

Study Plan to Conduct Indiana Bat & Northern Long-eared Bat Surveys along Enbridge's Ridgeline Expansion Project

Enbridge Ridgeline Expansion Project:

Approximately 198 km long pipeline extending from near U.S. Route 231 in western Trousdale County eastward to U.S. Route 27 in Wartburg, and south to Tennessee Valley Authority's Plant in Kingston, Tennessee



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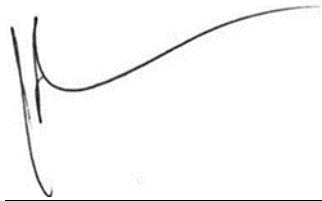
April 12, 2022

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Attachment A – Maps of Project Area

Attachment B – Federal and State Permits

1 INTRODUCTION

Enbridge, Inc. (Enbridge) is proposing to design, construct, and operate a new pipeline regulated by the Federal Energy Regulatory Commission (FERC), the Ridgeline Expansion Project (Project). The purpose of this Project is to provide natural gas to serve one of the power generation options Tennessee Valley Authority (TVA) is currently considering as a replacement for coal as a fuel source at Kingston Fossil Plant. This Project includes the construction of approximately 117 miles (188 kilometer [km]) of 30-inch diameter pipeline looping, construction of 8 miles (13 km) of 24-inch diameter lateral pipeline, and construction of one electric-powered compressor station with associated solar power generation facility.

New pipeline construction will primarily occur adjacent to an existing pipeline and will share right-of-way. The Project would start near U.S. Route 231 (US-231) in western Trousdale County and extend eastward to U.S. Route 27 in Wartburg, Tennessee. It would then turn south and extend to TVA's Plant in Kingston, Tennessee. The Project will extend through 8 central and eastern Tennessee counties, including Trousdale, Smith, Jackson, Putnam, Overton, Fentress, Morgan, and Roane. Each of these counties along with the pipeline length (km), number of mist net sites, number of acoustic sites and number of no survey sections are listed in Table 1 below and the locations are shown on the figures in Attachment A.

Table 1. Proposed effort and locations by counties for the Ridgeline Expansion Project

Project Linear KM	County	Proposed # of Mist Net Sites	Proposed # of Net Nights of Effort	Proposed # of Acoustic Sites	Proposed # of Detector Nights of Effort	Proposed # of KM's with no Habitat (No Surveys)	Map Grid #'s
1 - 18	Trousdale	12	48	5	20	1	1 - 7
19 - 42	Smith	18	72	4	16	2	7 - 20
43 - 74	Jackson	27	108	3	12	2	20 - 35
75 - 97	Putnam	16	64	7	28	0	36 - 48
98 - 116	Overton	17	68	1	4	1	48 - 58
117 - 135	Fentress	10	40	6	24	2	59 - 67
136 - 185	Morgan	42	168	5	20	3	68 - 93
185 - 198	Roane	9	36	4	16	0	94 - 100
Totals		151	604	35	140	11	

Stantec Consulting Services Inc. (Stantec) was contracted by Enbridge to complete a variety of engineering and environmental services for the Project. A portion of the services involve completing Indiana bat (*Myotis sodalis*) and northern long-eared bat (*Myotis septentrionalis*) presence/probable absence surveys for this Project. The objectives of this survey will be:

- Determine presence or probable absence of summer maternity colonies of the endangered Indiana bat and threatened northern long-eared bat in the Project area;
- Determine if summer colonies of the endangered gray bat (*Myotis grisescens*), little brown bat (*Myotis lucifugus*) and tricolored bat (*Perimyotis subflavus*) occur within the Project area;
- Establish baseline data on bat species composition within the Project area; and
- Document habitat type and usage by listed bats in the Project area.

STUDY PLAN TO CONDUCT INDIANA BAT & NORTHERN LONG-EARED BAT SURVEYS ENBRIDGE'S RIDGELINE EXPANSION PROJECT

This study plan has been developed as part of the endangered species survey planning process for this Project. As required by conditions G and E in Stantec's Federal Permits (listed in Table 2 and presented in Attachment B), written concurrence of this survey plan is needed prior to initiating field surveys for endangered species. We ask that you provide your written concurrence and/or comments back at your earliest convenience, so surveys can be initiated on 15 May 2022. Table 2 contains the Federal permits and associated biologists that will initiate the survey work. Additional biologists with Federal permits will likely be added to this Project throughout the summer, and Stantec will provide permits to the Service as soon as they become known.

Table 2. Federal Recovery Permits and Associated Biologists Proposed to Conduct Bat Surveys

Permit #	Permitted Biologists Covered for Bats under Permit
TE38821A-4	James Kiser, Wes Cunningham, Lynda Mills, and Doug Stephens
ES15027A	Kimberly Carter, Jody Nicholson, Angela Sjollem, Hannah Stoffs, and Matt Denzler.
TE91733B-0	Joshua Adams
TE13580D-1	Julia Wilson
TE28573D-0	Adam Rusk
TE98673B-0	Jason Thomas (JT) Layne
ESPER0003405	Crystal Griffin
TE99058B-0	Joshua Flinn

2 INDIANA BAT & NORTHERN LONG-EARED BAT SURVEYING

2.1 Survey Site Selection

The U.S. Fish and Wildlife Service's (USFWS's) 2022 Range-wide Indiana Bat & Northern Long-eared Bat Survey Guidelines, dated March 2022, was used to assist in determining which of the proposed Project's 198 km sections contained potential Indiana and northern long-eared bat summer habitat. The most updated Project corridor along with each km marker shapefile was overlaid onto aerial imaging (Google Earth dated December 2020) to determine if each km length of corridor contained forested habitat. Project km markers started at KM-0 on the western end of the Project corridor and continued eastward to KM-198 inside TVA's Kingston Plant facility.

Kilometer sections of the Project corridor containing only scattered trees (<10), or no forest was considered non habitat, thus determined to not need any type of survey. Stantec identified a total of 11 km's of the Project corridor requiring no survey effort.

For km sections of the Project corridor containing limited amounts of forest habitat and where no apparent mist net survey site could be identified from aerial photography within the Project area then Stantec identified these sections as acoustical survey sites. Stantec identified a total of 35 km's of the Project corridor where acoustic surveys would be completed. If acoustic data determines listed bat species are present at any of these sites, then additional attempts will be made to locate sites nearby where bats could be captured for radio-tracking purposes.

The remaining 151 km's of corridor will be surveyed for bats using mist netting techniques. Table 1 shows the number of sites each survey method will be used for in each of the counties.

2.2 Mist Net Guidelines

Summer mist net surveys will follow methods outlined by the USFWS's 2022 Range-wide Indiana Bat & Northern Long-eared Bat Survey Guidelines, dated March 2022. As such, mist-netting will be conducted between 15 May and 15 August, 2022. In accordance with this protocol, the survey effort will require 186 survey stations (sites), of which Stantec is proposing to conduct mist net surveys at 151 of these and acoustic surveys at the remaining 35 sites. Mist net surveys conducted at the 151 sites will result in 604 net nights of effort for the Project (Table 1). As previously mentioned, the amount of effort for the Project area is based on aerial photography and the length of project having forested habitat. Stantec proposes to conduct mist net surveys at a total of 151 sites, as presented in Table 1. This Project is located outside of the Appalachian Recovery Unit and will be surveyed with at least two net sets on two different nights, resulting in at least 4 net nights of effort per site.

As specified in the USFWS's 2022 Range-wide Indiana Bat & Northern Long-eared Bat Survey Guidelines, dated March 2022, each netting site will consist of at least two net sets per night. Mist-netting will begin at sunset and continue for five hours following sunset. Potential disturbance in the form of lights and sounds will be kept to a minimum during the survey period. Mist-netting equipment will consist of various sizes of the lowest visibility mesh nets commercially available, which are 75 denier, 2 ply (75/2) with a mesh size of 1 ½ inch (38 mm), support poles and rebar, pulley ropes, and stabilizing ropes. Nets will be checked at regular 10-minute intervals and all bats will be promptly removed, as this decreases stress on the animals and decreases chances of escapes¹. Due to concerns over White Nose Syndrome (WNS), equipment will be decontaminated following the National White-nose Syndrome Decontamination Protocol dated October 2020². Stantec will also monitor WNS disinfectant updates posted to the White-nose Syndrome Response Team's web page to ensure the most up to date methods are implemented.

In addition to following WNS decontamination guidelines, Stantec biologists will also be following numerous recommended actions to reduce the risk of humans transmitting SARS-CoV-2 to bats, or coronavirus transmitted from bats to humans. These actions include but are not limited to wearing proper Personal Protective Equipment (PPE) and the monitoring of health of biologists completing field investigations. As recommended in the USFWS memo dated June 12, 2020 and reiterated in the USFWS's *Indiana Bat and Northern Long-eared Bat Summer Survey Guidelines Frequently Asked Questions* (Revised 03/22/2022), COVID-specific PPE will be added to the mitigating equipment already used for reducing the spread of WNS in bats. These items will include disposable gloves, disposable clothing or clothing dedicated to single sites, face masks, and safety glasses. The overall wellness of biologists will be determined daily by completing a health questionnaire. This information will be recorded on the daily RMS forms currently required by Stantec. If biologists knowingly come in contact with someone who has tested positive for COVID-19 then current Federal, State, Local, and Stantec COVID 19 policies will be followed.

2.2.1 MIST NET SITE SELECTION

A desktop analysis of the Project area was undertaken to determine if potential bat habitat occurs within the Project corridor. Based on the initial desktop analysis 151 mist net sites are proposed for the project. These efforts along with the acoustic survey sites will effectively cover all the project corridor spatially. Qualified biologists will conduct field investigations prior to netting to make final selection of mist net location at the sites to be surveyed based on a combination of factors including: their proximity to other mist net sites, presence of key habitat characters, and their proximity to the proposed Project. Site selection will be based on a

¹ MacCarthy, K.A., T.C. Carter, B.J. Steffen, and G.A. Feldhamer. 2006. Efficacy of the mist-net protocol for Indiana bats: A video analysis. *Northeastern Naturalist* 13:25-28.

² <https://www.whitenosesyndrome.org/mmedia-education/national-wns-decontamination-protocol-u-s>

number of factors including: canopy cover, presence of non-obstructed flyways, and forest condition³. Net sites will be recorded and mapped using a handheld GPS unit. Digital photographs that illustrate selection criteria will be obtained at each net site. A map and sketch of each site will be included in the final report that illustrates the location of each net relative to topographic features and the Project as a whole.

2.2.2 BAT PROCESSING PROTOCOLS

Bats will be live-caught in mist nets, removed, processed (collect and record data), and released unharmed at the capture site. If provided by TWRA, wing bands with unique numbers used to identify individual bats will be placed on the forearms of captured bats prior to release. Captured bats will be identified to species level and the sex, age class (i.e., juvenile, adult), and reproductive condition of each bat will be determined. The mass and right forearm length of each individual bat will be recorded. Age will be determined by examining the epiphyseal diaphyseal fusion of long bones in the wing. Reproductive condition of female bats will be recorded as pregnant (based on gentle abdominal palpation), lactating, post-lactating, or non-reproductive. Documentation photos will be taken for all species encountered on site. If needed, photographs will be taken of the first 10 individuals of each species of *Myotis* captured.

If an Indiana bat, gray bat, and/or northern long-eared bat is captured during mist netting surveys, the USFWS will be informed within 48 hours as specified by permit conditions. The appropriate Enbridge representative will be contacted prior to contacting the agencies; however, if the representative is not able to be reached, the surveyor is bound by permit conditions to inform the agencies.

Weather conditions will be monitored each night of the survey. Conditions recorded will include temperature (°F), wind speed and direction, percent cloud cover, and moon phase (if visible). A digital thermometer will be used to record temperature. Wind speed will be estimated and based on the Beaufort wind scale, and cloud cover will be visually estimated.

2.3 Radio Telemetry

Radio transmitters will be attached to the first 10 individuals of each of the following species, Indiana, northern long-eared, tricolored, and little brown bats. No more than two (2) individual of each species will be fitted with radio transmitters at each site. A federally permitted biologist will carefully remove a small area of fur between the scapulae of bats selected for transmitter attachment to provide a good bonding surface for transmitter attachment. An activated transmitter will be attached to bare skin between the scapulae using surgical cement. Once transmitters are attached, the bats will be retained for approximately 15 minutes in holding bags to allow cement to fully dry. To ensure the transmitter is functioning properly before bats are released, a biologist will use a receiver to monitor for its signal on the corresponding frequency. Stantec will use the smallest commercially available transmitter, and the biologists will ensure that total transmitter weight (including bonding cement) will equal less than five percent (5%) of the bat's body mass. Transmitters will have a whip antenna and an expected battery life of 10 – 14 days.

Each bat fitted with a radio transmitter will be tracked the following day in an attempt to locate its day roost. Stantec will use TRX1000s receivers (Wildlife Materials, Inc., Carbondale, Illinois) and hand-held yagi antennas during tracking activities. Telemetry will continue for seven days or until transmitter failure or detachment, whichever occurs first. Once roost sites are located, each roost will be flagged, and data will be collected. Field data collected will include type of roost (e.g. trees, buildings, bridges), identification of the bat using the roost (transmitter frequency and/or band number), tree species (if a tree roost), diameter at breast height (DBH) of tree, percent bark cover, percent canopy cover at roost location, aspect of roost, and

³ Kiser, J.D. and J.R. MacGregor. 2005. Indiana bat (*Myotis sodalis*) mist net surveys for coal mining activities. Pp. 169-172 in K.C. Vories and A. Harrington (eds.), The Proceedings of the Indiana bat and coal mining: a technical interactive forum Office of Surface Mining, U.S.

proximity to water. Roost site locations will be recorded using a handheld GPS unit. Digital photographs that illustrate roosting conditions will be obtained at each roost site. Upon acquiring landowner permission, a path from the nearest road or trail will be flagged to each roost site providing a safe and easy access route for biologists conducting follow-up work at the roost sites (e.g., emergence counts, roost data collection).

Once a roost site is located, biologists will conduct emergence counts at each roost for at least two (2) days to determine colony size. The biologist(s) will position themselves near the roost where visibility of the potential exit point is least cluttered. Emergence counts will start 30 minutes before sunset and will end 30 minutes after sunset, or once no bat activity is observed around the tree for 30 minutes. Bats exiting the tree will be counted in five-minute intervals. This will allow biologists to determine peak emergence time after sunset.

2.4 Acoustic Surveys

The General Checklist for Acoustic Surveys of Indiana and/or Northern Long-eared Bats found in Appendix C of the USFWS's 2022 Range-wide Indiana Bat & Northern Long-eared Bat Survey Guidelines, dated March 2022, will be followed for acoustic surveys.

2.4.1 SITE SELECTION

A desktop analysis of the Project area was undertaken to determine if potential habitat occurred within the Project corridor. Based on the initial desktop analysis 186 km's of the Project corridor contained potential summer habitat. Of the 186 km's of Project containing potential bat habitat, 35 of these 1-km sections didn't provide locations that could be surveyed using mist nets, therefore it was determined the best surveying option would be acoustic surveys. The proposed acoustical survey efforts along with the previously proposed mist net surveys will effectively cover all the project corridor spatially. Qualified biologists will conduct field investigations prior to setting up acoustical detectors to make final selection of actual detector location at the sites. Acoustical survey sites will require open canopy sites where bats are expected to forage, or travel. Acoustic survey sites will be recorded and mapped using a handheld GPS unit. Digital photographs that illustrate selection criteria will be obtained at each site. As with mist net survey sites, a map and sketch of each site will be included in the final report that illustrates the location of each acoustic detector in regard to topographic features and the Project as a whole.

2.4.2 ACOUSTIC GUIDELINES

Acoustic bat surveys will follow methods outlined by the USFWS's 2022 Range-wide Indiana Bat & Northern Long-eared Bat Survey Guidelines, dated March 2022, and be conducted during the summer maternity season, which is defined by the USFWS as May 15 to August 15. According to the USFWS Guidelines for acoustic surveys of linear projects (in the Midwest Recovery Unit which includes the Project portion of Tennessee), a minimum of 140 detector nights is sufficient effort per the 35 km's of Project corridor containing forested habitat that is unsuitable for mist net surveys. A detector night is defined as 1 detector set to record bats from sunset to sunrise over 1 calendar night.

The acoustic survey will begin at 30 minutes before sunset and continue until 30 minutes after sunrise. Acoustic survey equipment will consist of the Wildlife Acoustics SM4BAT-FS Ultrasonic Recorder and associated SMM-U2 Ultrasonic Microphone. The following outlines the USFWS guidelines for acoustic surveys (USFWS 2022).

USFWS Acoustic Survey Guidelines	
1.	Acoustic Survey Season: 15 May to 15 August, when Indiana bats and northern long-eared bats occupy summer habitat
2.	Equipment: <ul style="list-style-type: none"> ♦ Full-spectrum and/or zero-crossing detectors ♦ Directional, hemispherical, or omnidirectional microphones
3.	Acoustic Detector Placement: <ul style="list-style-type: none"> ♦ At least 3 meters (m; 10 feet [ft]) in any direction from vegetation or other obstructions ♦ In areas without vegetation or with minimal vegetation within 10 m (33 ft) in front of microphone ♦ Parallel to woodlands ♦ At least 15 m (49 ft) from known or suitable roosts (e.g., trees/snags, buildings, bridges, bat houses, caves, or mine portals) ♦ Forest canopy openings ♦ Near water sources ♦ Wooded fence lines, adjacent to large openings or connecting two larger blocks of suitable habitat ♦ Blocks of recently logged forest where some potential roost trees remain ♦ Road or stream corridors with open tree canopies or canopy height more than 10 m (33 ft) ♦ Woodland edges
4.	Acoustic Detector Spacing: Acoustic sites should be a minimum of 200 m (656 ft) apart.
5.	Minimum Level of Effort: <ul style="list-style-type: none"> ♦ Linear projects – a minimum of 4 detector nights per 0.62 mile (1 kilometer) of suitable summer habitat ♦ Acoustic sampling period begins at sunset and ends at sunrise ♦ Four (4) detector nights must consist of at least 4 calendar nights
6.	Weather Conditions – Keep acoustic data only if the following weather conditions are met for the first 5 hours after sunset: <ul style="list-style-type: none"> ♦ No more than 30 consecutive or cumulative minutes of precipitation ♦ Temperature $\geq 10^{\circ}\text{C}$ (50°F) ♦ No strong winds, maximum of 9 miles per hour (mph; 4 meters per second [m/s] or 3 on Beaufort scale for up to 30 minutes) ♦ Nightly weather observations, addressing precipitation, temperature, and wind, must be recorded from the nearest NOAA Weather Service Station and summarized in report
7.	Orientation of Acoustic Detector: Directional and omnidirectional microphones should be oriented towards the majority of the flight path, while hemispherical microphones should be oriented vertically.
8.	Weatherproofing Acoustic Detector: If necessary, detectors should be placed within weatherproof containers. Wildlife Acoustics SM4BAT acoustic detectors and SMM-U2 acoustic microphones are both weatherproof, requiring no after-market alterations.

Stantec will conduct an acoustic bat survey at 35 sites in suitable habitat where conditions don't allow for mist net surveys as presented in the figures in Appendix A. One detector will be deployed for four calendar nights at each acoustic site. The detectors will be deployed for at least 4 calendar nights (2 detector nights) from 30 minutes prior to sunset to 30 minutes after sunrise each night of sampling and will follow the guidelines described above from the USFWS.

2.4.3 DATA PROCESSING PROTOCOLS

Analysis methods (quantitative and qualitative) will follow the USFWS Guidelines. Acoustic data will be analyzed to assess whether Indiana, northern long-eared, little brown, and tricolored bats occur within the Project. Each data file will be processed to screen out noise files. The quantitative analysis will include processing all recorded files through Kaleidoscope Pro 5.4.0 (using the "Balanced-Neutral" setting [0], per USFWS Guidelines), an automated acoustic bat identification software program approved by the USFWS. The classifier is version 5.4.0 (Wildlife Acoustics). Default signal parameters were used, including a minimum of 2 pulses per call and advanced signal processing. Analysis will be conducted only for species known to occur within the Project area, including:

- Rafinesque's big-eared bat (*Corynorhinus rafinesquii*)
- Big brown bat (*Eptesicus fuscus*)
- Eastern red bat (*Lasiurus borealis*)
- Hoary bat (*Lasiurus cinereus*)
- Seminole bat (*Lasiurus seminolus*)
- Silver-haired bat (*Lasionycteris noctivagans*)
- Gray bat (*Myotis grisescens*)
- Eastern small-footed bat (*Myotis leibii*)
- Little brown bat (*Myotis lucifugus*)
- Northern long-eared bat (*Myotis septentrionalis*)
- Indiana bat (*Myotis sodalis*)
- Evening bat (*Nycticeius humeralis*)
- Tri-colored bat (*Perimyotis subflavus*)

The automated program assigns a species identification to individual echolocation calls, and then uses a Maximum Likelihood Estimate (MLE) for each site and each night and assigns a p-value for presence. A low MLE value indicates that a species is likely present at a site. The USFWS Guidelines state that a MLE value < 0.05 for a species recorded during a given detector night represents a probable presence for a species with a high level of certainty, though qualitative analysis will also be conducted as described below.

If a detector night at a site has a MLE value of < 0.05 for the Indiana bat, northern long-eared bat, little brown bat, and tricolored bat files recorded at the site will be visually analyzed in zero crossing format by a qualified bat biologist using AnalookW software (Windows version 4.2 or newer). This will involve visually analyzing each call recorded from the detector on the night the species was detected, starting with the first call on the night and continuing until the species is either confirmed present, or until all calls from that night have been visually assessed and probable absence can be assumed. The visual review will involve comparing echolocation call structures of files in question to characteristics (e.g., frequency, slope, duration) from a known call library by a qualified bat biologist with experience acoustically identifying the species within the Project area. The results will be used to determine bat species presence and activity levels at each site.

3 REPORTING AND DOCUMENTATION

3.1 Scientific Report

Upon completion of the endangered species surveys, a scientifically defensible report will be submitted which will include a description of methods and site locations, summarized data, and a discussion and conclusion section describing the results. If any federally listed species are captured the discussion will provide detail on site specific uses in the Project area. Any telemetry results will be included in the report to demonstrate where those species were roosting and/or foraging (as appropriate). Tables of survey data and data sheets will be included as appendices in the report. Maps, representative species photographs and site locations, and illustrations will be included as appropriate. This report will be used for consultation with the USFWS.

4 STAFFING TO COMPLETE SURVEYS

Stantec will use federally permitted biologists to complete the bat surveys for the Project. For the purposes of these proposed bat surveys, Joshua Adams, James Kiser, and Julia Wilson will be responsible for overseeing the successful completion of surveys with properly permitted biologists. Stantec may use any combination of the biologists listed in Table 2 to complete the survey efforts. In addition, Stantec may need to contract some of the survey efforts to other companies. If other companies are contracted, then Stantec along with those companies will contact the USFWS for amending the survey plan.

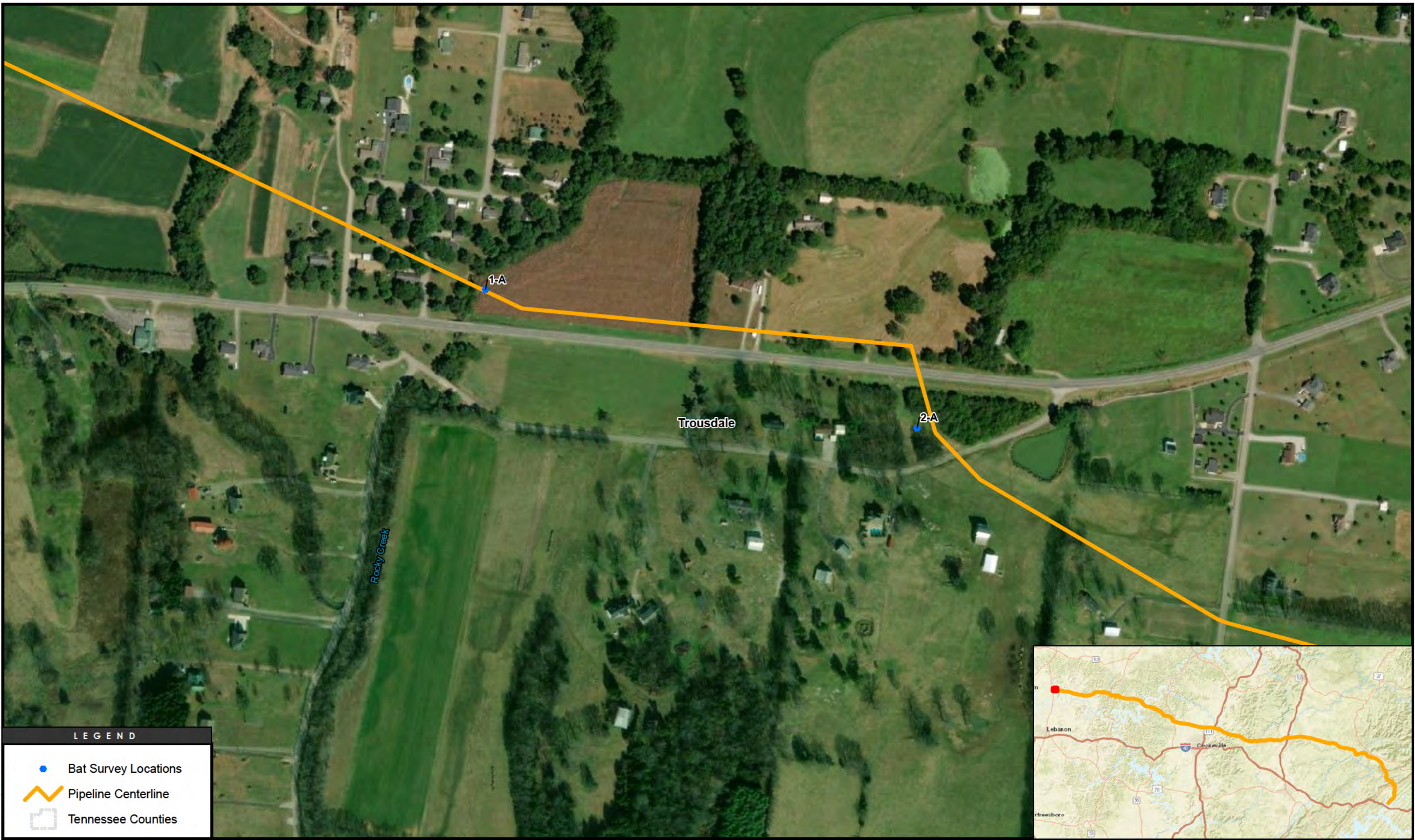
5 CONCLUSIONS

As part of Enbridge's pre-construction and environmental due diligence, Stantec has prepared this study plan for the proposed Project in central and eastern Tennessee. It describes the Indiana bat, northern long-eared bat, little brown bat, and tricolored bat presence/probable absence studies, methods, and data analyses to be completed prior to development to provide a "path forward" for biological studies and risk assessment for the Project. Stantec requests the USFWS provide written concurrence for this study plan.

