.5 miles of the study area, there are no known cemeteries, six previously identified archaeological sites, nine archaeological surveys, and one area of archaeological resource potential. According to the Historic and Architectural Resources Geographic Information System (HARGIS), there are no previously identified historic buildings within the study area boundary or within 0.5 miles of the study area (see Attachment C). Therefore, there are no known resources listed in or eligible for inclusion in the National Register of Historic Places within 0.5 miles of the study area. The results of the IIAS review are sensitive in nature and should not be shared publicly. Correspondence with the Illinois State Historic Preservation Office (SHPO) was conducted and an exempt letter was issued (see Attachment C).

CONCLUSIONS AND RECOMMENDATIONS:

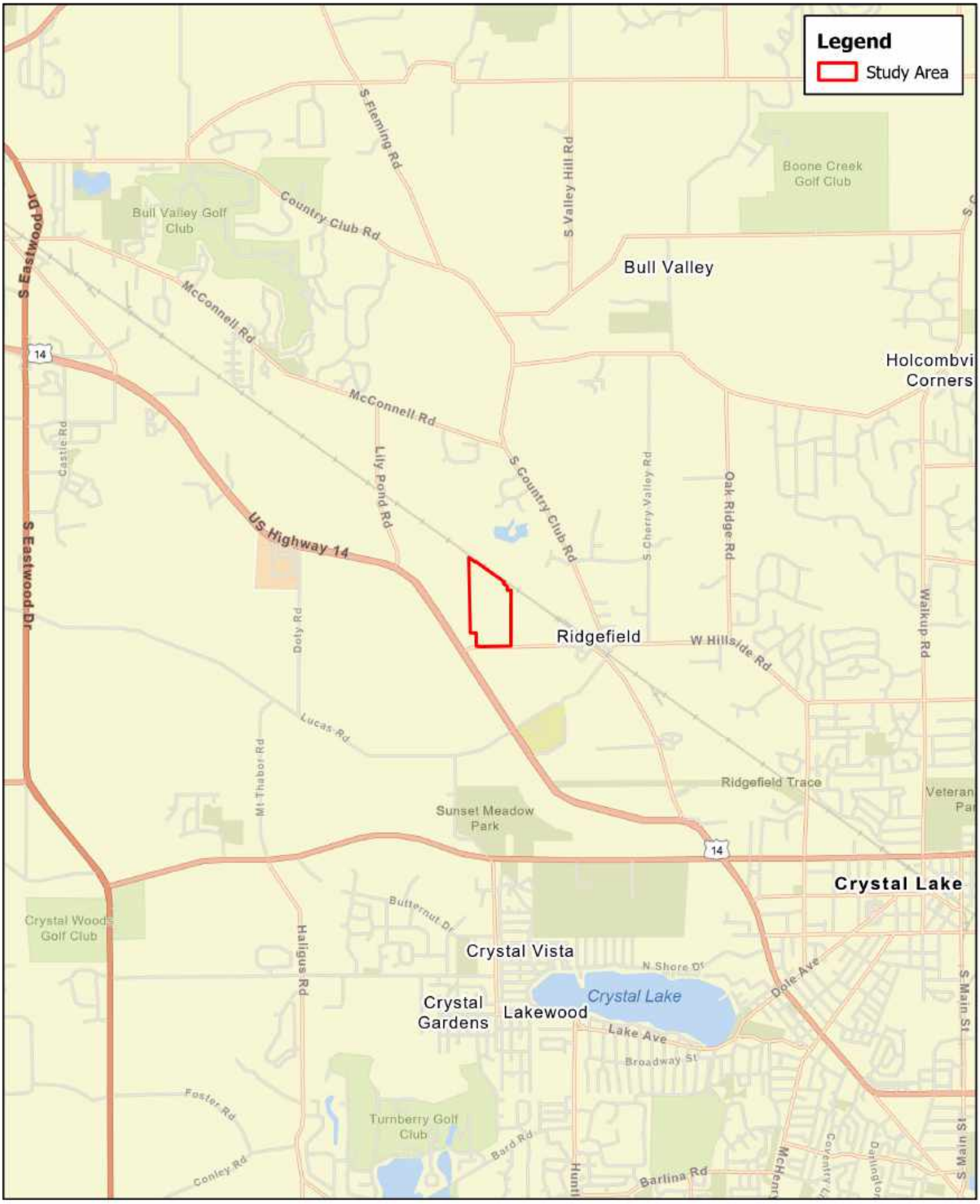
Based on the information reviewed, Kimley-Horn has identified potential environmental constraints that could require additional planning.

Based on the aquatic resource assessment, Kimley-Horn identified potential wetlands and waterways within the study area. A Level 2 (field) wetland delineation was completed and one wetland was identified. Additional information will be included in the level 2 wetland delineation report.

Potential suitable habitat for listed federal species may be present within the study area. If tree clearing or structure demolition is anticipated, it is recommended to be completed between October 1 and March 31, which is outside of the active bat season. Given the IDNR recommendations are adopted, the IDNR determined that adverse effects to state listed species or protected resources are unlikely. The project must notify the IDNR regarding the implementation of mitigation measures.

No impacts to known IIAS-listed resources are anticipated. Correspondence with the Illinois State Historic Preservation Office (SHPO) was conducted and an exempt letter was issued.

Figures

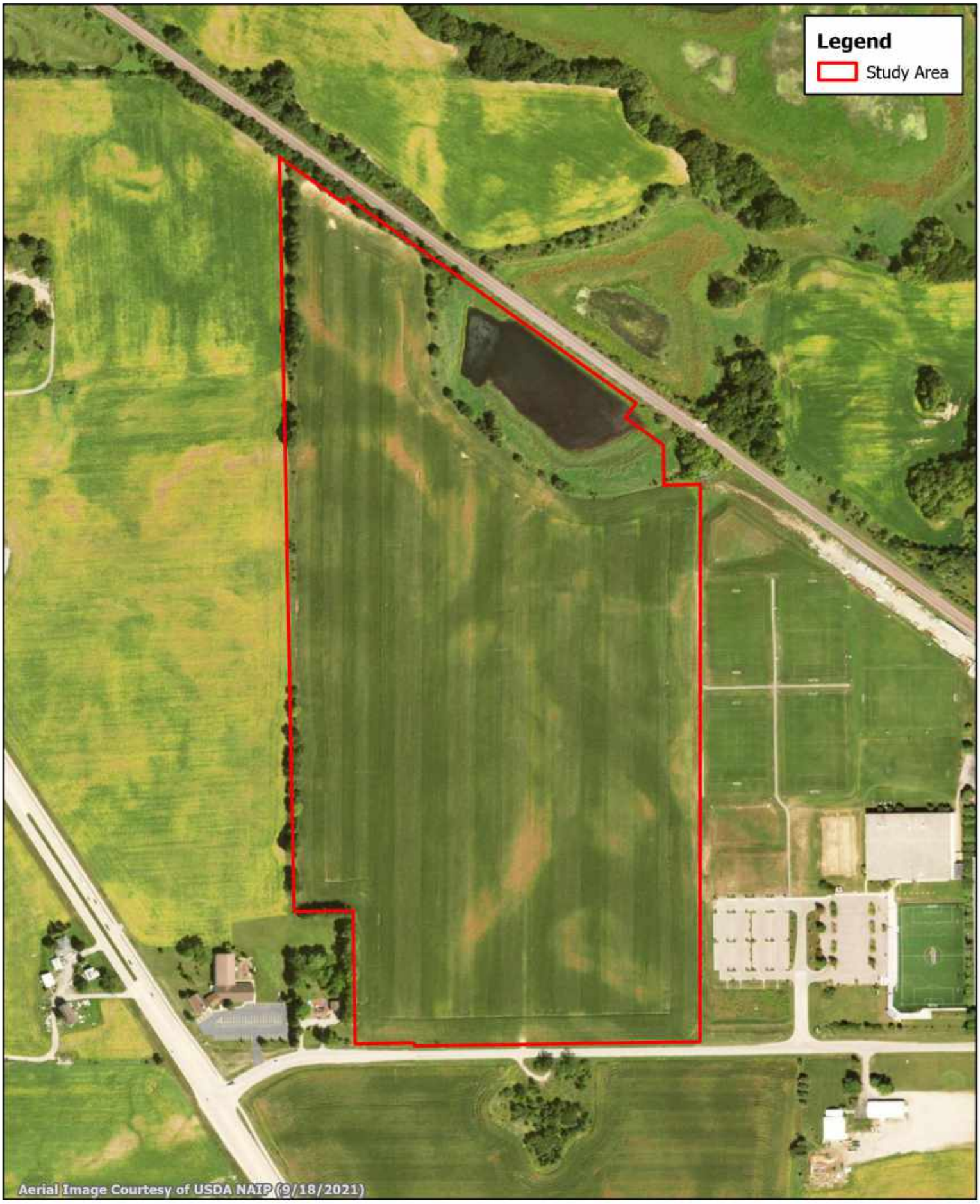


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Figure 1. Project Location Map
Crystal Lake, McHenry County
TPE IL MH405, LLC

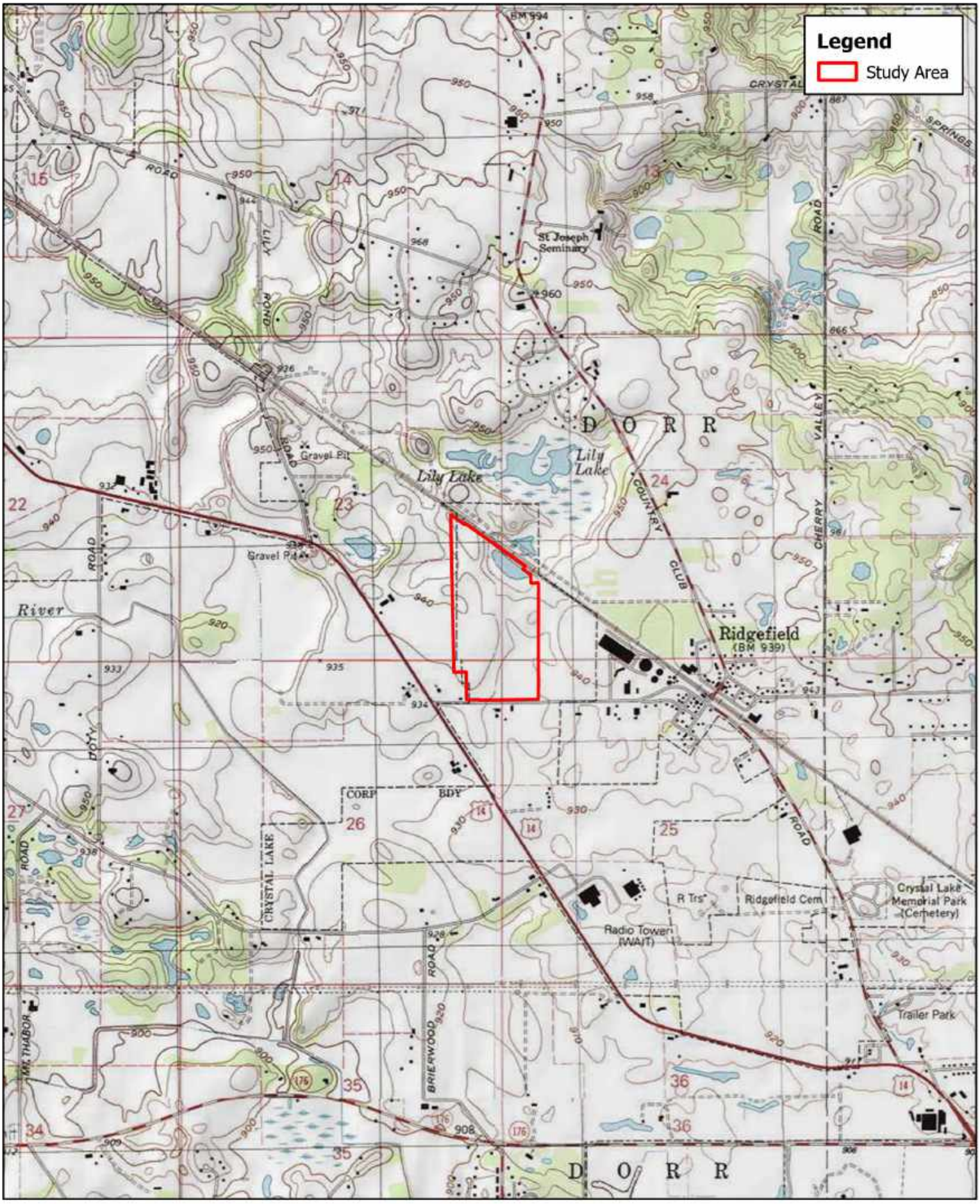


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Figure 2. Study Area Boundary
Crystal Lake, McHenry County
TPE IL MH405, LLC



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Figure 3. USGS Topographic Map
Crystal Lake, McHenry County
TPE IL MH405, LLC



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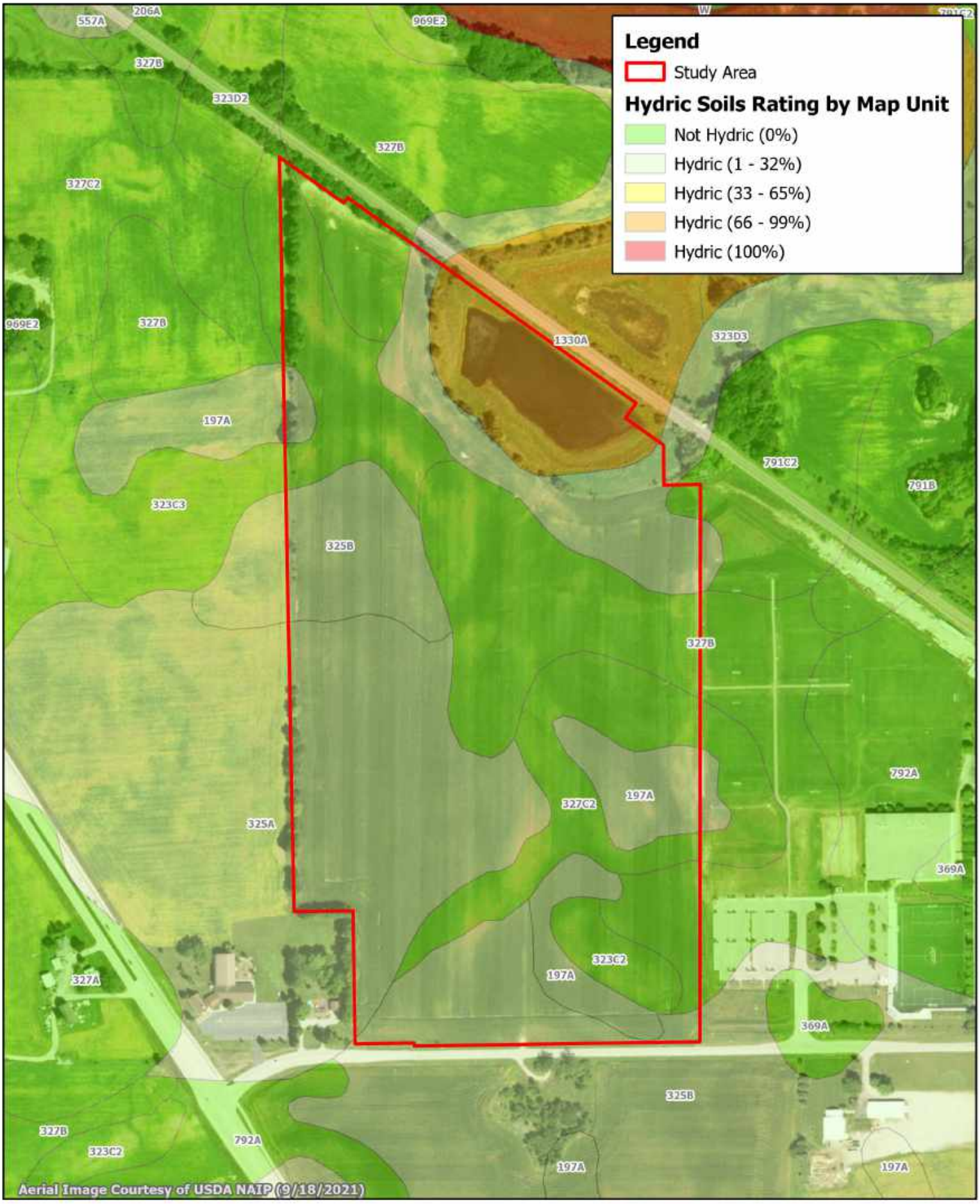
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Figure 4. NWI, and NHD Map
Crystal Lake, McHenry County
TPE IL MH405, LLC



