



2307 Greene Way, Suite B
Louisville, KY 40220
502.625.3009
Corporate Headquarters
6575 West Loop South, Suite 300
Bellaire, TX 77401
Main: 713.520.5400

VIA EMAIL

November 9, 2022

Ms. Kelli Jones
Sabak, Wilson, & Lingo, Inc
608 South 3t Street
Louisville, KY 40202

**Subject: Water/Wetland Delineation Summary Report
Xebec Tucker Station
Jefferson County, Kentucky
RES Project No.: 106425**

Dear Ms. Jones:

RES Kentucky, LLC (RES) is pleased to provide Sabak, Wilson, and Lingo (SWL) with this Water/Wetland Delineation Summary Report for the Xebec Tucker Station development in Louisville, Jefferson County, Kentucky. The approximately 140-acre site lies south of Pope Lick Road and east of Tucker Station Road (Figure 1). The goal of these services was to identify the location and extent of jurisdictional waters/wetlands and threatened/endangered (T/E) species habitat on the property to assist with preliminary project planning.

Based on the delineation, jurisdictional water/wetland features present on site include:

- two perennial streams totaling 4,092 linear feet (2.061 acre)
- three intermittent streams totaling 1,791 linear feet (0.188 acre)
- five ephemeral streams totaling 1,451 linear feet (0.079 acre)
- one wetland measuring 0.012 acre
- one open water pond measuring 0.154 acre

Non-jurisdictional/isolated features present on the site include four ephemeral streams totaling 330 linear feet (0.018 acre), one isolated wetland measuring 0.002 acre, and one isolated open water pond measuring 1.189 acre. In addition, approximately 50 acres of the property is considered suitable summer roosting habitat for the Indiana bat (*Myotis sodalis*) and the northern long-eared bat (*Myotis septentrionalis*).

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METHODOLOGY

The water/wetland delineation included in-house and field components. In-house research involved review of the USGS topographic quadrangle map, aerial photography, the Jefferson County soil survey, and Federal Emergency Management (FEMA) floodplain mapping. Following review of these materials, RES conducted a field delineation on July 13 and 14, 2022, to identify the location and extent of jurisdictional waters/wetlands on the site. During the field visit, the presence of jurisdictional streams and open water bodies was evaluated based on ordinary high-water mark (OHWM), defined bed and bank features, and flow regimes. The quality of the intermittent streams identified within the project boundary was evaluated using the Rapid Bioassessment Protocol developed by the USEPA. Potential wetland areas were investigated using the Routine On-Site Determination Method as defined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountain Piedmont Region – Version 2.0* (April 2012). This technique uses a multi-parameter approach that requires positive evidence of three criteria: wetland hydrology, hydric soils, and hydrophytic vegetation. This delineation has not been verified by the USACE, who holds final authority over determinations of the location and extent of jurisdictional waters/wetlands.

The field assessment was also used to identify the presence of suitable habitat for T/E species known to occur in Jefferson County within the project vicinity, including the Indiana bat, northern long-eared bat, and gray bat (*Myotis grisescens*). Potential impacts to T/E species must be addressed in any federal permitting process.

RESULTS

Based on the delineation, jurisdictional waters present on site include two perennial streams, three intermittent streams, five ephemeral streams, one wetland, and one open water pond. In addition, non-jurisdictional/isolated features identified on the site include four ephemeral streams, one wetland, and one open water pond. The results of the water/wetland delineation are depicted on Figure 2 and summarized in the table on the following page.

Habitat on site consists primarily of mixed-age woods, maintained lawn and open field. The mixed-age woods habitat totaling approximately 45 acres is considered suitable summer roosting habitat for the federally endangered Indiana bat and the federally threatened northern long-eared bat. No gray bat foraging or commuting habitat is present on the site.