ATTACHMENT A

Maps

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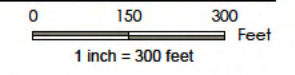
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2. Source data: TN Assessor, Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 1-A & 2-A
March 2022

Grid 1 of 100

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tel 615.885-1144



Prepared by: JKN 04/01/22
Technical Review by: XXX MM/DD/YY
Independent Review by: XXX MM/DD/YY



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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



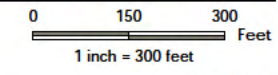
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 3-N & 4-N
March 2022

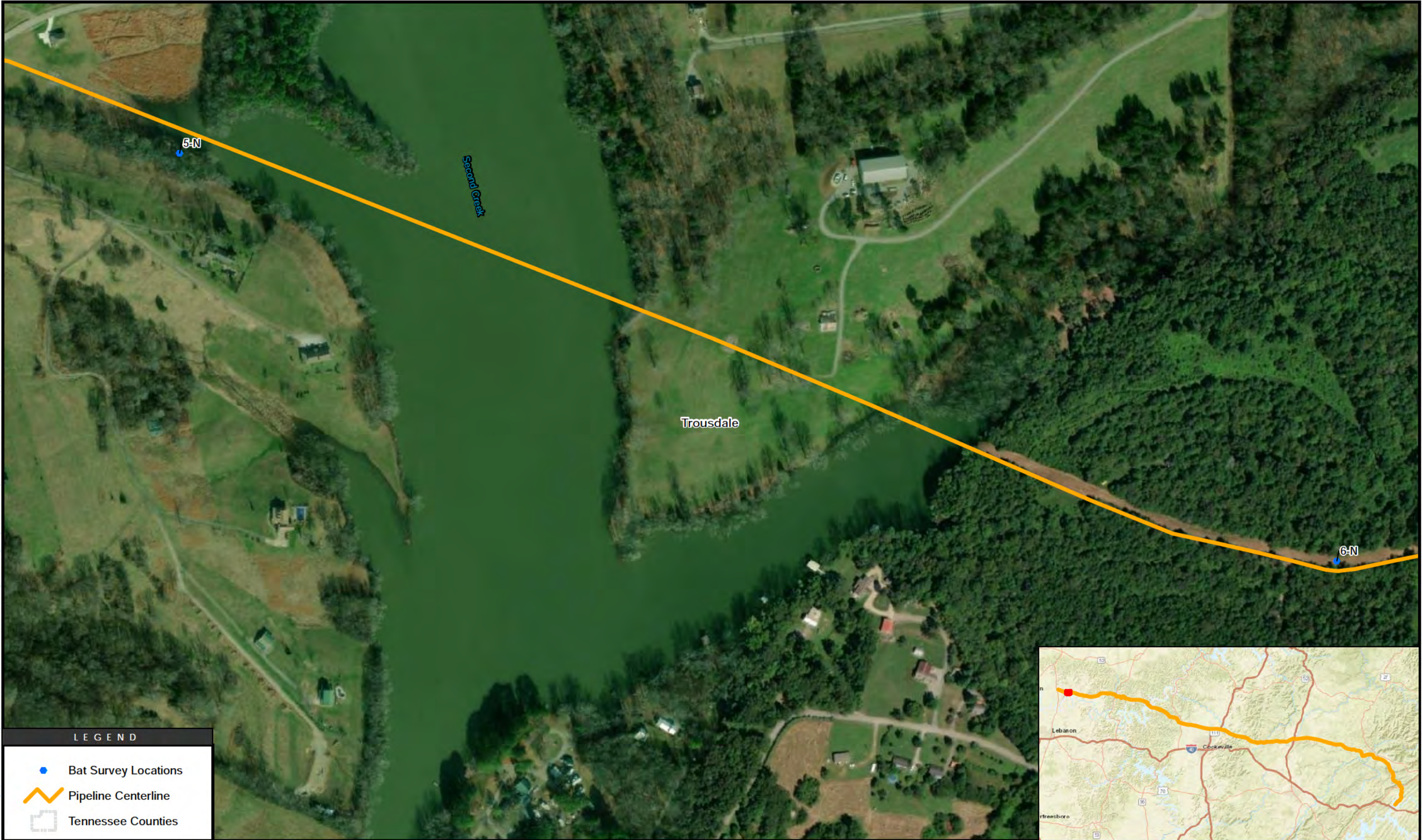
Grid 2 of 100

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Independent Review by: X.X.X MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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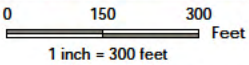
Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 5-N & 6-N

March 2022

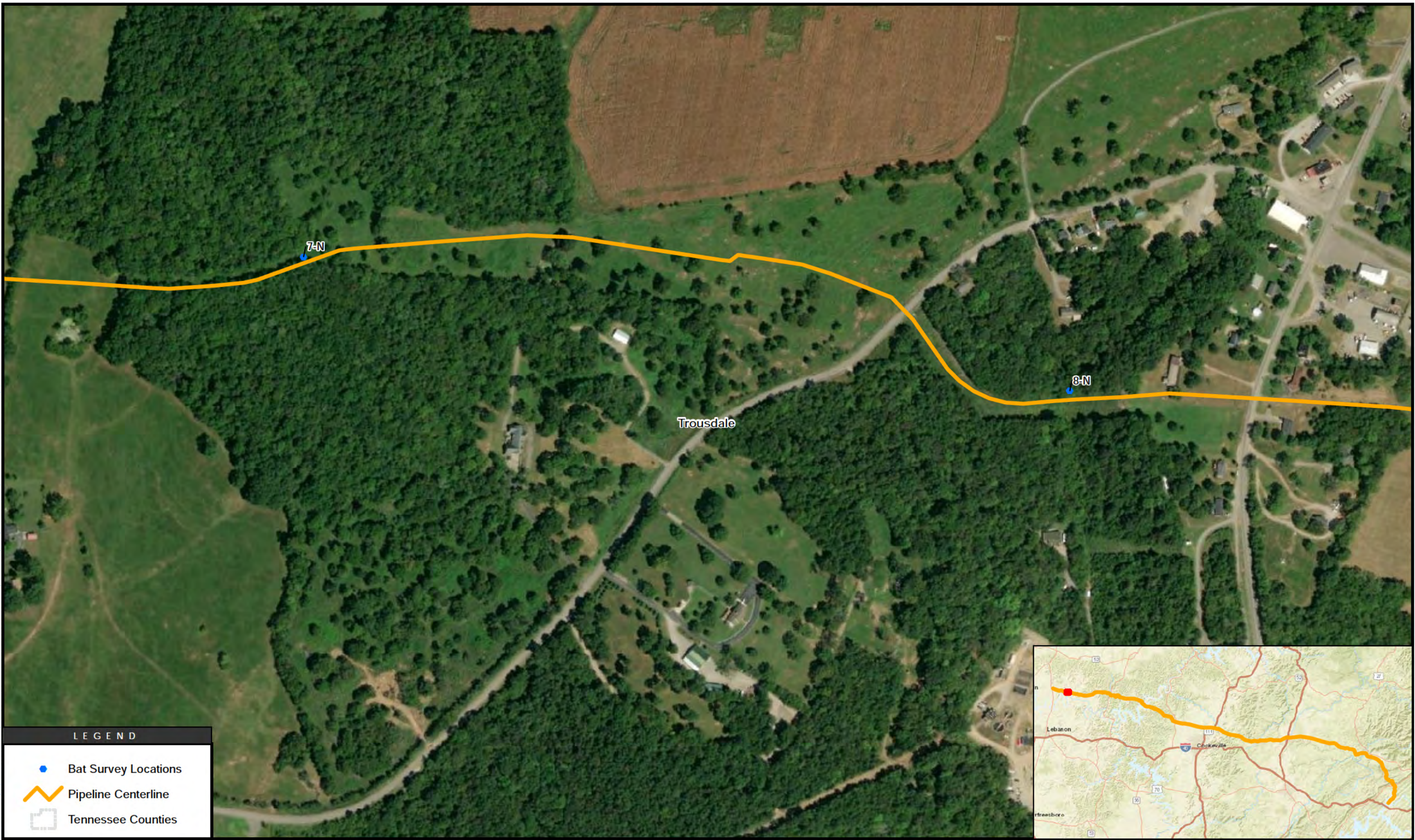
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Independent Review by: X.X.X MM/DD/YY

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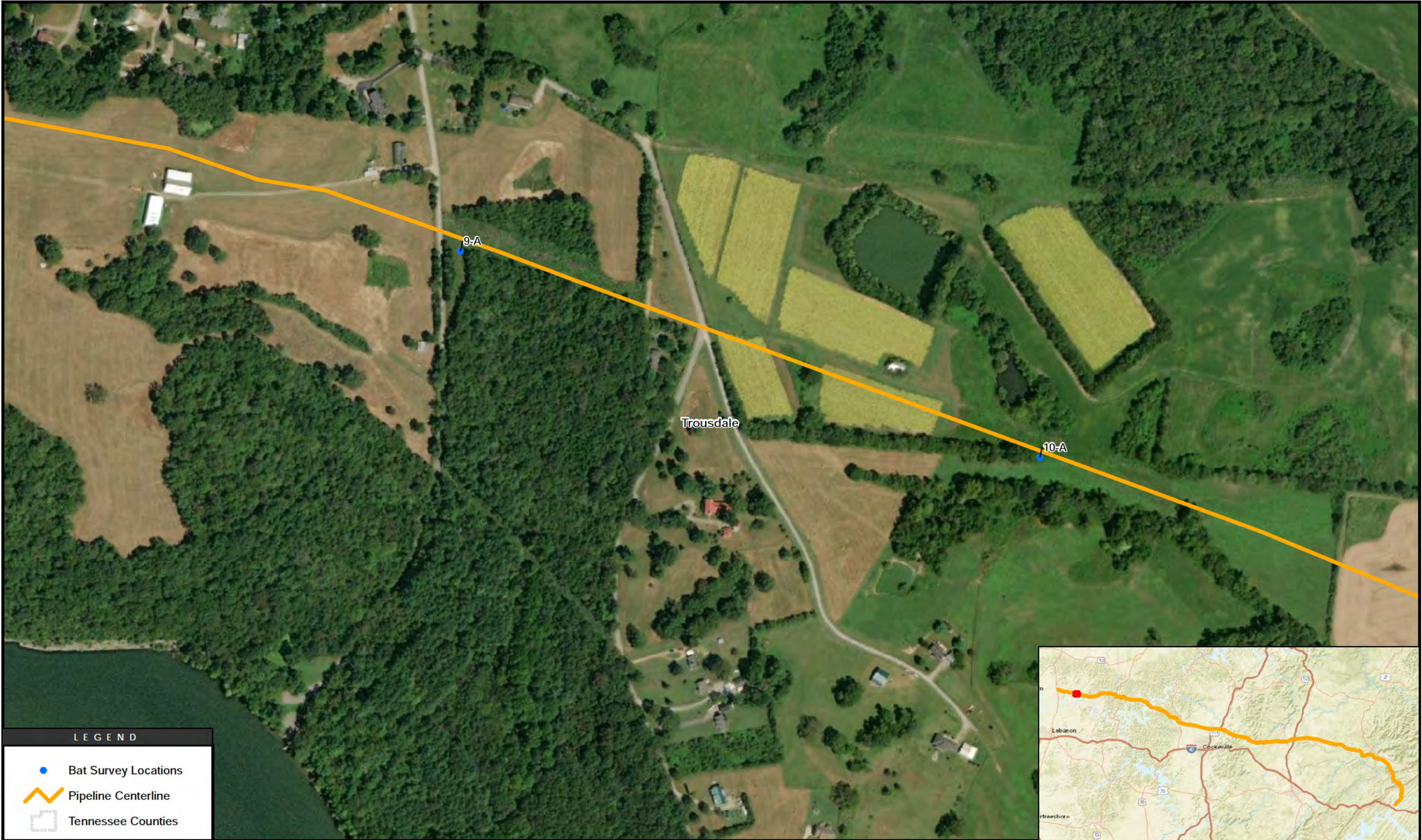


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Bat Survey Locations

 Pipeline Centerline

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 9-A & 10-A
March 2022

Grid 5 of 100

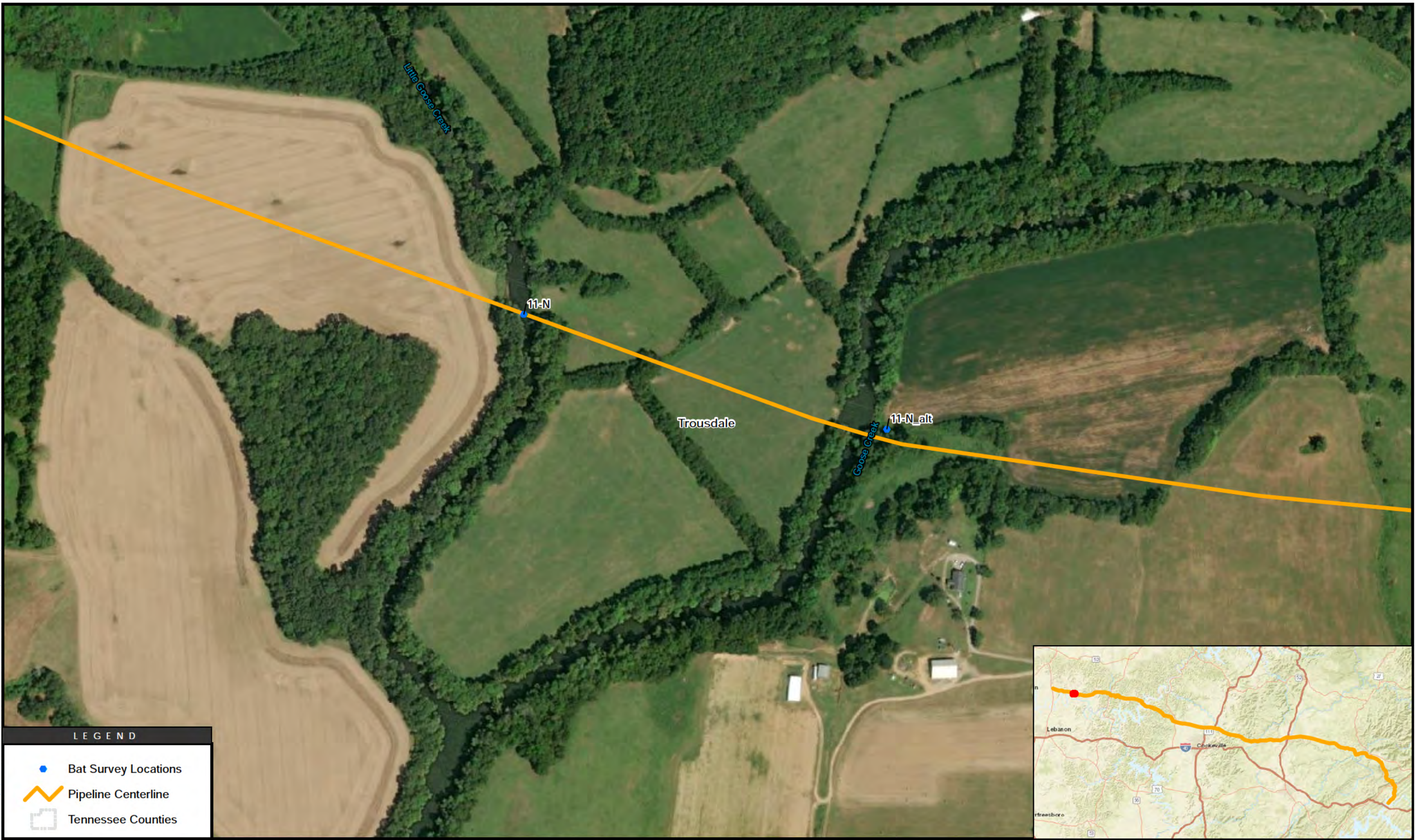
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0 150 300 Feet
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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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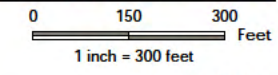
Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 11-N & 11-N_alt

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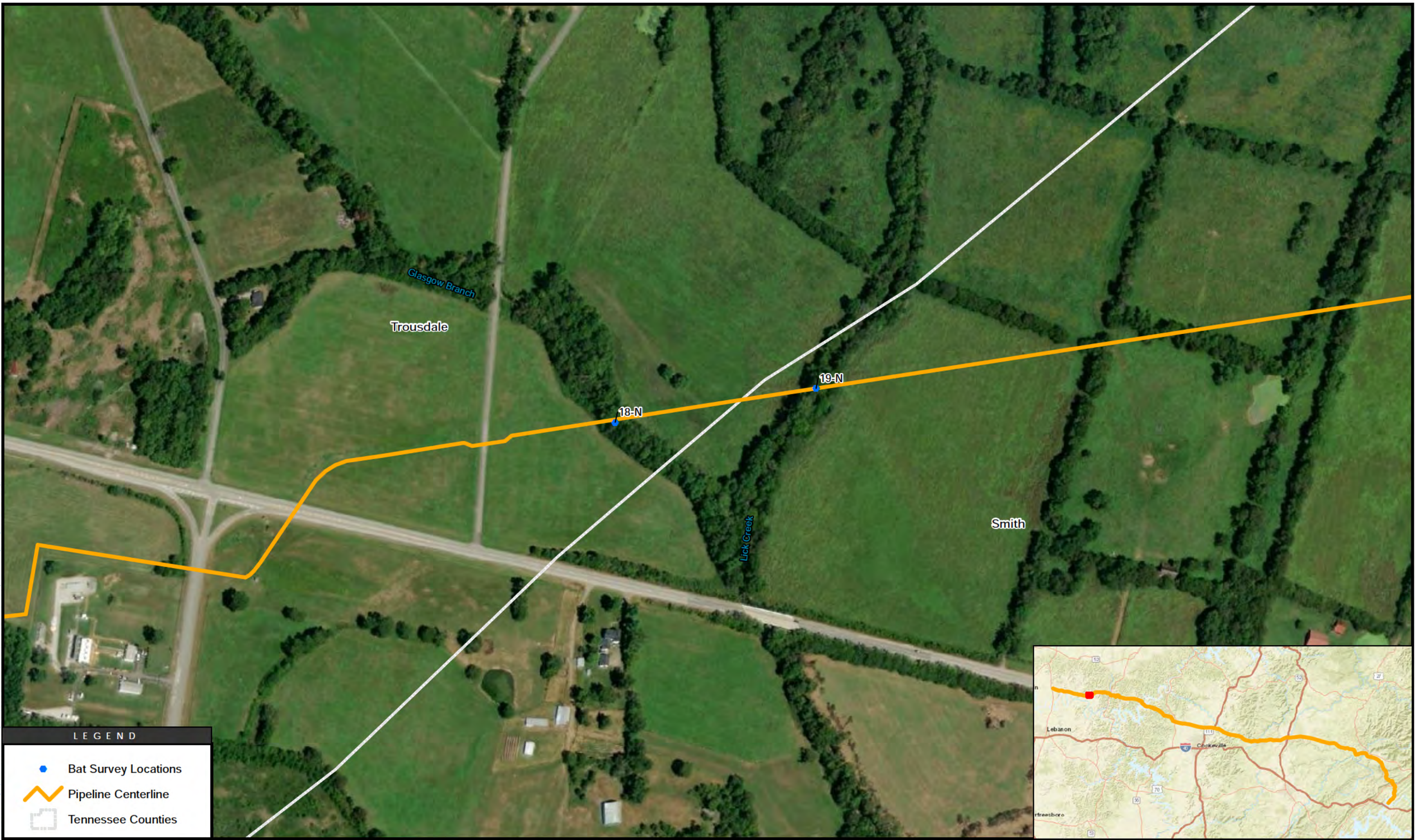
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Bat Survey Locations

Pipeline Centerline

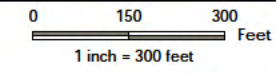
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

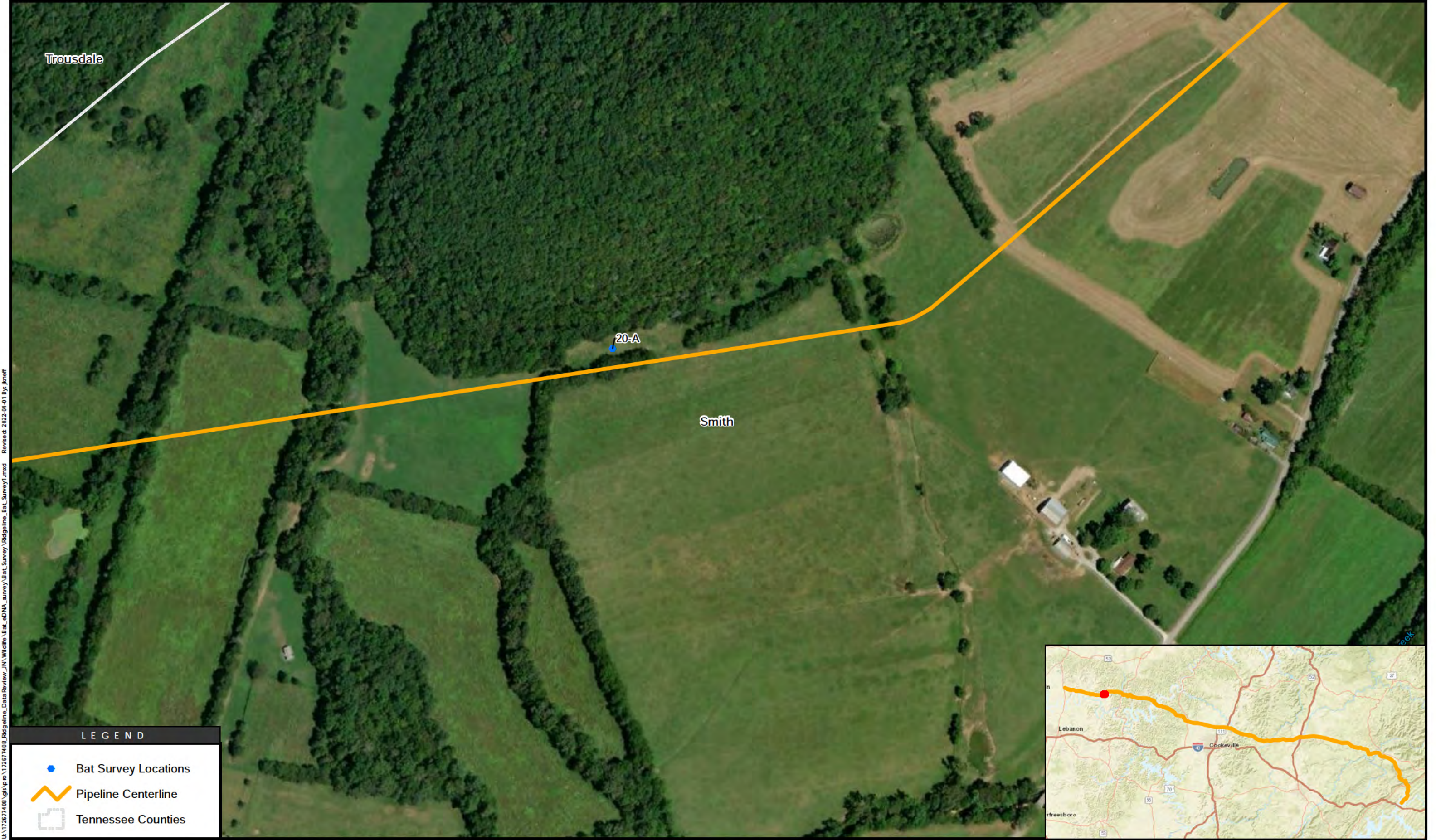
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Proposed Bat Survey Sites - 18-N & 19-N
March 2022

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Bat Survey Locations

Pipeline Centerline

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties

South Fork Young Branch



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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

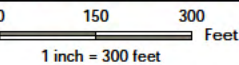
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Proposed Bat Survey Sites - 22-A & 23-N

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3. Imagery: ESRI Imagery

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Proposed Bat Survey Sites - 26-N & 27-N
March 2022

Grid 12 of 100

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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 28-N & 28-N_alt
March 2022

Grid 13 of 100

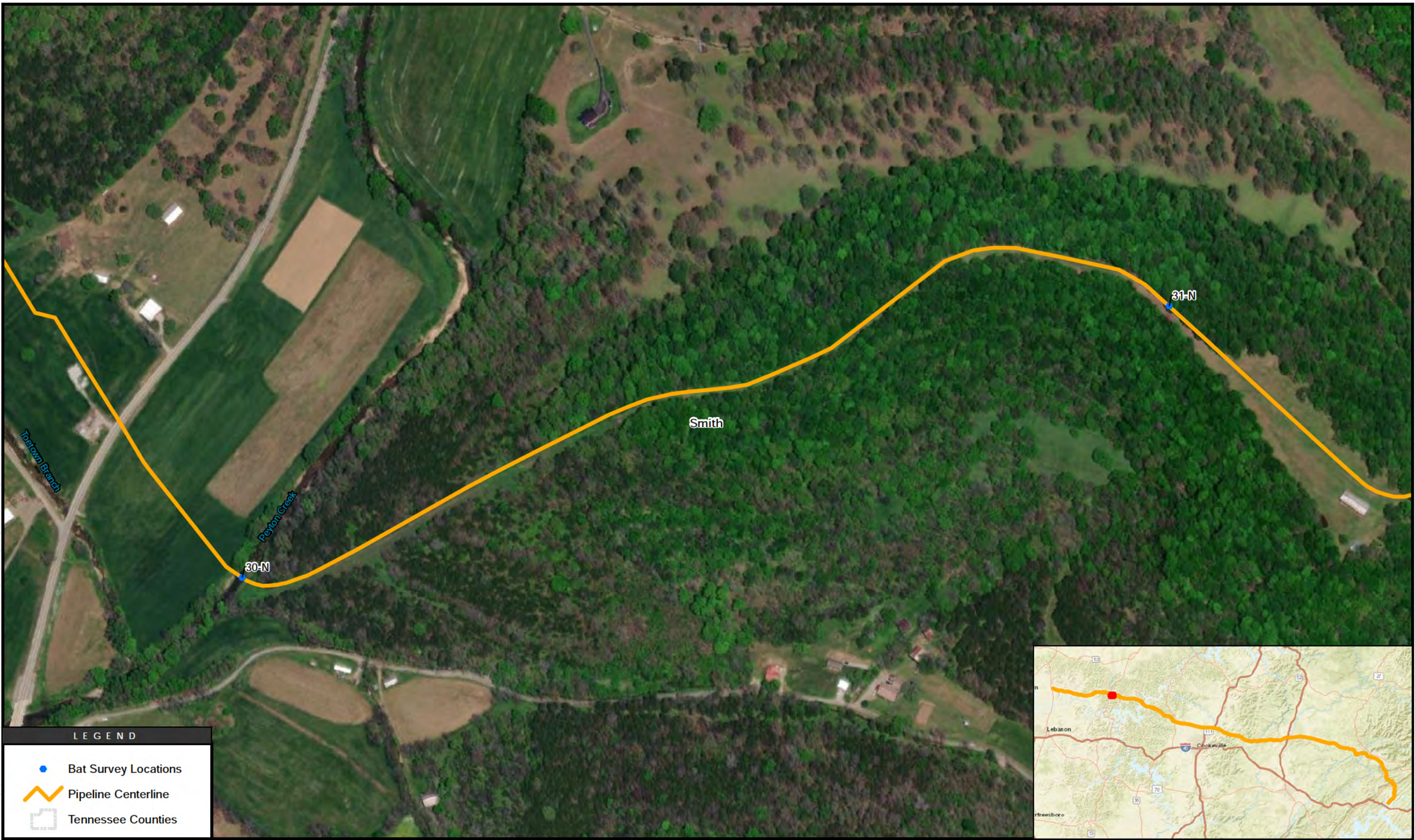
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-  Bat Survey Locations
-  Pipeline Centerline
-  Tennessee Counties




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Proposed Bat Survey Sites - 30-N & 31-N
March 2022

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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2. Source data: TN Assessor Stantec
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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 32-N & 32-N_alt & 33-N

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

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Proposed Bat Survey Sites - 34-N & 35-N
March 2022

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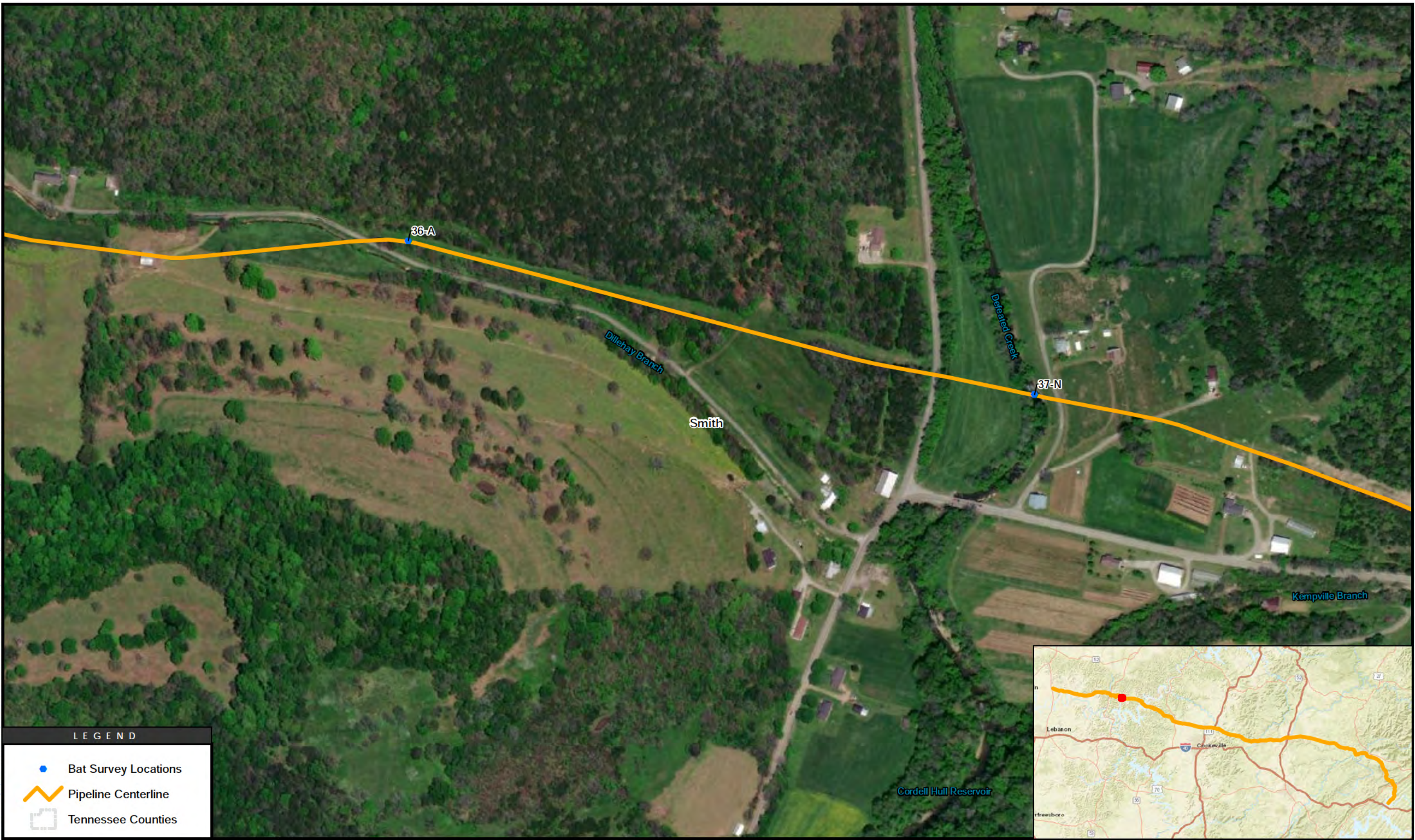
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N