Figure 5. 2-ft Contours
Crystal Lake, McHenry County
TPE IL MH405, LLC

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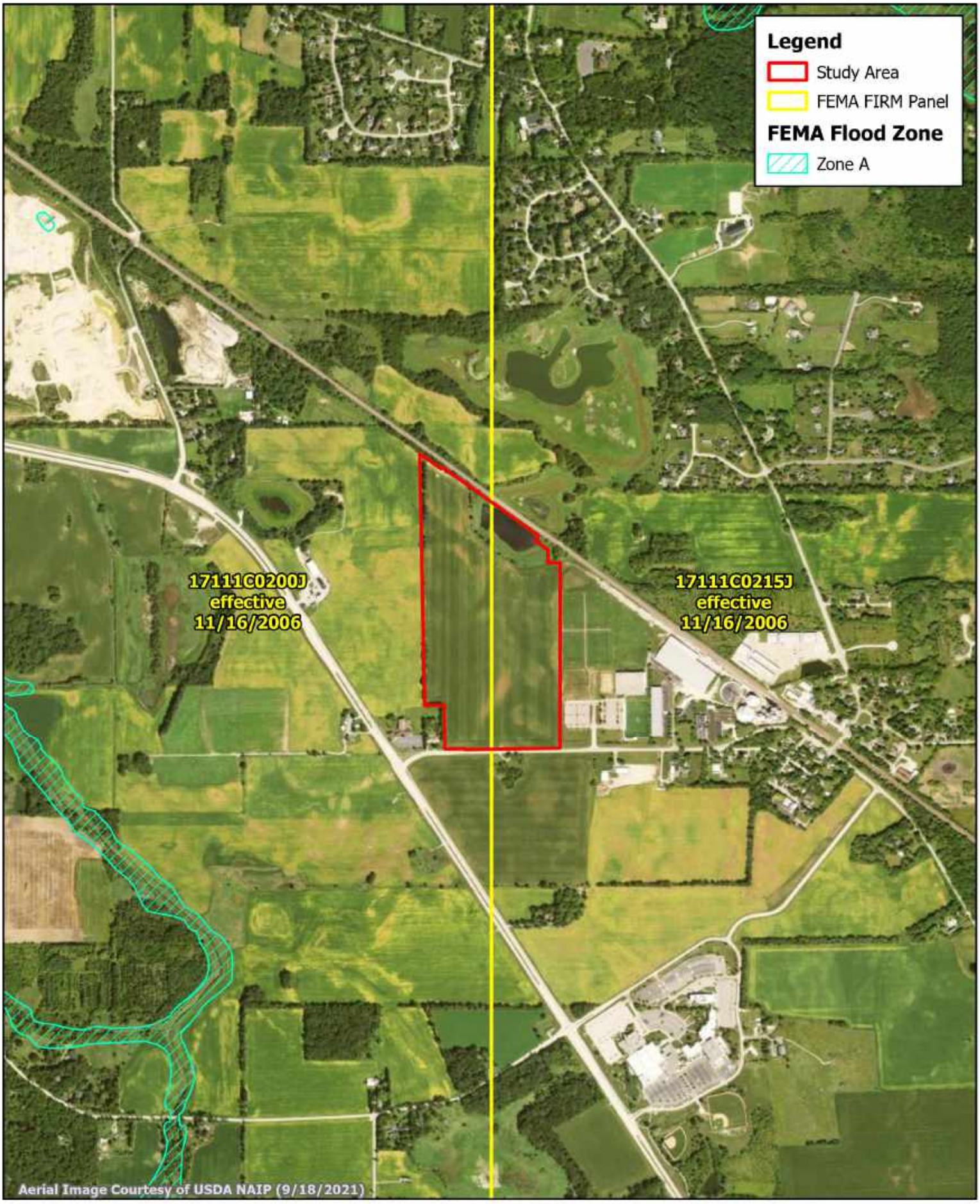
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Figure 6. Hydric Soils Map
Crystal Lake, McHenry County
TPE IL MH405, LLC

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
197A	Troxel silt loam, 0 to 2 percent slopes	15	5.9	7.6%
323C2	Casco loam, 4 to 6 percent slopes, eroded	0	2.0	2.6%
323C3	Casco clay loam, 4 to 6 percent slopes, severely eroded	0	6.0	7.7%
323D3	Casco clay loam, 6 to 12 percent slopes, severely eroded	4	6.8	8.8%
325A	Dresden silt loam, 0 to 2 percent slopes	9	16.1	20.8%
325B	Dresden silt loam, 2 to 4 percent slopes	4	10.9	14.0%
327B	Fox silt loam, 2 to 4 percent slopes	0	15.7	20.3%
327C2	Fox silt loam, 4 to 6 percent slopes, eroded	0	7.5	9.6%
791C2	Rush silt loam, 4 to 6 percent slopes, eroded	0	0.3	0.3%
1330A	Peotone silty clay loam, 0 to 2 percent slopes, undrained	90	6.5	8.3%
Totals for Area of Interest			**77.6**	**100.0%**



Kimley»Horn

Figure 7. FEMA Floodplain
Crystal Lake, McHenry County
TPE IL MH405, LLC

ATTACHMENT A

Historic Aerials



Kimley»Horn

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Historic Aerial (March 1999)
Crystal Lake, McHenry County
TPE IL MH405, LLC



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Historic Aerial (February 2002)
Crystal Lake, McHenry County
TPE IL MH405, LLC



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Historic Aerial (March 2005)
Crystal Lake, McHenry County
TPE IL MH405, LLC



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Historic Aerial (June 2006)
Crystal Lake, McHenry County
TPE IL MH405, LLC

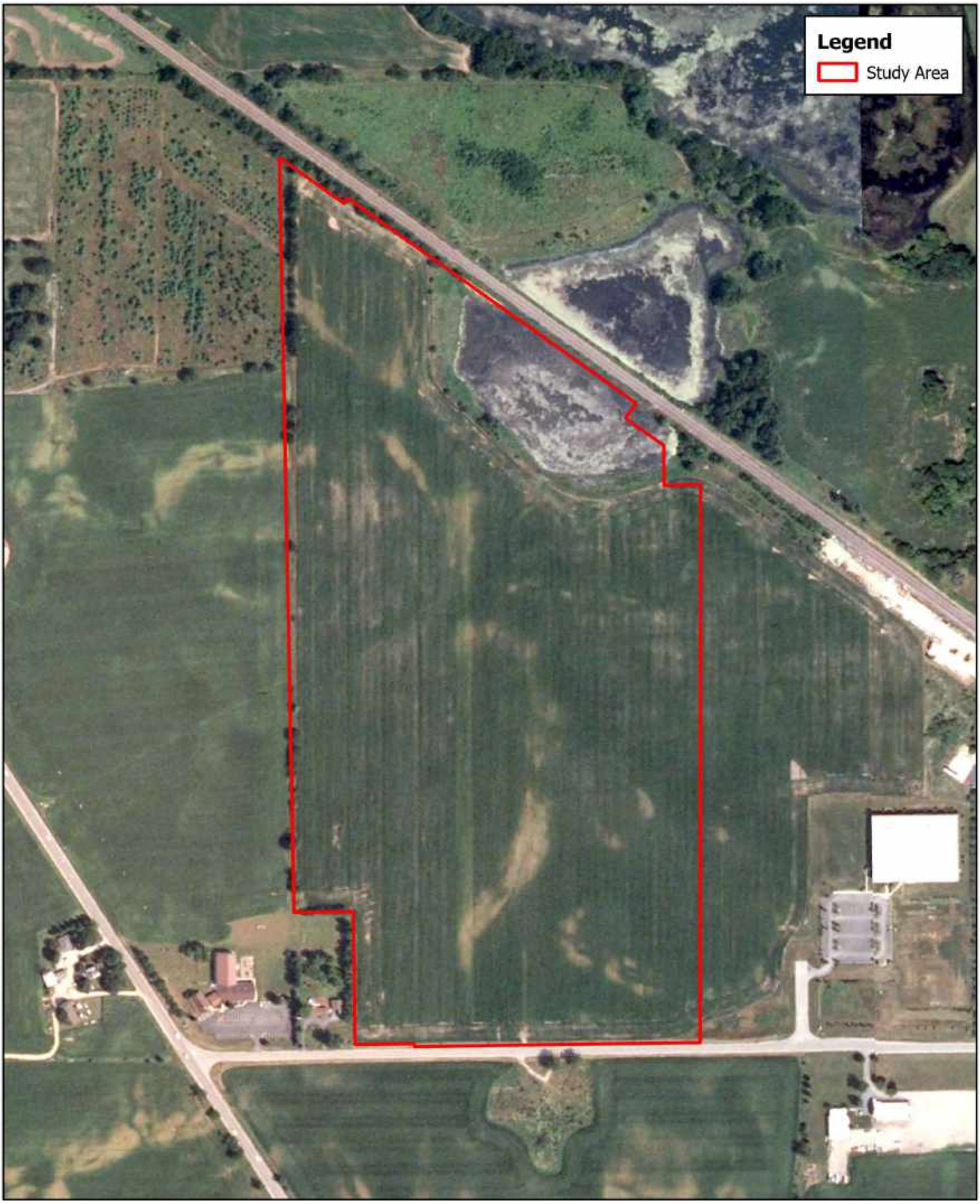


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Historic Aerial (June 2007)
Crystal Lake, McHenry County
TPE IL MH405, LLC

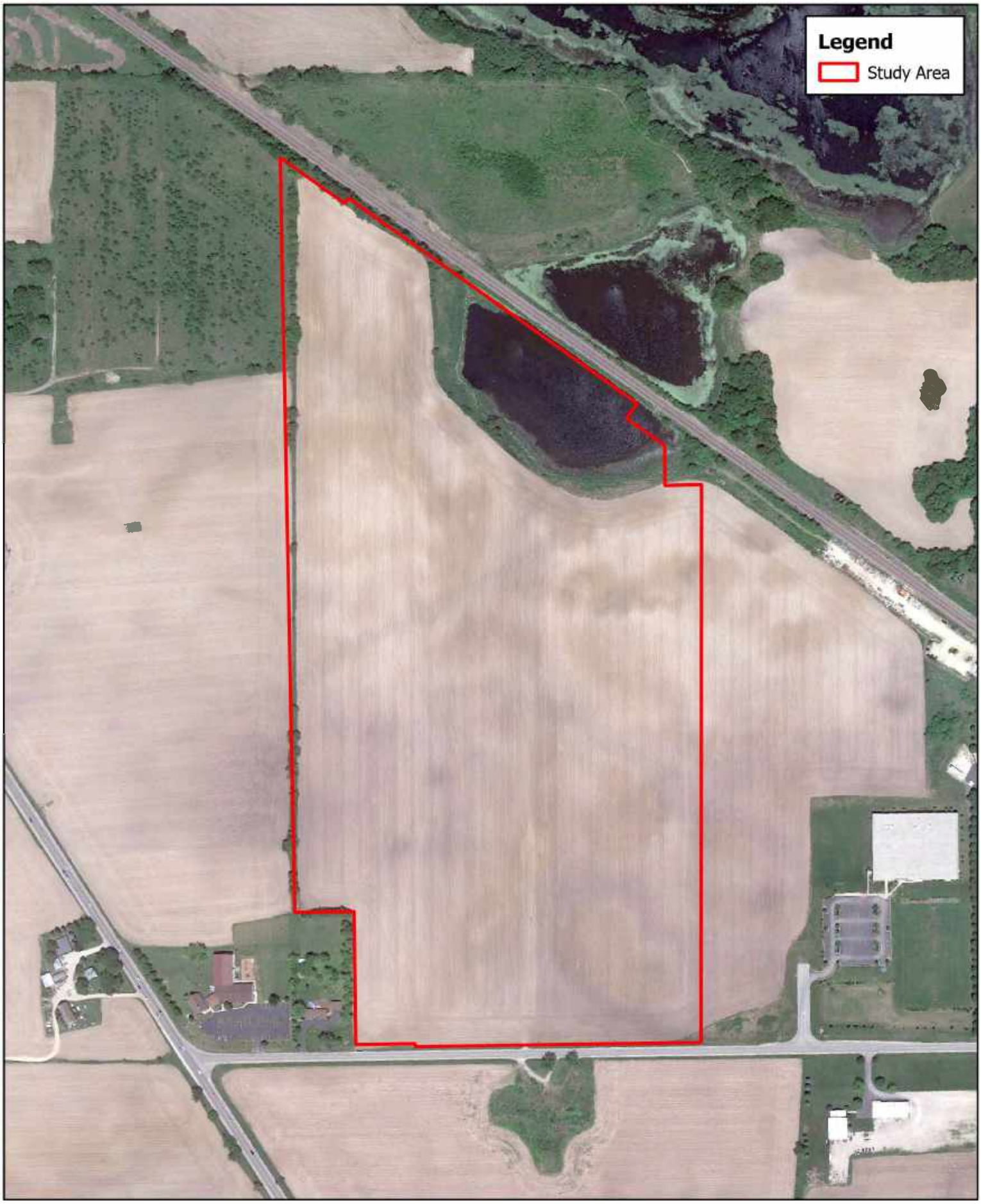


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Historic Aerial (June 2009)
Crystal Lake, McHenry County
TPE IL MH405, LLC



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Historic Aerial (May 2010)
Crystal Lake, McHenry County
TPE IL MH405, LLC

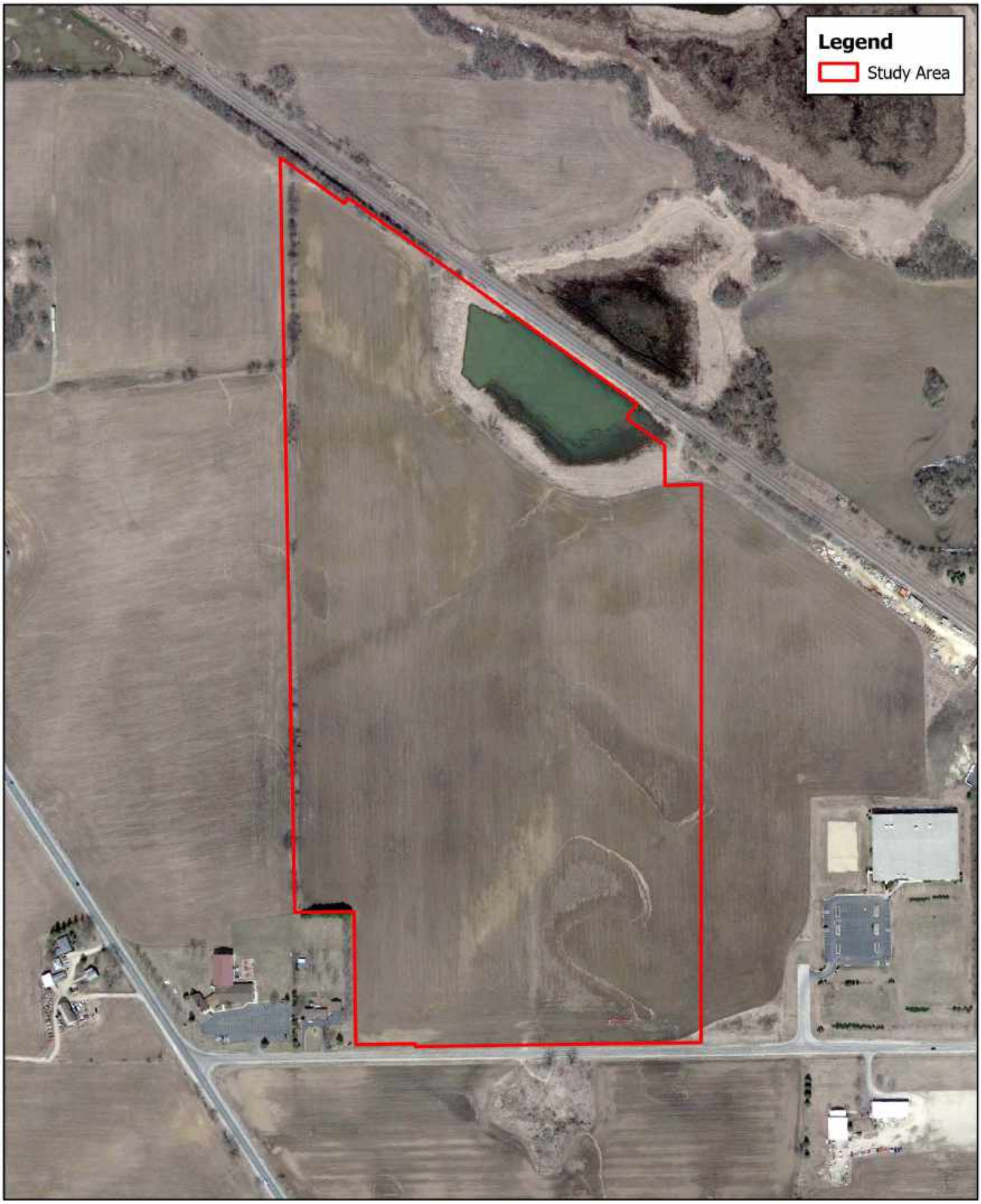


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Historic Aerial (September 2011)
Crystal Lake, McHenry County
TPE IL MH405, LLC