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Feature	Stream Length (feet)	Stream Width (feet)	Area (acres)	Status
Perennial Stream 1	2,497	20	1.146	Jurisdictional
Perennial Stream 2	1,595	25	0.915	Jurisdictional
Perennial Stream Total	4,092	--	2.061	--
Intermittent Stream 1	115	8	0.021	Jurisdictional
Intermittent Stream 2	1,510	4.5	0.156	Jurisdictional
Intermittent Stream 3	166	3	0.011	Jurisdictional
Intermittent Stream Total	1,791	--	0.188	--
Ephemeral Stream 1	283	3	0.019	Jurisdictional
Ephemeral Stream 2	381	1.5	0.013	Jurisdictional
Ephemeral Stream 3	57	4	0.005	Jurisdictional
Ephemeral Stream 4	18	2.5	0.001	Non-Jurisdictional
Ephemeral Stream 5	35	4.5	0.004	Non-Jurisdictional
Ephemeral Stream 6	176	2	0.008	Non-Jurisdictional
Ephemeral Stream 7	101	2	0.005	Non-Jurisdictional
Ephemeral Stream 8	33	2	0.002	Jurisdictional
Ephemeral Stream 9	697	2.5	0.040	Jurisdictional
Jurisdictional Ephemeral Stream Total	1,451	--	0.079	--
Non-Jurisdictional Ephemeral Stream Total	330	--	0.018	--
Wetland 1	--	--	0.002	Non-Jurisdictional
Wetland 2	--	--	0.012	Jurisdictional
Jurisdictional Wetland Total	--	--	0.012	--
Non-Jurisdictional Wetland Total	--	--	0.002	--
Open Water 1	--	--	0.154	Jurisdictional
Open Water 2	--	--	1.189	Non-Jurisdictional
Jurisdictional Open Water Total	--	--	0.154	--
Non-Jurisdictional Open Water Total	--	--	1.189	--
Jurisdictional Features Total	7,334	--	2.494	--

DISCUSSION

Potential development-related issues are discussed below in terms of waters/wetlands, federally threatened/endangered species, and cultural-historic and archaeological resources.

WATERS/WETLANDS

Jurisdictional waters of the U.S., including wetlands, are defined by 33 CFR Part 328.3 and are protected by Section 404 of the Clean Water Act (33 USC 1344), which is administered and enforced by the USACE. Many water/wetland impacts are also regulated by the Kentucky Division of Water (KDOW) – Water Quality Certification (WQC) Section. Current permitting thresholds are as follows:

- Avoidance of the jurisdictional water/wetland features would require no permits from, or coordination with, the USACE or KDOW. A formal Jurisdictional Determination (JD) can be obtained from the USACE, if desired.

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- Impacts to less than 0.5 acre of waters can be authorized under the federal Nationwide Permit (NWP) program with the USACE
- Impacts to greater than 0.5 acre of waters require an Individual Section 404 Permit (IP) from the USACE
- Impacts to Pope Lick will require an Individual WQC from the KDOW since it is listed as an Aquatic Life Full Support Stream.
- Impacts to greater than 300 feet of intermittent/perennial stream or 0.5 acre of wetland or an in-line stream basin require an Individual Section 401 WQC from the KDOW.
- Impacts to less than 300 feet of intermittent/perennial stream or 0.5 acre of wetland meet the conditions of a General WQC and do not require coordination with the KDOW.
- Impacts to 0.1 acre or more of jurisdictional wetlands or 0.03 acre or more of jurisdictional stream will require compensatory mitigation. Mitigation ratios for impacts to poor quality perennial, intermittent, and ephemeral streams are 1.5:1, 1:1 and 0.5:1, respectively, with ratios increasing with stream quality. Wetland mitigation must be provided at a ratio of 2:1. If required, mitigation credits can be purchased from either a private mitigation bank or the Kentucky In-Lieu Fee program, which requires a 20% markup to cover temporal losses. The Kentucky In-Lieu Fee program currently charges \$518 per stream credit, and \$78,000 per wetland credit.

Based on the current development plan, impacts to multiple jurisdictional ephemeral streams and one intermittent stream will be required. The project may be authorized under a NWP 39 and Individual WQC from the USACE and KDOW, respectively. NWPs often require a three to six-month review period. Permitting with the KDOW can generally be completed within the federal time frames. Impacts to 0.03 acre or more of jurisdictional stream will require compensatory mitigation.