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Bat Survey Locations

Pipeline Centerline

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties

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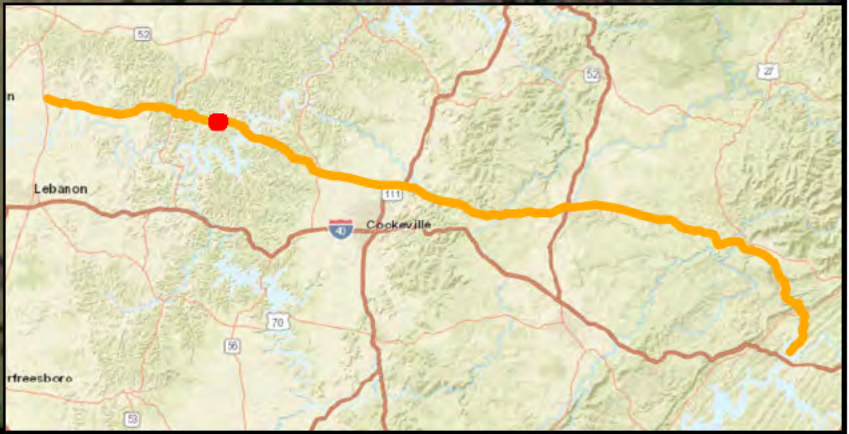


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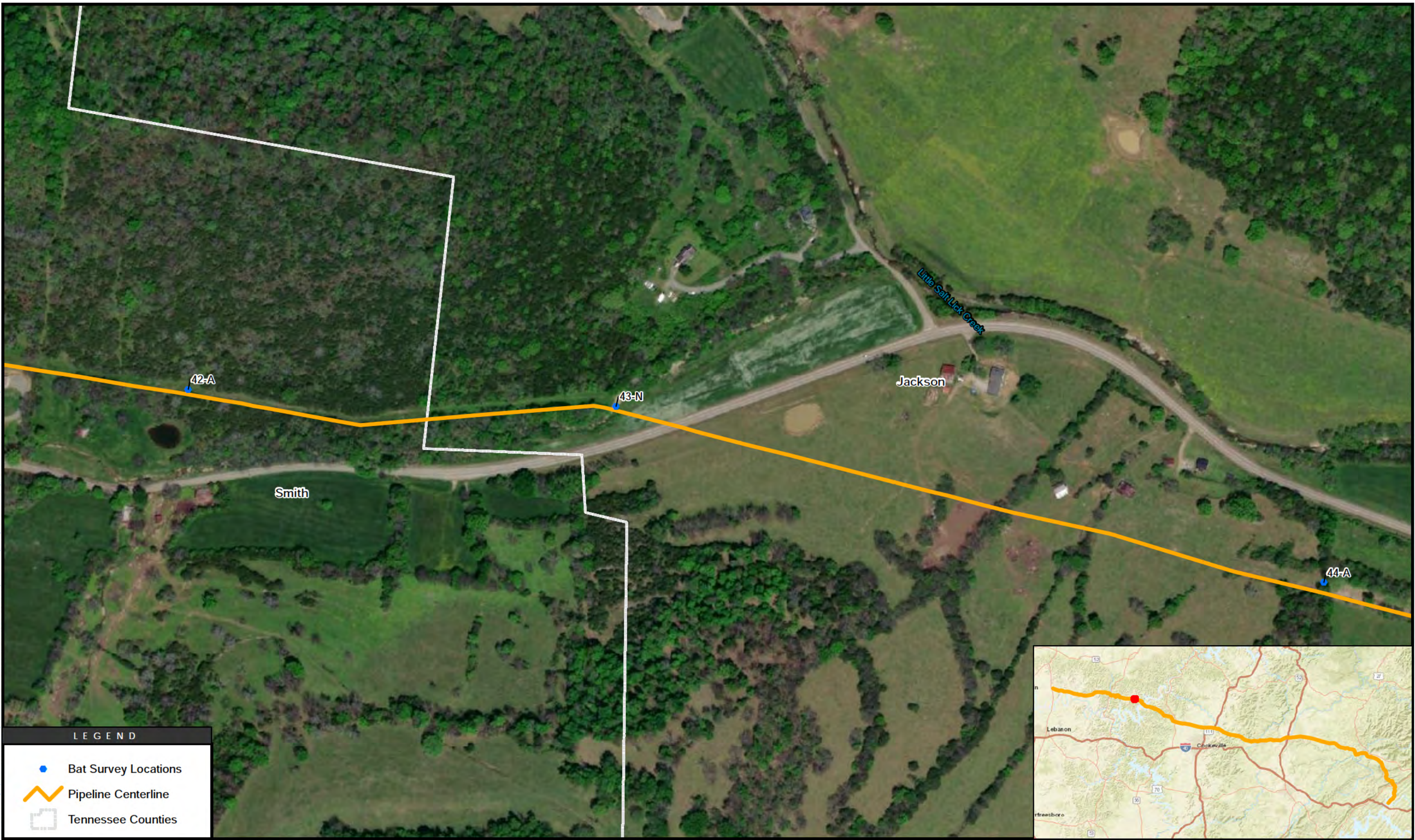
Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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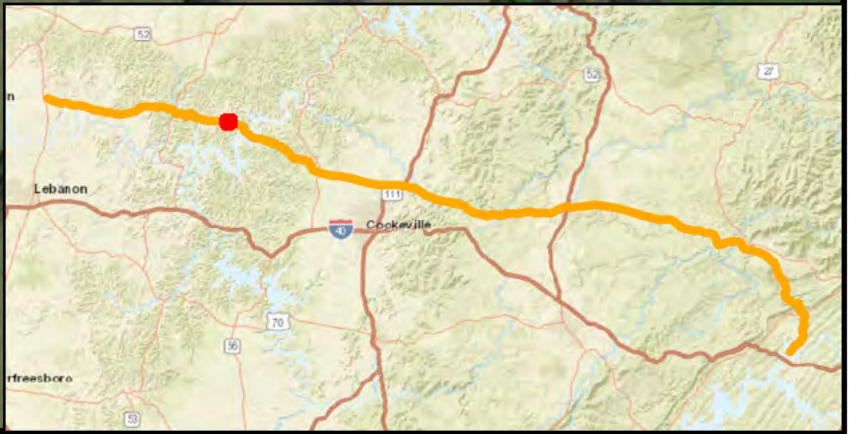


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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Proposed Bat Survey Sites - 42-A & 43-N & 44-A
March 2022

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N

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Bat Survey Locations

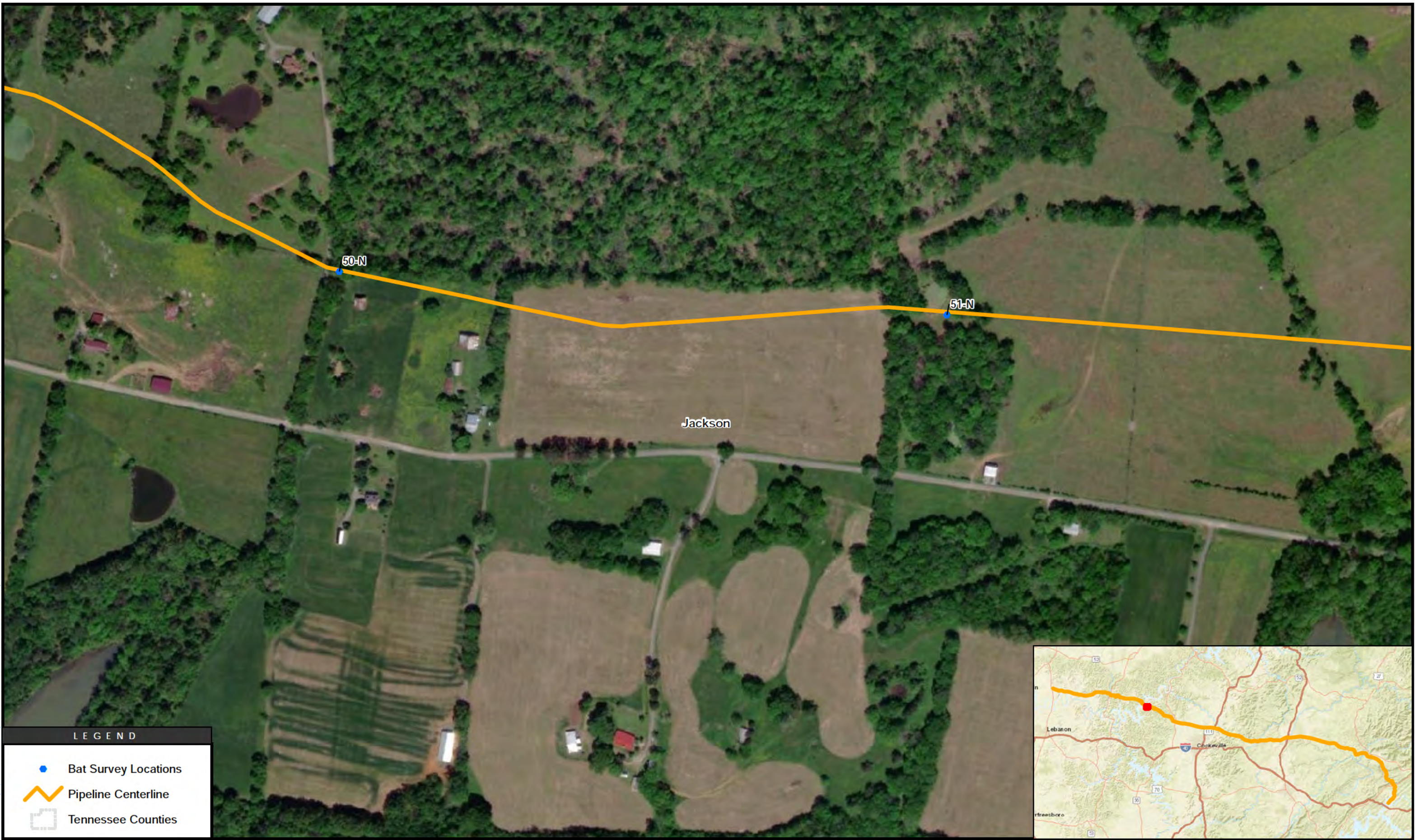
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Tennessee Counties

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Proposed Bat Survey Sites - 50-N & 51-N
March 2022

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0 150 300
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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 52-N & 53-N
March 2022

Grid 24 of 100

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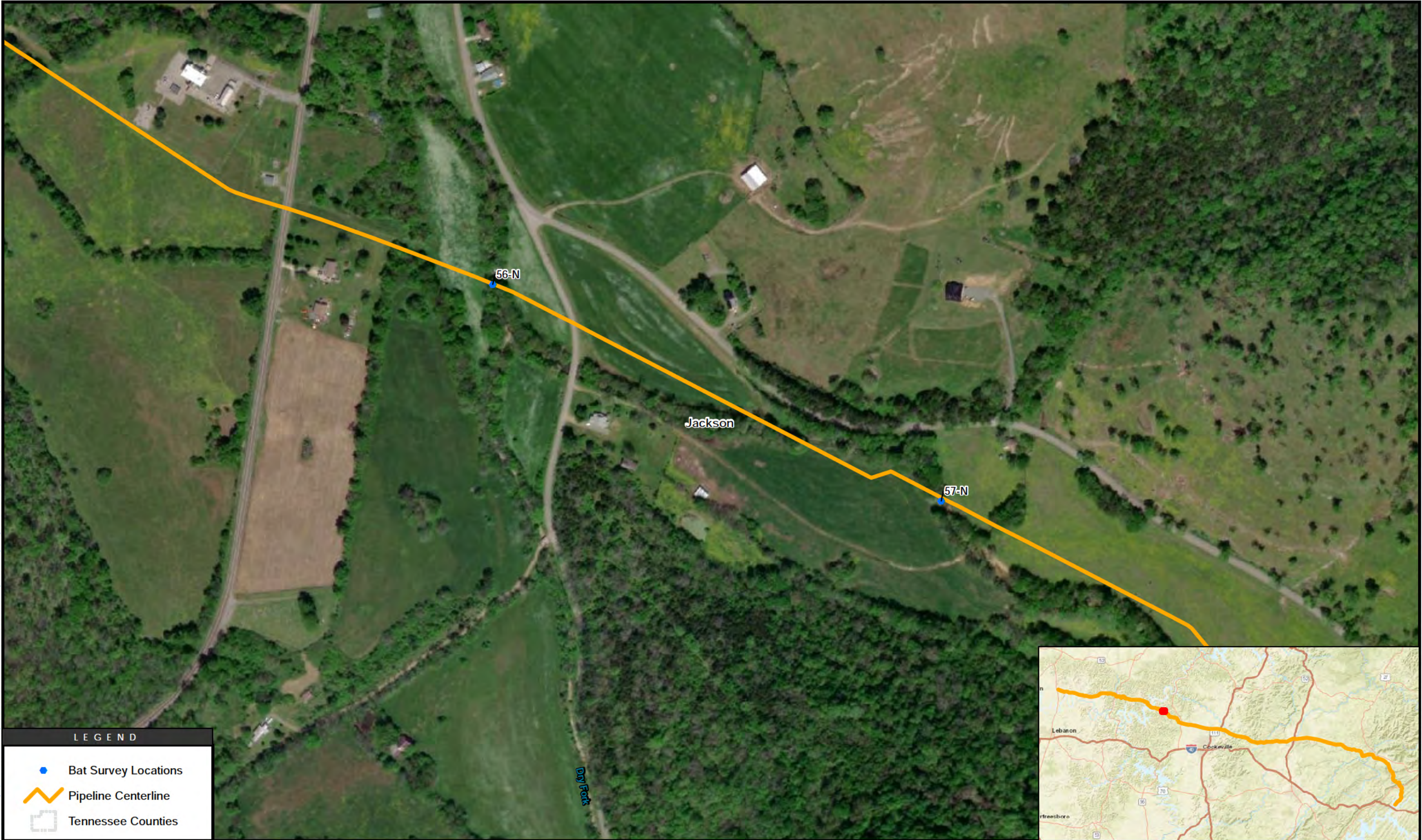
Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 56-N & 57-N
March 2022

Grid 26 of 100

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-  Bat Survey Locations
-  Pipeline Centerline
-  Tennessee Counties




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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 59-N
March 2022

Grid 27 of 100

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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 60-N & 61-N
March 2022

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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 62-N & 63-N
March 2022

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 64-N & 65-N
March 2022

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 66-N & 67-N

March 2022

Grid 31 of 100

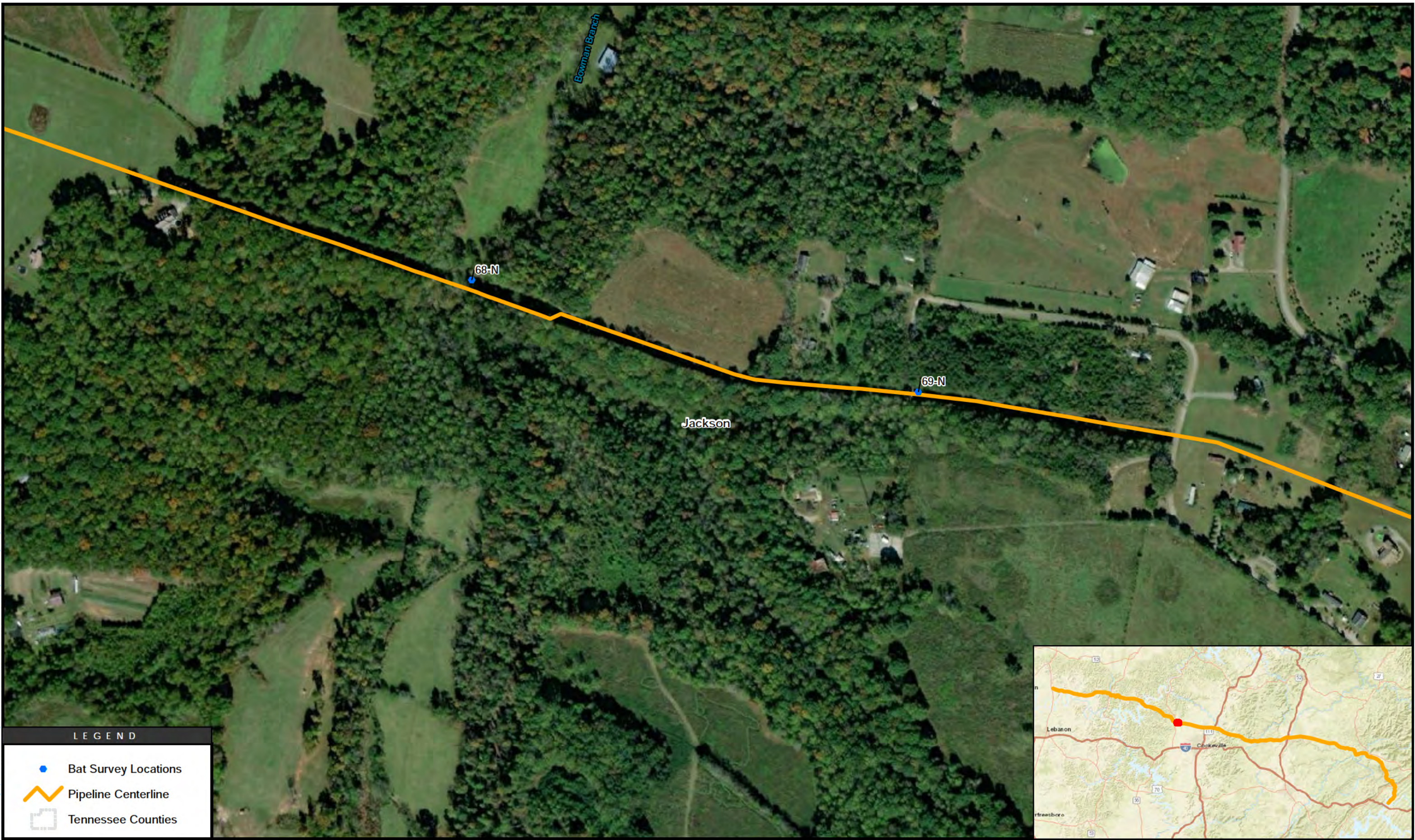
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tel 615.885-1144



0 150 300 Feet
1 inch = 300 feet

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Independent Review by: X.XX MM/DD/YY

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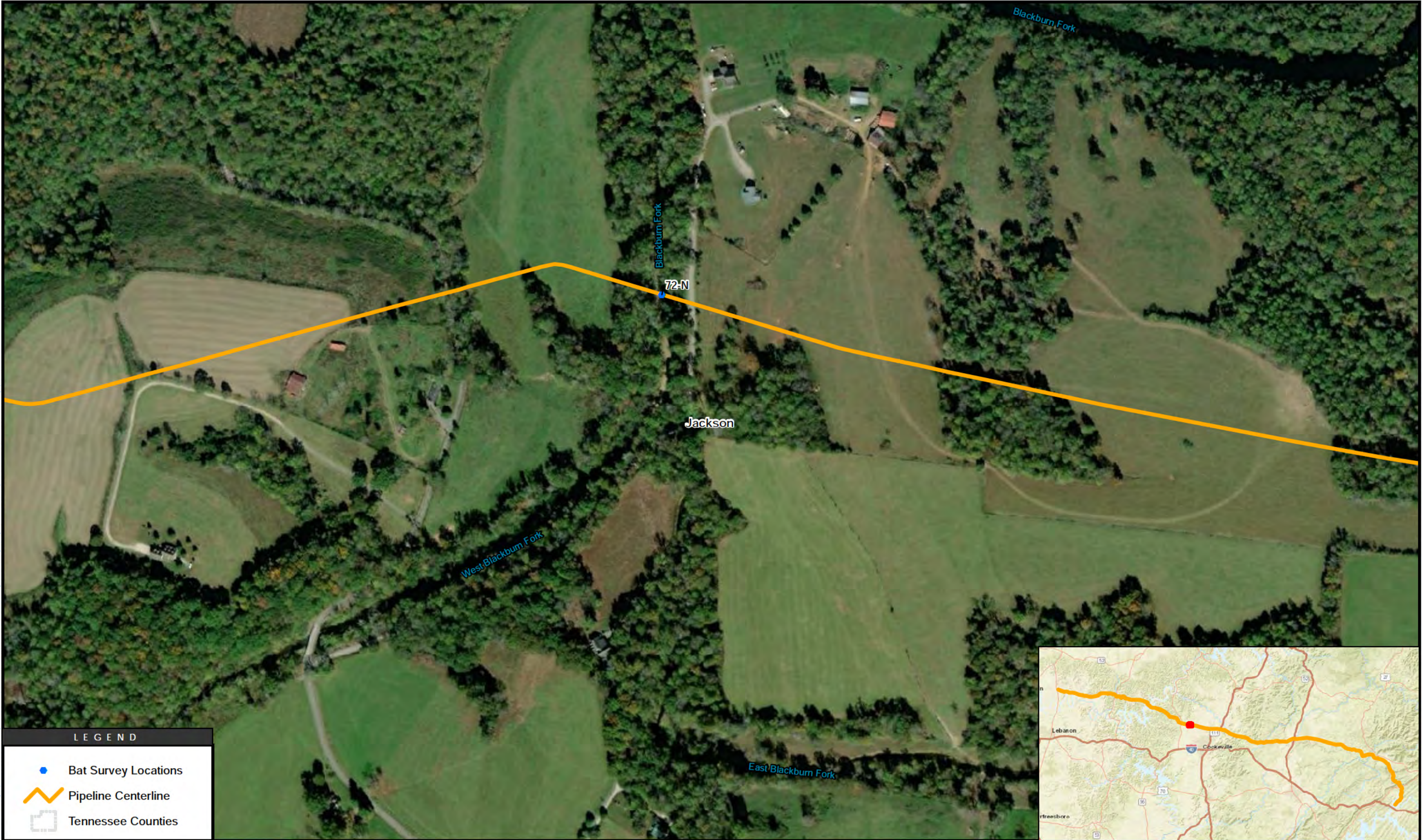
Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 72-N

March 2022

Grid 34 of 100

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 75-A & 76-N
March 2022

Grid 36 of 100

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 77-A & 78-N

March 2022

Grid 37 of 100

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N

0

150

300

Feet

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Technical Review by: X.X.X

Independent Review by: X.X.X

04/01/22

MM/DD/YY

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Bat Survey Locations

 Pipeline Centerline

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2. Source data: TN Assessor Stantec
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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 79-N & 80-N

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Bat Survey Locations

 Pipeline Centerline

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 81-A
March 2022

Grid 39 of 100

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 82-N & 83-N
March 2022

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Notes:

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2. Source data: TN Assessor Stantec
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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 84-N & 85-N

March 2022

Grid 41 of 100

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 Bat Survey Locations

 Pipeline Centerline

 Tennessee Counties



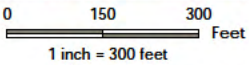
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 88-A & 89-N
March 2022

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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 90-N & 91-N

March 2022

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



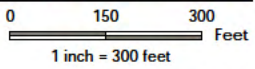
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 92-N & 93-N
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Grid 45 of 100

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 94-N
March 2022

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N

0 150 300 Feet
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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 95-A & 96-A
March 2022

Grid 47 of 100

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0 150 300
Feet
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Bat Survey Locations

Pipeline Centerline

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

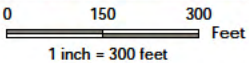
Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 97-A & 98-N

March 2022

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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 99-N & 100-N
March 2022

Grid 49 of 100

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties

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Notes:
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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 101-N & 102-N
March 2022

Grid 50 of 100

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Notes:
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3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 103-N & 104-N
March 2022

Grid 51 of 100

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Notes:
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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 105-N

March 2022

Grid 52 of 100

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2. Source data: TN Assessor Stantec
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Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 107-A

March 2022

Grid 53 of 100

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 108-N & 109-N
March 2022

Grid 54 of 100

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 110-N & 111-N
March 2022

Grid 55 of 100

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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 112-N & 113-N
March 2022

Grid 56 of 100

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties

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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery



Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 114-N
March 2022

Grid 57 of 100

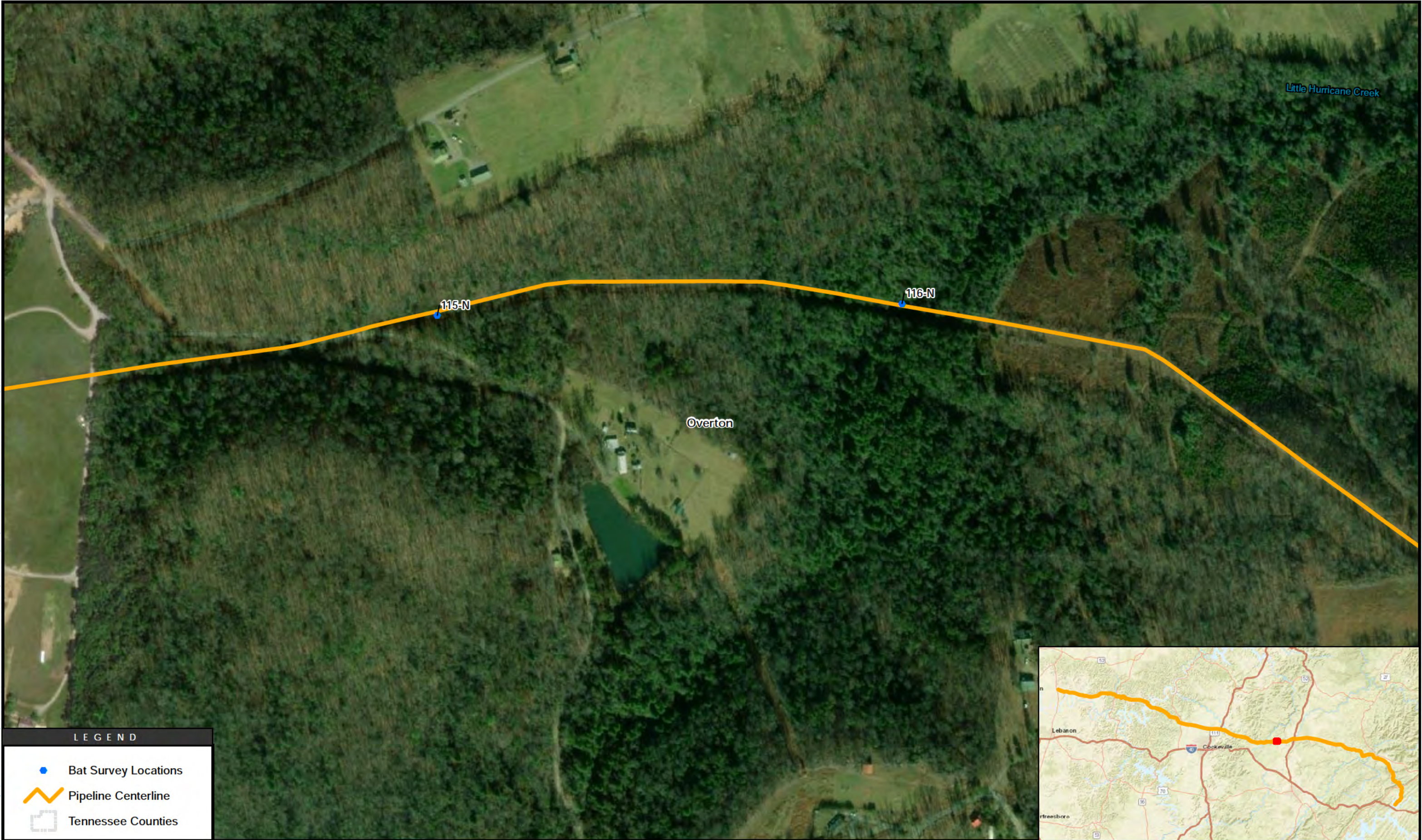
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tel 615.885-1144



0 150 300 Feet
1 inch = 300 feet

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Independent Review by: X.X.X MM/DD/YY

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 115-N & 116-N
March 2022

Grid 58 of 100

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0 150 300 Feet
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Bat Survey Locations

Pipeline Centerline

Tennessee Counties

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery



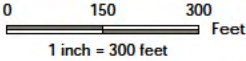
Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 117-N & 118-N

March 2022

Grid 59 of 100

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 119-N & 120-N
March 2022

Grid 60 of 100

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0 150 300 Feet
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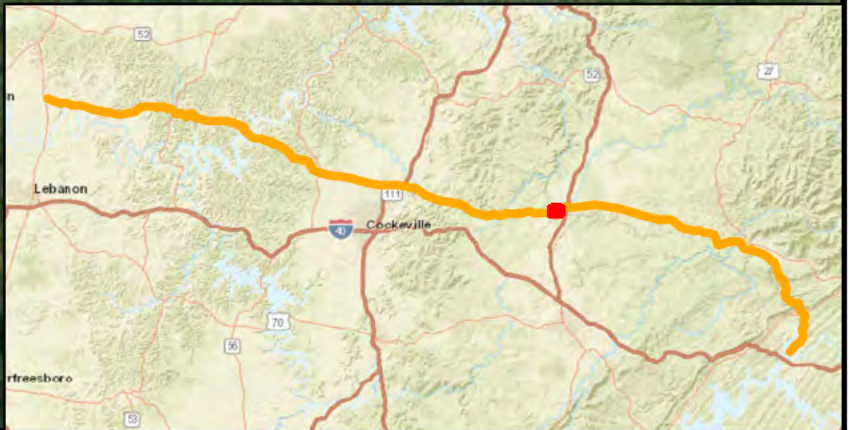


LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



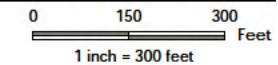
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 121-A & 122-N
March 2022

Grid 61 of 100

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-  Bat Survey Locations
-  Pipeline Centerline
-  Tennessee Counties



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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 124-N & 125-A
March 2022