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Historic Aerial (April 2013)
Crystal Lake, McHenry County
TPE IL MH405, LLC

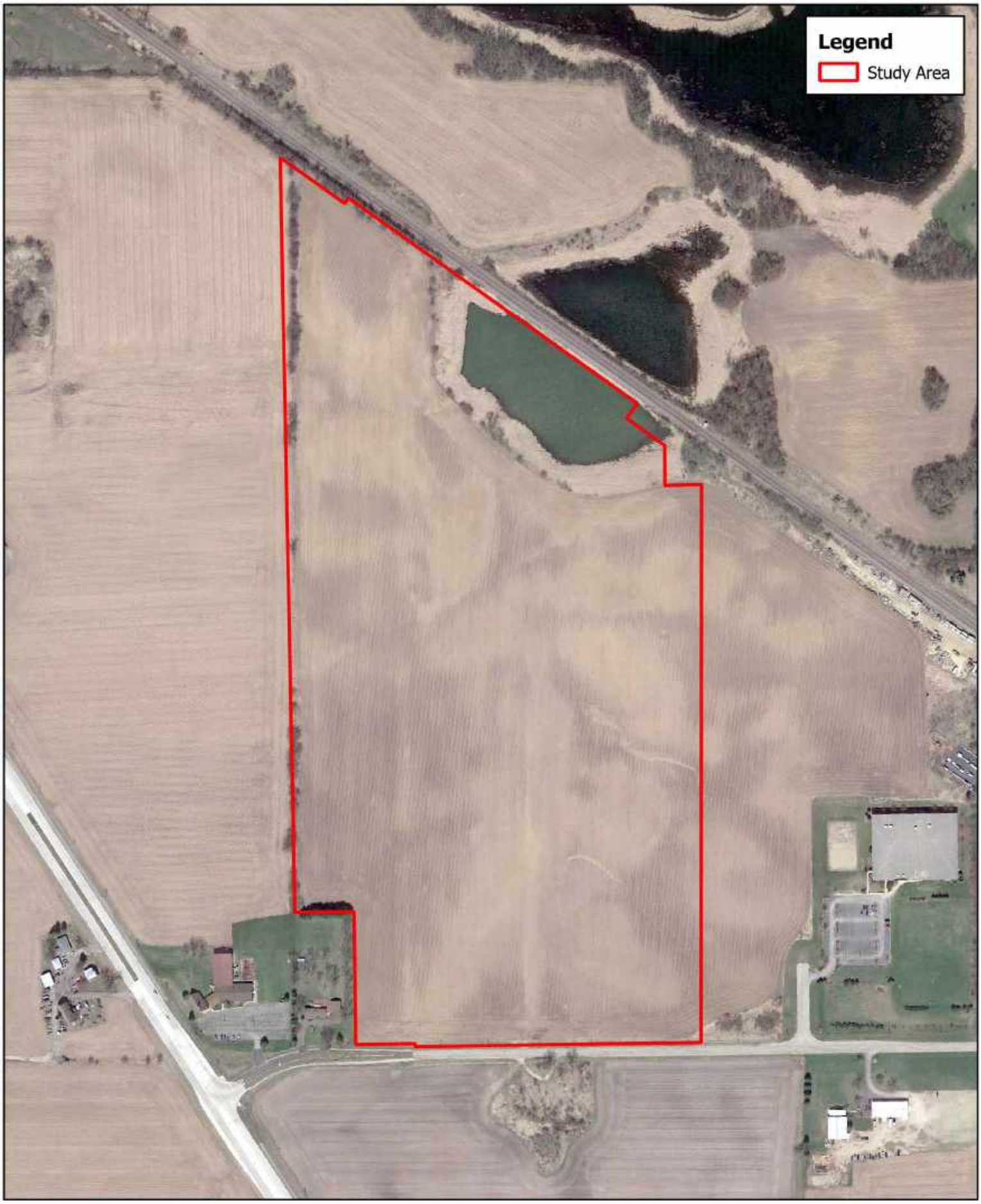


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Historic Aerial (May 2015)
Crystal Lake, McHenry County
TPE IL MH405, LLC

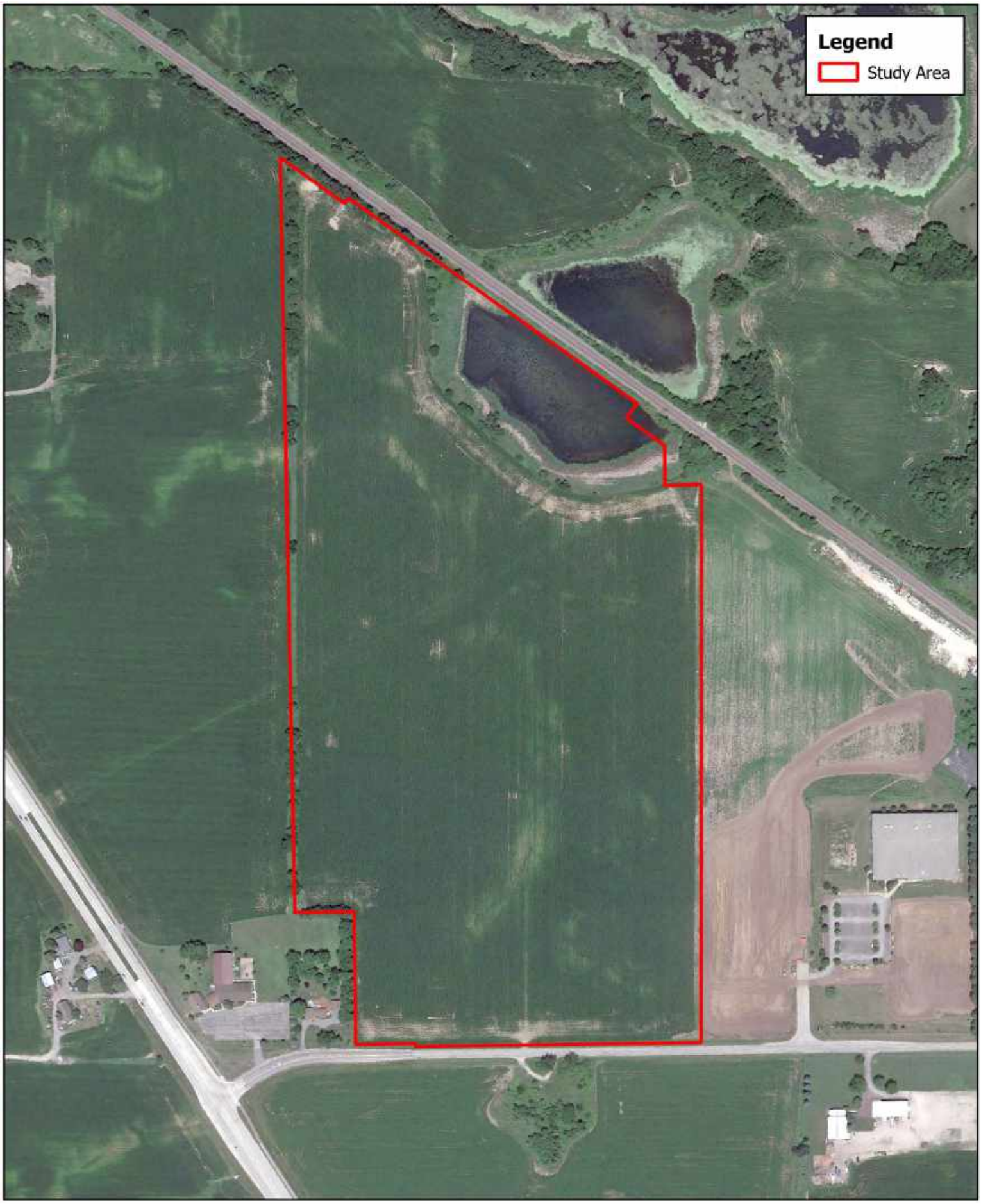


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Historic Aerial (April 2017)
Crystal Lake, McHenry County
TPE IL MH405, LLC

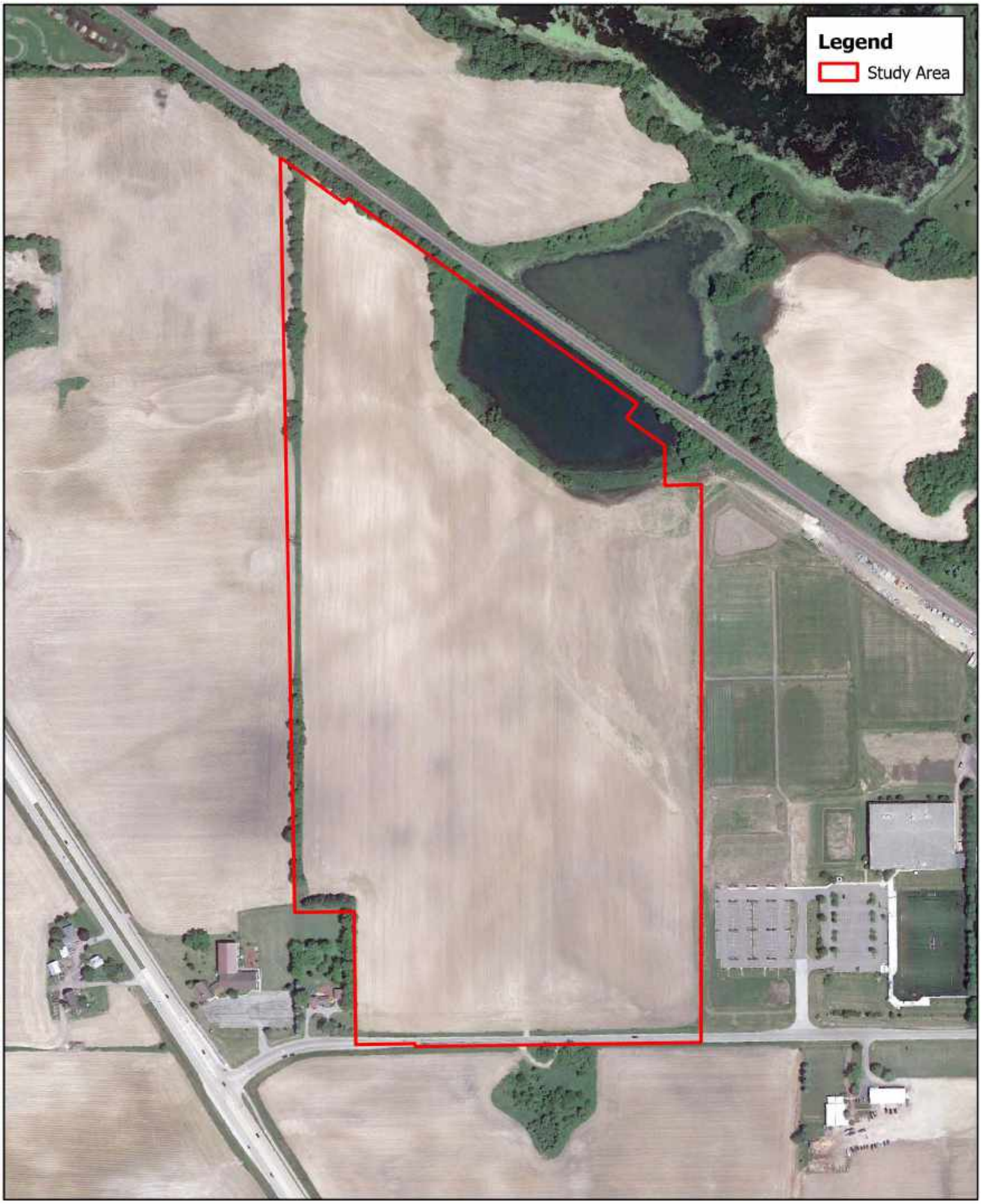


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Historic Aerial (July 2018)
Crystal Lake, McHenry County
TPE IL MH405, LLC



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Historic Aerial (June 2020)
Crystal Lake, McHenry County
TPE IL MH405, LLC



Kimley»Horn

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Historic Aerial (May 2021)
Crystal Lake, McHenry County
TPE IL MH405, LLC

ATTACHMENT B

Species Resources

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
Phone: (312) 485-9337

In Reply Refer To:
Project Code: 2024-0013876
Project Name: TPE IL MH405, LLC

November 07, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing

determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and

their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
(312) 485-9337

PROJECT SUMMARY

Project Code: 2024-0013876
Project Name: TPE IL MH405, LLC
Project Type: Power Gen - Solar
Project Description: On behalf of Turning Point Energy, Kimley-Horn is initiating consultation with the USFWS to determine potential impacts to federally listed threatened and endangered species for a proposed commercial solar facility, referred to as TPE IL MH405, LLC. The Study Area comprises approximately 78 total acres and primarily consists of cropland. The solar facility will include access roads and associated utilities.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.271902350000005,-88.3750171384126,14z



Counties: McHenry County, Illinois

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Rusty Patched Bumble Bee *Bombus affinis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9383	Endangered

FLOWERING PLANTS

NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea*	Threatened

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- Follow the guidance provided at https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html

Species profile: https://ecos.fws.gov/ecp/species/601

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Kimley-Horn and Associates
Name: Thomas McTigue
Address: 111 WEST JACKSON BLVD.
City: CHICAGO
State: IL
Zip: 60604
Email thomas.mctigue@kimley-horn.com
Phone: 6124040876

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

September 27, 2023

Amy Henry
3720 S Dahlia St
Denver, CO 80237

RE: TPE IL MH405, LLC
Consultation Program
EcoCAT Review #2405133
McHenry County

Dear Ms. Henry,

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action consists of the construction of a solar farm with associated access roads and utilities in McHenry County, IL.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Class 3 Groundwater
Gladstone Fen

State Threatened or Endangered Species
Blanding's Turtle (*Emydoidea blandingii)*
Rusty-patched Bumble Bee (*Bombus affinis)*

Due to the project scope and proximity to protected resources the Department offers the following comments and recommends the following actions be taken to avoid adversely impacting listed species and protected natural areas in the vicinity of the project:

Gladstone Fen
This project falls completely within the Gladstone Fen Class 3 Groundwater recharge area, which protects the integrity of the Gladstone Fen Nature Preserve. The modification of groundwater quality and quantity which may affect conditions within a Nature Preserve is prohibited. The

Department recommends the following to avoid and minimize impact to Gladstone Fen Class 3 Groundwater:

- Use the lightest weight equipment possible to complete the job.
- Balloon or large tires should be used whenever possible to reduce compaction.
- Disc site upon completion to de-compact the surface after final soil is placed to ensure good infiltration.
- Naturalized permeable basins and swales should be part included in the design.

Blanding's Turtle and Rusty-patched Bumble Bee

The Department has concluded that adverse impacts to these species are unlikely.

Please note that due to the federal status of the Rusty-patched Bumble Bee, and its potential occurrence in the project area, coordination with the U.S. Fish and Wildlife Service may be necessary and is separate from this consultation and Illinois State regulations.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

- The Department also recommends all solar facilities establish pollinator-friendly habitat as groundcover wherever feasible. Solar Site Pollinator Establishment Guidelines can be found here: https://dnr.illinois.gov/conservation/pollinatorscorecard.html
- Required fencing, excluding areas near or adjacent to public access areas (e.g., roads, parking areas, trails, etc.), should not exceed 6 feet in height and should have a 6-inch gap along the bottom to prevent the restriction of wildlife movement.
- The project proponent should ensure that the site is de-compacted before planting.
- Long term management of the site should be planned for prior to development to ensure successful native pollinator habitat establishment and prevent the spread of invasive species throughout the lifetime of this project. An experienced ecological management consultant should be hired to assist with long-term management.
- Required night lighting should follow International Dark-Sky Association (IDA) guidance to minimize the effect of light pollution on wildlife.

Please contact me with any questions about this review.
Sincerely,

Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

EcoCAT
Ecological Compliance Assessment Tool

Applicant:	Gloria Foxman	*IDNR Project Number:*	2405133
Contact:	Amy Henry	*Date:*	09/26/2023
Address:	3720 S Dahlia St Denver, CO 80237		
Project:	TPE IL MH405, LLC		
Address:	Ridgefield Rd., Crystal Lake		

Description: Construction of a solar farm with associated access roads and utilities

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Gladstone Fen Class III Groundwater Site
Blanding's Turtle *(Emydoidea blandingii)*
Rusty Patched Bumble Bee *(Bombus affinis)*

An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: McHenry

Township, Range, Section:
44N, 7E, 23
44N, 7E, 24
44N, 7E, 25
44N, 7E, 26



IL Department of Natural Resources Contact
Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
McHenry County
Adam Wallen
2200 N. Seminary Ave.
Woodstock, Illinois 60098

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

Terms of Use

By using this website, you acknowledge that you have read and agree to these terms. These terms may be revised by IDNR as necessary. If you continue to use the EcoCAT application after we post changes to these terms, it will mean that you accept such changes. If at any time you do not accept the Terms of Use, you may not continue to use the website.