THREATENED/ENDANGERED SPECIES

Under the Section 404 permitting process, the USACE determines if consultation with the U.S. Fish and Wildlife Service (USFWS) is required to address potential impacts to T/E species. The major T/E species issue of concern at this site is the clearing of suitable Indiana and northern long-eared bat summer habitat. Based on maps released by the USFWS, the project is located in a "Potential" Habitat Zone for the Indiana bat and the northern long-eared bat. Under the 404 permitting process, impacts to this habitat will require consultation with the USFWS. Consultation generally results in a combination of seasonal tree clearing restrictions, presence/absence surveys, and/or mitigation through payments into the Imperiled Bat Conservation Fund (IBCF). Current rates for tree clearing in a "Potential" Habitat Zone are \$2,175/acre in the unoccupied period (October 15 through March 31), \$4,350/acre for clearing in the occupied period (April 1 through October 15, excluding June/July), and \$8,700/acre for clearing during the non-volant period (June 1 through July 31).

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CULTURAL HISTORIC AND ARCHAEOLOGICAL RESOURCES

Under the Section 404 permitting process, the USACE determines if consultation with the State Historic Preservation Office (SHPO) is required to address potential impacts to significant archaeological/historic features. We are not aware of any archaeological features or studies that have been done on the site. We can obtain a quote for these surveys, if required.

CONCLUSION

In conclusion, based on RES's delineation, jurisdictional waters present on the site include two perennial streams totaling 4,092 linear feet (2.061 acres), three intermittent streams totaling 1,791 linear feet (0.188 acre), five ephemeral streams totaling 1,451 linear feet (0.079 acre), one wetland measuring 0.012 acre, and one open water pond measuring 0.154 acre. Non-jurisdictional/isolated features present on the site include four ephemeral streams totaling 330 linear feet (0.018 acre), one wetland measuring 0.002 acre, and one open water pond measuring 1.189 acres. The project can likely be authorized under a NWP 39 and Individual WQC from the USACE and KDOW, respectively. NWPs often require a three to six-month review period. Permitting with the KDOW can generally be completed within the federal time frames. Mitigation scenarios will depend on the final site development plan.

We appreciate the opportunity to assist you on this important project. Please call Valerie Jones or Ron Thomas at (502) 625-3009 with any questions on this report or the overall project.

Sincerely,

Valerie J. Jones
Valerie J. Jones (Nov 9, 2022 14:47 EST)

Valerie J. Jones
Ecologist I

Ronald L. Thomas
Ronald L. Thomas (Nov 9, 2022 14:39 EST)