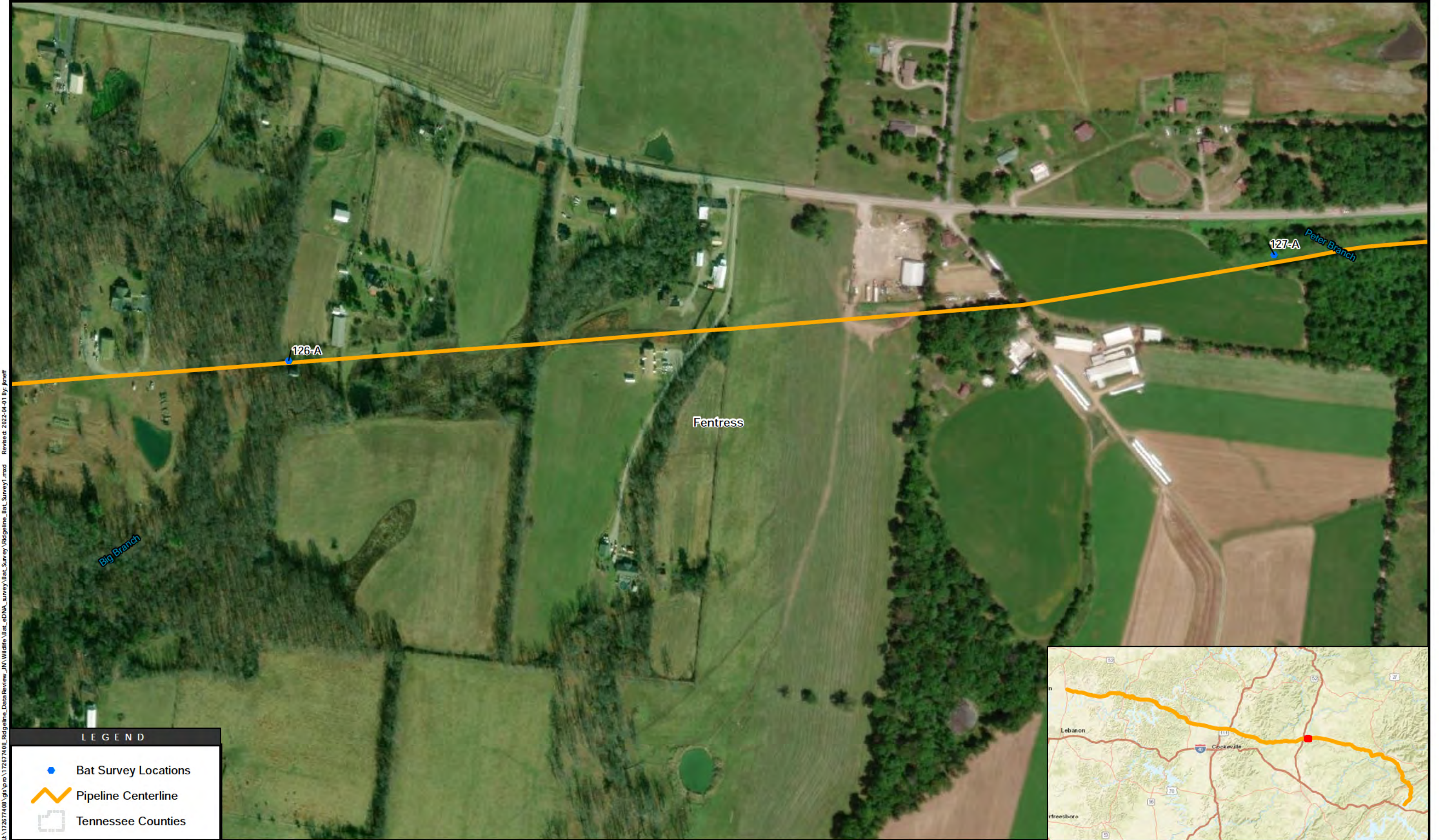
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0 150 300 Feet
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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



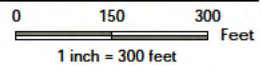
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 126-A & 127-A
March 2022

Grid 63 of 100

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 127-N_alt & 128-A
March 2022

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0 150 300 Feet
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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 129-N & 130-N

March 2022

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0 150 300 Feet
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 131-N & 132-N
March 2022

Grid 66 of 100

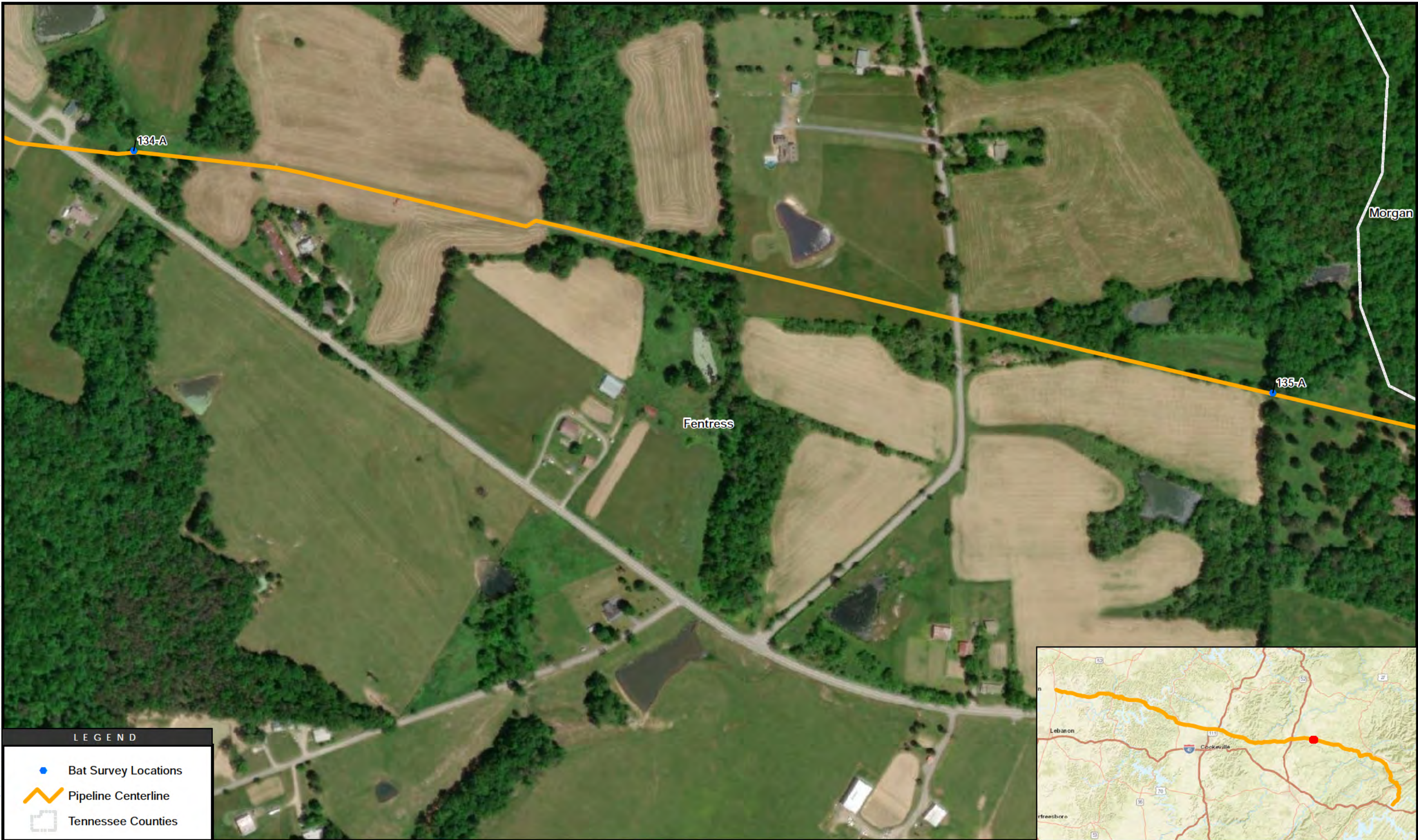
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0 150 300 Feet
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 134-A & 135-A

March 2022

Grid 67 of 100

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0 150 300 Feet
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Notes:
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2. Source data: TN Assessor Stantec
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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 139-N & 140-N
March 2022

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0 150 300 Feet
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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 141-N & 142-N

March 2022

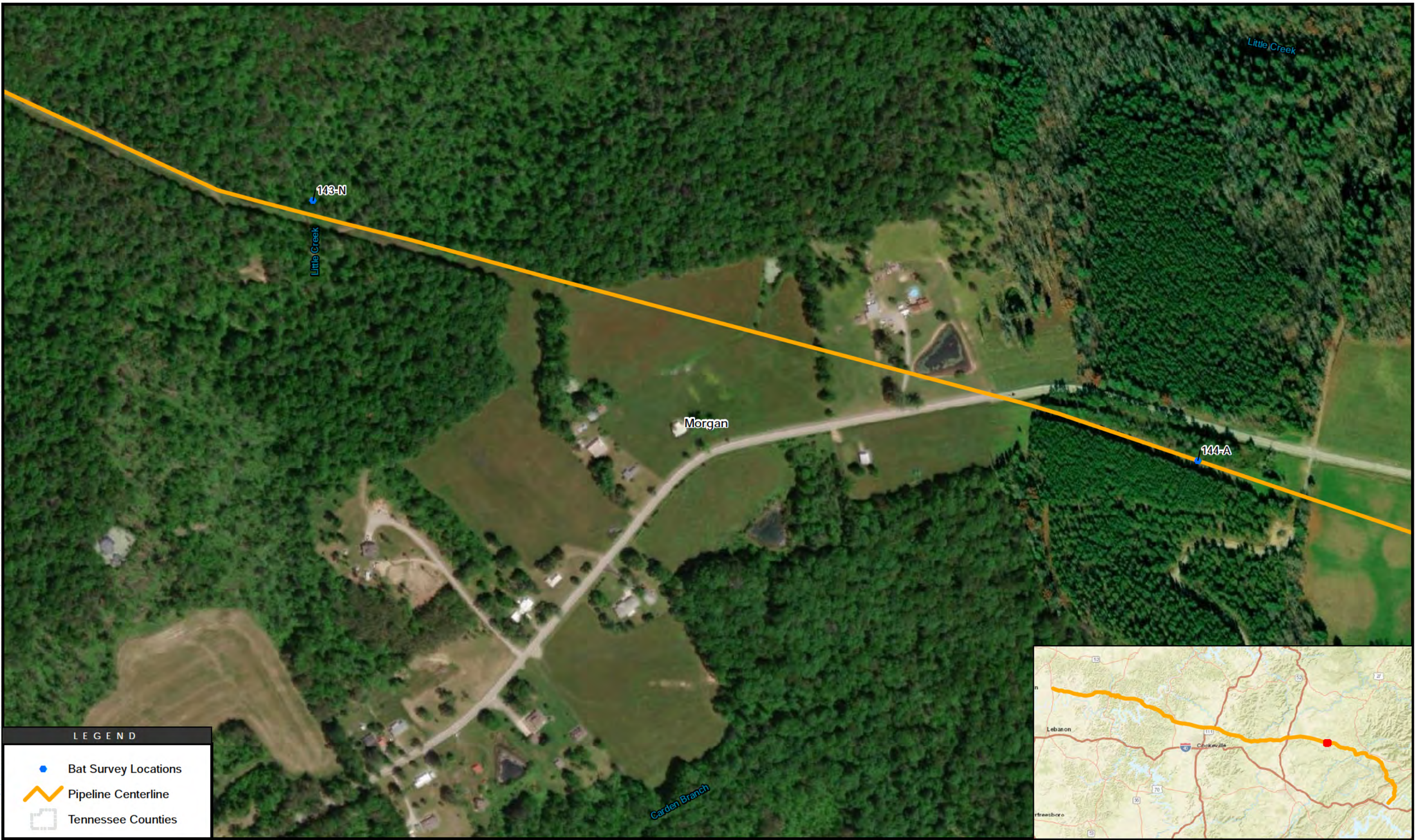
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0 150 300 Feet
1 inch = 300 feet

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties

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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 147-N & 148-N & 148-N_altt
March 2022

Grid 73 of 100

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N

0 150 300
Feet
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Mill Creek Branch

LEGEND

Bat Survey Locations

 Pipeline Centerline

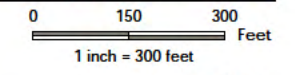
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Notes:
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3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 149-N & 150-N
March 2022

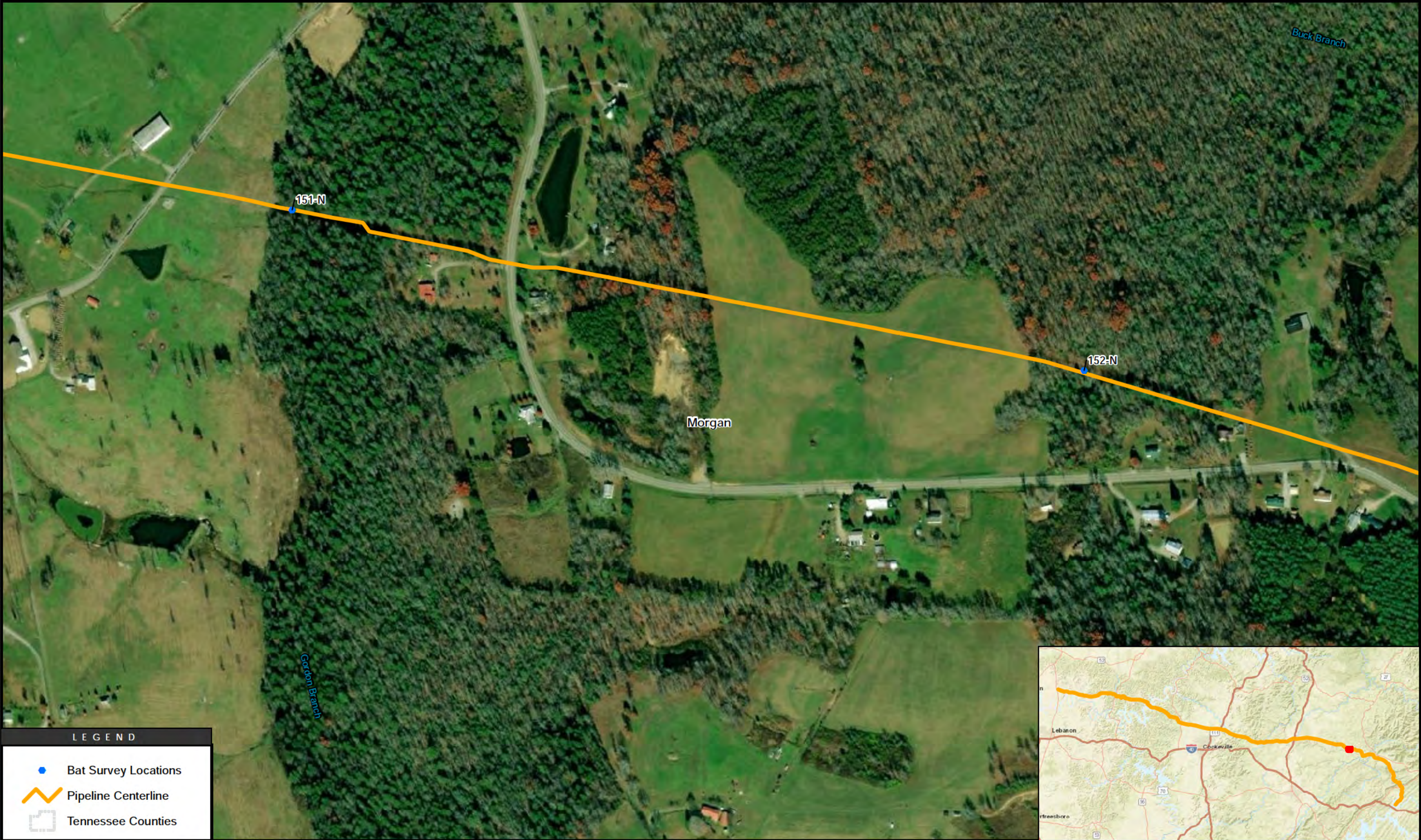
Grid 74 of 100

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Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 151-N & 152-N
March 2022

Grid 75 of 100

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0 150 300
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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 156-A & 157-A
March 2022

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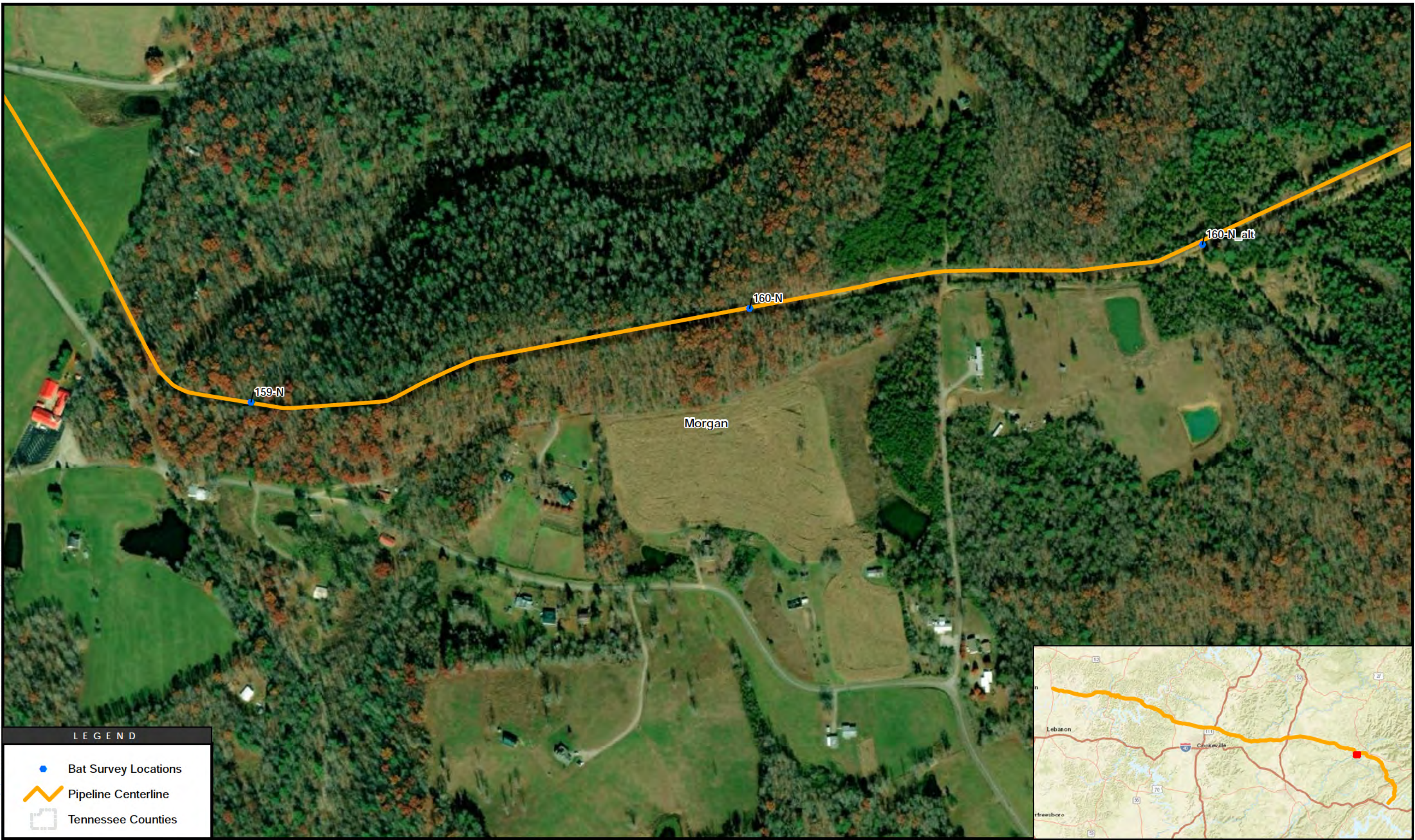
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0 150 300 Feet
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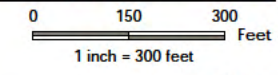
Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 159-N & 160-N & 160-N_alt
March 2022

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 161-N & 162-N
March 2022

Grid 80 of 100

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0 150 300 Feet
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Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 162-N_alt & 163-N

March 2022

Grid 81 of 100

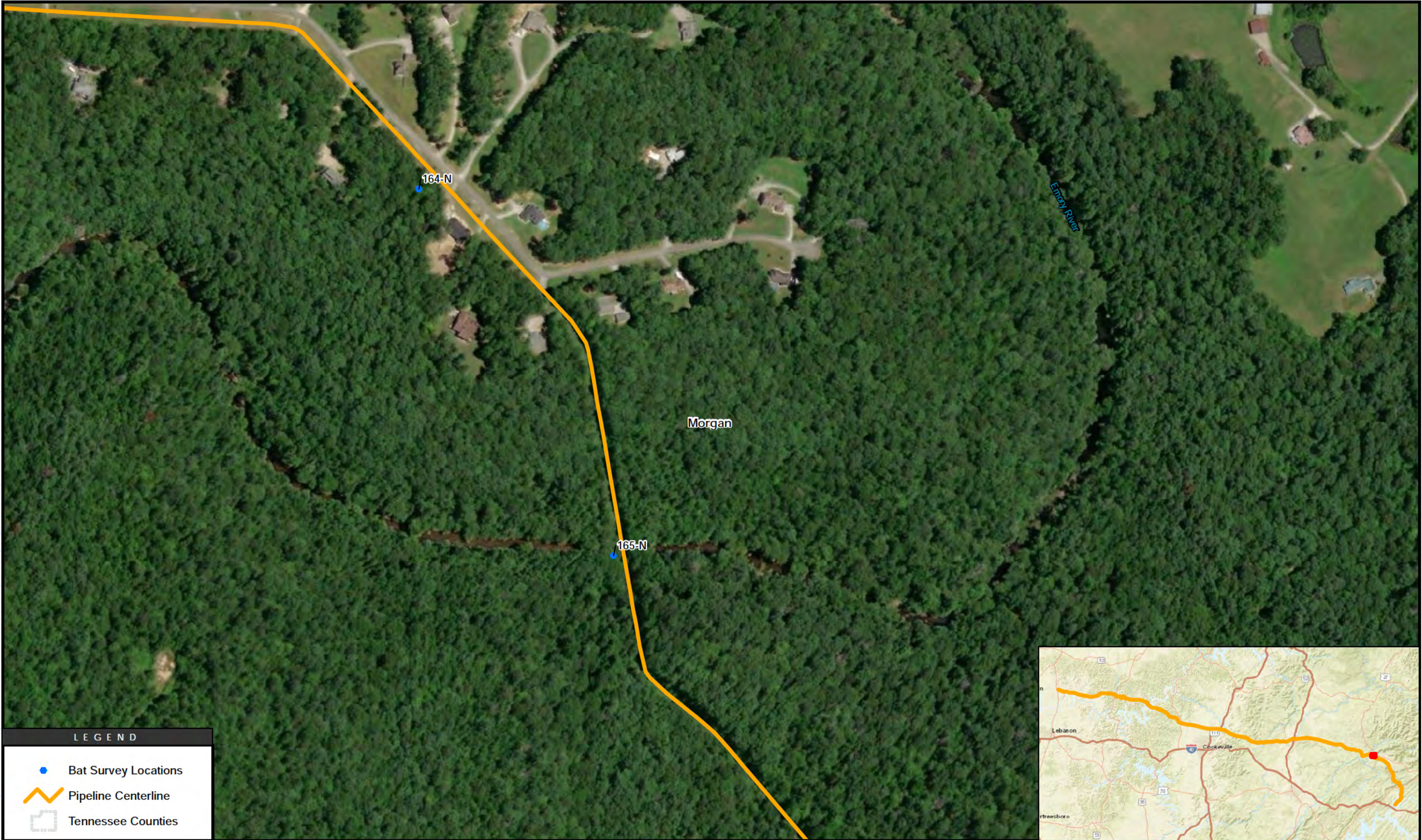
Stantec Consulting Services Inc.
601 Grassmere Park Road, Suite 22
Nashville, TN 37211
tel 615.885-1144

0 150 300 Feet
1 inch = 300 feet

Prepared by: JKN
Technical Review by: X.X.X
Independent Review by: X.X.X

04/01/22
MM/DD/YY
MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

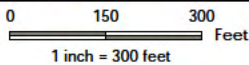
Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 164-N & 165-N

March 2022

Grid 82 of 100

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Independent Review by: X.X.X MM/DD/YY

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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 169-N & 170-N & 171-N
March 2022

Grid 84 of 100

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0 150 300 Feet
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Independent Review by: X.X.X MM/DD/YY



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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery



Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 172-N & 173-N

March 2022

Grid 85 of 100

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0 150 300 Feet
1 inch = 300 feet

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Independent Review by: X.XX MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 174-N & 175-A
March 2022

Grid 86 of 100

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601 Grassmere Park Road, Suite 22
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N

0 150 300
Feet
1 inch = 300 feet

Prepared by: JKN 04/01/22
Technical Review by: X.XX MM/DD/YY
Independent Review by: X.XX MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 176-N & 177-A
March 2022

Grid 87 of 100

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N

0 150 300 Feet
1 inch = 300 feet

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Independent Review by: X.X.X MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 178-N

March 2022

Grid 88 of 100

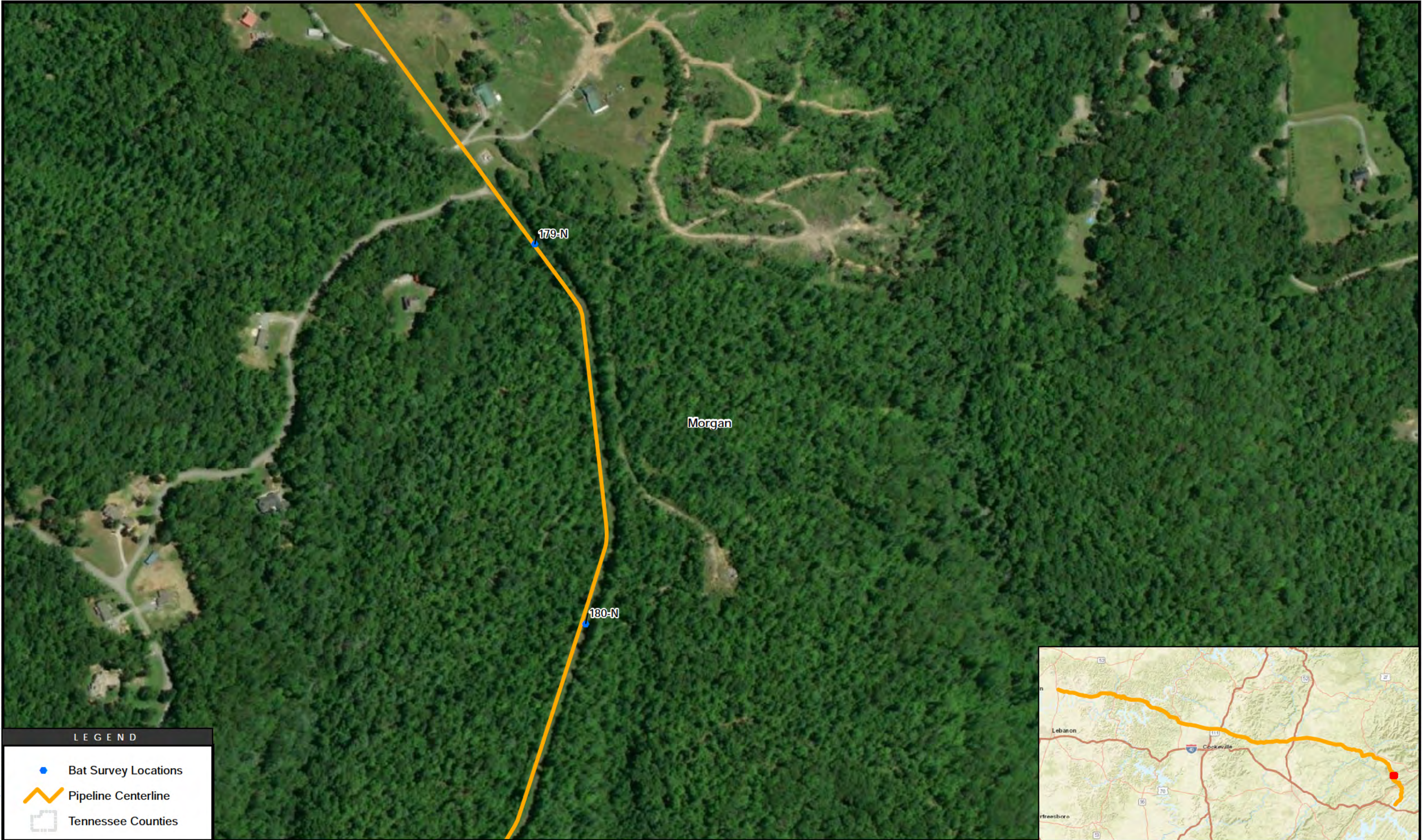
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0 150 300 Feet
1 inch = 300 feet

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Technical Review by: X.X.X MM/DD/YY
Independent Review by: X.X.X MM/DD/YY

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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 179-N & 180-N
March 2022

Grid 89 of 100

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0 150 300 Feet
1 inch = 300 feet

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Independent Review by: X.X.X MM/DD/YY

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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 180-N_alt
March 2022

Grid 90 of 100

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0 150 300 Feet
1 inch = 300 feet