1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

2. Unauthorized attempts to upload, download, or change information on this website are strictly prohibited and may be punishable under the Computer Fraud and Abuse Act of 1986 and/or the National Information Infrastructure Protection Act.

3. IDNR reserves the right to enhance, modify, alter, or suspend the website at any time without notice, or to terminate or restrict access.

Security

EcoCAT operates on a state of Illinois computer system. We may use software to monitor traffic and to identify unauthorized attempts to upload, download, or change information, to cause harm or otherwise to damage this site. Unauthorized attempts to upload, download, or change information on this server is strictly prohibited by law.

Unauthorized use, tampering with or modification of this system, including supporting hardware or software, may subject the violator to criminal and civil penalties. In the event of unauthorized intrusion, all relevant information regarding possible violation of law may be provided to law enforcement officials.

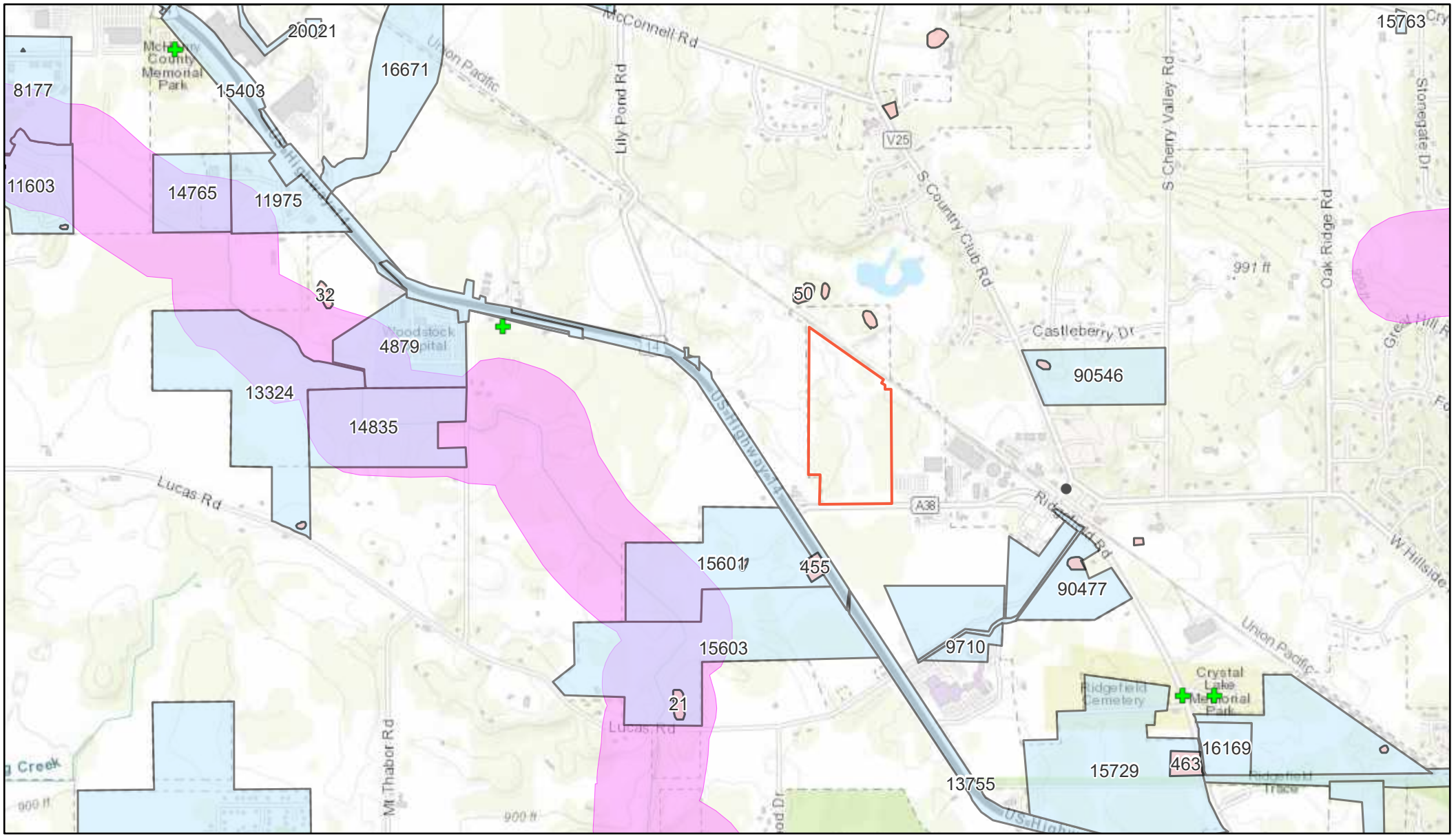
Privacy

EcoCAT generates a public record subject to disclosure under the Freedom of Information Act. Otherwise, IDNR uses the information submitted to EcoCAT solely for internal tracking purposes.

ATTACHMENT C

Historic Resources

MH405 Solar



10/24/2023, 11:54:13 AM

Study Area

ISM Cemeteries

IAS Sites

Archaeological Resource Potential

Surveys

1:36,112

0 0.23 0.45 0.9 mi

0 0.35 0.7 1.4 km

County of McHenry, Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA

ArcGIS Web AppBuilder

Data capture, compilation and library maintenance: Marge Bargh, Colin Treworgy, and other ISGS Coal Section staff Compilation of library tiles to create this product: Chris Korose Documentation: Cheri Chenoweth, Chris Korose, and Alan Myers Quality Review: Cheri Chenoweth, Chris Korose,

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

McHenry County
Crystal Lake
Ridgefield Road
Sections:23,24,25,26-Township:44N-Range:7E
IEPA, KHA-268173043
New construction, TPE IL MH405 Solar

PLEASE REFER TO: SHPO LOG #006092723

October 24, 2023

Amy Henry
Kimley Horn and Associates, Inc.
11995 Singletree Lane #225
Eden Prairie, MN 55344

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state undertakings for their effect on cultural resources. Pursuant to this requirement, we have received information regarding the above referenced project for our comment.

According to the information provided there is no federal involvement in your project. Be aware the state law is less restrictive than the federal cultural resource laws concerning archaeology. If your project will use federal loans or grants, need federal agency permits, use federal property, or involve assistance from a federal agency, then your project must be reviewed under the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

Our files do not identify any known historic properties within this proposed project area, nor is it within the high probability area for archaeological resources as defined in the state Act. Accordingly, this project is **EXEMPT** pursuant to Section 6 of the Illinois State Agency Historic Resources Preservation Act. An archaeological survey for your above referenced project is not required under Illinois law. Please know, however, we are always receptive to reviewing the results of any due diligence survey coverages.

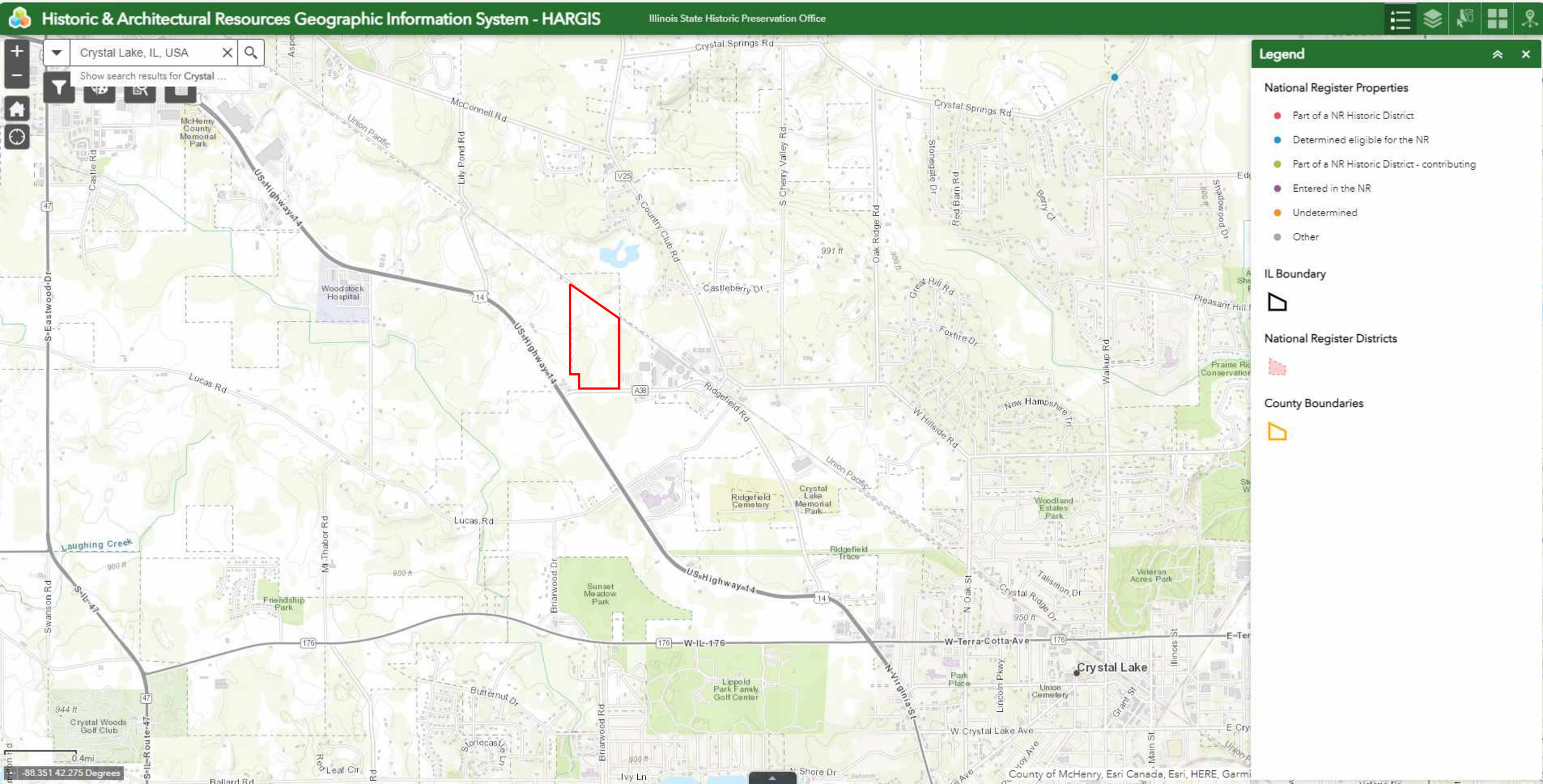
This does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Remains Protection Act (20 ILCS 3440).

If further assistance is needed please contact Jeff Kruchten, Principal Archaeologist, at 217/785-1279 or jeff.kruchten@illinois.gov.

Sincerely,

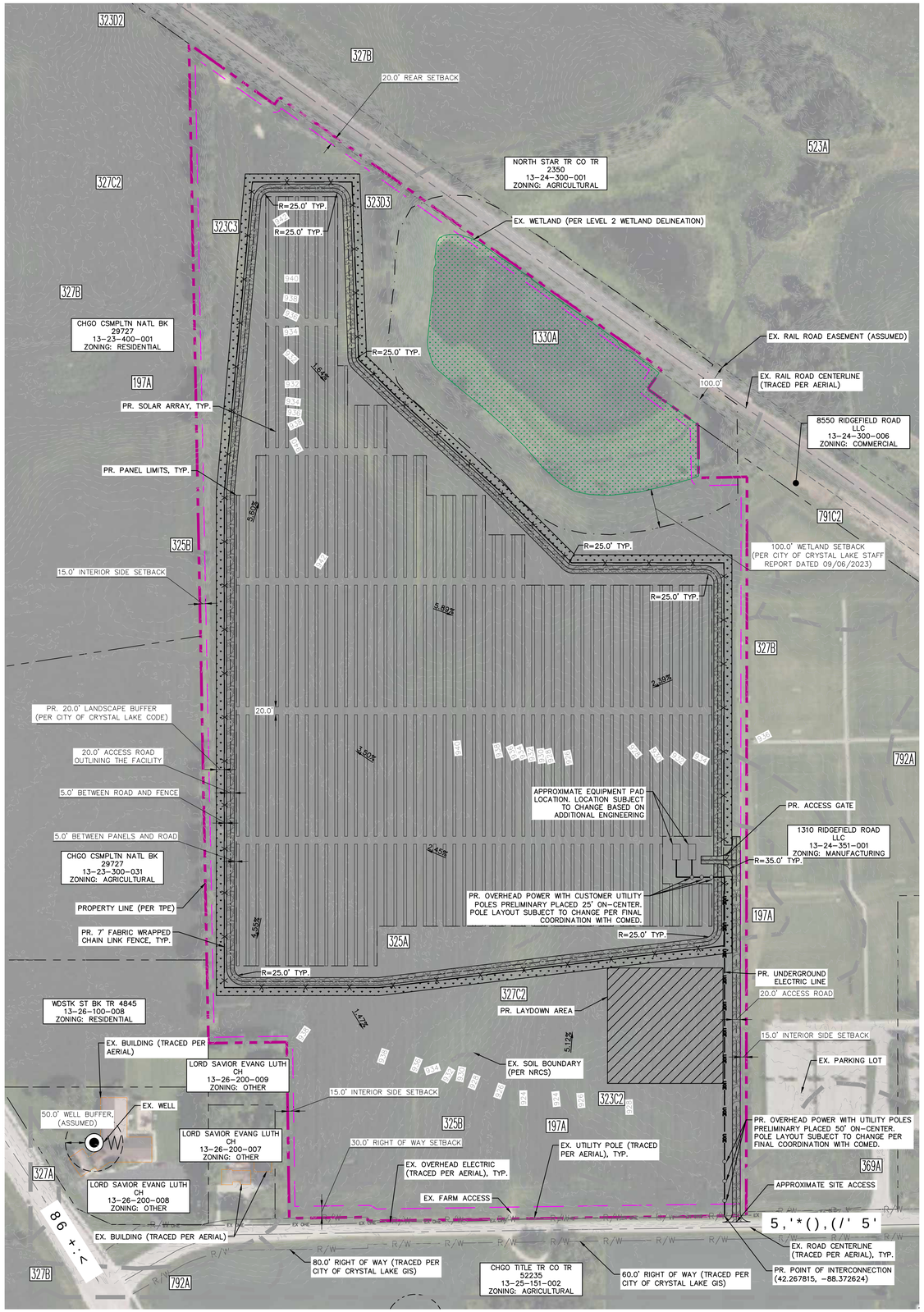
Carey L. Mayer

Carey L. Mayer, AIA
Deputy State Historic
Preservation Officer


Historic & Architectural Resources Geographic Information System - HARGIS
Illinois State Historic Preservation Office
Crystal Lake, IL, USA
Show search results for Crystal ...
Legend
National Register Properties
Part of a NR Historic District
Determined eligible for the NR
Part of a NR Historic District - contributing
Entered in the NR
Undetermined
Other
IL Boundary
National Register Districts
County Boundaries
Crystal Springs Rd
McConnell Rd
Union Pacific
McHenry County Memorial Park
Lily Pond Rd
S Cherry Valley Rd
Oak Ridge Rd
Stonegate Dr
Red Barn Rd
Berry Ct
Shadowood Dr
Castle Rd
US Highway 14
S Country Club Rd
Castleberry Dr
991 ft
Great Hill Rd
Foxfire Dr
Walkup Rd
Pleasant Hill
Woodstock Hospital
S Eastwood Dr
Lucas Rd
Ridgefield Rd
W Hillside Rd
New Hampshire Trl
Ridgefield Cemetery
Crystal Lake Memorial Park
Woodland Estates Park
Prairie Ridge Conservation
Laughing Creek
900 ft
Mt Thabor Rd
Briarwood Dr
Sunset Meadow Park
Ridgefield Trace
Talisman Dr
Crystal Ridge Dr
950 ft
N Oak St
Veteran Acres Park
Swanson Rd
S IL-47
Friendship Park
W IL-176
W Terra Cotta Ave
E Ter
Crystal Lake
Park Place
Lincoln Pkwy
Union Cemetery
Grant St
Illinois St
Lippold Park Family Golf Center
Butternut Dr
Crystal Woods Golf Club
944 ft
Stonecast Ln
Red Leaf Cir
S IL Route 47
N Virginia St
W Crystal Lake Ave
E Cry
Main St
Ballard Rd
Ivy Ln
N Shore Dr
0.4mi
-88.351 42.275 Degrees
County of McHenry, Esri Canada, Esri, HERE, Garmi