Ronald L. Thomas
Senior Project Manager

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Attachments: Figures

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FIGURES

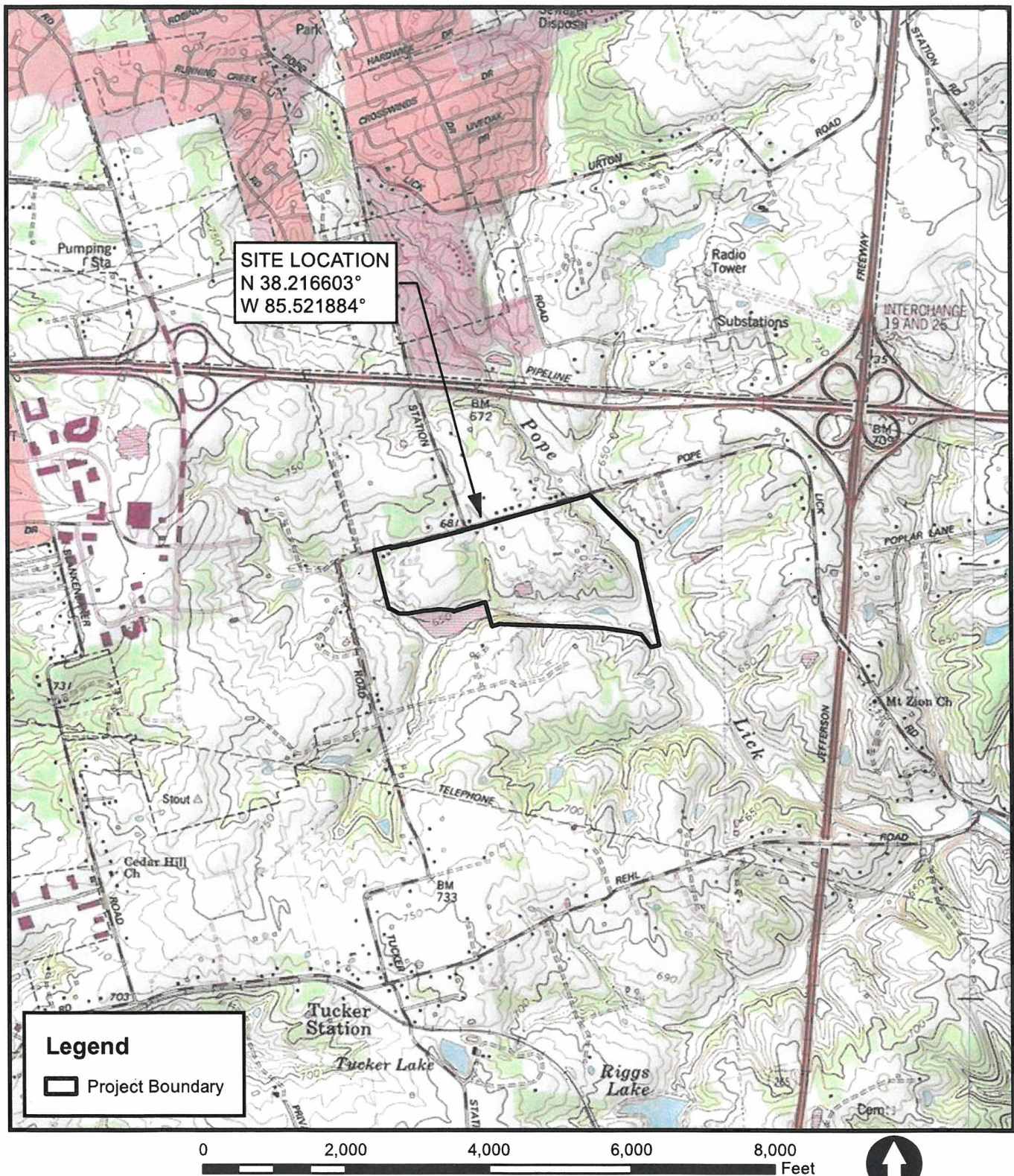
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Source: USA Topo Maps, (2013) National Geographic Society, USGS 7.5-minute Topographic Map - Jeffersontown, Kentucky Quadrangle.