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 181-N & 182-N
March 2022

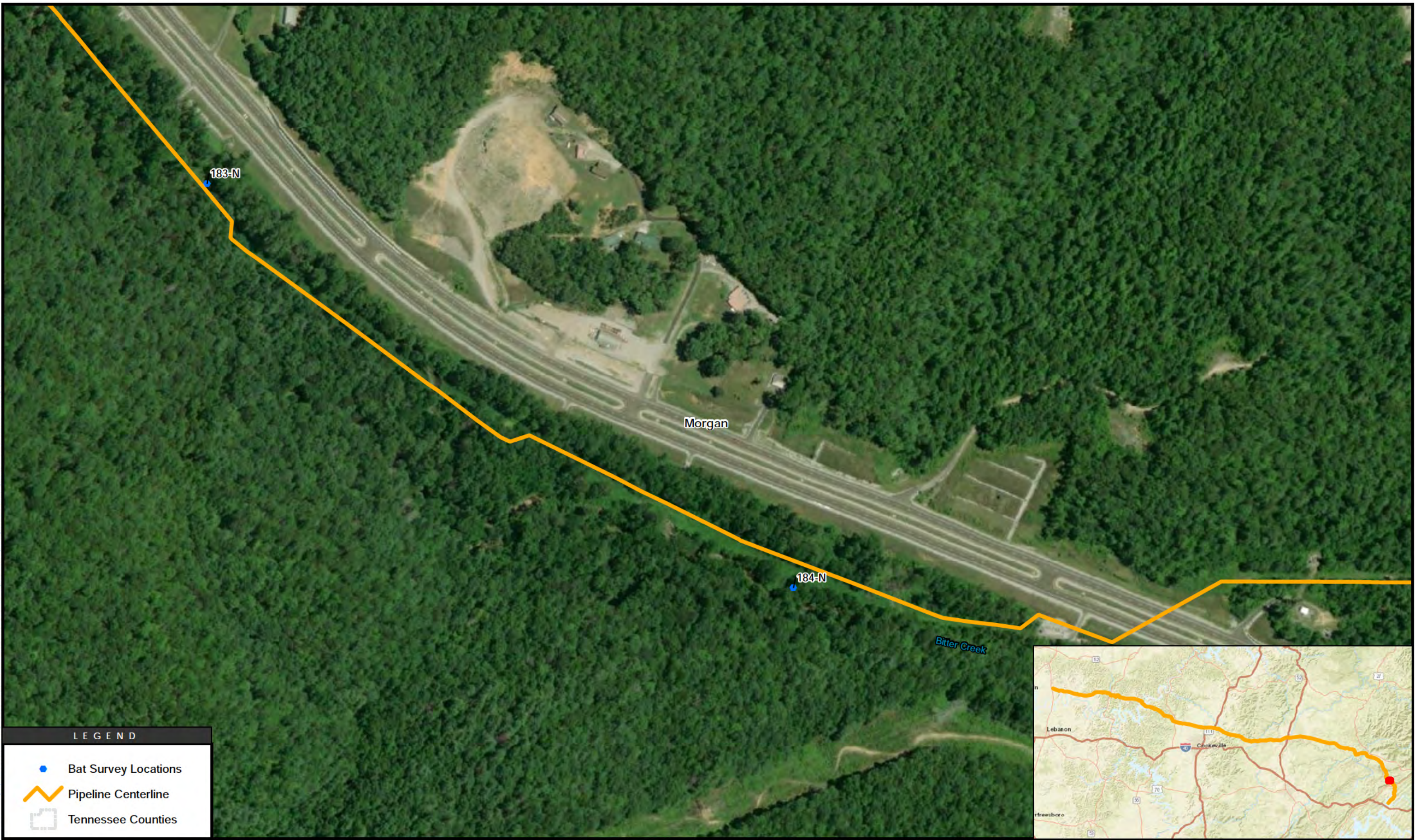
Grid 91 of 100

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0 150 300
Feet
1 inch = 300 feet

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Independent Review by: X.X.X MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 185-N & 185-N_alt

March 2022

Grid 93 of 100

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0 150 300 Feet
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Independent Review by: X.X.X MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project

Proposed Bat Survey Sites - 186-N & 187-N

March 2022

Grid 94 of 100

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tel 615.885-1144

0 150 300 Feet
1 inch = 300 feet

Prepared by: JKN
Technical Review by: X.X.X
Independent Review by: X.X.X

04/01/22
MM/DD/YY
MM/DD/YY

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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 188-N & 189-N
March 2022

Grid 95 of 100

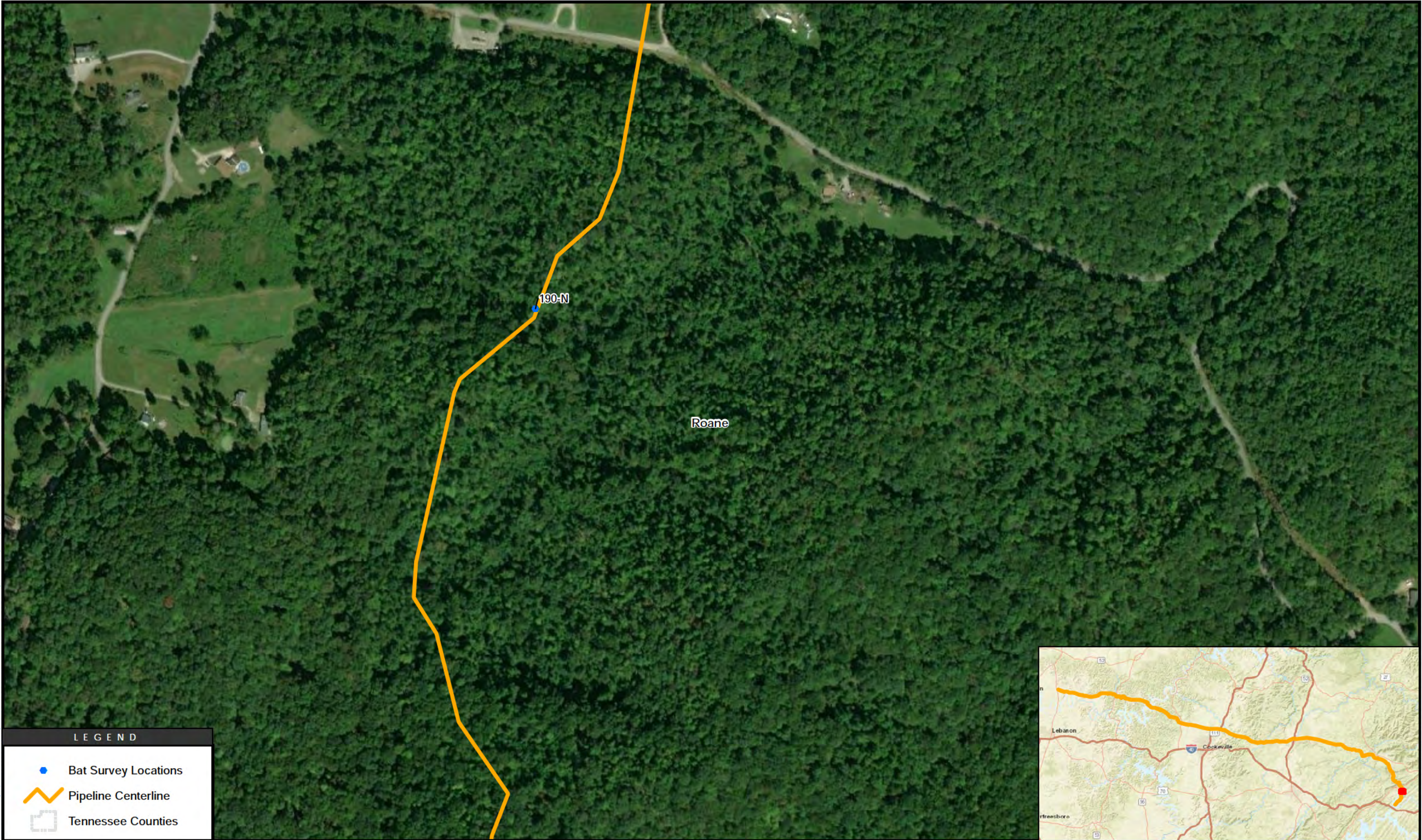
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Nashville, TN 37211
tel 615.885-1144



0 150 300 Feet
1 inch = 300 feet

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Independent Review by: X.X.X MM/DD/YY

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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 190-N
March 2022

Grid 96 of 100

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0 150 300 Feet
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Independent Review by: X.X.X MM/DD/YY

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LEGEND

Bat Survey Locations

Pipeline Centerline

Tennessee Counties



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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 191-A & 192-A
March 2022

Grid 97 of 100

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N

0 150 300 Feet
1 inch = 300 feet

Prepared by: JKN 04/01/22
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Independent Review by: X.XX MM/DD/YY

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LEGEND

Bat Survey Locations

 Pipeline Centerline

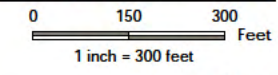
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Notes:
1. Coordinate System: NAD 1983 StatePlane Tennessee FIPS 4100 Feet
2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 193-N & 194-N
March 2022

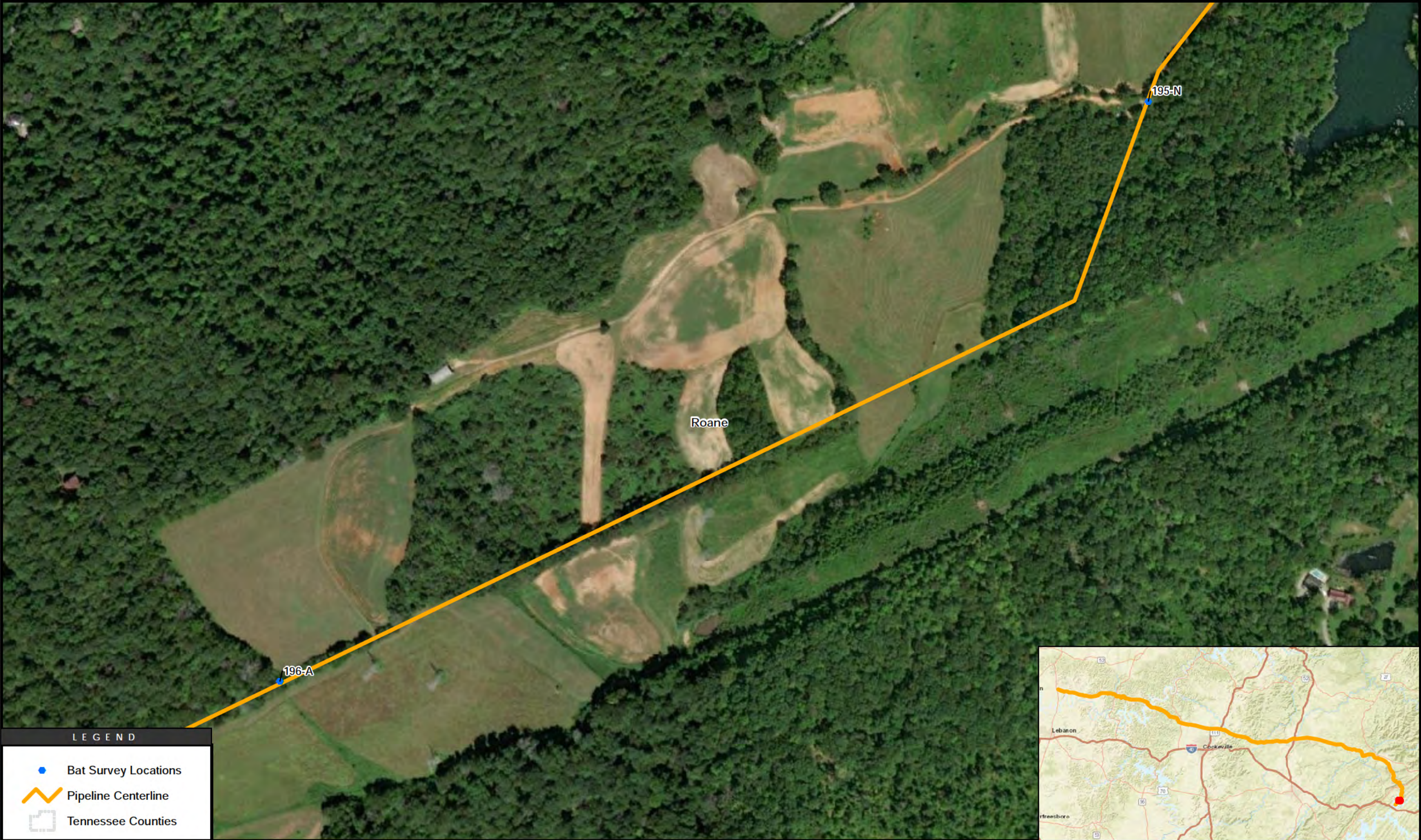
Grid 98 of 100

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tel 615.885-1144



Prepared by: JKN 04/01/22
Technical Review by: X.X.X MM/DD/YY
Independent Review by: X.X.X MM/DD/YY

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 195-N & 196-A
March 2022

Grid 99 of 100

Stantec
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Nashville, TN 37211
tel 615.885-1144



0 150 300 Feet
1 inch = 300 feet

Prepared by: JKN 04/01/22
Technical Review by: X.X.X MM/DD/YY
Independent Review by: X.X.X MM/DD/YY

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Notes:
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2. Source data: TN Assessor Stantec
3. Imagery: ESRI Imagery

Ridgeline Expansion Pipeline Project
Proposed Bat Survey Sites - 197-A & 198-N
March 2022

Grid 100 of 100
Stantec Consulting Services Inc.
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Nashville, TN 37211
tel 615.885-1144



0 150 300 Feet
1 inch = 300 feet
Prepared by: JKN 04/01/22
Technical Review by: X.X.X MM/DD/YY
Independent Review by: X.X.X MM/DD/YY

ATTACHMENT B

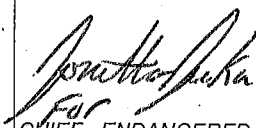
Federal & State Permits

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE38821A-4**

Effective: 07/02/2019 Expires: 12/31/2021

Issuing Office:

Department of the Interior
U.S. FISH & WILDLIFE SERVICE
Endangered Species Permit Office
5600 American Boulevard, West, Suite 990
Bloomington, MN 55437-1458
permitsR3ES@fws.gov


For
CHIEF - ENDANGERED SPECIES

Permittee:

STANTEC CONSULTING SERVICES
10509 TIMBERWOOD CIRCLE
SUITE 100
LOUISVILLE, KY 40223-2177
U.S.A.

Name and Title of Principal Officer:

GEORGE ATHANASAKES - ECOSYSTEM RESTORATION SERVICES LEADER

Authority: Statutes and Regulations: 16 USC 1539(a), 16 USC 1533(d); 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13.

Location where authorized activity may be conducted:

ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

Reporting requirements:

ANNUAL REPORT DUE: 01/31

See permit conditions for reporting requirements

Authorizations and Conditions:

- A. General Conditions set out in Subpart B of 50 CFR 13, and specific conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.
- B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local, tribal, or other federal law. Necessary state and/or local permits where applicable, must also be acquired and observed; this permit is invalid without such permits.
- C. Valid for use by those identified on the List of Authorized Individuals.
- C.1. Authorized Individuals:

Only individuals on the attached List of Authorized Individuals (LAI) are authorized to conduct activities pursuant to this permit. The LAI, printed on U.S. Fish and Wildlife Service (USFWS) letterhead, and signed and dated by the Region 3 permit issuing office or a Region 3 lead species Field Office, may identify special



Conditions or circumstances under which individuals can conduct authorized activities and it must be retained with these Authorizations and Conditions. Each named individual shall be responsible for compliance with the Authorizations and Conditions of this permit.

Trained assistants not named on the attached LAI may work on permitted activities under the direct and on-site supervision of the individuals named on the LAI. "On-site supervision" is defined as having the Permittee at a distance close enough to enable immediate assistance to a supervised individual, as needed, while the supervised individual conducts an authorized activity. Trained assistants may not work independently at a site.

Permittee shall replace outdated LAIs and attach the subsequent current updated version of the LAI to this recovery permit upon receipt. **This permit will be considered invalid without a current attached LAI.**

C.2. To request changes to the LAI, the Permittee (Principal Officer for business permits) shall submit written requests to the Service's Midwest Region (Region 3) Permit Coordinator identified in Condition J.1. The request shall be submitted at least 30 days prior to the desired effective date. The Permittee shall submit a \$50.00 processing fee unless fee exempt [see 50 CFR 13.11 (d)], the request should include a desired effective date, shall be signed and dated by the Permittee, and shall include the following information:

- C.2.a. The name of each individual (first name, middle initial, last name) to be appended to the LAI, confirmation that the individual is not permitted under another business or individual Federal recovery permit, and indicate the species they will be working with and the activities they will be conducting;
- C.2.b. The resume/qualifications of each person, including specific information on previous professional experience working with the species/activity affected by the request. Information should include: the approximate number of hours of focused activity with each species in occupied habitat; approximate numbers of each species the applicant has worked with at each site (i.e., indicate the number specimens at specific sites or specific activities); names, dates, and location of areas surveyed; and experience with similar species;
- C.2.c. For each individual: the names, titles, organizations, emails, and telephone numbers of a minimum of two references who can verify experience with the species (reference letters are preferred and always appreciated); and
- C.2.d. The names of any individuals to be deleted from the LAI.

Note: This procedure is **only** for personnel changes to the LAI. For requests to renew/amend this permit, a complete application and appropriate application processing fee must be submitted to the Region 3 Recovery Permits Coordinator. The application Form 3-200-55 may be obtained at www.fws.gov/endangered/permits/how-to-apply.html.

D. Acceptance of this permit serves as evidence that the Permittee and its authorized agents understand and agree to abide by the terms of this permit and all sections of Title 50 Code of Federal Regulations, Parts 13 and 17, pertinent to issued permits (<https://www.fws.gov/permits/ltr/ltr.html>). Section 11 of the Endangered Species Act of 1973, as amended, provides for civil and criminal penalties for failure to comply with permit conditions.



A request for permit renewal using Application Form 3-200-55 and the \$100 application processing fee must be received **at least 30 days prior to the expiration date** of this permit to continue conducting authorized activities under the expired permit (subject to compliance with reporting requirements), while your application request is being processed. When this requirement is not met, this permit becomes invalid on the expiration date. Unless otherwise instructed within the Authorizations and Conditions, **annual reports are due by January 31** following each year your permit is in effect and shall be submitted to all offices identified in the permit Conditions, as appropriate. The following website link provides the permit application Form 3-200-55 and the mailing address to this office: <http://www.fws.gov/endangered/permits/how-to-apply.html>.

- E. Permittee (as described in condition C. above) is authorized to take Indiana bat (*Myotis sodalis*), gray bat (*M. grisescens*), northern long-eared bat (*M. septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), Virginia big-eared bat (*C. t. virginianus*), listed mussel and fish species identified in Attachment 1, copperbelly water snake (*Nerodia erythrogaster neglecta*), and big sandy crayfish (*Cambarus callianus*) for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and evaluate potential impacts as described herein. This permit does not authorize the collection of voucher specimens.
- F. Presence/absence surveys and studies to document habitat use are authorized at the following locations:
- F.1. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin, upon receipt of written concurrence from Field Supervisor, as outlined in Condition G.
- F.2. Locations within Region 4 of the USFWS: Alabama, Arkansas, Georgia, Louisiana, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee, upon receipt of written concurrence from Field Supervisor, as outlined in Condition G.
- F.3. Locations within Region 5 of the USFWS: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia upon receipt of written concurrence from Field Supervisor, as outlined in Condition G.
- F.4. Locations within Region 6 of the USFWS: Colorado, Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming, upon receipt of written concurrence from Field Supervisor, as outlined in Condition G.
- F.5. Location within Region 2 of the USFWS: Texas and Oklahoma, upon receipt of written concurrence from Field Supervisor, and upon coordination with Ozark Plateau National Wildlife Refuge prior to 1) surveys of caves known to be used by federally-listed bats, and 2) examinations of caves suspected of containing federally-listed bats species (some presence/absence surveys may require the presence of a U.S. Fish and Wildlife Biologist), as outlined in Condition G.
- G. For all locations specified in Condition F., Permittee shall notify and request site-specific approval from the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Your notification must be in writing and must indicate:
- G.1. Species for which proposed activities are being conducted.



- G.2. Location of proposed activities, including project site, county, and state.
- G.3. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).
- G.4. Dates when the project is proposed to take place.
- G.5. Evidence that Permittee has received any required contracts to complete the activities.
- G.6. Whether all annual reporting requirements have been fulfilled.
- G.7. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*
- H. Permittee shall adhere to following conditions involving capture and handling of bats:
- H.1. Activities may be conducted by Stantec Consulting Services personnel as described in Condition C.
- H.2. Bats may be captured with mist nets following the protocol included in the Range-wide Indiana Bat Summer Survey Guidelines. Guidelines are available at: www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. Note: Permittee must use the most up-to-date version of the Summer Survey Guidelines, available on the USFWS website page, for your summer surveys. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.
- H.3. Bats may be captured with harp traps with written concurrence from the Field Supervisor in the state in which trapping is proposed. Harp traps must be continually monitored. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.
- At least one Permittee must remain present at each mist-net and harp trap site while it is being operated.**
- H.4. Permittee shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data sheet provided by the USFWS (e.g., Bat Reporting Spreadsheet). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- H.5. Lipped metal bands having a unique identifier may be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Bands should be applied to the forearm of captured



bats prior to release. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.

- H.6. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first. ***Although not required as a condition of this permit, in order to gather needed information to promote the conservation of the northern long-eared bat, it is recommended that the permittee radio-track female and juvenile northern long-eared bats captured when conducting mist-netting and radio-tracking of Indiana bats within the white-nose syndrome (WNS) zone of the range of the northern long-eared bat. Specifics on the number of females and juvenile bats to be tracked will be determined in coordination with the appropriate Field Office, as specified in Condition G.***
- H.7. No trapping activities shall occur within 20 meters of a known or potential summer or winter maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.
- H.8. Caves, mines, or other suitable hibernation sites may be quietly searched in a manner that minimizes disturbance by utilizing the minimum number of people and time required to complete the survey. Surveys should not be repeated more often than once every other year in any given hibernaculum that is occupied by endangered or threatened bats. Where hibernacula area and safety conditions allow, individuals entering caves are recommended to utilize night vision goggles or red-filtered light and to remain in the cave no more than 90 minutes to complete the work.
- H.9. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at:
www.whitenosesyndrome.org/topics/decontamination.
- H.10. For the Ozark big-eared bat (*Corynorhinus townsendii ingens*) and Virginia big-eared bat (*C. townsendii virginianus*), the USFWS acknowledges that incidental (unintentional) capture of these co-occurring listed bat species may potentially occur while conducting lawful survey activities directed at authorized bat species. Permittees not authorized to handle Ozark big-eared bats and Virginia big-eared bats shall be observant and cautious to eliminate or minimize "take" of co-occurring listed species to the maximum extent practicable. In the event of incidental (unintentional) capture of Ozark or Virginia big-eared bat, you shall document the capture with a photograph and immediately release at the capture site. Within 48 hours, you must notify the USFWS in the state in which you are working of the incidental capture (see www.fws.gov/midwest/endangered/permits/index.html).
- I. Permittee is authorized to take (only in the context of harass by survey) mussel species identified in Attachment 1 for scientific research aimed at recovery of the species. Permittee shall adhere to the following conditions involving presence/absence surveys for mussel species:



- I.1. Presence/absence studies and surveys to monitor mussel communities shall be conducted by personnel identified in Condition C.
- I.2. Permittee may take (remove from the substrate for identification, data collection and return) mussels by hand via wading, snorkeling, or using divers.
- I.3. Permittee may temporarily hold specimens in mesh bags, either suspended in the water or held in a container containing river water, while awaiting identification and data collection. Specimens may be held for up to 3 hours if they are held in the water in bags that allow free movement of water the mussels were taken from or held in large containers of river water that is replaced every hour [every half-hour when air temperatures are at or above 80° Fahrenheit (F)] with water freshly taken from the water where the mussels were collected. When practicable, specimens held in containers must remain in the shade. Specimens must be returned to the locality from which they were taken. Live specimens that cannot be identified at the site must be photographed for identification purposes.
- I.4. Collection of live mussel specimens must be done only when the air temperature is above 32° F and the water temperature is above 40° F. No collection activities may be conducted when air temperature is above 90° F. Specimens shall be returned to the substrate as follows:
 - I.4.a. For surveys at water temperatures at or above 50° F, mussels may be dropped back into the water after identification.
 - I.4.b. For surveys conducted at water temperatures between 40° and 50° F, mussels must be returned to the substrate, by divers if necessary. Divers must return the specimen to the substrate by hand, placing them on their side and allowing them to burrow on their own. Where the substrate is very compacted cobble, a hole just large enough to receive the animal to a depth of 3/4 its length should be excavated and the mussel placed into it with the siphon (posterior) end up and pointing upstream.
- I.5. All live mussels will be measured (length and height) and, if possible, sexed and aged. No intrusive activities are permitted. Data collected will include descriptions of external morphometry and reproductive status. All specimens of federally listed species - or a representative sample for each species - must be photographed prior to release.
- I.6. No live specimens may be removed from the survey sites, except for specimens encountered in circumstances, which would reasonably be expected to result in stranding due to low or receding water. Such specimens may be moved into deeper water at the survey site, to a suitable location near the survey site, or to an alternative location coordinated with and approved by the appropriate U.S. Fish and Wildlife Field Office in Condition R.
- I.7. The shells of all live specimens collected or captured temporarily must be thoroughly inspected for the presence of zebra mussels (*Dreissena polymorpha*). Unionids with zebra mussels attached must be cleaned by scrubbing prior to returning to the substrate. Document the incidence of zebra mussels and Asiatic clams (*Corbicula fluminea*) at project sites.
- J. Permittee is authorized to take (only in the context of harass by survey) fish species identified in Attachment 1 for



scientific research aimed at recovery of the species. Permittee shall adhere to the following conditions involving presence/absence surveys for fish species:

- J.1. Presence/absence studies and surveys to monitor fish communities shall be conducted by personnel identified in Condition C.
 - J.2. Permittee may hold specimens for a maximum of 15 minutes for photographic documentation and non-intrusive data collection, and release unharmed at the point of capture.
 - J.3. Electrofishing surveys are only authorized by written concurrence of the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activity is proposed.
- K. Permittee shall adhere to the following conditions involving surveys for copperbelly water snake:
- K.1. Activities may be conducted by personnel identified in Condition C., and only by visual searches of habitat to assess habitat quality and to determine presence or absence of copperbelly water snake.
 - K.2. Time searches shall be based on protocol developed and discussed by Bruce Kingsbury (Attachment 2).
 - K.3. Drift fences may also be employed for more quantifiable population estimates.
- L. Upon determination that endangered or threatened species are present at previously undocumented sites, Permittee shall notify the following offices within 48 hours: the U.S. Fish and Wildlife Service Region 3 Office (Condition P.1.), and the USFWS Field Office within the geographic location of study areas (Condition R.).
- M. No injury or mortality is anticipated or allowed as a result of copperbelly water snake surveys. In the event that injury or mortality occurs, all activities must cease. The circumstances of any injury or mortality must be reported in writing within 48 hours to the office listed in Condition P.1., the USFWS Michigan Ecological Services Field Office (Condition R.), and the nearest USFWS Law Enforcement, Special Agent Office (<http://www.fws.gov/offices>). Before you reinitiate studies authorized by this permit, you must receive written authorization from the USFWS Michigan Ecological Services Field Office (Condition R.). Dead or moribund specimens may be retained for further study only with the written permission of the USFWS East Lansing, Michigan Field Office. Any specimens that are not authorized for retention are to be chilled and promptly transferred to the USFWS for potential necropsy and/or contaminants analysis (Condition R.).
- N. Accidental injury and/or mortality of bats, mussels or fish may not exceed two specimens. In the event that any accidental injury or mortality occurs, all activities must cease. The Permittee must immediately report any bat, mussel, or fish mortality or serious injury to the applicable USFWS Field Office in the state in which the incident occurred (contact information provided at: www.fws.gov/midwest/endangered/permits/index.html). Written notification must also be made within 24 hours to the Midwest Regional Permits Coordinator (see Condition P.1.), the Species Recovery Lead (Condition Q., if applicable), and the applicable USFWS Field Office in the state in which the incident occurred (Condition R.). The Permittee's statement must document the cause of the injury or mortality, and identify all remedial measures employed by the Permittee to eliminate future mortality or injury events. Based on consultation between the USFWS offices, decisions will be made regarding remedial measures that will be implemented and whether and/or when any of the authorized activities may continue. The Species Recovery Lead Office will provide a decision within five (5) business days concerning the disposition of

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE38821A-4**

Effective: 07/02/2019 Expires: 12/31/2021

any injured or dead specimen. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS Species Recovery Lead for potential necropsy and/or contaminants analysis. Permitted activities may resume upon receipt of written approval from the Species Recovery Lead Office.

- O. An annual report of activities conducted under the authority of this permit is due by January 31 each year the permit is in effect. In addition, copies of all reports and publications resulting from data obtained under this permit must be submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report must include:
- O.1. The date, time, and geographic locations (including datum and projection information), of all specimens encountered as well as all data collected on the individuals (i.e., age, sex, and weight).
 - O.1.a. A completed data collection sheet as found on the Range-wide Indiana Bat Summer Survey Guidelines website page, cited in Condition H.2., and band numbers of all bats banded.
 - O.1.b. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., the data collection sheets found on the current Rangewide Indiana Bat Summer Survey Guidelines website page cited in Condition H.2., or other species specific data sheets). Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
 - O.2. A description of locations surveyed for threatened/endangered species where no specimens were encountered.
 - O.3. Location and characteristics of bat roost trees and bat colonies.
 - O.4. Information on any injuries and/or mortalities and disposition of specimens.
 - O.5. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
 - O.6. Copies of all site-specific authorization letters required under Condition G.

If no activities occurred over the course of the year, indication of such shall be submitted as an annual report.