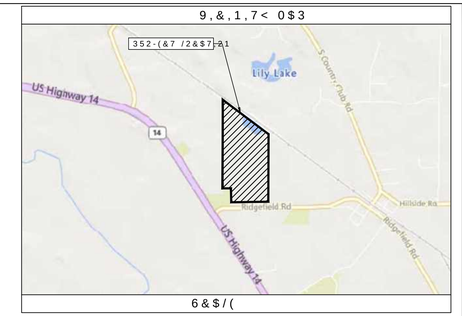
ATTACHMENT D

Site Plan



1257+

GRAPHIC SCALE IN FEET
0 75 150 300



6&$/(

/(*(1'

ROAD NAME	1 67
PROPERTY LINE	
PROJECT BOUNDARY	
RIGHT OF WAY	R/W
SETBACK	
EX. OVERHEAD ELECTRIC	EX OHE
EX. ROAD CENTERLINE	
EX. EASEMENT	
EX. UTILITY POLE	
EX. RESIDENCE/STRUCTURE	
EX. WETLANDS (PER LEVEL 2 DELINEATION BY KIMLEY-HORN)	
WETLAND SETBACK	
EX. FLOW (DIRECTION AND SLOPE)	XX%
PR. SECURITY FENCE	X
PR. ACCESS GATE	
PR. LAYDOWN AREA	
PR. PANEL LIMITS	
PR. UNDERGROUND ELECTRIC	UGE UGE
PR. OVERHEAD ELECTRIC	OHW
PR. ACCESS ROAD	
PR. UTILITY POLE	
PR. EQUIPMENT PAD	
PR. SOLAR ARRAY	
PR. LANDSCAPE BUFFER	
EX. WELL	W
WELL BUFFER	

6,7('7 7$%/(

PIN #	13-23-40-005
PROPERTY OWNER	EIGER LLC 1625 W LAKE SHORE DR WOODSTOCK, IL 60098
SITE ADDRESS	RIDGEFIELD ROAD, CRYSTAL LAKE, IL 60098
LEGAL DESCRIPTION	DOC 2003R0085874 PT LT 15 SECS 23 & 24 LYING S OF RR /EX DOC 2012R0002480/ ASSRS PLAT
ZONING JURISDICTION	CITY OF CRYSTAL LAKE
ZONING	M PUD, MANUFACTURING PLANNED UNIT DEVELOPMENT
CURRENT LAND USE	AGRICULTURAL FIELD
PROPOSED USE	COMMERCIAL SOLAR FIELD
TOTAL PARCEL AREA	78 ± AC
PRELIMINARY DISTURBED AREA	46 ± AC
PRELIMINARY SOLAR AREA	33 ± AC
RIGHT OF WAY SETBACK	30 FT
PROPERTY LINE SETBACK	15 FT

*ZONING SITE PLAN IS BEING SUBMITTED FOR SPECIAL USE PERMIT AND PUD AMENDMENT TO CONSTRUCT/OPERATE A SOLAR FARM

127(6

1. THE PURPOSE OF THIS PLAN IS FOR SPECIAL USE PERMIT AND PUD AMENDMENT REVIEW AND APPROVAL BY CITY OF CRYSTAL LAKE TO CONSTRUCT A SOLAR FARM.
2. THIS PLAN WAS PRODUCED UTILIZING GIS RESOURCES AND INFORMATION FROM MULTIPLE SOURCES, INCLUDING CITY OF CRYSTAL LAKE GIS, GOOGLE EARTH, AND USGS TOPOGRAPHIC INFORMATION.
3. SUBJECT PROPERTY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AS SHOWN ON THE FLOOD INSURANCE RATE MAP (COMMUNITY PANEL 17111C0200J AND 17111C0215J) PUBLISHED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
4. THE LOCATIONS OF PROPOSED IMPROVEMENTS, INCLUDING BUT NOT LIMITED TO: FENCING, SOLAR ARRAY RACKING, INVERTER/TRANSFORMER PADS, OVERHEAD POLES AND LINES, ETC., SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MODIFICATION DUE TO SITE CONDITIONS, ADDITIONAL PERMITTING REQUIREMENTS, EQUIPMENT SPECIFICATIONS, AND/OR OTHER CONSTRAINTS DURING FINAL ENGINEERING.
5. PROJECT AREA, INCLUDING CONSTRUCTION STAGING AREAS, WILL BE CLEARED AND GRUBBED AS NECESSARY, RETAINING PRE-DEVELOPMENT DRAINAGE PATTERNS TO THE BEST EXTENT POSSIBLE. CONSTRUCTION STAGING AND AREAS SUBJECT TO RUTTING DURING CONSTRUCTION WILL BE TEMPORARILY STABILIZED WITH GRAVEL. SOIL CONDITIONS AND EQUIPMENT LOADS WILL DETERMINE FINAL DESIGN.
6. ALL DIMENSIONS SHOWN ARE AT 90 DEGREES UNLESS OTHERWISE NOTED.
7. CONTRACTOR SHALL CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. ADDITIONALLY, CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES.
8. CONTRACTOR SHALL MAINTAIN ACCESS AND UTILITY SERVICES TO ANY REMAINING BUILDING(S) OR ADJACENT BUILDING(S) THROUGHOUT THE DEMOLITION AND CONSTRUCTION PHASES. EXISTING IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED/RESTORED TO THE SATISFACTION OF THE OWNER BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.
9. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO PROVIDE SIGNS, BARRICADES, WARNING LIGHTS, GUARD RAILS, AND EMPLOY FLAGGERS AS NECESSARY WHEN CONSTRUCTION ENDANGERS EITHER VEHICULAR OR PEDESTRIAN TRAFFIC. THESE DEVICES SHALL REMAIN IN PLACE UNTIL THE TRAFFIC MAY PROCEED NORMALLY AGAIN.
10. SITE WILL HAVE NO DEDICATIONS FOR OPEN SPACE, NATURAL AREA, HISTORIC BUILDING(S)/STRUCTURE(S), OR STORMWATER MANAGEMENT FACILITIES.
11. SITE WILL NOT INCLUDE WATER SOURCE OR SEWAGE DISPOSAL. APPROXIMATE LOCATION OF EXISTING WATER WELL LOCATIONS SHOWN PER THE ILLINOIS WATER WELL INTERACTIVE MAP ONLINE.
12. STORMWATER MANAGEMENT FACILITIES TO BE PROVIDED AS REQUIRED BY CITY AND/OR NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMITTING. REQUIREMENTS TO BE DETERMINED DURING FINAL ENGINEERING.
13. THE MAXIMUM HEIGHTS OF ANY SOLAR PANEL SHALL NOT EXCEED 25 FEET.
14. SOLAR PANELS WILL BE DESIGNED WITH ANTI-REFLECTIVE COATING TO MINIMIZE GLARE.
15. COLLECTION LINES WITHIN THE SOLAR FARM WILL BE LOCATED AND MAINTAINED UNDERGROUND.
16. THERE SHALL BE NO EXTERIOR LIGHTING.
17. SETBACKS SHOWN ON THIS PLAN ARE BASED ON CITY OF CRYSTAL LAKE CODE OF ORDINANCES, SECTION 3-200.
18. ALL NECESSARY PERMITS FOR SOIL EROSION CONTROL AND DRIVEWAY CONSTRUCTION WILL BE OBTAINED AS PART OF FINAL ENGINEERING AND PRIOR TO CONSTRUCTION
19. LANDSCAPE BUFFERS SHOWN ON THIS PLAN ARE BASED ON CITY OF CRYSTAL LAKE CODE OF ORDINANCES, SECTION 2-400C.
20. TO AVOID AND MINIMIZE IMPACT TO GLADSTONE FEN CLASS 3 GROUNDWATER, PER RECOMMENDATIONS FROM THE IDNR STATE ECOLOGICAL REVIEW, THE PROJECT WILL:
    - x USE THE LIGHTEST WEIGHT EQUIPMENT POSSIBLE TO COMPLETE THE JOB.
    - x USE BALLOON OR LARGE TIRES WHENEVER POSSIBLE TO REDUCE COMPACTION.
    - x DISC SITE UPON COMPLETION TO DE-COMPACT THE SURFACE AFTER FINAL SOIL IS PLACED TO ENSURE GOOD INFILTRATION.
    - x USE NATURALIZED PERMEABLE BASINS AND SWALES IN THE DESIGN.
21. SITE FENCE TO BE FABRIC WRAPPED PER CITY OF CRYSTAL LAKE SOLAR ORDINANCE.
22. SIGNAGE, ACCESS, GATES, AND SITE DESIGN SHALL BE IN ACCORDANCE WITH INTERNATIONAL FIRE CODE (IFC) 2018 EDITION WITH CITY OF CRYSTAL LAKE AMENDMENTS.

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MAP UNIT SYMBOL	MAP UNIT NAME	HYDROLOGIC SOIL GROUP
197A	TROXEL SILT LOAM, 0 TO 2 PERCENT SLOPES	B
323C2	CASCO LOAM, 4 TO 6 PERCENT SLOPES	B
323C3	CASCO CLAY LOAM, 4 TO 6 PERCENT SLOPES. SEVERELY ERODED	B
323D2	CASCO LOAM, 6 TO 12 PERCENT SLOPES, ERODED	B
323D3	CASCO CLAY LOAM, 6 TO 12 PERCENT SLOPES, SEVERELY ERODED	B
325A	DRESDEN SILT LOAM, 0 TO 2 PERCENT SLOPES	B
325B	DRESDEN SILT LOAM, 2 TO 4 PERCENT SLOPES	B
327A	FOX SILT LOAM, 0 TO 2 PERCENT SLOPES	B
327B	FOX SILT LOAM, 2 TO 4 PERCENT SLOPES	B
327C2	FOX SILT LOAM, 4 TO 6 PERCENT SLOPES, ERODED	B
369A	WAUPECAN SILT LOAM, 0 TO 2 PERCENT SLOPES	B
523A	DUNHAM SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES	B/D
791B	RUSH SILT LOAM, 2 TO 4 PERCENT SLOPES	B
791C2	RUSH SILT LOAM, 4 TO 6 PERCENT SLOPES, ERODED	B
792A	BOWES SILT LOAM, 0 TO 2 PERCENT SLOPES	B
1330A	PEOTONE SILTY CLAY LOAM, 0 TO 2 PERCENT SLOPES, UNDRAINED	C/D
4103A	HOUGHTON MUCK, PONDED, 0 TO 2 PERCENT SLOPES	A/D

No.	REVISIONS	DATE

TurningPoint Energy

Kimley»Horn
©2023 KIMLEY-HORN AND ASSOCIATES, INC.
570 LAKE COOK RD SUITE 200
DEERFIELD, IL 60015
WWW.KIMLEY-HORN.COM

KHA PROJECT 026173043
DATE 11/06/2023
SCALE AS SHOWN
DESIGNED BY AH
DRAWN BY LAD
CHECKED BY APK

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73(,0+ - //&
CITY OF CRYSTAL LAKE,
MCHENRY COUNTY, IL

SHEET NUMBER
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35(/,0,1$5< 127)25 &216758&7,21

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Gloria Foxman
Contact: Amy Henry
Address: 3720 S Dahlia St
Denver, CO 80237

Project: TPE IL MH405, LLC
Address: Ridgefield Rd., Crystal Lake

IDNR Project Number: 2405133
Date: 09/26/2023

Description: Construction of a solar farm with associated access roads and utilities

Natural Resource Review Results

Consultation for Endangered Species Protection and Natural Areas Preservation (Part 1075)

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Gladstone Fen Class III Groundwater Site
Blanding's Turtle *(Emydoidea blandingii)*
Rusty Patched Bumble Bee *(Bombus affinis)*

An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: McHenry

Township, Range, Section:
44N, 7E, 23
44N, 7E, 24
44N, 7E, 25
44N, 7E, 26



IL Department of Natural Resources Contact
Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
McHenry County
Adam Wallen
2200 N. Seminary Ave.
Woodstock, Illinois 60098

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

EcoCAT Receipt

Project Code 2405133

APPLICANT	DATE
Gloria Foxman Amy Henry 3720 S Dahlia St Denver, CO 80237	9/26/2023

DESCRIPTION	FEE	CONVENIENCE FEE	TOTAL PAID
EcoCAT Consultation	$ 125.00	$ 2.81	$ 127.81

TOTAL PAID $ 127.81

Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
217-785-5500
dnr.ecocat@illinois.gov

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

September 27, 2023

Amy Henry
3720 S Dahlia St
Denver, CO 80237

RE: TPE IL MH405, LLC
Consultation Program
EcoCAT Review #2405133
McHenry County

Dear Ms. Henry,

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action consists of the construction of a solar farm with associated access roads and utilities in McHenry County, IL.

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Class 3 Groundwater
Gladstone Fen

State Threatened or Endangered Species
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Rusty-patched Bumble Bee (*Bombus affinis)*

Due to the project scope and proximity to protected resources the Department offers the following comments and recommends the following actions be taken to avoid adversely impacting listed species and protected natural areas in the vicinity of the project:

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This project falls completely within the Gladstone Fen Class 3 Groundwater recharge area, which protects the integrity of the Gladstone Fen Nature Preserve. The modification of groundwater quality and quantity which may affect conditions within a Nature Preserve is prohibited. The

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- Use the lightest weight equipment possible to complete the job.
- Balloon or large tires should be used whenever possible to reduce compaction.
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- Naturalized permeable basins and swales should be part included in the design.

Blanding's Turtle and Rusty-patched Bumble Bee

The Department has concluded that adverse impacts to these species are unlikely.

Please note that due to the federal status of the Rusty-patched Bumble Bee, and its potential occurrence in the project area, coordination with the U.S. Fish and Wildlife Service may be necessary and is separate from this consultation and Illinois State regulations.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

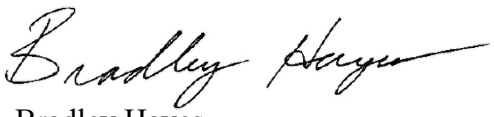
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This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

- The Department also recommends all solar facilities establish pollinator-friendly habitat as groundcover wherever feasible. Solar Site Pollinator Establishment Guidelines can be found here: https://dnr.illinois.gov/conservation/pollinatorscorecard.html
- Required fencing, excluding areas near or adjacent to public access areas (e.g., roads, parking areas, trails, etc.), should not exceed 6 feet in height and should have a 6-inch gap along the bottom to prevent the restriction of wildlife movement.
- The project proponent should ensure that the site is de-compacted before planting.
- Long term management of the site should be planned for prior to development to ensure successful native pollinator habitat establishment and prevent the spread of invasive species throughout the lifetime of this project. An experienced ecological management consultant should be hired to assist with long-term management.
- Required night lighting should follow International Dark-Sky Association (IDA) guidance to minimize the effect of light pollution on wildlife.

Please contact me with any questions about this review.
Sincerely,



Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

Kimley»Horn

January 5, 2024

United States Fish and Wildlife Service
Chicago Ecological Service Field Office
230 South Dearborn Street, Suite 2938
Chicago, IL 60604

Subject: ***Section 9 and 10 Endangered Species Act – No Effect Determination***
MH405

On behalf of TPE IL MH405, LLC, Kimley-Horn and Associates (Kimley-Horn) evaluated the MH405 Project ("Project") for compliance with the Endangered Species Act Section 9 and 10 provisions. The Project consists of approximately 78 acres and is located north of Ridgefield Road and east of U.S. 14 in the City of Crystal Lake, McHenry County, Illinois. The Project will include the installation of an alternating current (AC) ground-mounted solar system. The Project will primarily consist of ground mounted solar panels, racking, associated electrical components, with security fencing and interior access roads. The Project is a privately funded project which is not anticipated to have a federal nexus. An official U.S. Fish and Wildlife Service (USFWS) species list for McHenry County is included in Attachment A. An Ecological Compliance Assessment Tool (EcoCAT) Consultation letter is included in Attachment B.

Kimley-Horn reviewed the USFWS Information for Planning and Consultation (IPaC) website for federally listed threatened and endangered species. According to the website, five species are listed and may be present in the project vicinity in McHenry County. The monarch butterfly is listed as candidate and the whooping crane is listed as experimental population, non-essential. The eastern prairie fringed orchid is listed as threatened. The Northern long-eared bat and rusty patched bumble bee are both listed as endangered. The action area for the proposed project is made up entirely of agricultural row crops. Minimal suitable habitat was identified within the Project area; therefore, no adverse effects are anticipated to the listed species. The EcoCAT showed record of two state listed threatened or endangered species. One groundwater fen was identified within the project area. No Illinois Natural Area Inventory sites, dedicated Illinois Nature Preserves, or registered Land and Water Reserves were identified in the vicinity of the project location. Given the IDNR recommendations are adopted, the IDNR determined that adverse effects to state listed species or protected resources are unlikely.

Based on the proposed project, we conclude that the MH405 Project will have "no effect" on federally listed species, their habitats, or designated critical habitat. No "incidental take" is anticipated; thus, no consultation with the USFWS is required based on the current Project.

If you have any questions or concerns, please feel free to contact me via phone (507.216.0288) or email (keller.leet-otley@kimley-horn.com).