XEBEC TUCKER STATION
JEFFERSON COUNTY, KENTUCKY



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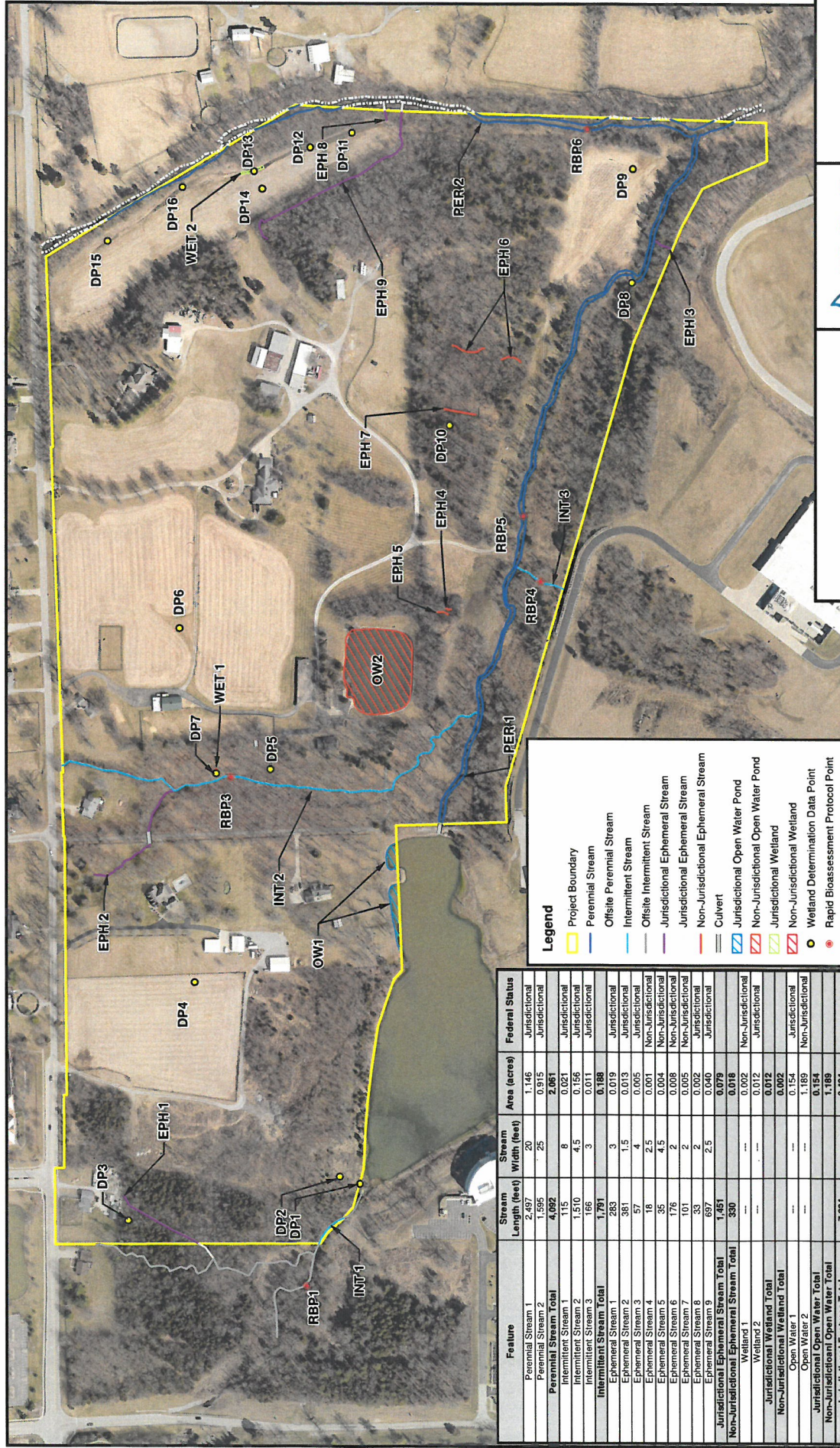
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SITE LOCATION MAP
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REVISED DATE: 11-09-22 | DRAWN BY: VJJ/EDB

FIGURE 1

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Source: Aerial - kysat.ky.gov, ImageServices, Ky_LOJIC_2021_3IN; Project Boundary from Sabak, Wilson & Lingo, Inc.



- Legend**
- Project Boundary
 - Perennial Stream
 - Offsite Perennial Stream
 - Intermittent Stream
 - Offsite Intermittent Stream
 - Jurisdictional Ephemeral Stream
 - Jurisdictional Ephemeral Stream
 - Non-Jurisdictional Ephemeral Stream
 - Culvert
 - Jurisdictional Open Water Pond
 - Non-Jurisdictional Open Water Pond
 - Jurisdictional Wetland
 - Non-Jurisdictional Wetland
 - Wetland Determination Data Point
 - Rapid Bioassessment Protocol Point

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Intermittent Stream Total	3,691	10.5	0.235	Jurisdictional
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Ephemeral Stream 3	57	2.5	0.005	Non-Jurisdictional
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Jurisdictional Ephemeral Stream Total	1,451	2.5	0.079	Jurisdictional
Non-Jurisdictional Ephemeral Stream Total	330	---	0.012	Non-Jurisdictional
Jurisdictional Wetland Total	---	---	0.012	Jurisdictional
Non-Jurisdictional Wetland Total	---	---	0.002	Non-Jurisdictional
Jurisdictional Open Water Total	---	---	1.169	Jurisdictional
Non-Jurisdictional Open Water Total	---	---	0.154	Non-Jurisdictional
Jurisdictional Features Total	7,334	---	2.494	Jurisdictional

NOTE: JURISDICTIONAL WATERWETLAND BOUNDARIES WERE DELINEATED AND SURVEYED BY RES WETLAND SCIENTISTS ON JULY 13 AND 14, 2022. THESE BOUNDARIES HAVE NOT BEEN VERIFIED BY THE U.S. ARMY CORPS OF ENGINEERS. USE OF THIS MAP IS FOR PRELIMINARY PLANNING PURPOSES ONLY.



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XEBEC TUCKER STATION
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WATERWETLAND
LOCATION MAP

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FIGURE 2