- P. Copies of your reports shall be sent to **all applicable offices** indicated below. Your transmittal letter (or email) must cite your Federal permit number. Electronic copies shall be submitted in MS Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office (**thumb drives/flash drives cannot be accepted**).
- P.1. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990



Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

P.2. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
Endangered Species Permits Office
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6420; fax 505/248-6788)
permitsR2ES@fws.gov

P.3. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
Endangered Species Permits Office
1875 Century Blvd.
Atlanta, Georgia 30345-3301
(404/679-7097; fax 404/679-7081)
permitsR4ES@fws.gov

P.4. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(413/253-8212; fax 413/253-8482)
permitsR5ES@fws.gov

P.5. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489
(303/236-4224; fax 303/236-0027)
permitsR6ES@fws.gov

Q. Additionally, based on species, reports and publications shall be submitted to the following:

Q.1. ***For studies involving gray bat:***
Shauna Marquardt
U.S. Fish and Wildlife Service
Missouri Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0007
(573/234-2132; fax 573/234-2181)

Q.2. ***For studies involving Indiana bat:***



Lori Pruitt
U.S. Fish and Wildlife Service
Indiana Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261; fax 812/334-4273)

Q.3. *For studies involving northern long-eared bat:*

Jill Utrup
U.S. Fish and Wildlife Service
Minnesota-Wisconsin Field Office
4101 American Blvd. E.
Bloomington, Minnesota 55425-1665
(952/252-0092; fax 952/646-2873)

Q.4. *For studies involving Ozark big-eared bat:*

Richard Stark
U.S. Fish and Wildlife Service
Ozark Plateau National Wildlife Refuge
9014 East 21st Street
Tulsa, Oklahoma 74129
(918/382-4520; fax 918/581-7467)

Q.5. *For studies involving Virginia big-eared bat:*

Barbara Douglas
U.S. Fish and Wildlife Service
Ecological Services Field Office
90 Vance Drive
Elkins, West Virginia 26241
(304/636-6586 x19; fax 304/636-7824)

R. Additionally, based on geographic area, reports and publications shall be submitted to the applicable offices under "For Fish and Wildlife Permit Holders" at: www.fws.gov/midwest/endangered/permits/index.html.

cc: FWS/Regions 2, 4, 5, and 6 (Attn: Recovery Permits Coordinator)
FWS, TE Coordinators for IL, IN, IA, MI, MN, MO, OH, and WI
DNR/DOC, TE Administrator/Coordinators for IL, IN, IA, MI, MN, MO, OH, and WI

END



United States Department of the Interior

FISH AND WILDLIFE SERVICE

5600 American Boulevard West, Suite 990
Bloomington, Minnesota 55437-1458



IN REPLY REFER TO:

FWS/AES-TE

LIST OF AUTHORIZED INDIVIDUALS

TE38821A-4

George Athanasakes (Principal Officer)

July 9, 2019

C.1. Individuals authorized to independently conduct activities under this permit:

- The following individuals are authorized for all activities described for Indiana bat (*Myotis sodalis*), gray bat (*M. grisecens*), northern long-eared bat (*M. septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and Virginia big-eared bat (*C. t. virginianus*): David Saugey, Joseph Johnson, Lindsay Wight
- The following individuals are authorized for all activities described for gray bat, Indiana bat, and northern long-eared bat only: Wes Cunningham and Lynda Mills
- Cody Fleece is authorized to conduct all activities described for listed mussels and fish species, with the exception of Kentucky arrow darter (*Etheostoma spilotum*).
- Daniel Symonds is authorized to conduct all activities described for listed mussels.
- James Kiser is authorized to conduct all activities described for listed bats, fish, mussels, copperbelly water snake (*Nerodia erythrogaster neglecta*) and big sandy crayfish (*Cambarus callainus*).
- Douglas Stephens is authorized to conduct all activities described for listed bats, fish, and mussels.

Unnamed trained assistants may conduct activities pursuant to this permit only under the direct and on-site supervision of an above-named individual. "On-site supervision" is defined as having the permittee at a distance close enough to enable immediate assistance to a supervised individual, as needed, while the supervised individual conducts an authorized activity. **At least one named permittee must remain present at each mist-net site while it is being operated.**

Acting for George Athanasakes
Chief, Division of Endangered Species

7/9/2019
Date

This List of Authorized Individuals (LAI) is valid only when it is dated on or after the permit issuance date. Federal Permit TE38821A-4 will be considered invalid without this LAI.

Attachment 1: TE38821A-4 (Stantec Consulting Services)

Fish and Freshwater Mussel Species Covered by Permit

Fish Species	
Scientific Name	Common Name
<i>Etheostoma chienense</i>	Relict darter
<i>Etheostoma percnurum</i>	Duskytail darter
<i>Etheostoma spilotum</i>	Kentucky arrow darter
<i>Notropis albizonatus</i>	Palezone shiner
<i>Phoxinus cumberlandensis</i>	Blackside dace
<i>Scaphirhynchus albus</i>	Pallid sturgeon

Freshwater Mussel Species	
Scientific Name	Common Name
<i>Alasmodonta atropurpurea</i>	Cumberland elktoe
<i>Conradilla caelata</i>	Birdwing pearlymussel
<i>Cumberlandia monodonta</i>	Spectaclecase
<i>Cyprogenia stegaria</i>	Fanshell
<i>Dromus dromas</i>	Dromedary parlymussel
<i>Epioblasma brevidens</i>	Cumberland combshell
<i>Epioblasma capsaeformis</i>	Oyster mussel
<i>Epioblasma florentina walkeri</i>	Tan riffleshell
<i>Epioblasma obliquata obliquata</i>	Purple catspaw
<i>Epioblasma torulosa rangiana</i>	Northern riffleshell
<i>Epioblasma triquetra</i>	Snuffbox
<i>Fusconaia cuneolus</i>	Finerayed pigtoe
<i>Fusconaia cor</i>	Shiny pigtoe
<i>Hemistena lata</i>	Cracking pearlymussel
<i>Lampsilis abrupta</i>	Pink mucket
<i>Lampsilis higginsii</i>	Higgins eye
<i>Obovaria retusa</i>	Ring pink
<i>Pegias fibula</i>	Littlewing pearlymussel
<i>Plethobasus cicatricosus</i>	White wartyback pearlymussel
<i>Plethobasus cyphus</i>	Sheepnose
<i>Pleurobema clava</i>	Clubshell
<i>Pleurobema plenum</i>	Rough pigtoe
<i>Pleuonaiia dolabelloides</i>	Slabside pearlymussel
<i>Potamilus capax</i>	Fat pocketbook
<i>Ptychobranhus subtentum</i>	Fluted kidneyshell
<i>Quadrula cylindrica cylindrica</i>	Rabbitsfoot
<i>Quadrula cylindrica strigillata</i>	Rough rabbitsfoot
<i>Villosa fabalis</i>	Rayed bean
<i>Villosa perpurpurea</i>	Purple bean
<i>Villosa trabilis</i>	Cumberland bean

PROTOCOL FOR COPPERBELLY SURVEYORS

The following guidelines are being distributed to all those working on the surveys for the Copperbelly Water Snake Conservation Agreement, or who are conducting other surveys and wish to follow the same protocol. If there are questions regarding any aspect of this protocol, contact Bruce Kingsbury, Department of Biology, Indiana-Purdue University, Fort Wayne, IN 46805-1499, 219-481-5755 (W), 219-486-6300 (H), (219) 437-6876 (M), kingsbur@ipfw.edu.

Replicate surveys. You have been assigned a set of survey sites, and an approximate order in which to survey them. You must conduct the surveys in the assigned order: other surveyors will be visiting the same sites at other times. Sites that have already been visited will have the general path of the survey determined. However, if you are the first one on the site, you will have the responsibility of defining the path and length of the transect. Check your maps and directions to determine what you need to do. When delineating a transect, keep the following points in mind. The goal for survey duration is two hours, although the survey does not have to be exactly that. Care should be taken to avoid overlapping the same transect line (i.e., going around a wetland and crossing over where you've already been) or flushing snakes, thus risking the potential of counting the same snakes twice. Once a new transect has been delineated, details should immediately be relayed to Bruce Kingsbury for transmittal to other surveyors.

Presence/Absence surveys. P/A surveys are opportunistic in nature, and have no formal structure. Potential areas for these surveys are indicated on some of your maps, but you will very likely see other areas of interest. The main goal of these surveys is to establish if copperbellies or other *Nerodia* (I) are present. We are also particularly curious about other species such as mud snakes (*Farancia*) and cottonmouths (*Agkistrodon*), as these are unusual finds. Scouting out areas and searching under things such as trash or boards can be informative. If you are at a good chunk of habitat and can do a replicate-style survey, use the data form for those surveys. A brief examination of a site does not require strict adherence to filling out all of the details on the data sheet- but if you plan to survey the site for an extended time, the additional information would be useful. If you think that you have found a future replicate survey site, please communicate this right away to Bruce Kingsbury. You should also report opportunistic surveys that produced no copperbellies, as negative information is also useful. Also, please be sensitive to concerns about trespassing.

Surveys will be conducted by traveling the survey path (transect) and counting the snakes seen over a known time and estimated distance. Surveyors should move slowly and cautiously with frequent stops (pauses) of one or more minutes to scan both sides of the transect for snakes. The duration of pauses is left to the discretion of the surveyor, but should be long enough to allow careful examination of the field of view before moving on. An initial suggestion for distance to move between pauses is 10 paces. Transect length will be approximated as accurately as possible using the

corresponding topo map. The time will be recorded at the beginning and end of the transect, as well as each time the habitat type, as defined by the habitat classification below, changes. Habitat classification should default to the more open habitat when a decision must be made between two types. If you are walking along a shrub/scrub vs. palustrine forest boundary, you are surveying shrub/scrub. To minimize the impact of inclement weather, surveys will only be conducted on partly sunny days of at least 70 F, or sunny days between 65-90 F, to maximize chance of seeing the snakes out basking and traveling. Also, as the weather turns hot, observations will be made in early morning and late afternoon to avoid hot temperatures that drive the snakes to cooler microhabitats.

Copperbellies are very mobile and can be found in all sorts of habitat. However, empirical evidence shows that copperbellies prefer 1) the edge habitat between open canopy areas, such as shrub-scrub wetlands, and forest, to bask and rest, and 2) extremely shallow waters (<15 cm (6")), to forage. They do not spend much time in open, deep water (>30 cm), or fast moving water. However, they commonly seen basking on platforms over deep water, and will not hesitate to swim across open water. They are not as easily found in forest, but sometimes can be found at pools of water. Surveyors are most likely to find stationary snakes basking on horizontal surfaces just above the water, such as on nearly sunken logs or branches, or a little higher on living branches of bushes such as buttonbush (*Cephalanthus occidentalis*). Foraging snakes may be seen cruising shorelines. Ripples on the water's surface may also indicate the presence of a foraging or traveling snake, and should be investigated.

Equipment. Surveyors should always bring binoculars and use them. They are vital for examining complex habitats such as brush, and for properly identifying snakes to species. A watch is needed for timing transects. If you are marking a new transect, you will need flagging tape and markers. A compass is also handy, especially for the directionally challenged. A thermometer is needed as well, and we can provide one for you if needed. Surveyors will need to consider footwear. Hip or chest waders may keep you dry, but are tiring to wear for any length of time, and can get hot. Pull-on farm boots work okay unless there is any flooding. Once the water has warmed, I just go ahead and get wet, wearing "Army" boots to protect my feet. Use pencil to keep your notes- pen will smear and run if it gets wet, erasing your data. Ziplock bags are good for keeping things dry.

Data Sheet Explanation

At the top of the data sheet, *Date*, *Site ID Code & Name* (provided for you), *Surveyors*, and *Weather Summary (Beg.)* comments are filled out prior to beginning the survey. *Start* time is entered when the survey actually begins. *Finish* time is entered when the survey is suspended. Times should be recorded in military time (1200 is 12 noon, 1400 is 2PM). *Weather Summary (End)* is for indicating what things are like when you stop.

Initial and final temperatures should be taken in the sun, shade, and water. The sun (in nearest opening in canopy) and shade (under nearest canopy) temperatures should be taken at waist height with no direct light hitting the instrument (use your body or hand to block light from striking the thermometer bulb). Water temperatures should be taken approximately 5 cm below the surface. Keep in mind that a wet bulb will give a cooler temperature than a dry bulb. Substantive changes in the weather should be indicated on data rows between observations.

Transect length is the best estimate of the transect length based on your route and the scale on your map. Length should be recorded in kilometers. *Travel method* would be foot or boat. Additionally, a line is provided to *summarize* your observations: number of each species observed.

Data: The codes for data entries are described in the survey code descriptions provided below. The last column (*Comm*) is for a reference number for additional comments in the space at the bottom of the page. Additional comments could also be made on the back. Surveyor comments will be used to help establish habitat extent and quality throughout the range of the snake, so surveyors are encouraged to make note of their surroundings (including apparent condition of water). You might also comment on directions to the site. Weather comments would include cloud cover, wind, etc. In the field, comments can also be inserted on the data row(s) beneath the relevant observation. If habitat changes during the length of the transect, times and lengths of subtransects should be recorded by habitat. *Time* is when you start a new habitat classification, *elapsed time* is the total time surveying that habitat. *Species* of snake is coded: at least all *Nerodia* should be included. *Age* is the apparent age class of the snake. *Behavior* is the activity of the snake at time of observation.

Three distances are recorded: *Trans* is the distance from the transect line to the snake (perpendicular distance to you). *Shore* is the distance the snake is from shore (distance to shore will be negative for terrestrial observations). A range-finder is useful here, and we can provide you with one if you request it. Since the transect line may be the shore in a shoreline survey, *Trans* and *Shore* may be the same value. *Vertical* is the distance above the substrate. All measurements should be in meters, not yards.

Habitat and *Microhabitat* are coded as indicated in the attached habitat classification (based on a simplification of Cowardin et al.'s wetland classification system). Code should be strictly adhered to, and deviation from the code should be well-documented with comments. *In sun* asks whether or not the snake is in direct sunlight (Y/N).

Final comments: pursuit of individual snakes may not only be illegal for some surveyors, but will also disrupt the continuity of the survey. Snakes should be approached only to the extent that species identification is certain. Lastly, if you have any suggestions for improvement of the survey, feel free to let me know.

SURVEY CODE DESCRIPTIONS

Habitats

This classification was designed to be suitable for studying habitat use by the copperbelly water snake. It is intended to be relatively compatible with the National Wetlands Inventory (NWI) classification developed by Cowardin et al. (1979). Habitat is a large-scale measure: If a habitat area cannot be mapped discretely on a topographic map, it should be incorporated into a neighboring habitat type.

SYSTEM	SUBSYSTEM	CODE	DESCRIPTION
<i>Aquatic Habitats</i>			
Palustrine- shallow (0<2m) water wetlands without extensive open water: vegetated with some trees, shrubs, or emergent vegetation			
	Forested	PF	-floodplain forest, with greater than 30% canopy cover by trees
	Scrub-shrub	PS	-shrub-scrub cover exceeds 30%, but tree cover does not
	Emergent	PE	-emergent vegetation present (cats, etc.) but not enough shrubs to be PS
	Open water	PO	-open water of palustrine system

Note: moist soil units should be commented as such, but would be classified as PE or PO.

Lacustrine- deep water (>2m) wetlands such as large ponds and lakes, lacking emergent vegetation except near shore. The limnetic (deep water) portion of a lacustrine system is termed as LD, while the littoral zone (shoreline zone) will follow the palustrine subsystem, substituting L for P: LF, LS, LE, LO.

Riverine- flowing water all or part of the year. Pooled water in partially dried river is still riverine.			
	Lower perennial	RL	- slow moving stream- muddy or silty bottom, water usually present
	Upper perennial	RU	- faster flowing stream- rocky or cobbly bottom, water usually present
	Intermittent	RI	- only temporarily running

Upland Classification

Just in case you find yourself with dry feet...

Forest-	UF	- greater than 30% canopy cover by trees, elevated above any potential flooding by sloping topography
Scrub-Shrub	US	-not forest, but >30% cover by shrubs such as berry bushes, willows, crab-apples and hawthorns.
Oldfield	OF	-fallow fields well-covered with herbaceous or grassy cover. CRP lands would often be included here.

Agricultural-is highly disturbed, and includes activities such as farming, substantial grazing, and repeatedly mowed areas

Crops	AC	-farm fields, croplands
Grazed	AG	-grazed or mowed areas

Residential	RS	-all space used for living by people
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Microhabitat Classification

Microhabitat classification is somewhat similar to habitat, but on a smaller scale. Its use as a category allows the specific position (substrate) of the animal to vary to some degree from its general surroundings.

Shrub	-up in a bush
Tree	-up in a tree
Grass	-in a patch of grass
Rock	-on a rock or rocks
Log	-on a log
Herbaceous	-in a patch of herbs
Water	-in the water
Barren (soil)	-on bare soil
Island	-on a small hummock
Detritus	-on leafy debris, such as leaves

Behavioral Classification

Basking	-at rest in sunny location
Resting	-resting in non-basking position
Courting	-male pursuing female, female, being pursued by male
Mating	-actually copulating (much less likely than courting)
Foraging	-moving slowly and methodically through shallow water or on shore
Traveling	-moving continuously in linear path, with little investigative behavior along the way
Unknown	-behavior ambiguous or snake disturbed before behavior observed: <i>something that happens all the time!</i>

Miscellaneous

Species- N- copperbelly (*N.e. neglecta*), D- diamondback (*N. rhombifera*), M- midland (*N. sipedon*), Y- yellowbelly water snake (*N. e. flavigaster*), F- mud snake (*Farancia abacura*), A- cottonmouth (*Agkistrodon piscivorus*), U-unknown

Canopy- Tree and shrub canopy cover in the general vicinity of the snake (ca. within 10 m radius) should be characterized as:
 1=sparse: little or no cover,
 2=moderate: forest margin or broken canopy as at treefall or in select cut woods,
 3=complete: complete or nearly complete.

Age- Three categories:
 Y=juvenile: young of the year, retaining juvenile striped color pattern;
 S=subadult: adult coloration, or nearly so, but not yet having attained lg. adult body size;
 A=adult: large-bodied, classic copperbelly coloration.



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Issuing Office:

Department of the Interior

U.S. FISH AND WILDLIFE SERVICE

Endangered Species Permit Office

5600 American Boulevard, West, Suite 990

Bloomington, Minnesota 55437 1458

permitsR3ES@fws.gov

Digitally signed by

FWS T&E Chief

Permittee:

STANTEC CONSULTING SERVICES, INC.

1500 LAKE SHORE DRIVE SUITE 100

COLUMBUS, OH 43204

US

Authority: Statutes and Regulations: 16 U.S.C. 1539a, 16 U.S.C. 1533d 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13

Location where authorized activity may be conducted:

ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

Reporting requirements:

See permit conditions for reporting requirements

Authorizations and Conditions:

- A. General Conditions set out in Subpart B of 50 CFR 13, and specific Conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable Conditions, including the filing of all required information and reports.
- B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local, tribal, or other Federal law.



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C. Valid for use by those identified in the List of Authorized Individuals.

C.1. Authorized Individuals:

Only individuals on the attached List of Authorized Individuals (LAI) are authorized to conduct activities pursuant to this permit. The LAI, printed on U.S. Fish and Wildlife Service (USFWS) letterhead, and signed and dated by the Region 3 permit issuing office or a Region 3 lead species Field Office, may identify special Condition or circumstance under which individual can conduct authorized activities and it must be retained with these Authorizations and Conditions. Each named individual shall be responsible for compliance with the Authorization and Condition of this permit.

Trained assistants not named on the attached LAI may work on permitted activities under the direct and on-site supervision of the individuals named on the LAI. "On-site supervision" is defined as having the Permittee at a distance close enough to enable immediate assistance to a supervised individual, as needed, while the supervised individual conducts an authorized activity. Trained assistants may not work independently at a site.

Permittee shall replace outdated LAI and attach the subsequent current updated version of the LAI to this recovery permit upon receipt. **This permit will be considered invalid without a current attached LAI.**

C.2. The Permittee (Principal Officer for business permits) shall submit written requests to the Service's Midwest Region (Region 3) Permit Coordinator identified in Condition L. The request shall be submitted at least 30 days prior to the desired effective date. The Permittee shall submit a \$50.00 processing fee unless fee exempt [see 50 CFR 13.11 (d)], the request should include a desired effective date, shall be signed and dated by the Permittee, and shall include the following information:

- a. The name of each individual (first name, middle initial, last name) to be appended to the LAI and indicate the species they will be working with and the activities they will be conducting;
- b. The resume/qualification of each person, including specific information on previous professional experience working with the species/activity affected by the request. Information should include: the approximate number of hours of focused activity with each species in occupied habitat; approximate numbers of each species the applicant has worked with at each site (i.e., indicate the number specimen at specific site or specific activities); name, date, and location of area surveyed; and experience with similar species;
- c. For each individual: the names, titles, organizations, emails, and telephone numbers of a minimum of two references who can verify experience with the species (reference letters are preferred and always appreciated); and
- d. The names of any individuals to be deleted from the LAI.



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Note This procedure is **only** for personnel change to the LAI. For request to renew/amend this permit, a complete application and appropriate application processing fee must be submitted to the Region 3 Recovery Permit Coordinator. The application Form 3-200-55 may be obtained at <https://www.fws.gov/endangered/permits/how-to-apply.html>.

- D. Acceptance of this permit serves as evidence that the Permittee and its authorized agents understand and agree to abide by the terms of this permit and all sections of Title 50 Code of Federal Regulation, Part 13 and 17, pertinent to issued permits (<https://www.fws.gov/permits/ltr/ltr.html>). Section 11 of the Endangered Species Act of 1973, as amended, provides for civil and criminal penalties for failure to comply with permit conditions.

A request for permit renewal and the \$100 application processing fee **must be received at least 30 days prior to the expiration date** of this permit to continue conducting authorized activities under the expired permit while your application is being processed (subject to compliance with 50 CFR, Part 13.21 and 13.22). Please use <https://fwsepermits.servicenowservices.com/fws> to obtain specific information regarding the new ePermitting process to apply for and submit your digital recovery permit application and application processing fee. When these requirements are not met, this permit becomes invalid on the expiration date. *Unless otherwise instructed within the Authorizations and Conditions, annual reports are due by January 31* following each year your permit is in effect and shall be submitted to all offices identified in the permit Conditions.

- E. Permittee is authorized to take (capture with mist-nets, harp trap, handle, identify, radio-tag, band, collect non-invasive measurements, enter hibernacula or maternity roost caves, and release) Indiana bat (*Myotis sodalis*), gray bat (*M. grisescens*), and northern long-eared bat (*M. septentrionalis*) for scientific research aimed at recovery of the species presence/absence survey, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does **not** authorize the collection of voucher specimens.

- F. Activities are authorized at the following locations:

F.1. Location within Region 2 of the U.S. Fish and Wildlife Service (USFWS): Oklahoma upon receipt of written concurrence from the Field Supervisor, and upon coordination with Ozark Plateau National Wildlife Refuge prior to 1) surveys of caves known to be used by federally-listed bats, and 2) examinations of caves suspected of containing federally listed bat species (some presence/absence survey may require the presence of a USFWS Biologist), and as outlined in Condition G.

F.2. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.3. Location within Region 4 of the USFWS: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

F.4. Location within Region 5 of the USFWS: Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.



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- F 5 Location within Region 6 of the USFWS Kan a , Montana, Nebra ka, North Dakota, South Dakota, and Wyoming, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- G. Permittee shall notify the USFWS Field Supervisor in the state in which activities are proposed to occur at least 15 day prior to conducting any activitie Contact information i available at <https://www.fws.gov/midwest/endangered/permits/index.html>. Your request for this site-specific approval must be in writing and mu t indicate
- G 1 Specie for which propo ed activitie are being conducted
- G 2 Location of propo ed activitie , including project ite (legal de cription and lat/long), county, and tate
- G 3 The purpo e and a de cription of the propo ed activitie (e g , urvey , radio telemetry tudie , etc) If the purpose includes harp trapping or hibernacula or roost cave surveys, a copy of the specific study proposal mu t be included
- G 4 Date when the project i propo ed to take place
- G 5 Evidence that Permittee ha received any required contract to complete the activitie
- G 6 Whether all annual reporting requirement have been fulfilled
- G 7 You may proceed with activitie only upon receipt of written concurrence from the USFWS Field Supervisor. ***Your concurrence letter must be carried with this permit to authorize site-specific activities.***
- H Permittee hall adhere to the following Condition involving capture and handling of bat
- H 1 Bat may be captured with mi t net following the protocol included in the Range wide Indiana Bat Summer Survey Guidelines. Guidelines are available at: <http://www.fws.gov/midwest/endangered/mammal/inba/inbaummerurveyguidance.html> Note Permittee must use the most up-to-date version of the Summer Survey Guidelines, available on the USFWS web ite page, for your ummer urvey The monitoring interval for mi t net i +/- 10 minute and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circum tance , bat hall be held for no longer than 45 minute
- H 2 Bat may be captured with harp trap with written concurrence from the Field Supervi or in the tate in which trapping is proposed. Harp traps must be continually monitored. Captured bats may be held for a ma imum of 30 minute , unle injured In extenuating circum tance , bat hall be held for no longer than 45 minutes.

At least one named Permittee must remain present at each mist-net and harp trap site while it is being operated.



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- H.3. Permittee shall carry out non-invasive measurement on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., Bat Reporting Spreadsheet). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photograph of the identifying characteristic for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photograph after submittal of annual reporting data.
- H.4. Lipped metal band having a unique identifier may be applied to the forearm of captured bat prior to release. No more than one band per bat may be used. Bands should be applied to the forearm of captured bat prior to release. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.
- H.5. Radio transmitter may be applied during spring, summer, and fall roosting and migration period via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (forearm band, transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant female and newly volant juvenile. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first. ***Although not required as a Condition of this permit, in order to gather needed information to promote the conservation of the northern long-eared bat, it is recommended that the permittee radio-track female and juvenile northern long-eared bats captured when conducting mist-netting and radio-tracking of Indiana bats within the white-nose syndrome zone of the range of the northern long-eared bat. Specifics on the number of females and juvenile bats to be tracked will be determined in coordination with the appropriate Field Office, as specified in Condition G.***
- H.6. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roost, unless Permittee receive prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.
- H.7. Caves, mines, or other suitable hibernation sites may be quietly searched in a manner that minimizes disturbance by utilizing the minimum number of people and time required to complete the survey. Surveys should not be repeated more often than once every other year in any given hibernaculum that is occupied by endangered or threatened bats. Where hibernacula area and safety conditions allow, individuals entering caves are recommended to utilize night vision goggles or red-filtered light and to remain in the cave no more than 90 minutes to complete the work.
- H.8. Permittee is not authorized to take Ozark big-eared bat (*Corynorhinus townsendii ingens*) and Virginia big-eared bat (*C. t. virginianus*). The USFWS acknowledges that incidental (unintentional) capture of these co-occurring listed bat species may potentially occur while conducting lawful survey activities directed at authorized bat species. Should incidental/accidental capture of Ozark or Virginia big-eared bats occur, you must document the capture and collect data (weight, sex, and age) on the captured animal. Permittee must also document the discovery with a photograph. Ozark and Virginia big-eared bats must be released



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immediately following the data collection. Captured bat may be held for a maximum of 30 minutes, unless injured. Handling should be limited to the maximum extent practicable and should cease immediately at sign of undue stress (e.g., bat becoming unresponsive, etc.). Bat that appears stressed from handling should be placed in a dark, quiet location away from activity, where they can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Ozark and Virginia big-eared bats shall not be held in paper bags. Within 48 hours, you must notify the USFWS in the state in which you are working of the accidental capture (see <https://www.fws.gov/midwest/endangered/permits/index.html>).

H.9. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as a boot and glove, using product cited in decontamination guideline and in compliance with label directions. The most recent decontamination guidance is found on the web at: <http://www.whitenoeyndrome.org/topic/decontamination>

H.10. When carrying out mist netting and handling of bats under this permit, Permittee must use COVID-specific Personal Protective Equipment (PPE) in addition to the PPE already identified by the USFWS and states for mitigating the risk of spread of the fungus that causes white noy syndrome, which include the use of disposable gloves, disposable or site-dedicated clothing, and adherence to decontamination procedures. COVID-specific PPE is a non-vented N95 respirator (no exhalation valve) or any respirator or mask that provides a similar level of protection filtering exhaled air (<http://www.cdc.gov/niosh/nppt/topic/respirator/diaphragm/part/replacement1queue13.html#half>)

I. Upon determination that endangered or threatened bats are present at previously undocumented site, Permittee shall notify the following offices within 48 hours: the USFWS Region 3 Recovery Permit Coordinator (Condition L), the Species Recovery Lead (Condition M), and the USFWS Field Office within the geographic location of study areas (<https://www.fws.gov/midwest/endangered/permits/index.html>).

J. Accidental injury or mortality may not exceed two (2) specimens. In the event that any accidental injury or mortality occurs, all activities must cease. The Permittee must report any bat mortality or serious injury within 24 hours to the applicable USFWS Field Office in the state in which the incident occurred (contact information provided at <http://www.fws.gov/midwest/endangered/permit/index.html>). Written notification must also be made within 24 hours to the Midwest Regional Permits Coordinator (see Condition L), the Species Recovery Lead (Condition M), and the applicable USFWS Field Office in the state in which the incident occurred (Condition N). The Permittee's statement must document the cause of the injury or mortality, and identify all remedial measures employed by the Permittee to eliminate future mortality or injury events. Based on consultation between the USFWS offices, decisions will be made regarding remedial measures that will be implemented and whether and/or when any of the authorized activities may continue. The Species Recovery Lead Office will provide a decision within five (5) business days concerning the disposition of any injured or dead specimen. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS Species Recovery Lead for potential necropsy and/or contaminant analysis. Permitted activities may resume upon receipt of written approval from the Species Recovery Lead Office.

K. This permit is non-transferable.



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L. Permittee must carry a copy of this permit at all times when conducting the authorized activities. Shipments of collected biological material should also be accompanied by a copy of this permit. Note that this permit is limited to the above activities and identified species.