Sincerely,

Keller Leet-Otley, Kimley-Horn

Kimley»Horn

Attachment A

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
Phone: (312) 485-9337

In Reply Refer To:
Project Code: 2024-0013876
Project Name: TPE IL MH405, LLC

November 07, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing

determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and

their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
(312) 485-9337

PROJECT SUMMARY

Project Code: 2024-0013876
Project Name: TPE IL MH405, LLC
Project Type: Power Gen - Solar
Project Description: On behalf of Turning Point Energy, Kimley-Horn is initiating consultation with the USFWS to determine potential impacts to federally listed threatened and endangered species for a proposed commercial solar facility, referred to as TPE IL MH405, LLC. The Study Area comprises approximately 78 total acres and primarily consists of cropland. The solar facility will include access roads and associated utilities.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.271902350000005,-88.3750171384126,14z



Counties: McHenry County, Illinois

ENDANGERED SPECIES ACT SPECIES

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

BIRDS

NAME	STATUS
Whooping Crane *Grus americana* Population: U.S.A. (AL, AR, CO, FL, GA, ID, IL, IN, IA, KY, LA, MI, MN, MS, MO, NC, NM, OH, SC, TN, UT, VA, WI, WV, western half of WY) No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/758	Experimental Population, Non-Essential

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate
Rusty Patched Bumble Bee *Bombus affinis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9383	Endangered

FLOWERING PLANTS

NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea*	Threatened

No critical habitat has been designated for this species.

This species only needs to be considered under the following conditions:

- Follow the guidance provided at https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html

Species profile: https://ecos.fws.gov/ecp/species/601

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Kimley-Horn and Associates
Name: Thomas McTigue
Address: 111 WEST JACKSON BLVD.
City: CHICAGO
State: IL
Zip: 60604
Email thomas.mctigue@kimley-horn.com
Phone: 6124040876

From: Oliver, Lincoln R
To: Leet-Otley, Keller; McGreevy, Theresa; Payne, Ashley
Subject: Solar Project Consultation Language
Date: Friday, January 6, 2023 12:20:51 PM

You don't often get email from lincoln_oliver@fws.gov. Learn why this is important

Hi all,

Per our discussion, the following is the text I promised. Thank you for the productive conversation and I look forward to working with you in the future!

No effect memo – The Illinois-Iowa Ecological Services Field Office has no regulatory or statutory authority for concurring with "no effect" determinations. However, we recommend you maintain a written record of your "no effect" determination ("take is not anticipated" for projects with no federal nexus) and include it in your decision record. An example "no effect" memo can be found on our website at https://www.fws.gov/sites/default/files/documents/P4_ne_habitat_ltr.pdf.

Federal nexus – Projects with no federal nexus are not subject to section 7 consultation. Therefore, if the project proceeds as anticipated and no take of listed species will occur, no further coordination with the USFWS is required. If take is expected for private projects (e.g., tree clearing during the active season), coordination with USFWS is required via technical assistance. In these instances, we recommend to avoid and minimize take to the extent practicable.

Proposed listings – Final listing determinations are completed within 1 year of listing proposals. However, litigation can extend this timeframe, as is the case for Monarch. The final listing determination for tricolored bat is anticipated by early fall 2023.

Please let me know if you have any questions or need any additional information.

Thank you,
Lincoln

Lincoln Oliver
Fish and Wildlife Biologist
U.S. Fish and Wildlife Service
Illinois - Iowa Ecological Services Field Office
1511 47th Avenue
Moline, IL 61265
309-757-5800 x208

Kimley»Horn

Attachment B

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Gloria Foxman
Contact: Amy Henry
Address: 3720 S Dahlia St
Denver, CO 80237

Project: TPE IL MH405, LLC
Address: Ridgefield Rd., Crystal Lake

IDNR Project Number: 2405133
Date: 09/26/2023

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Bradley Hayes
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Division of Ecosystems & Environment

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Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

September 27, 2023

Amy Henry
3720 S Dahlia St
Denver, CO 80237

RE: TPE IL MH405, LLC
Consultation Program
EcoCAT Review #2405133
McHenry County

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Gladstone Fen
This project falls completely within the Gladstone Fen Class 3 Groundwater recharge area, which protects the integrity of the Gladstone Fen Nature Preserve. The modification of groundwater quality and quantity which may affect conditions within a Nature Preserve is prohibited. The

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- Disc site upon completion to de-compact the surface after final soil is placed to ensure good infiltration.
- Naturalized permeable basins and swales should be part included in the design.

Blanding's Turtle and Rusty-patched Bumble Bee

The Department has concluded that adverse impacts to these species are unlikely.

Please note that due to the federal status of the Rusty-patched Bumble Bee, and its potential occurrence in the project area, coordination with the U.S. Fish and Wildlife Service may be necessary and is separate from this consultation and Illinois State regulations.

Given the above recommendations are adopted, the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed, unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

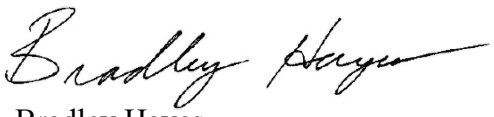
The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

- The Department also recommends all solar facilities establish pollinator-friendly habitat as groundcover wherever feasible. Solar Site Pollinator Establishment Guidelines can be found here: https://dnr.illinois.gov/conservation/pollinatorscorecard.html
- Required fencing, excluding areas near or adjacent to public access areas (e.g., roads, parking areas, trails, etc.), should not exceed 6 feet in height and should have a 6-inch gap along the bottom to prevent the restriction of wildlife movement.
- The project proponent should ensure that the site is de-compacted before planting.
- Long term management of the site should be planned for prior to development to ensure successful native pollinator habitat establishment and prevent the spread of invasive species throughout the lifetime of this project. An experienced ecological management consultant should be hired to assist with long-term management.
- Required night lighting should follow International Dark-Sky Association (IDA) guidance to minimize the effect of light pollution on wildlife.

Please contact me with any questions about this review.
Sincerely,



Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

Illinois Department of Natural Resources
JB Pritzker, Governor • Natalie Phelps Finnie, Director
One Natural Resources Way • Springfield, Illinois 62702-1271
www.dnr.illinois.gov

McHenry County
Crystal Lake
Ridgefield Road
Sections:23,24,25,26-Township:44N-Range:7E
IEPA, KHA-268173043
New construction, TPE IL MH405 Solar

PLEASE REFER TO: SHPO LOG #006092723

October 24, 2023

Amy Henry
Kimley Horn and Associates, Inc.
11995 Singletree Lane #225
Eden Prairie, MN 55344

The Illinois State Historic Preservation Office is required by the Illinois State Agency Historic Resources Preservation Act (20 ILCS 3420, as amended, 17 IAC 4180) to review all state undertakings for their effect on cultural resources. Pursuant to this requirement, we have received information regarding the above referenced project for our comment.

According to the information provided there is no federal involvement in your project. Be aware the state law is less restrictive than the federal cultural resource laws concerning archaeology. If your project will use federal loans or grants, need federal agency permits, use federal property, or involve assistance from a federal agency, then your project must be reviewed under the National Historic Preservation Act of 1966, as amended. Please notify us immediately if such is the case.

Our files do not identify any known historic properties within this proposed project area, nor is it within the high probability area for archaeological resources as defined in the state Act. Accordingly, this project is **EXEMPT** pursuant to Section 6 of the Illinois State Agency Historic Resources Preservation Act. An archaeological survey for your above referenced project is not required under Illinois law. Please know, however, we are always receptive to reviewing the results of any due diligence survey coverages.

This does not pertain to any discovery during construction, nor is it a clearance for purposes of the Illinois Human Remains Protection Act (20 ILCS 3440).

If further assistance is needed please contact Jeff Kruchten, Principal Archaeologist, at 217/785-1279 or jeff.kruchten@illinois.gov.

Sincerely,

Carey L. Mayer

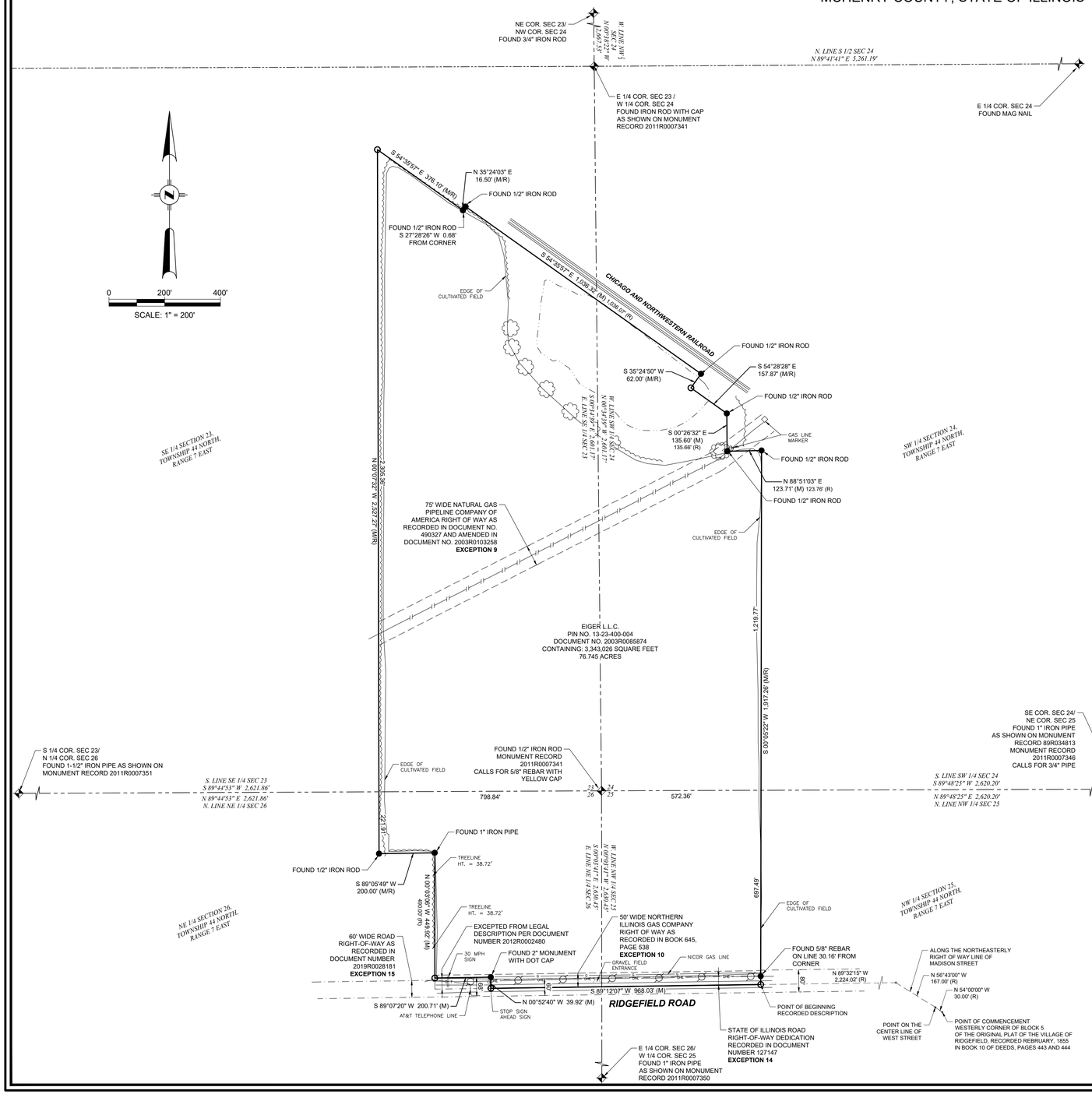
Carey L. Mayer, AIA
Deputy State Historic
Preservation Officer

PLAT OF SURVEY

FOR

TPE IL MH405, LLC

A TRACT OF LAND LOCATED IN PART OF THE SOUTHEAST QUARTER OF SECTION 23, PART OF THE SOUTHWEST QUARTER OF SECTION 24, PART OF THE NORTHWEST QUARTER OF SECTION 25 AND PART OF THE NORTHEAST QUARTER OF SECTION 26, ALL IN TOWNSHIP 44 NORTH, RANGE 7 EAST OF THE THIRD PRINCIPAL MERIDIAN
MCHENRY COUNTY, STATE OF ILLINOIS



SCHEDULE B - EXCEPTION II (SPECIAL EXCEPTIONS)

EASEMENTS LISTED BELOW WERE TAKEN FROM A TITLE COMMITMENT ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. NTS-201563-IL-1, COMMITMENT DATE: MAY 4, 2023 AT 12:00 AM

EXCEPT AS OTHERWISE EXPRESSLY NOTED IN NOTES BELOW, LW SURVEY CO. DID NOT EXAMINE OR ADDRESS THE EFFECTS, FEES OR ASSESSMENTS DUE, TERMS, CONDITIONS, PROVISIONS, OBLIGATIONS, RESERVATIONS AND/OR RESTRICTIONS CONTAINED IN THE DOCUMENTS REFERRED TO IN ANY ITEMS SHOWN IN THE TITLE COMMITMENT. EASEMENTS AND PUBLIC DOCUMENTS SHOWN OR NOTED HEREON WERE EXAMINED AS TO LOCATION AND STATED PURPOSE AND WERE NOT EXAMINED AS TO RESERVATIONS, RESTRICTIONS, CONDITIONS, OBLIGATIONS, TERMS, OR AS TO THE RIGHT TO GRANT THE SAME.

SCHEDULE B - 1 OF THE ABOVE TITLE COMMITMENT CONTAINS REQUIREMENTS REGARDING LIENS, TAXES, MORTGAGES AND LEASES THAT WHERE NOT EXAMINED OR ADDRESSED BY LW SURVEY CO.

EXCEPTION NOS. 1-8 ARE STANDARD EXCEPTIONS AND CONTAIN NO PLOTTABLE INFORMATION. LW MAKES NO DETERMINATIONS IN REGARDS TO OIL AND GAS RECORDS, MINERAL LEASES, ROYALTIES OR RESERVATIONS.

9. RIGHT OF WAY AGREEMENT, IN FAVOR OF NATURAL GAS PIPELINES COMPANY OF AMERICA, DATED MAY 23, 1968, RECORDED MAY 29, 1968 AS DOCUMENT NO. 490327. AMENDMENT TO RIGHT OF WAY AGREEMENT, DATED JUNE 1, 2003, RECORDED AUGUST 1, 2003 AS DOCUMENT NO. 2003R0103258. **AFFECTS SUBJECT PROPERTY - AS SHOWN HEREON**

10. GAS PIPELINE RIGHT IN FAVOR OF NORTHERN ILLINOIS GAS COMPANY, DATED AUGUST 5, 1958, RECORDED DECEMBER 12, 1960 AS DOCUMENT NO. 378752.
AFFECTS SUBJECT PROPERTY - AS SHOWN HEREON

11. DEDICATION IN FAVOR OF STATE OF ILLINOIS DEPARTMENT OF PUBLIC WORKS, DATED FEBRUARY 2, 1924, RECORDED APRIL 22, 1924 AS DOCUMENT NO. 163241.
DOES NOT AFFECT SUBJECT PROPERTY

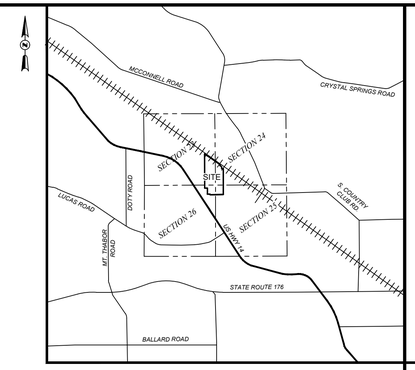
12. DEDICATION IN FAVOR OF THE STATE OF ILLINOIS, DATED OCTROBER 2, 1933, RECORDED JUNE 10, 1937 AS DOCUMENT NO. 127147. **DOES NOT AFFECT SUBJECT PROPERTY**

13. DEDICATION IN FAVOR OF THE STATE OF ILLINOIS, DATED SEPTEMBER 8, 1941, RECORDED OCTOBER 24, 1941 AS DOCUMENT NO. 158718. **DOES NOT AFFECT SUBJECT PROPERTY**

14. DEDICATION IN FAVOR OF THE STATE OF ILLINOIS, DATED JULY 24, 1933, RECORDED JUNE 10, 1937 AS DOCUMENT NO. 127146. **AFFECTS SUBJECT PROPERTY**

15. PLAT OF HIGHWAY, DATED OCTOBER 22, 2010, RECORDED AUGUST 30, 2019 AS DOCUMENT NO. 2019R0028181. **AFFECTS SUBJECT PROPERTY**

16. ANY MAP/PLAT FURNISHED IS BEING DONE SO AS AN AID IN LOCATING THE HEREIN DESCRIBED LAND IN RELATION TO ADJOINING STREETS, NATURAL BOUNDARIES AND OTHER LAND, AND IS NOT A SURVEY OF THE LAND DEPICTED. EXCEPT TO THE EXTENT A POLICY OF TITLE INSURANCE IS EXPRESSLY MODIFIED BY ENDORSEMENT, IF ANY, THE COMPANY DOES NOT INSURE DIMENSIONS, DISTANCES, LOCATION OF EASEMENTS, ACREAGE OR OTHER MATTERS SHOWN THEREON.



VICINITY MAP
N.T.S.

GENERAL NOTES:

1. THE PLAN SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY LW SURVEY COMPANY ON NOVEMBER 2-3 & 6-9, 2023.

2. CERTIFICATIONS INDICATED OR IMPLIED HEREIN SHALL RUN ONLY TO THE PERSON OR PERSONS FOR WHOM THIS SURVEY WAS PERFORMED. CERTIFICATIONS ARE NOT TRANSFERABLE TO SUBSEQUENT OWNERS.

3. NO ENVIRONMENTAL INVESTIGATIONS OR SURVEYS WERE MADE FOR THIS PLAT AND IT THEREFORE DOES NOT REFLECT THE CONDITIONS WHICH MAY BE REVEALED TO THIS PROPERTY THROUGH THOSE ADDITIONAL SURVEYS.

4. THE HORIZONTAL DATUM FOR THIS PROJECT IS REFERENCED TO THE NORTH AMERICAN DATUM OF 1983, ILLINOIS EAST ZONE.

5. THE PROPERTY IS PARTIALLY LOCATED IN ZONE "X", AREAS OF MINIMAL FLOOD HAZARD, AS SHOWN ON THE FLOOD INSURANCE RATE MAP FOR MCHENRY COUNTY, ILLINOIS , MAP NUMBER XXXXXXXX, EFFECTIVE DATE JANUARY 2, 2009.
NO SURVEYING WAS DONE TO DETERMINE FLOOD ZONES SHOWN HEREON AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

6. THE LOCATION OF UTILITIES SHOWN HEREON WAS DETERMINED BY OBSERVED EVIDENCE, PLANS REQUESTED BY THE SURVEYOR AND OBTAINED FROM UTILITY COMPANIES OR MARKINGS REQUESTED BY THE 811 TICKET NO. **X233200634**. THIS SURVEY MAKES NO STATEMENT REGARDING THE ACTUAL PRESENCE OR ABSENCE OF ANY UTILITY AND/OR DRAINAGE SERVICE. VERIFY INFO PRIOR TO ANY NEW DESIGN , DEVELOPMENT OR CONSTRUCTION.

7. THIS SURVEY MAY NOT REFLECT ALL UTILITIES OR IMPROVEMENTS IF SUCH ITEMS ARE HIDDEN BY LANDSCAPING OR ARE COVERED BY SUCH ITEMS AS DUMPSTERS, TRAILERS, CARS, DIRT, PAVING OR SNOW. AT THE TIME OF THIS SURVEY, SNOW DID NOT COVER THE SITE. LAWN SPRINKLER SYSTEMS, IF ANY, ARE NOT SHOWN ON THIS SURVEY.

8. THERE WAS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED DURING THE TIME THE FIELD WORK WAS PERFORMED. THERE ARE NO BUILDINGS LOCATED ON THE SUBJECT PROPERTY.

9. LWS IS AWARE OF NO PROPOSED CHANGES IN STREET RIGHT OF WAY WIDTHS.

RECORDED DESCRIPTION

THAT PART OF THE SOUTHEAST QUARTER OF SECTION 23, THAT PART OF THE SOUTHWEST QUARTER OF SECTION 24, THAT PART OF THE NORTHWEST QUARTER OF SECTION 25 AND THAT PART OF THE NORTHEAST QUARTER OF SECTION 26, ALL IN TOWNSHIP 44 NORTH, RANGE 7 EAST OF THE THIRD PRINCIPAL MERIDIAN, DESCRIBED AS FOLLOWS:

COMMENCING AT THE WESTERLY CORNER OF BLOCK 5 OF THE ORIGINAL PLAT OF THE VILLAGE OF RIDGEFIELD, RECORDED FEBRUARY, 1855, IN BOOK 10 OF DEEDS, PAGES 443 AND 444; THENCE NORTH 54 DEGREES WEST, 30.00 FEET AS DEEDED TO A POINT ON THE CENTER LINE OF WEST STREET; THENCE NORTH 56 DEGREES, 43 MINUTES WEST, 167.00 FEET AS DEEDED ALONG THE NORTHEASTERLY RIGHT OF WAY LINE OF MADISON STREET; THENCE NORTH 89 DEGREES, 32 MINUTES, 15 SECONDS WEST, 2224.02 FEET AS MEASURED ALONG THE CENTERLINE OF A PUBLIC HIGHWAY KNOWN AS RIDGEFIELD ROAD, TO THE PLACE OF BEGINNING; THENCE CONTINUING NORTH 89 DEGREES, 32 MINUTES, 15 SECONDS WEST ALONG SAID CENTER LINE, 1169.31 FEET; THENCE NORTH 1 DEGREE, 08 MINUTES, 42 SECONDS EAST, 490.00 FEET; THENCE NORTH 89 DEGREES, 32 MINUTES, 15 SECONDS WEST, 200.00 FEET; THENCE NORTH 1 DEGREE, 08 MINUTES, 42 SECONDS EAST ALONG THE EAST LINE OF LANDS CONVEYED BY J. C. BUTTON AND WIFE TO OTHERS BY DEED DATED DECEMBER 1, 1864, IN BOOK 31 OF DEEDS, PAGES 594, 609 AND 610, FOR A DISTANCE OF *2527.27* FEET TO THE SOUTHWESTERLY RIGHT OF WAY LINE OF THE CHICAGO AND NORTHWESTERN RAILROAD COMPANY; THENCE SOUTH 53 DEGREES, 18 MINUTES, 04 SECONDS EAST ALONG SAID SOUTHWESTERLY RIGHT OF WAY LINE, 376.10 FEET TO A JOG IN SAID SOUTHWESTERLY RIGHT OF WAY LINE; THENCE NORTH 36 DEGREES, 41 MINUTES, 56 SECONDS EAST ALONG SAID JOG, 16.50 FEET; THENCE SOUTH 53 DEGREES, 18 MINUTES, 04 SECONDS EAST ALONG SAID SOUTHWESTERLY RIGHT OF WAY LINE, 1036.07 FEET TO A JOG; THENCE SOUTH 38 DEGREES, 41 MINUTES, 56 SECONDS WEST ALONG THE WESTERLY LINE OF LANDS CONVEYED BY KIM M. IRVINE PER DOCUMENT NUMBER 860875, FOR A DISTANCE OF 62.00 FEET; THENCE SOUTH 53 DEGREES, 18 MINUTES, 04 SECONDS EAST ALONG THE SOUTHERLY LINE OF SAID LANDS CONVEYED BY KIM M. IRVINE, 157.87 FEET; THENCE SOUTH 0 DEGREES, 47 MINUTES, 59 SECONDS EAST, 135.66 FEET; THENCE SOUTH 89 DEGREES, 53 MINUTES, 44 SECONDS WEST, 123.76 FEET; THENCE SOUTH 1 DEGREE, 19 MINUTES, 59 SECONDS WEST, 1917.26 FEET TO THE PLACE OF BEGINNING, IN MCHENRY COUNTY, ILLINOIS. EXCEPTING THEREFROM THAT PROTION OF THE ABOVE DESCRIBED GRANTED TO THE STATE OF ILLINOIS DEPARTMENT OF TRANSPORTATION IN WARRANT DEED, DATED OCTOBER 13, 2011, RECORDED JANUARY 19, 2012 AS DOCUMENT NO. 2012R0002480.

LEGEND

- FOUND SECTION CORNER AS NOTED
- FOUND PROPERTY CORNER AS NOTED
- UNRECOVERED CORNER
- POWER POLE
- GUY WIRE
- SIGN
- UTILITY MARKER
- FIBER OPTIC BOX
- CABLE BOX
- (M) AS MEASURED
- (R) AS RECORDED IN DEED
- PROPERTY LINE
- SECTION LINE
- QUARTER SECTION LINE
- ROAD RIGHT-OF-WAY LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND GAS LINE
- UNDERGROUND PIPELINE

SURVEYOR'S CERTIFICATE

THIS PROFESSIONAL SERVICE CONFORMS TO THE CURRENT ILLINOIS MINIMUM STANDARDS FOR BOUNDARY SURVEYS.

DATED: 12/18/2023

CHRISTOPHER D. HIGGINS
ILLINOIS PROFESSIONAL LAND SURVEYOR
REGISTRATION NO. 035.003776
C.HIGGINS@LWSURVEY.COM
PHONE: (815)420-8914
FOR & ON BEHALF OF LW SURVEY CO.
DESIGN FIRM # 184003102-008

PROFESSIONAL LAND SURVEYOR
CHRISTOPHER D HIGGINS
35-3776
WALNUT
ILLINOIS
STATE OF ILLINOIS

LWS
4266 BELL RD, SUITE 8
NEWBURGH, IN 47630

REVISIONS

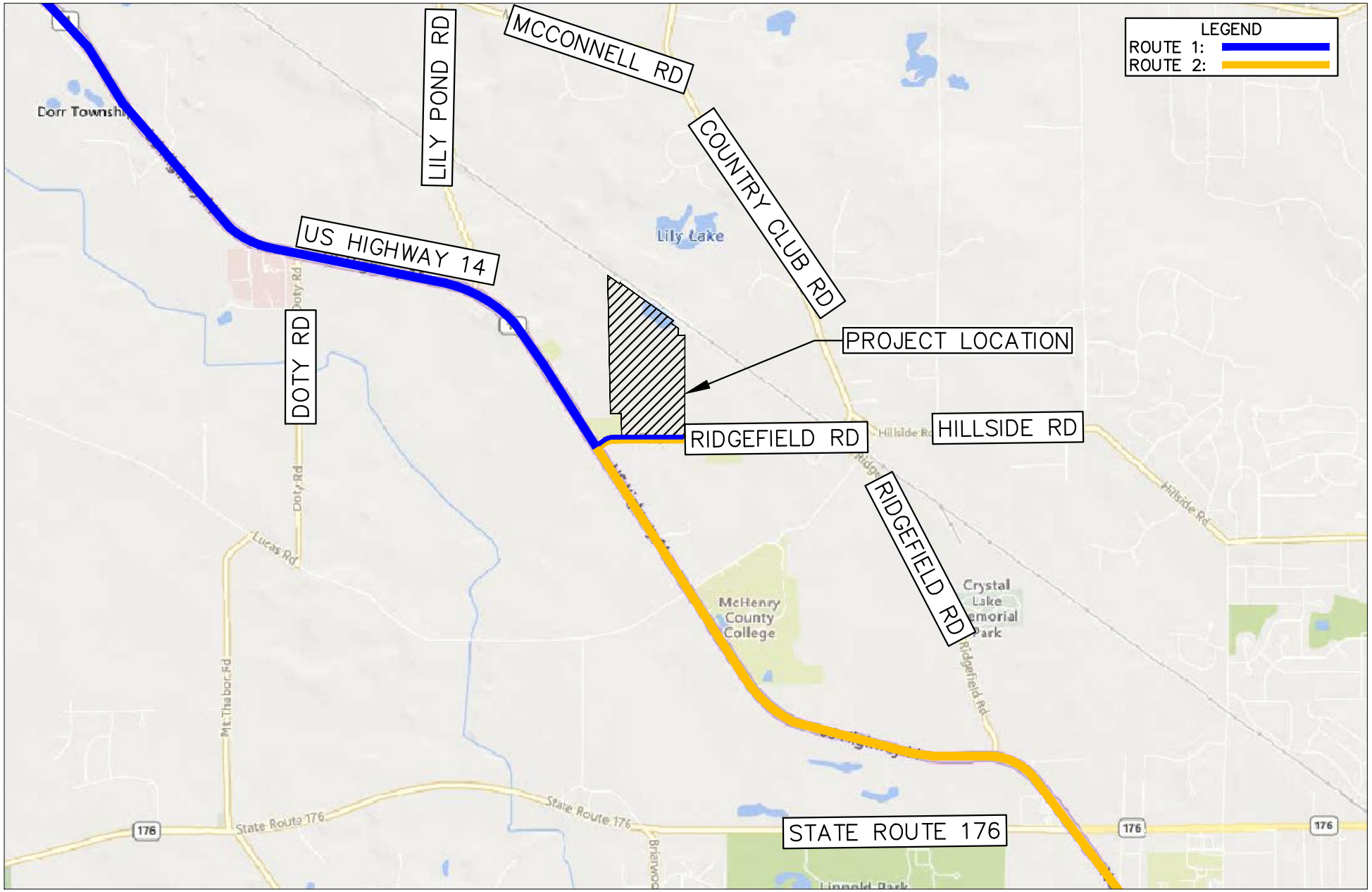
NO.	DATE	DESCRIPTION

DESIGNED BY:	N/A
DRAWN BY:	ARG
CHECKED BY:	GSC
PROJ. MANAGER:	GSC
PROJ. NO.:	54715
FILE NAME:	54717 - MH405 - Bowman.dwg
DATE:	11/7/2023
SCALE:	1" = 200'

PLAT OF SURVEY
OF LANDS OF
EIGER, L.L.C
FOR TPE IL, MH405, LLC

DRAWING NO.

1 OF 1



NORTH

TRANSPORTATION AND ACCESS PLAN

KHA PROJECT:	268173043
DRAWN BY:	JLL
DATE:	11/03/23

TPE IL MH 405, LLC
MCHENRY COUNTY, IL

SCALE:

1" = 2500'

Kimley»Horn

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570 LAKE COOK RD SUITE 200
DEERFIELD, IL 60015
WWW.KIMLEY-HORN.COM

Federal Aviation Administration

« OE/AAA

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

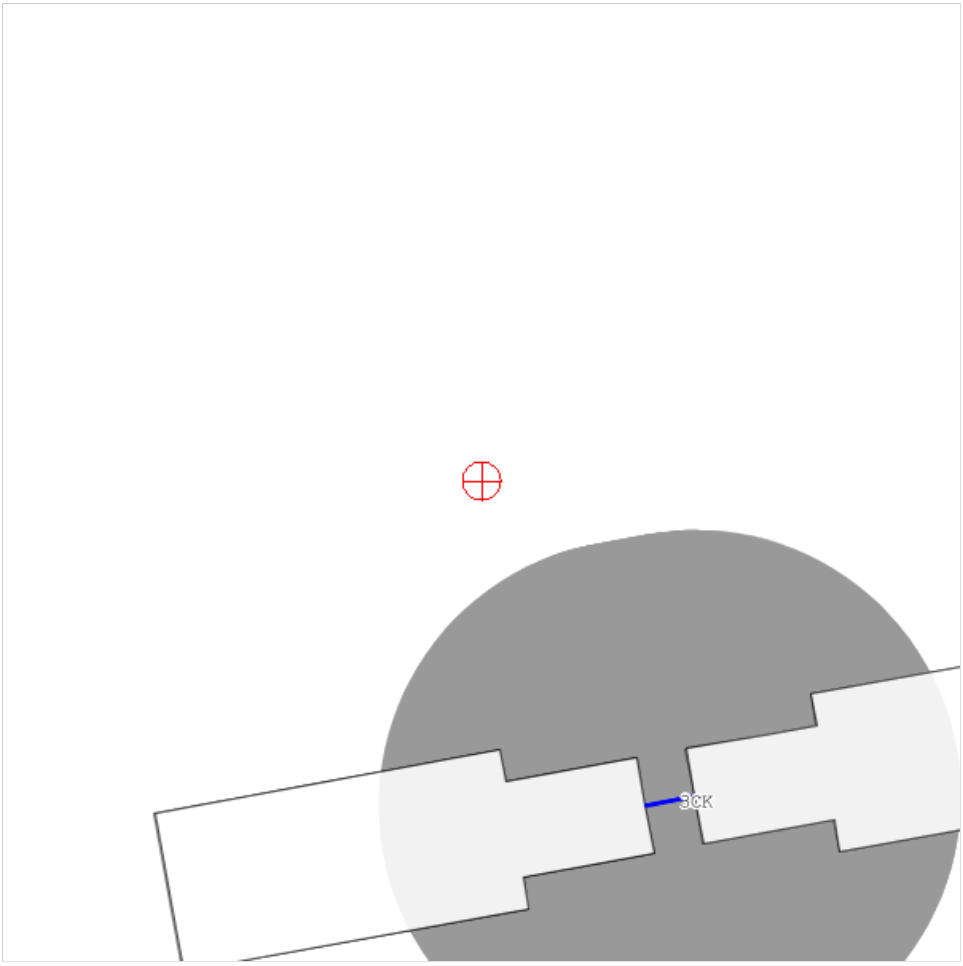
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

* **Structure Type:**	SOLAR | Solar Panel Please select structure type and complete location point information.
Latitude:	42 Deg 16 M 21.8 S N
Longitude:	88 Deg 22 M 30.7 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	934 (nearest foot)
Structure Height :	20 (nearest foot)
Is structure on airport:	(●) No ( ) Yes

Results

You do not exceed Notice Criteria.