M. Issuance of this permit does not constitute permission to conduct the activities on National Wildlife Refuge or any other public or private lands; such permission must be obtained separately from the appropriate landowner or land manager before beginning the authorized activities. This permit, neither directly nor by implication, grants the right of trespass.

N. Upon locating a dead, injured, or sick federally listed species, under circumstances not addressed in this authorization, initial notification must be made immediately to the USFWS Field Office in the State in which the specimen is found (<https://www.fws.gov/midwest/endangered/permits/index.html>). Notification should also be made by the next business day to the USFWS' Regional Minnesota Office Recovery Permit Coordinator identified below. The office will confer with the USFWS' Division of Law Enforcement as appropriate and determine next steps. Care should be taken in handling sick, injured, or dead specimens to ensure effective treatment or to preserve biological material for later analysis. In conjunction with the care of sick or injured endangered or threatened species, and the preservation of biological materials from a dead individual, the finder should take responsible steps to ensure that the site is not unnecessarily disturbed.

O. An Annual Report of all activities conducted under the authority of this permit is due by January 31 following **each year** this permit is in effect. When assisting with netting, the permit number of the individual responsible for each capture should be recorded on the data collection form. Reports shall be sent electronically and your transmittal email must cite your Federal permit number, Permittee name, and the Annual Report year in the subject line (**Note: thumb drives/flash drives and links to documents cannot be accepted**). In addition, copies of all publications and reports resulting from work conducted under this permit must be submitted as they become available. Failure to furnish any report required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report shall include:

O.1. The "Bat Reporting Spreadsheet" is required for reporting data and can be found on the FWS Midwest Permits website (<http://www.fws.gov/midwest/endangered/mammal/inba/inbaummerurveyguidance.html>). Prior to reporting, check the permits website to ensure you are using the most up to date form. Using the reporting form will help standardize data collection and increase efficiency in reporting.

O.2. The date, time, geographic location (including datum and projection information), species, age, sex, and weight of all bats encountered.

O.3. A description of locations surveyed where no bats were encountered.

O.4. Band numbers of all bats banded.

O.5. Information on any injuries and/or mortalities and disposition of specimens.

O.6. Location and characteristics of roost trees and bat colonies.

O.7. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.



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- O.8. A completed data collection form as found in the Summer Survey Guidelines, Appendix B, cited in Condition H 1
- O 9 Data shall be submitted for all bat captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., the data collection sheets found on the current Rangewide Indiana Bat Summer Survey Guideline website page cited in Condition H 1, or other species specific data sheets). Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- O.10. Copies of all site-specific authorization letters required under Condition G.

IF NO ACTIVITIES OCCURRED OVER THE COURSE OF THE YEAR, INDICATION OF SUCH SHALL BE SUBMITTED AS AN ANNUAL REPORT.

P. Copies of your reports shall be sent to all offices listed below. Your transmittal letter (or email) must cite your Federal permit number, Permittee name, and the Annual Report year in the subject line. Electronic copies shall be submitted in MS Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office (**thumb drives/flash drives and links to documents cannot be accepted**)

P 1 Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Service - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437 1458
(612/713-5343; fax 612/713-5292)
permit_R3ES@fw.gov

P 2 Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
Division of Classification & Recovery Permit
P.O. Box 1306
Albuquerque, New Mexico 87103 1306
(505/248-6420; fax 505/248-6788)
permit_R2ES@fw.gov

P 3 Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
Endangered Species Permit Office
1875 Century Blvd.
Atlanta, Georgia 30345 3301
(404/679-7097; fax 404/679-7081)
permit_R4ES@fw.gov



NATIVE ENDANGERED & THREATENED SP
RECOVERY

Permit Number: ES15027A

Version Number: 7

Effective: 2021-06-16 **Expires:** 2026-12-31

P.4. Regional Recovery Permits Coordinator

U S Fish and Wildlife Service Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(413/253 8212; fa 413/253 8482)
permitsR5ES@fws.gov

P.5. ESA Assistant Recovery Coordinator & Permit Coordinator

U S Fish and Wildlife Service Mountain Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P O Box 25486
Denver, Colorado 80225-0489
(303 236 4224; fa 303/236 0027)
permitsR6ES@fws.gov

Q. Additionally, based on species, reports and publications shall be submitted to the following:

Q.1. ***For studies involving Indiana bat:***

Lori Pruitt
U.S. Fish and Wildlife Service
Ecological Service Field Office
620 S. Walker Street
Bloomington, Indiana 47403 2121
(812/334-4261 x1213; fax 812/334-4273)

Q.2. ***For studies involving northern long-eared bat:***

Jill Utrup
U.S. Fish and Wildlife Service
Ecological Service Field Office
4104 American Blvd. E.
Bloomington, Minnesota 55425 1665
(952/252-0092; fax 952/646-2873)

Q.3. ***For studies involving gray bat:***

Vona Kuczynska
U.S. Fish and Wildlife Service
Ecological Service Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203 0007
(573/234-2132; fax 573/234-2181)



NATIVE ENDANGERED & THREATENED SP
RECOVERY

Permit Number: ES15027A

Version Number: 7

Effective: 2021-06-16 **Expires:** 2026-12-31

R Additionally, based on geographic area, report and publication shall be submitted to the applicable office under "For Fish and Wildlife Permit Holders" at: <https://www.fws.gov/midwest/endangered/permits/index.html>.

cc: FWS/Region 2, 4, 5, and 6 (Attn: Regional Recovery Permits Coordinator)

FWS, TE Coordinator Illinois/Iowa, Indiana, Michigan, Minnesota/Wisconsin, Missouri, Ohio

DNR/DOC, TE Coordinator: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin

END

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE91733B-0**

Effective: 10/17/2017 Expires: 10/31/2022

Issuing Office:

Department of the Interior
U.S. FISH & WILDLIFE SERVICE
Ecological Services Permit Office
1875 Century Boulevard
Atlanta, GA 30345
permitsR4ES@fws.gov

Permittee:

JOSHUA J. ADAMS
3601 MISTY MORNING CIRCLE
LEXINGTON, KY 40509
U.S.A.

ACTING CHIEF, DIVISION OF ENVIRONMENTAL REVIEW

Authority: Statutes and Regulations: 16 USC 1539(a), 16 USC 1533(d); 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13.

Location where authorized activity may be conducted:

See Condition C.1. below.

Reporting requirements:

Annual Reports are due by January 31 following each year that this permit is in effect.

Authorizations and Conditions:

A. General conditions set out in Subpart B of 50 CFR 13, and specific conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accordance with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.

B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local tribal, or other federal law.

C.1. Location of Permitted Activities: **Bats**: Alabama, Arkansas, Connecticut, Delaware, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin; **Blackside Dace**: Kentucky and Tennessee; **Kentucky Arrow Darter**: Kentucky.

C.2. The following individual is authorized to conduct activities as authorized by this permit: Joshua J. Adams.

Trained assistants not named on this permit may work on permitted activities under the direct and on-site supervision of the individual named above. However, trained assistants may not work independently at a site. All site



investigators that will handle fish and bats shall be trained in their identification and handling techniques, advised on the laws and restrictions related to listed species, and apprised of permit conditions. The number of site investigators at any site shall be of an appropriate, manageable, size so that the permittee shall observe actions and prevent or limit harm to listed species and their habitats.

D. Acceptance of this permit serves as evidence that the permittee understands and agrees to abide by the terms of this permit and all sections of title 50 Code of Federal Regulations, Parts 13 and 17, pertinent to issued permits. Section 11 of the Endangered Species Act of 1973, as amended, provides for civil and criminal penalties for failure to comply with the permit conditions. In addition, the permittee shall have all other applicable Federal, Tribal, State, and/or local government permits prior to the commencement of activities authorized in this permit.

E. The permitted activities described herein require prior, site-specific approval from the U.S. Fish and Wildlife Service (USFWS) Field Supervisor in the State(s) where the project will occur. Permittee shall notify the USFWS Field Supervisor for the State in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is in Condition N., below. Your request for this site-specific approval must be in writing and must indicate:

1. The purpose and a description of the activities proposed (e.g., surveys, radio telemetry studies, etc.).
2. Location of proposed activities, including project site (legal description and lat/long), county, and state.
3. Dates when the project is proposed to take place.
4. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*

This permit is not valid without applicable concurrence letter(s) for activities and any required State permits.

F. Permittee is authorized to take (capture with mist nets, handle, band, radio-tag, and release) gray bats (*Myotis grisescens*), Indiana bats (*Myotis sodalis*), northern long-eared bats (*Myotis septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and Virginia big-eared bats (*Corynorhinus townsendii virginianus*) and take (capture via seining, netting, or electroshocking, handle, identify, and release) blackside dace (*Phoxinus phoxinus*) and Kentucky arrow darter (*Etheostoma spilotum*) while conducting presence/absence surveys, as specified in permittee's February 26, 2016, application and supplementary information provided on May 25, 2017, and as conditioned below:

1. Bats:

- a. The federally listed bats specified above may be captured following the protocol(s) provided by the USFWS, when available. Permittees must contact the USFWS FO in the State(s) in which activities are proposed to ensure correct protocol(s) are used. For example, the current Range-wide Indiana Bat Summer Survey Guidelines are available at: <http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. The monitoring interval for mist nets is once every 10 minutes. Harp traps must be continually monitored.
- b. Captured bats may be held for a maximum of 30 minutes, unless injured. If an exception is required to this



prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the state in which the activities are proposed to occur.

c. Permittee shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data form provided by the USFWS (e.g., USFWS Bat Reporting Form available at: <http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html>). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

d. If bands are applied, they must be lipped metal bands having a unique identifier. Bands should be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.

e. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least five days, or until the transmitter falls off, whichever occurs first. ** Although not required as a condition of this permit, in order to gather needed information to promote the conservation of the northern long-eared bat, it is recommended that the permittee radio-track female and juvenile northern long-eared bats captured when conducting mist-netting and radio-tracking of Indiana bats within the white-nose syndrome (WNS) zone of the range of the northern long-eared bat. Specifics on the number of females and juvenile bats to be tracked will be determined in coordination with the appropriate Field Office, as specified in Condition E (above).*

f. No capture activities shall occur within 20 meters of a known or potential summer or winter roost site, either natural or artificial, of a federally listed bat. If an exception is required to this prohibition, permittee must receive prior written approval from the USFWS Field Supervisor for the State in which the activities are proposed to occur.

g. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at: <http://whitenosesyndrome.org/>.

j. Upon determination that endangered bats are present, permittee shall immediately notify (not to exceed 1 business day) the USFWS Field Office within the geographic location of study areas (Condition N.).

2. Blackside Dace and Kentucky Arrow Darter:

a. Freshwater fishes may be captured by hand seining, netting, or electro-fishing (except where prohibited) and

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE91733B-0**Effective: 10/17/2017 Expires: 10/31/2022

observed via wading, snorkeling, scuba diving.

b. Electrofishing may be employed only as a last resort measure if the conditions are appropriate for the presence of the species and if no individuals are located through seining or visual methods.

c. Electrofishing, when used, shall be at minimum levels to elicit taxis or immobilization (narcosis) and used in combination with a seine or downstream nets. Efforts should be made to minimize any individual fish's exposure to periods of tetanus that can result in paralysis and mortality or direct contact with electrodes.

d. No endangered or threatened fish may be retained as voucher specimens.

e. Before any site investigations, the permittee shall ensure that conditions are favorable for observation and sampling of all suitable in-stream habitats and the acquisition of a representative sample of the aquatic community.

f. If collected fishes must be held temporarily during survey efforts, they must be kept in containers with flowing water (i.e., aerated holding buckets, submerged seine). If an aerated bucket is used, the bucket shall be kept cool (out of direct sun) and clean (e.g., did not previously contain formalin or other preservatives or toxins) and shall not contain other species (e.g., crayfish or other fish species). Holding shall be limited to 30 minutes.

g. Captured fish shall be released as close as possible to the point of capture. They shall be released by hand at the substrate level to avoid higher risk of predation and allowed to swim under their own power from the hand to the substrate.

h. If a federally listed fish species that is not included in this permit is found in the action area or outside of its currently known range, the permittee shall promptly notify the appropriate USFWS office identified in Condition N., below.

G. No injury or mortality is expected to occur to federally listed species covered under this permit. If any injury or mortality does occur, the permittee shall immediately notify the appropriate USFWS Field Office noted in Condition N., below. Notification shall also be made within 24 hours to the Region4 Permit Coordinator at the address and telephone number noted in Condition M.1., below. Based on consultation between these offices, a decision will be made as to whether any of the authorized activities can continue. Decisions will also be made concerning the disposition of any dead or injured specimens within 5 working days of an injury or mortality. The permittee shall provide a written statement to the Service offices noted in Conditions M. and N., below, which documents the cause of the injury or mortality, and identifies the remedial measures employed by the permittee to eliminate future mortality or injury events. The final decision on remedial measures rests with the Service.

H. Permittee must carry a copy of this permit at all times when conducting the authorized activities.

I. This permit is non-transferable.

J. Issuance of this permit does not constitute permission to conduct these activities on national wildlife refuges or any other public or private lands; such permission must be obtained separately from the appropriate landowner or land manager before beginning these authorized activities. This permit, neither directly nor by implication, grants the right of trespass.

K. Upon locating a dead, injured, or sick federally listed species, under circumstances not addressed in this



authorization, initial notification must be made immediately to the USFWS Field Office in the state in which the specimen is found, identified in Condition N., below. Notification should also be made by the next work day to the USFWS' Region 4 Permit Coordinator identified in Condition M.1., below. Care should be taken in handling sick, injured, or dead specimens to ensure effective treatment or to preserve biological materials for later analysis. In conjunction with the care of sick or injured endangered or threatened species, and the preservation of biological materials from a dead animal, the finder should take responsible steps to ensure that the site is not unnecessarily disturbed.

L. Reports are due on January 31 following each year this permit is in effect and must be submitted to the offices identified in Conditions M, N, and O (below). When possible, electronic copies shall be submitted in lieu of hard copies in MS Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office. At a minimum, the report shall include:

For All Species:

1. The name(s) and organization affiliation of all members of the survey crew.
2. The project(s) for which the survey(s) was/were conducted and the target species.
3. The date(s) of the survey(s).
4. Locations of the survey sites. Locations shall be noted using figures, maps, and by referencing a common coordinate system (e.g., latitude longitude, universal transverse mercator system, etc.).
5. Survey methods used and a map showing the survey location, with state and county designations, along with a description of the area sampled, noting biotic and abiotic features that might influence sample composition.
6. Species abundance and richness at each sample event, including parameters describing sampling effort.
7. The results of the sampling, with discussions and interpretations of the data in context to recovery of the species.
8. A description of any mortality, injuries, deformities, or other abnormalities observed and disposition of specimens.
9. Copies of all published data and reports.
10. Copies of all site-specific authorization letters required under Condition E.

For Bats:

10. All locations surveyed (regardless of whether federally listed bats were captured/observed).
 11. Band numbers of all bats banded and all bats recovered/observed.
 12. Location and characteristics of roost trees and bat colonies.
 13. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data submission document provided by the USFWS (e.g., USFWS Bat Reporting spreadsheet available at: <http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html>).
- Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The permittee may be requested to provide individual photographs after submittal of annual reporting data.

For Fish:

14. The length of each survey reach and the latitude/longitude of the start and end location of each stream reach
15. Water quality data, including velocity, visibility, temperature, DO, pH, turbidity, and conductivity
16. A narrative describing stream substrate, riparian vegetation, instream vegetation, and other notable site characteristics
17. A list of fish collected in each sample reach, the number collected per species in each sample reach, and whether each collected fish was released live, retained in captivity, injured, or killed.

IF NO ACTIVITIES OCCURRED OVER THE COURSE OF THE YEAR, INDICATION OF SUCH SHALL BE



SUBMITTED AS AN ANNUAL REPORT.

M. For purposes of monitoring compliance and administration of the terms and conditions of this permit, the contact office of the U.S. Fish and Wildlife Service is:

M.1.
U.S. Fish and Wildlife Service (Region 4)
Attn: Permit Coordinator
1875 Century Boulevard
Atlanta, Georgia 30345 3301
Telephone: 404/679 7097
Facsimile: 404/679 7081
PermitsR4ES@fws.gov

In addition, copies of annual reports must be submitted to the Regional Offices listed below:

M.2.
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
500 Gold Ave., SW
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6665; fax 505/248-6788)
permitsR2ES@fws.gov

M.3.
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

M.4.
Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov

M.5.
Regional Recovery Permits Coordinator & Assistant Regional Recovery Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office



Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489
(303/236-4212; fax 303/236-0027)
permitsR6ES@fws.gov

N. Additionally, based on geographic area, reports and publications shall be submitted to the following:

N.1. For studies conducted in Alabama:

Field Supervisor
Alabama Ecological Services Field Office
1208-B Main Street
Daphne, Alabama 36526-4419
(251) 441-5181

N.2. For studies conducted in Arkansas:

Field Supervisor
Arkansas Field Office
110 South Amity Road
Suite 300
Conway, Arkansas 72032-8975
(501) 513-4470

N.3. For studies conducted in Connecticut:

Field Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

N.4. For studies conducted in Delaware:

Field Supervisor
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4573

N.5. For studies conducted in Georgia:

Field Supervisor
Georgia Field Office
105 Westpark Drive, Suite D
Athens, GA 30606-3175
(706) 613-9493; fax 706/613-6059



N.6. For studies conducted in Illinois:

N.6.a.

Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.
Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

N.6.b.

Joe Kath
Endangered Species Coordinator
Illinois Department of Natural Resources
Division of Natural Heritage
One Natural Resource Way
Springfield, Illinois 62702-1271
(217/785-8764; fax 217/785-2438)

N.7. For studies conducted in Indiana:

N.7.a.

Lori Pruitt
Endangered Species Coordinator for Indiana
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

N.7.b.

Scott Johnson
Indiana Department of Natural Resources
5596 East State Road 46
Bloomington, Indiana 47401
(812/334-1137, ext. 3400)

N.8. For studies conducted in Iowa:

N.8.a.

Kristen Lundh
Endangered Species Coordinator for Illinois/Iowa
U.S. Fish and Wildlife Service
Ecological Services Field Office
1511 47th Ave.



Moline, Illinois 61265
(309/757-5800, x215; fax 309/757-5807)

N.8.b.
Kelly Poole
Endangered Species Coordinator
Iowa Department of Natural Resources
Parks, Recreation, and Preserves
Wallace State Office Building
East 9th and Grand Avenue
Des Moines, Iowa 50319-0034
(515/281-8524)

N.9. For studies conducted in Kansas:

Field Supervisor
Kansas Field Office
2609 Anderson Avenue
Manhattan, Kansas 68502
785/539-3474; fax 785/539-8567

N.10. For studies conducted in Kentucky:

Field Supervisor
Frankfort Field Office
J C Watts Federal Bldg., Rm 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0468

N.11. For studies conducted in Louisiana:

Field Supervisor
Louisiana Ecological Services
646 Cajundome Blvd., Suite 400
Lafayette, La. 70506
Phone 337.291.3100
Fax 337.291.3139

N.12. For studies conducted in Maine:

Field Supervisor
Maine Field Office
U.S. Fish and Wildlife Service
17 Godfrey Drive, Suite 2
Orono, ME 04473
Phone: 207-866-3344



N.13. For studies conducted in Maryland:

Field Supervisor
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
(410) 573-4573

N.14. For studies conducted in Massachusetts:

Field Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

N.15. For studies conducted in Michigan:

N.15.a.
Barbara Hosler
Endangered Species Coordinator for Michigan
U.S. Fish and Wildlife Service
2651 Coolidge Road
East Lansing, Michigan 48823
(517/351-6326; fax 517/351-1443)

N.15.b.
Dan Kennedy
Endangered Species Coordinator
Michigan Department of Natural Resources
Wildlife Division
P.O. Box 30444
Lansing, Michigan 48909-7444
(517) 284-6194; fax 517/373-6705

N.16. For studies conducted in Minnesota:

N.16.a.
Endangered Species Coordinator for Minnesota and Wisconsin
U.S. Fish and Wildlife Service
Ecological Services Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425
(612/725-3548 x2206; fax 612/725-3609)

N.16.b.



Richard Baker
Minnesota Endangered Species Coordinator
Division of Ecological and Water Resources
Minnesota Department of Natural Resources
500 Lafayette Rd., Box 25
St. Paul, MN 55155
Phone: 651/259-5073
richard.baker@state.mn.us

N.17. For studies conducted in Mississippi:

Field Supervisor
Mississippi Field Office
6578 Dogwood View Pkwy, Suite A
Jackson, MS 39213-7856
(601) 321-1122

N.18. For studies conducted in Missouri:

N.18.a.
Field Supervisor
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-2132
(573/234-2132; fax 573/234-2181)

N.18.b.
Scientific Collecting Permit Coordinator
Missouri Department of Conservation
Endangered Species and Natural History Division
2901 W. Truman Blvd., P.O. Box 180
Jefferson City, Missouri 65102-0180
(573/522-4115 ext. 3322; fax 573/751-4864)

N.19. For studies conducted in Montana:

Project Leader
585 Shepard Way
Helena, Montana 59601
Telephone: 406-449-5225
Fax: 406-449-5339

N.20. For studies conducted in Nebraska:

Assistant Field Supervisor
9325 South Alda Road



Wood River, NE 68883
Fax:(308) 384-8835
Phone: (308) 382-6468

N.21. For studies conducted in New Hampshire:

Field Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

N.22. For studies conducted in New Jersey:

Field Supervisor
New Jersey Field Office
927 N. Main Street, Building D
Pleasantville, NJ 08232-1454
(609) 646-9310

N.23. For studies conducted in New York:

Field Supervisor
New York Field Office
3817 Luker Road
Cortland, NY 13045
(607) 753-9334

N.24. For studies conducted in North Carolina:

Field Supervisor
Asheville Field Office
160 Zillicoa Street
Asheville, NC 28801-1082
(828) 258-3939

N.25. For studies conducted in North Dakota:

North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926
Phone: (701) 250-4481
Fax: (701) 355-8513

N.26. For studies conducted in Ohio:

N.26.a.



Endangered Species Coordinator for Ohio
U.S. Fish and Wildlife Service
Ohio Ecological Services Field Office
4625 Morse Road, Suite 104
Columbus, Ohio 43230
(614/416-8993, x22; fax 614/416-8994)

N.26.b.
Endangered Species Coordinator
Ohio Department of Natural Resources
Division of Wildlife
2045 Morse Road, Building G
Columbus, Ohio 43229-6693
(614-265-6329; fax 614/262-1143)

N.27. For studies conducted in Oklahoma:

N.27.a.
Field Supervisor
Oklahoma Field Office
U.S. Fish and Wildlife Service
9014 E. 21st St.
Tulsa, Oklahoma 74129-1428
(918) 382-4501

N.27.b.
Todd Fagin
Oklahoma Natural Heritage Inventory
111 E. Chesapeake St.
Norman, OK 73019
405 325-4700 (Direct Line)
405 325-4042 (Oklahoma Biological Survey main office)
405 325-7702 (Fax)
tfagin@ou.edu

N.27.c.
Oklahoma Department of Wildlife Conservation
Wildlife Division
1801 N. Lincoln Blvd.
Oklahoma City, Oklahoma 73105
405/990-7259; fax 405/521-4706

N.28. For studies conducted in Pennsylvania:

Field Supervisor
Pennsylvania Field Office
315 So. Allen Street, Suite 322



State College, PA 16801-4850
(814) 234-4090

N.29. For studies conducted in Rhode Island:

Field Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

N.30. For studies conducted in South Carolina:

N.30.a.
Field Supervisor
U.S. Fish and Wildlife Service
176 Croghan Spur Road, Suite 200
Charleston, SC 29407-7558
(843) 727-4707 x227

N.30.b.
Jennifer Kindel
Biologist/Preserve Manager
South Carolina Department of Natural Resources
311 Natural Resources Drive
Clemson, SC 29631
(864) 654-6738 x15
Fax: (864) 654-9168

N.31. For studies conducted in South Dakota:

South Dakota Ecological Services Field Office
420 S. Garfield Avenue,
Suite 400
Pierre, SD 57501-5408
Phone (605) 224-8693
FAX 605-224-9974

N.32. For studies conducted in Tennessee:

N.32.a.
Field Supervisor
Cookeville Field Office
U.S. Fish and Wildlife Service
446 Neal Street
Cookeville, TN 38501-4027
(931) 528-6481



N.32.b.

Josh Campbell
Bat Coordinator
Tennessee Wildlife Resources Agency
P.O. Box 40747
Nashville, TN 37204
(615) 781-6569

N.33. For studies conducted in Vermont:

Field Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301
(603) 223-2541

N.34. For studies conducted in Virginia:

Field Supervisor
Virginia Field Office
6669 Short Lane
Gloucester, VA 23061
(804) 693-6694

N.35. For studies conducted in West Virginia:

Field Supervisor
West Virginia Field Office
694 Beverly Pike
Elkins, WV 26241
(304) 636-6586

N.36. For studies conducted in Wisconsin:

N.36.a.

Endangered Species Coordinator for Minnesota and Wisconsin
U.S. Fish and Wildlife Service
Ecological Services Field Office
4101 American Blvd E.
Bloomington, Minnesota 55425
(612/725-3548 x2206; fax 612/725-3609)

N.36.b.

Owen Boyle
Wisconsin Department of Natural Resources
101 S. Webster Street



Madison, Wisconsin 53707-7921
(608/266-5244)

Owen.Boyle@wisconsin.gov

O. Additionally, based on the species involved, reports and publications shall be submitted to the following Recovery Leads:

O.1. For Surveys involving Indiana Bats:

Lori Pruitt, Recovery Lead
U.S. Fish and Wildlife Service
Indiana Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

O.2. For Surveys involving Gray Bats:

Shauna Marquardt, Recovery Lead
U.S. Fish and Wildlife Service
Missouri Ecological Services Field Office
101 Park De Ville Drive, Suite A
Columbia, Missouri 65203
(573/234-2132 x174; fax 573/234-2181)

O.3. For Surveys involving Northern Long-eared Bats:

Jill Utrup, Recovery Lead
U.S. Fish and Wildlife Service
Twin Cities Ecological Services Field Office
4104 American Blvd. E
Bloomington, Minnesota 55425
(612/725-3548 x207; fax 612/725-3609)

O.4. For Surveys involving Virginia Big-eared Bats:

Barbara Douglas
U.S. Fish and Wildlife Service
West Virginia Ecological Services Field Office
694 Beverly Pike
Elkins, West Virginia 26241
(304/636-6586 x19; fax 304/636-7824)

O.5. For Surveys involving Ozark Big-eared Bats:

Richard Stark
U.S. Fish and Wildlife Service



Ozark Plateau National Wildlife Refuge
9014 East 21st Street
Tulsa, Oklahoma 74129
(918/382-4520; fax 918/581-7467)

O.6. For Surveys involving Blackside Dace and Kentucky Arrow Darter:

Mike Floyd
U.S. Fish and Wildlife Service
Frankfort Field Office
J C Watts Federal Bldg., Rm 265
330 West Broadway
Frankfort, KY 40601-8670
(502) 695-0468

END

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE13580D-1**

Effective: 12/22/2020 Expires: 12/31/2023

Issuing Office:

Department of the Interior
U.S. FISH & WILDLIFE SERVICE
Endangered Species Permit Office
5600 American Boulevard, West, Suite 990
Bloomington, MN 55437-1458
permitsR3ES@fws.gov

Chief - Endangered Species

Permittee:

JULIA R. WILSON
3720 W WOODYARD RD
BLOOMINGTON, IN 47401
U.S.A.

Authority: Statutes and Regulations: 16 USC 1539(a), 16 USC 1533(d); 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13.

Location where authorized activity may be conducted:

Alabama, Arkansas, Connecticut, Delaware, District of Columbia, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Carolina, South Dakota, Vermont, Virginia, Wisconsin, and Wyoming.

Reporting requirements:

ANNUAL REPORT DUE: 01/31

See permit conditions for reporting requirements

Authorizations and Conditions:

- A. General Conditions set out in Subpart B of 50 CFR 13, and specific Conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable Conditions, including the filing of all required information and reports.
- B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local, tribal, or other Federal law.
- C. Valid for use by Julia R. Wilson.
 - C.1. Unnamed trained assistants may work on permitted activities under the direct and on-site supervision of Julia Wilson. "On-site supervision" is defined as having the Permittee at a distance close enough to enable immediate assistance to a supervised individual, as needed, while the supervised individual conducts an authorized activity. **Julia Wilson must remain present at each mist-net site while it is being operated.**
- D. Acceptance of this permit serves as evidence that the Permittee and its authorized agents understand and agree to abide by the terms of this permit and all sections of Title 50 Code of Federal Regulations, Parts 13 and

NATIVE ENDANGERED & THREATENED SP. RECOVERY
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17, pertinent to issued permits (https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=a1d34199d1ab36c8b78ecd06a7fa5180&tpl=/ecfrbrowse/Title50/50cfr13_main_02.tpl) and <https://www.ecfr.gov/cgi-bin/text-idx?node=50:2.0.1.1.1&rgn=div5>). Section 11 of the Endangered Species Act of 1973, as amended, provides for civil and criminal penalties for failure to comply with permit Conditions.

A request for permit renewal and the \$100 application processing fee must be received **at least 30 days prior to the expiration date** of this permit to continue conducting authorized activities under the expired permit while your application is being processed (subject to compliance with 50 CFR, Parts 13.21 and 13.22). Please use <https://fwsepermits.servicenow.com/fwsepermits> to obtain specific information regarding the new ePermitting process to apply for, and submit your digital recovery permit application and application processing fee. When these requirements are not met, this permit becomes invalid on the expiration date. *Unless otherwise instructed within the Authorizations and Conditions*, **annual reports** are due by January 31 following each year your permit is in effect and shall be submitted to all offices identified in the permit Conditions.