3CK

Federal Aviation Administration

« OE/AAA

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

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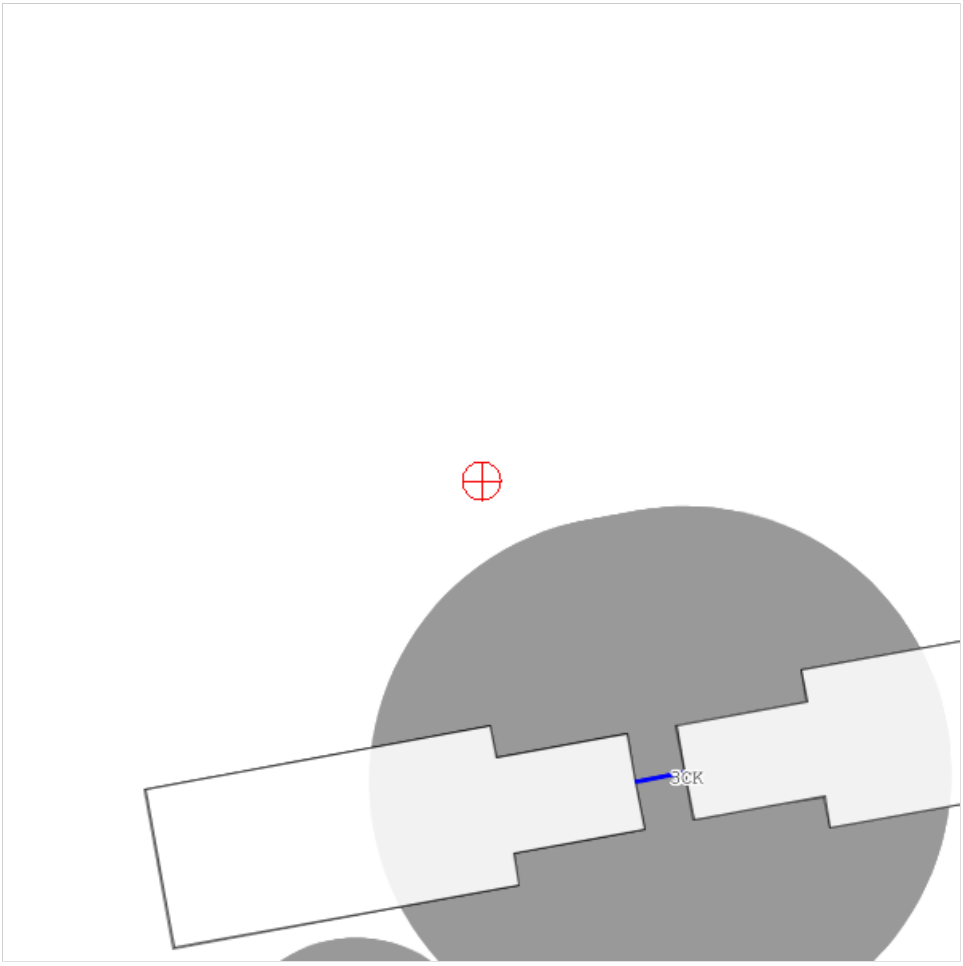
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The tool below will assist in applying Part 77 Notice Criteria.

* **Structure Type:**	POWER_LINE | Utility Pole Please select structure type and complete location point information.
Latitude:	42 Deg 16 M 4.1 S N
Longitude:	88 Deg 22 M 21.1 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	928 (nearest foot)
Structure Height :	50 (nearest foot)
Is structure on airport:	(●) No ( ) Yes

Results

You do not exceed Notice Criteria.


3CK

FORGESOLAR GLARE ANALYSIS

Project: **ILMH405**
Site configuration: **ILMH405**

Created 04 Dec, 2023
Updated 04 Dec, 2023
Time-step 1 minute
Timezone offset UTC-6
Minimum sun altitude 0.0 deg
DNI peaks at 1,000.0 W/m^2
Category 1 MW to 5 MW
Site ID 106965.18561

Ocular transmission coefficient 0.5
Pupil diameter 0.002 m
Eye focal length 0.017 m
Sun subtended angle 9.3 mrad
PV analysis methodology V2



Summary of Results No glare predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	SA tracking	SA tracking	0	0.0	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 1	0	0.0	0	0.0
Route 2	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0

Component Data

PV Arrays

Name: PV array 1
Axis tracking: Single-axis rotation
Backtracking: Shade-slope
Tracking axis orientation: 180.0°
Max tracking angle: 60.0°
Resting angle: 0.0°
Ground Coverage Ratio: 0.3
Rated power: -
Panel material: Smooth glass with AR coating
Reflectivity: Vary with sun
Slope error: correlate with material



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	42.269718	-88.372867	926.73	5.00	931.73
2	42.269716	-88.376221	938.35	5.00	943.35
3	42.269443	-88.376206	938.26	5.00	943.26
4	42.269441	-88.377353	936.31	5.00	941.31
5	42.272732	-88.377320	939.45	5.00	944.45
6	42.272731	-88.377136	939.05	5.00	944.05
7	42.273008	-88.377148	937.31	5.00	942.31
8	42.273009	-88.377055	938.36	5.00	943.36
9	42.274820	-88.377085	942.28	5.00	947.28
10	42.274814	-88.376408	940.99	5.00	945.99
11	42.273632	-88.376414	930.90	5.00	935.90
12	42.273632	-88.376322	930.06	5.00	935.06
13	42.273358	-88.376319	935.66	5.00	940.66
14	42.273363	-88.375947	929.92	5.00	934.92
15	42.273068	-88.375929	936.17	5.00	941.17
16	42.273017	-88.375923	937.06	5.00	942.06
17	42.273020	-88.375527	931.24	5.00	936.24
18	42.272742	-88.375531	937.19	5.00	942.19
19	42.272750	-88.374938	928.94	5.00	933.94
20	42.272399	-88.374929	929.37	5.00	934.37
21	42.272397	-88.372900	926.36	5.00	931.36
22	42.270657	-88.372874	927.64	5.00	932.64
23	42.270656	-88.373367	925.18	5.00	930.18
24	42.270315	-88.373359	925.02	5.00	930.02
25	42.270308	-88.372865	924.53	5.00	929.53

Route Receptors

Name: Route 1
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	42.267676	-88.377312	936.65	5.00	941.65
2	42.267708	-88.374742	930.48	5.00	935.48
3	42.267767	-88.370338	931.33	5.00	936.33

Name: Route 2
Path type: Two-way
Observer view angle: 50.0°



Vertex	Latitude (°)	Longitude (°)	Ground elevation (ft)	Height above ground (ft)	Total elevation (ft)
1	42.271680	-88.382287	940.00	5.00	945.00
2	42.271275	-88.381939	939.67	5.00	944.67
3	42.270551	-88.381273	938.48	5.00	943.48
4	42.268610	-88.379592	937.13	5.00	942.13
5	42.267608	-88.378708	933.30	5.00	938.30

Discrete Observation Point Receptors

Name	ID	Latitude (°)	Longitude (°)	Elevation (ft)	Height (ft)
OP 1	1	42.272814	-88.381697	938.74	10.00
OP 2	2	42.272385	-88.381397	941.33	10.00
OP 3	3	42.268526	-88.378393	937.52	10.00
OP 4	4	42.268695	-88.380375	937.13	10.00
OP 5	5	42.267076	-88.370759	932.16	10.00
OP 6	6	42.267214	-88.370153	929.96	10.00
OP 7	7	42.269656	-88.370217	939.29	10.00
OP 8	8	42.270573	-88.368549	942.28	10.00
OP 9	9	42.269394	-88.368822	940.08	10.00
OP 10	10	42.269025	-88.368801	940.15	10.00
OP 11	11	42.268548	-88.368817	940.52	10.00

Glare Analysis Results

Summary of Results No glare predicted

PV Array	Tilt	Orient	Annual Green Glare		Annual Yellow Glare		Energy
	°	°	min	hr	min	hr	kWh
PV array 1	SA tracking	SA tracking	0	0.0	0	0.0	-

Total glare received by each receptor; may include duplicate times of glare from multiple reflective surfaces.

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 1	0	0.0	0	0.0
Route 2	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0

PV: PV array 1 no glare found

Receptor results ordered by category of glare

Receptor	Annual Green Glare		Annual Yellow Glare	
	min	hr	min	hr
Route 1	0	0.0	0	0.0
Route 2	0	0.0	0	0.0
OP 1	0	0.0	0	0.0
OP 2	0	0.0	0	0.0
OP 3	0	0.0	0	0.0
OP 4	0	0.0	0	0.0
OP 5	0	0.0	0	0.0
OP 6	0	0.0	0	0.0
OP 7	0	0.0	0	0.0
OP 8	0	0.0	0	0.0
OP 9	0	0.0	0	0.0
OP 10	0	0.0	0	0.0
OP 11	0	0.0	0	0.0

PV array 1 and Route: Route 1

No glare found

PV array 1 and Route: Route 2

No glare found

PV array 1 and OP 1

No glare found

PV array 1 and OP 2

No glare found

PV array 1 and OP 3

No glare found

PV array 1 and OP 4

No glare found

PV array 1 and OP 5

No glare found

PV array 1 and OP 6

No glare found

PV array 1 and OP 7

No glare found

PV array 1 and OP 8

No glare found

PV array 1 and OP 9

No glare found

PV array 1 and OP 10

No glare found

PV array 1 and OP 11

No glare found

Assumptions

"Green" glare is glare with low potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
"Yellow" glare is glare with potential to cause an after-image (flash blindness) when observed prior to a typical blink response time.
Times associated with glare are denoted in Standard time. For Daylight Savings, add one hour.
The algorithm does not rigorously represent the detailed geometry of a system; detailed features such as gaps between modules, variable height of the PV array, and support structures may impact actual glare results. However, we have validated our models against several systems, including a PV array causing glare to the air-traffic control tower at Manchester-Boston Regional Airport and several sites in Albuquerque, and the tool accurately predicted the occurrence and intensity of glare at different times and days of the year.
Several V1 calculations utilize the PV array centroid, rather than the actual glare spot location, due to algorithm limitations. This may affect results for large PV footprints. Additional analyses of array sub-sections can provide additional information on expected glare. This primarily affects V1 analyses of path receptors.
Random number computations are utilized by various steps of the annual hazard analysis algorithm. Predicted minutes of glare can vary between runs as a result. This limitation primarily affects analyses of Observation Point receptors, including ATCTs. Note that the SGHAT/ ForgeSolar methodology has always relied on an analytical, qualitative approach to accurately determine the overall hazard (i.e. green vs. yellow) of expected glare on an annual basis.
The analysis does not automatically consider obstacles (either man-made or natural) between the observation points and the prescribed solar installation that may obstruct observed glare, such as trees, hills, buildings, etc.
The subtended source angle (glare spot size) is constrained by the PV array footprint size. Partitioning large arrays into smaller sections will reduce the maximum potential subtended angle, potentially impacting results if actual glare spots are larger than the sub-array size. Additional analyses of the combined area of adjacent sub-arrays can provide more information on potential glare hazards. (See previous point on related limitations.)
The variable direct normal irradiance (DNI) feature (if selected) scales the user-prescribed peak DNI using a typical clear-day irradiance profile. This profile has a lower DNI in the mornings and evenings and a maximum at solar noon. The scaling uses a clear-day irradiance profile based on a normalized time relative to sunrise, solar noon, and sunset, which are prescribed by a sun-position algorithm and the latitude and longitude obtained from Google maps. The actual DNI on any given day can be affected by cloud cover, atmospheric attenuation, and other environmental factors.
The ocular hazard predicted by the tool depends on a number of environmental, optical, and human factors, which can be uncertain. We provide input fields and typical ranges of values for these factors so that the user can vary these parameters to see if they have an impact on the results. The speed of SGHAT allows expedited sensitivity and parametric analyses.
The system output calculation is a DNI-based approximation that assumes clear, sunny skies year-round. It should not be used in place of more rigorous modeling methods.
Hazard zone boundaries shown in the Glare Hazard plot are an approximation and visual aid based on aggregated research data. Actual ocular impact outcomes encompass a continuous, not discrete, spectrum.
Glare locations displayed on receptor plots are approximate. Actual glare-spot locations may differ.
Refer to the Help page at **www.forgesolar.com/help/** for assumptions and limitations not listed here.

Default glare analysis parameters and observer eye characteristics (for reference only):

- Analysis time interval: 1 minute
- Ocular transmission coefficient: 0.5
- Pupil diameter: 0.002 meters
- Eye focal length: 0.017 meters
- Sun subtended angle: 9.3 milliradians

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Federal Aviation Administration

« OE/AAA

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference CFR Title 14 Part 77.9.

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the FAA Co-location Policy
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

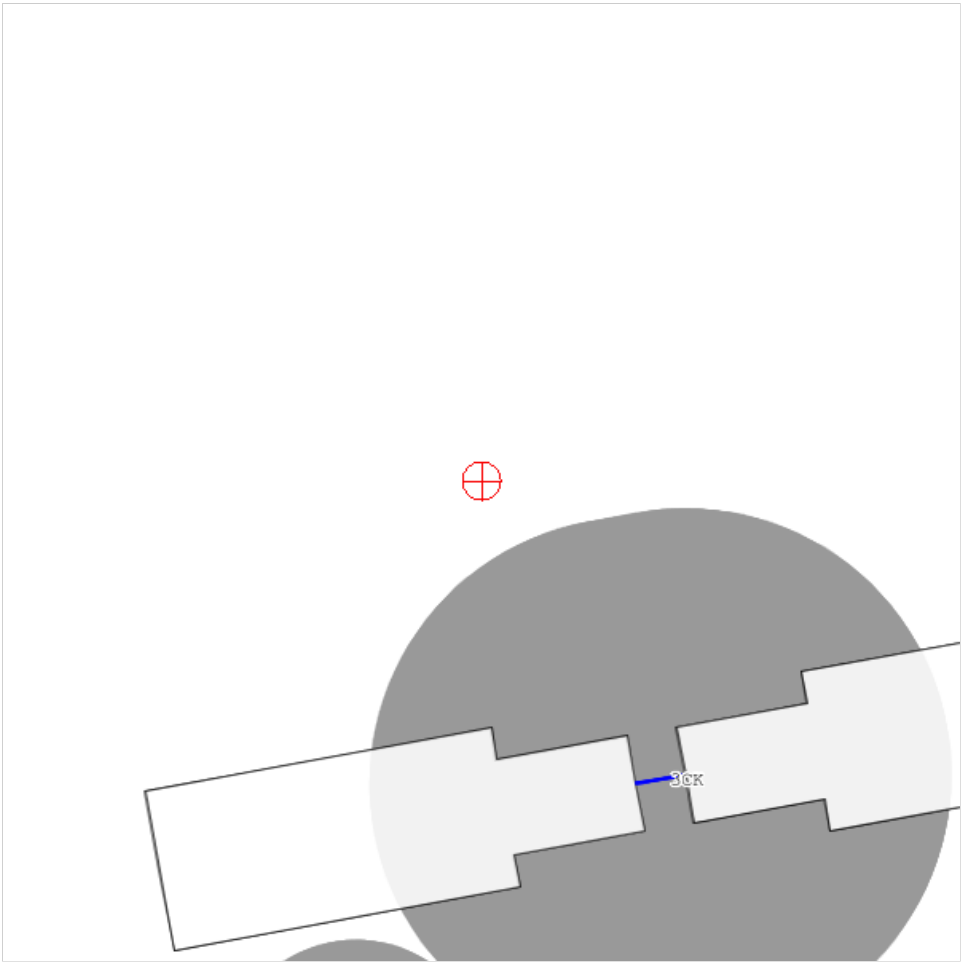
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the Air Traffic Areas of Responsibility map for Off Airport construction, or contact the FAA Airports Region / District Office for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

* **Structure Type:**	POWER_LINE | Utility Pole Please select structure type and complete location point information.
Latitude:	42 Deg 16 M 5.6 S N
Longitude:	88 Deg 22 M 21.4 S W
Horizontal Datum:	NAD83
Site Elevation (SE):	929 (nearest foot)
Structure Height :	50 (nearest foot)
Is structure on airport:	(●) No ( ) Yes

Results

You do not exceed Notice Criteria.


3CK

National Flood Hazard Layer FIRMette

FEMA

88°22'49"W 42°16'34"N



0 250 500 1,000 1,500 2,000 Feet

1:6,000

88°22'12"W 42°16'7"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 9/26/2023 at 11:39 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.