- E. Permittee is authorized to take (capture with mist-nets, handle, identify, band, attach radio-transmitters, collect non-intrusive measurements, and release) gray bat (*Myotis grisescens*), Indiana bat (*M. sodalis*), and northern long-eared bat (*M. septentrionalis*) for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does **not** authorize the collection of voucher specimens.
- F. Activities are authorized at the following locations:
- F.1. Within the U.S. Fish and Wildlife Service (USFWS) Regional New Mexico office State: Oklahoma upon receipt of written concurrence from the Field Supervisor, and upon coordination with Ozark Plateau National Wildlife Refuge prior to 1) surveys of caves known to be used by federally-listed bats, and 2) examinations of caves suspected of containing federally-listed bat species (some presence/absence surveys may require the presence of a USFWS Biologist), and as outlined in Condition G.
 - F.2. Within the USFWS Regional Minnesota office States: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.3. Within the USFWS Regional Georgia office States: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, and South Carolina upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.4. Within the USFWS Regional Massachusetts office States: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.5. Within the USFWS Regional Colorado office States: Kansas, Nebraska, North Dakota, South Dakota, and Wyoming upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- G. Permittee shall notify and request approval from the USFWS Field Supervisor at least 15 days prior to conducting any activities. Contact information is available at: <https://www.fws.gov/midwest/endangered/permits/index.html>. Your request for this site-specific approval must be in writing and must indicate:
- G.1. Species for which proposed activities are being conducted.

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE13580D-1**Effective: 12/22/2020 Expires: 12/31/2023

- G.2. Location of proposed activities, including project site, county, and state.
- G.3. A complete description of activities (i.e., proposed project plan, including purpose and need, surveys, methods, etc.).
- G.4. Dates when the project is proposed to take place.
- G.5. Evidence that Permittee has received any required contracts to complete the activities.
- G.6. Whether all annual reporting requirements have been fulfilled.

You may proceed with only the activities described in your written concurrence letter, upon receipt from the applicable USFWS Field Supervisor. ***Your concurrence letter must be carried with this permit to authorize site-specific activities.***

H. Permittee shall adhere to the following Conditions involving capture and handling of bats:

- H.1. Bats may be captured with mist nets following the protocol included in the Range-wide Indiana Bat Summer Survey Guidelines. Guidelines are available at: <https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. Note: You must use the most up-to-date version of the Summer Survey Guidelines, available on the USFWS website page, for your summer surveys. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

Julia Wilson must remain present at each mist-net site while it is being operated.

- H.2. Permittee shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data sheet provided by the USFWS (e.g., Bat Reporting Spreadsheet). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- H.3. Lipped metal bands having a unique identifier may be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Bands should be applied to the forearm of captured bats prior to release. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.
- H.4. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first. ***Although not required as a Condition of this permit, in order to gather needed information to promote the conservation of the northern long-eared bat, it is recommended that***



the permittee radio-track female and juvenile northern long-eared bats captured when conducting mist-netting and radio-tracking of Indiana bats within the white-nose syndrome zone of the range of the northern long-eared bat. Specifics on the number of females and juvenile bats to be tracked will be determined in coordination with the appropriate Field Office, as specified in Condition G.

- H.5. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the USFWS Field Supervisor for the state in which the activities are proposed to occur.
- H.6. When carrying out mist-netting and handling of bats under this permit, Permittee must use COVID-specific Personal Protective Equipment (PPE) in addition to the PPE already identified by the USFWS and states for mitigating the risk of spread of the fungus that causes white-nose syndrome, which includes the use of disposable gloves, disposable or site-dedicated clothing, and adherence to decontamination procedures. COVID-specific PPE is a non-vented N95 respirator (no exhalation valve) or any respirator or mask that provides a similar level of protection filtering exhaled air (https://www.cdc.gov/niosh/nppt/topics/respirators/disp_part/respsource1quest3.html#half).
- H.7. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at: <https://www.whitenosesyndrome.org/topics/decontamination>.
- H.8. For Ozark big-eared bat (*Corynorhinus townsendii ingens*) and Virginia big-eared bat (*C. t. virginianus*), the USFWS acknowledges that incidental (unintentional) capture of these co-occurring listed bat species may potentially occur while conducting lawful survey activities directed at authorized bat species. This permit **does not authorize** any activities for the specific purpose of capture of Ozark or Virginia big-eared bats. Permittee shall be observant and cautious to eliminate or minimize "take" of co-occurring listed species to the maximum extent practicable. In the event of incidental (unintentional) capture of Ozark big-eared bat or Virginia big-eared bat, Permittee shall immediately remove the bat(s) from the net/trap after capture, document with a photograph and release at the capture site. **Do not put these bat species in holding cages, bags, or containers.** Within 48 hours, you must notify the USFWS in the state in which you are working of the incidental capture (see <https://www.fws.gov/midwest/endangered/permits/index.html>).
- H.9. Permittee must carry a copy of this permit at all times when conducting the authorized activities. NOTE: This permit is limited to the above activities and identified species.
- H.10. Issuance of this permit does not constitute permission to conduct these activities on National Wildlife Refuges or any other public or private lands; such permission must be obtained separately from the appropriate landowner or land manager before beginning these authorized activities. This permit, neither directly nor by implication, grants the right of trespass.
- I. Upon determination that endangered or threatened bats are present at previously undocumented sites, Permittee shall notify the following within 48 hours: the USFWS Regional Minnesota office Recovery Permit Coordinator (Condition L.), the Species Recovery Lead (Condition M.), and the USFWS Field Office within the geographic location of study areas (<https://www.fws.gov/midwest/endangered/permits/index.html>).
- J. Accidental injury or mortality may not exceed two (2) specimens. In the event of any accidental injury or mortality, all activities must immediately cease. The Permittee shall immediately report (in writing) any bat mortality or serious injury to the applicable USFWS Field Supervisor in the state in which the incident occurred (contact information provided at: <https://www.fws.gov/midwest/endangered/permits/index.html>). Written

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE13580D-1**

Effective: 12/22/2020 Expires: 12/31/2023

notification shall also be made within 48 hours to the Regional Minnesota office Recovery Permit Coordinator (see Condition L.) and the Species Recovery Lead (Condition M.). The Permittee's statement must document the cause of the injury or mortality, and identify all remedial measures employed by the Permittee to eliminate future mortality or injury events. Based on consultation between the USFWS offices, decisions will be made regarding remedial measures that will be implemented and whether and/or when any of the authorized activities may continue. The Species Recovery Lead Office will provide a decision within five (5) business days concerning the disposition of any injured or dead specimen. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS Species Recovery Lead for potential necropsy and/or contaminants analysis. Permitted activities may resume upon receipt of written approval from the Species Recovery Lead Office.

- K. An Annual Report of all activities conducted under the authority of this permit is due by January 31 following **each year** this permit is in effect. When assisting with netting, the permit number of the individual responsible for each capture should be recorded on the data collection form. In addition, copies of all publications and reports resulting from work conducted under this permit must be submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report shall include:
- K.1. The date, time, geographic locations (including datum and projection information), species, age, sex, and weight of all bats encountered.
 - K.2. A description of locations surveyed where no bats were encountered.
 - K.3. Band numbers of all bats banded.
 - K.4. Information on any injuries and/or mortalities and disposition of specimens.
 - K.5. Location and characteristics of roost trees and bat colonies.
 - K.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
 - K.7. A completed data collection form as found in the Summer Survey Guidelines, Appendix B, cited in Condition H.1.
 - K.8. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., the data collection sheets found on the current Rangewide Indiana Bat Summer Survey Guidelines website page cited in Condition H.1., or other species specific data sheets). Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
 - K.9. Copies of all site-specific authorization letters required under Condition G.

IF NO ACTIVITIES OCCURRED OVER THE COURSE OF THE YEAR, INDICATION OF SUCH SHALL BE SUBMITTED AS AN ANNUAL REPORT.

- L. Copies of your reports shall be sent electronically to **all offices** indicated below and your transmittal email must cite your Federal permit number. Electronic copies shall be submitted in MS Word, Portable Document Format,



Rich Text Format, or other file format that is compatible with the receiving office (**thumb drives/flash drives and links to documents cannot be accepted**).

- L.1. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov
- L.2. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Division of Classification & Recovery Permits
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6420; fax 505/248-6922)
permitsR2ES@fws.gov
- L.3. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Endangered Species Permits
1875 Century Blvd.
Atlanta, Georgia 30345-3301
(404/679-7097; fax 404/679-7081)
permitsR4ES@fws.gov
- L.4. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(413/253-8212; fax 413/253-8482)
permitsR5ES@fws.gov
- L.5. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Endangered Species Permits
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489
(303/236-4224; fax 303/236-0027)
permitsR6ES@fws.gov

M. Additionally, based on species, reports and publications shall be submitted to the following:

- M.1. ***For studies involving gray bat:***
Iwona Kuczynska
U.S. Fish and Wildlife Service
Missouri Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0007



(573/234-2132; fax 573/234-2181)

M.2. *For studies involving Indiana bat:*

Lori Pruitt
U.S. Fish and Wildlife Service
Indiana Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x213; fax 812/334-4273)

M.3. *For studies involving northern long-eared bat:*

Jill Utrup
U.S. Fish and Wildlife Service
Minnesota-Wisconsin Field Office
4104 American Blvd. E.
Bloomington, Minnesota 55425-1665
(952/252-0092; fax 952/646-2873)

M.4. *For studies involving Ozark big-eared bat:*

Richard Stark
U.S. Fish and Wildlife Service
Ozark Plateau National Wildlife Refuge
9014 East 21st Street
Tulsa, Oklahoma 74129
(918/382-4520; fax 918/581-7467)

M.5. *For studies involving Virginia big-eared bat:*

Field Supervisor
U.S. Fish and Wildlife Service
West Virginia Field Office
6263 Appalachian Highway
Davis, West Virginia 26260
jennifer_l_norris@fws.gov
FW5_WVFO@fws.gov

N. Additionally, based on geographic areas, reports and publications shall be submitted to the applicable offices under "For Fish and Wildlife Permit Holders" at: <https://www.fws.gov/midwest/endangered/permits/index.html>.

cc: FWS/Regional Offices - Colorado, Georgia, Massachusetts, and New Mexico (Attn: Regional Recovery Permit Coordinator)

FWS, TE Coordinator: Illinois/Iowa, Indiana, Michigan, Minnesota/Wisconsin, Missouri, Ohio

DNR/DOC, TE Coordinator: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin

END

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE28573D-0**

Effective: 05/14/2019 Expires: 12/31/2023

Issuing Office:

Department of the Interior
U.S. FISH & WILDLIFE SERVICE
Endangered Species Permit Office
5600 American Boulevard, West, Suite 990
Bloomington, MN 55437-1458
permitsR3ES@fws.gov

Chief - Endangered Species

Permittee:

ADAM R. RUSK
2420 W 76TH ST.
PRAIRIE VILLAGE, KS 66208
U.S.A.

Authority: Statutes and Regulations: 16 USC 1539(a), 16 USC 1533(d); 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13.

Location where authorized activity may be conducted:

ON LANDS SPECIFIED IN THE AUTHORIZATIONS AND CONDITIONS

Reporting requirements:

ANNUAL REPORT DUE: 01/31

See permit conditions for reporting requirements

Authorizations and Conditions:

- A. General Conditions set out in Subpart B of 50 CFR 13, and specific Conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable Conditions, including the filing of all required information and reports.
- B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local, tribal, or other Federal law.
- C. Valid for use by Adam R. Rusk.
 - C.1. Unnamed assistants may work on permitted activities under the direct and on-site supervision of Adam Rusk. "On-site supervision" is defined as having the Permittee at a distance close enough to enable immediate assistance to a supervised individual, as needed, while the supervised individual conducts an authorized activity. **Adam Rusk must remain present at each mist-net site while it is being operated.**
- D. Acceptance of this permit serves as evidence that the Permittee and its authorized agents understand and agree to abide by the terms of this permit and all sections of Title 50 Code of Federal Regulations, Parts 13 and 17, pertinent to issued permits (<https://www.fws.gov/permits/ltr/ltr.html>). Section 11 of the Endangered Species Act of 1973, as amended, provides for civil and criminal penalties for failure to comply with permit Conditions.



A request for permit renewal using Application Form 3-200-55 and the \$100 application processing fee must be received **at least 30 days prior to the expiration date** of this permit to continue conducting authorized activities under the expired permit while your application is being processed (subject to compliance with 50 CFR, Parts 13.21 and 13.22: https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=a1d34199d1ab36c8b78ecd06a7fa5180&tpl=/ecfrbrowse/Title50/50cfr13_main_02.tpl). When these requirements are not met, this permit becomes invalid on the expiration date. *Unless otherwise instructed within the Authorizations and Conditions, annual reports* are due by January 31 following each year your permit is in effect and shall be submitted to all offices identified in the permit Conditions, as appropriate. The following website link provides the permit application Form 3-200-55 and the mailing address to the Midwest Region (Region 3), U.S. Fish and Wildlife Service, Endangered Species Permit Office: <https://www.fws.gov/endangered/permits/how-to-apply.html>.

- E. Permittee is authorized to take (capture with mist nets, handle, identify, band, attach radio-transmitters, collect non-intrusive measurements, and release) Indiana bat (*Myotis sodalis*), gray bat (*M. grisescens*), northern long-eared bat (*M. septentrionalis*), Ozark big-eared bat (*Corynorhinus townsendii ingens*), and Virginia big-eared bat (*C. t. virginianus*), for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does **not** authorize the collection of voucher specimens.
- F. Activities are authorized at the following locations:
- F.1. Location within Region 2 of the U.S. Fish and Wildlife Service (USFWS): Oklahoma upon receipt of written concurrence from the Field Supervisor, and upon coordination with Ozark Plateau National Wildlife Refuge prior to 1) surveys of caves known to be used by federally-listed bats, and 2) examinations of caves suspected of containing federally-listed bat species (some presence/absence surveys may require the presence of a USFWS Biologist), and as outlined in Condition G.
 - F.2. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.3. Locations within Region 4 of the USFWS: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina and Tennessee upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.4. Locations within Region 5 of the USFWS: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.5. Locations within Region 6 of the USFWS: Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- G. Permittee shall notify and request approval from the USFWS Field Supervisor in the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is available at: <https://www.fws.gov/midwest/endangered/permits/index.html>. Your request for this site-specific approval must be in writing and must indicate:
- G.1. Species for which proposed activities are being conducted.
 - G.2. Location of proposed activities, including project site, county, and state.



- G.3. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).
- G.4. Dates when the project is proposed to take place.
- G.5. Evidence that Permittee has received any required contracts to complete the activities.
- G.6. Whether all annual reporting requirements have been fulfilled.

You may proceed with activities only upon receipt of written concurrence from the USFWS Field Supervisor. ***Your concurrence letter must be carried with this permit to authorize site-specific activities.***

H. Permittee shall adhere to the following Conditions involving capture and handling of bats:

- H.1. Bats may be captured with mist nets following the protocol included in the Range-wide Indiana Bat Summer Survey Guidelines. Guidelines are available at: <https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. Note: You must use the most up-to-date version of the Summer Survey Guidelines, available on the USFWS website page, for your summer surveys. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

Adam Rusk must remain present at each mist-net site while it is being operated.

- H.2. Permittee shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data sheet provided by the USFWS (e.g., Bat Reporting Spreadsheet). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- H.3. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first. ***Although not required as a Condition of this permit, in order to gather needed information to promote the conservation of the northern long-eared bat, it is recommended that the permittee radio-track female and juvenile northern long-eared bats captured when conducting mist-netting and radio-tracking of Indiana bats within the white-nose syndrome zone of the range of the northern long-eared bat. Specifics on the number of females and juvenile bats to be tracked will be determined in coordination with the appropriate Field Office, as specified in Condition G.***
- H.4. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the USFWS Field Supervisor for the state in which the activities are proposed to occur.
- H.5. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE28573D-0**

Effective: 05/14/2019 Expires: 12/31/2023

such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at:

<https://www.whitenosesyndrome.org/topics/decontamination>.

- I. Upon determination that endangered or threatened bats are present at previously undocumented sites, Permittee shall notify the following offices within 48 hours: the USFWS Region 3 Office (Condition L.), the Species Recovery Lead (Condition M.), and the USFWS Field Office within the geographic location of study areas (<https://www.fws.gov/midwest/endangered/permits/index.html>).
- J. Accidental injury or mortality may not exceed two (2) specimens. In the event that any accidental injury or mortality occurs, all activities must cease. The Permittee must immediately report any bat mortality or serious injury to the applicable USFWS Field Office in the state in which the incident occurred (contact information provided at: <https://www.fws.gov/midwest/endangered/permits/index.html>). Written notification must also be made within 24 hours to the Midwest Regional Permits Coordinator (see Condition L.), the Species Recovery Lead (Condition M.), and the applicable USFWS Field Office in the state in which the incident occurred (Condition N.). The Permittee's statement must document the cause of the injury or mortality, and identify all remedial measures employed by the Permittee to eliminate future mortality or injury events. Based on consultation between the USFWS offices, decisions will be made regarding remedial measures that will be implemented and whether and/or when any of the authorized activities may continue. The Species Recovery Lead Office will provide a decision within five (5) business days concerning the disposition of any injured or dead specimen. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS Species Recovery Lead for potential necropsy and/or contaminants analysis. Permitted activities may resume upon receipt of written approval from the Species Recovery Lead Office.
- K. An Annual Report of all activities conducted under the authority of this permit is due by January 31 following each year this permit is in effect. In addition, copies of all publications and reports resulting from work conducted under this permit must be submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report shall include:
 - K.1. The date, time, geographic locations (including datum and projection information), species, age, sex, and weight of all bats encountered.
 - K.2. A description of locations surveyed where no bats were encountered.
 - K.3. Band numbers of all bats banded.
 - K.4. Information on any injuries and/or mortalities and disposition of specimens.
 - K.5. Location and characteristics of roost trees and bat colonies.
 - K.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
 - K.7. A completed data collection form as found in the Summer Survey Guidelines, Appendix B, cited in Condition H.1.
 - K.8. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., the data collection sheets found on the current Rangewide Indiana Bat Summer Survey Guidelines website page cited in Condition H.1., or



other species specific data sheets). Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.

K.9. Copies of all site-specific authorization letters required under Condition G.

IF NO ACTIVITIES OCCURRED OVER THE COURSE OF THE YEAR, INDICATION OF SUCH SHALL BE SUBMITTED AS AN ANNUAL REPORT.

L. Copies of your reports shall be sent to **all applicable offices** indicated below. Your transmittal letter (or email) must cite your Federal permit number. Electronic copies shall be submitted in MS Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office (**thumb drives/flash drives cannot be accepted**).

- L.1. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov
- L.2. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
Division of Classification & Recovery Permits
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6420; fax 505/248-6922)
permitsR2ES@fws.gov
- L.3. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
Endangered Species Permits
1875 Century Blvd.
Atlanta, Georgia 30345-3301
(404/679-7097; fax 404/679-7081)
permitsR4ES@fws.gov
- L.4. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(413/253-8212; fax 413/253-8482)
permitsR5ES@fws.gov
- L.5. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits
Denver Federal Center, P.O. Box 25486



Denver, Colorado 80225-0489
(303/236-4224; fax 303/236-0027)
permitsR6ES@fws.gov

M. Additionally, based on species, reports and publications shall be submitted to the following:

M.1. *For studies involving Indiana bat:*

Lori Pruitt
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

M.2. *For studies involving northern long-eared bat:*

Jill Utrup
U.S. Fish and Wildlife Service
Ecological Services Field Office
4104 American Blvd. E.
Bloomington, Minnesota 55425-1665
(952/252-0092; fax 952/646-2873)

M.3. *For studies involving gray bat:*

Shauna Marquardt
U.S. Fish and Wildlife Service
Ecological Services Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0007
(573/234-2132; fax 573/234-2181)

M.4. *For studies involving Ozark big-eared bat:*

Richard Stark
U.S. Fish and Wildlife Service
Ozark Plateau National Wildlife Refuge
9014 East 21st Street
Tulsa, Oklahoma 74129
(918/382-4520; fax 918/581-7467)

M.5. *For studies involving Virginia big-eared bat:*

Barbara Douglas
U.S. Fish and Wildlife Service
Ecological Services Field Office
90 Vance Drive
Elkins, West Virginia 26241
(304/636-6586 x19; fax 304/636-7824)



NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE

Permit Number: TE28573D-0

Effective: 05/14/2019 Expires: 12/31/2023

N. Additionally, based on geographic areas, reports and publications shall be submitted to the applicable offices under "For Fish and Wildlife Permit Holders" at: <https://www.fws.gov/midwest/endangered/permits/index.html>.

cc: FWS/Region 2, 4, 5, and 6 (Attn: Regional Recovery Permit Coordinator)

FWS, TE Coordinator: Illinois/Iowa, Indiana, Michigan, Minnesota/Wisconsin, Missouri, Ohio

DNR/DOC, TE Coordinator: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin

END



NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE

Permit Number: TE98673B-0
Effective: 10/31/2016 Expires: 12/31/2021

Issuing Office:

Department of the Interior
U.S. FISH & WILDLIFE SERVICE
Endangered Species Permit Office
5600 American Boulevard, West, Suite 990
Bloomington, MN 55437-1458
permitsR3ES@fws.gov

CHIEF - ENDANGERED SPECIES

Permittee:

JASON THOMAS LAYNE
20440 APPLERIDGE LAND
SPRING HILL, KS 66083
U.S.A.

Authority: Statutes and Regulations: 16 USC 1539(a), 16 USC 1533(d), 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13.

Location where authorized activity may be conducted:

ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

Reporting requirements:

ANNUAL REPORT DUE: 01/31

See permit conditions for reporting requirements

Conditions and Authorizations:

- A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED ABOVE ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.
- B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.
- C. VALID FOR USE BY PERMITTEE NAMED ABOVE.
 - C.1. VALID FOR USE BY PERMITTEE NAMED ABOVE AND FOR USE BY JASON LAYNE. UNNAMED ASSISTANTS MAY WORK ON PERMITTED ACTIVITIES ONLY UNDER THE DIRECT AND ON-SITE SUPERVISION OF NAMED PERMITTEE. **At least one named permittee must remain present at each mist-net site while it is being operated.**
- D. ACCEPTANCE OF THIS PERMIT SERVES AS EVIDENCE THAT THE PERMITTEE AND ITS AUTHORIZED AGENTS UNDERSTAND AND AGREE TO ABIDE BY THE TERMS OF THIS PERMIT AND ALL SECTIONS OF TITLE 50 CODE OF FEDERAL REGULATIONS, PARTS 13 AND 17, PERTINENT TO ISSUED PERMITS (<http://www.fws.gov/permits/ltr/ltr.html>). SECTION 11 OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED, PROVIDES FOR CIVIL AND CRIMINAL PENALTIES FOR FAILURE TO COMPLY WITH PERMIT CONDITIONS.

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE98673B-0**

Effective: 10/31/2016 Expires: 12/31/2021

- E. Permittee is authorized to take (capture with mist nets, handle, identify, radio-tag, band and release) Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), Virginia big-eared bat (*Corynorhinus townsendii virginianus*), and Ozark big-eared bat (*Corynorhinus townsendii ingens*) for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does **not** authorize the collection of voucher specimens.
- F. Activities are authorized at the following locations:
- F.1. Location within Region 2 of the USFWS: Oklahoma, upon receipt of written concurrence from the Field Supervisor, and upon coordination with Ozark Plateau National Wildlife Refuge prior to (1) surveys of caves known to be used by federally-listed bats, and (2) examinations of caves suspected of containing federally-listed bat species (some presence/absence surveys may require the presence of a U.S. Fish and Wildlife Biologist), and as outlined in Condition G.
 - F.2. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.3. Locations within Region 4 of the USFWS: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.4. Locations within Region 5 of the USFWS: Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.5. Locations within Region 6 of the USFWS: Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- G. Permittee shall notify the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is available at:
<https://www.fws.gov/midwest/endangered/permits/index.html>. Your request for this site-specific approval must be in writing and must indicate:
- G.1. Species for which proposed activities are being conducted.
 - G.2. Location of proposed activities, including project site, county, and state.
 - G.3. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).
 - G.4. Dates when the project is proposed to take place.
 - G.5. Evidence that Permittee has received any required contracts to complete the activities.
 - G.6. Whether all annual reporting requirements have been fulfilled.
 - G.7. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*
- H. Permittee shall adhere to the following conditions involving capture and handling of bats:
- H.1. Bats may be captured with mist nets following the protocol included in the Range-wide Indiana Bat Summer Survey Guidelines. Guidelines are available at:
<http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. Note that you must use the most up-to-date version of the Summer Survey Guidelines, available on the USFWS website page, for your summer surveys. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE98673B-0**

Effective: 10/31/2016 Expires: 12/31/2021

- H.2. Permittee shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data sheet provided by the USFWS (e.g., Bat Reporting Spreadsheet). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- H.3. Lipped metal bands having a unique identifier may be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Bands should be applied to the forearm of captured bats prior to release. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.
- H.4. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first.
- H.5. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.
- H.6. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at:
<https://www.whitenosesyndrome.org/topics/decontamination>.
- I. Upon determination that endangered or threatened bats are present at previously undocumented sites, Permittee shall notify the following offices within 48 hours: the U.S. Fish and Wildlife Service Region 3 Office (Condition L.), and the U.S. Fish and Wildlife Service Field Office within the geographic location of study areas (<https://www.fws.gov/midwest/endangered/permits/index.html>).
- J. Accidental mortality may not exceed two specimens. In the event that this number is met, all activities must cease. Any bat mortality or serious injury must be reported within 5 calendar days to the applicable U.S. Fish and Wildlife Service office based on location of mortality event and to the nearest U.S. Fish and Wildlife Service Law Enforcement, Special Agent Office (<http://www.fws.gov/offices>). Dead or moribund bats may be retained for further study only with the written permission of the U.S. Fish and Wildlife Service. Any bats that are not authorized for retention are to be chilled and promptly transferred to the U.S. Fish and Wildlife Service for potential necropsy and/or contaminants analysis (Condition L.6.).
- K. An annual report of all activities conducted under the authority of this permit is due by January 31 following each year this permit is in effect. In addition, copies of all publications and reports resulting from work conducted under this permit must be submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report shall include:
- K.1. The date, time, geographic locations (including datum and projection information), species, age, sex, and weight of all bats encountered.
- K.2. A description of locations surveyed where no bats were encountered.
- K.3. Band numbers of all bats banded.
- K.4. Information on any injuries and/or mortalities and disposition of specimens.
- K.5. Location and characteristics of roost trees and bat colonies.

NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE**Permit Number: TE98673B-0**

Effective: 10/31/2016 Expires: 12/31/2021

- K.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
- K.7. A completed data collection sheet as found on the Range-wide Indiana Bat Summer Survey Guidelines website page, cited in Condition H.1.
- K.8. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., the data collection sheets found on the current Rangewide Indiana Bat Summer Survey Guidelines website page cited in Condition H.1., or other species specific data sheets). Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- K.9. Copies of all site specific authorization letters required under Condition G.
- If no activities occurred over the course of the year, indication of such shall be submitted as an annual report.**
- L. Copies of your reports shall be sent to the offices listed below. When possible, electronic copies shall be submitted in lieu of hard copies in MS Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office.
- L.1. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov
- L.2. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
Endangered Species Permits Office
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6649; fax 505/248-6788)
permitsR2ES@fws.gov
- L.3. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
Endangered Species Permits Office
1875 Century Blvd., Suite 200
Atlanta, Georgia 30345-3301
(404/679-7097; fax 404/679-7081)
permitsR4ES@fws.gov
- L.4. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov
- L.5. ESA Assistant Recovery Coordinator & Permit Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489



NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE

Permit Number: TE98673B-0

Effective: 10/31/2016 Expires: 12/31/2021

(719/628-2670; fax 303/236-0027)
permitsR6ES@fws.gov

L.6. Lori Pruitt
Endangered Species Coordinator
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

M. Additionally, based on geographic area, reports and publications shall be submitted to the offices listed under Field Office
Contact Information at: <https://www.fws.gov/midwest/endangered/permits/index.html>

cc: FWS/Region 2, 4, 5, and 6 (Attn: Regional Recovery Permit Coordinator)
FWS, TE Coordinators: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin
DNR/DOC, TE Coordinators: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin

END



NATIVE ENDANGERED & THREATENED SP.
RECOVERY

Permit Number: ESPER0003405

Version Number: 0

Effective: 2021-07-23 **Expires:** 2026-12-31

Issuing Office:

Department of the Interior

U.S. FISH AND WILDLIFE SERVICE

ES Bloomington Permit Office

5600 American Boulevard, West, Suite 990

Bloomington, Minnesota 55437-1458

permitsR3ES@fws.gov

Digitally signed by

FWS T&E Chief

Permittee:

Crystal A Griffin

9509 W 118th Terrace, Apt. 1

Overland Park, Kansas 66210

United States

Authority: Statutes and Regulations: 16 U.S.C. 1539a, 16 U.S.C. 1533d 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13

Location where authorized activity may be conducted:

ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

Reporting requirements:

ANNUAL REPORTS DUE: 01/31

See permit conditions for reporting requirements

Authorizations and Conditions:

- A. General Conditions set out in Subpart B of 50 CFR 13, and specific Conditions contained in Federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable Conditions, including the filing of all required information and reports.



NATIVE ENDANGERED & THREATENED SP.
RECOVERY

Permit Number: ESPER0003405

Version Number: 0

Effective: 2021-07-23 **Expires:** 2026-12-31

- B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local, tribal, or other Federal law.
- C. Valid for use by named Permittee (Crystal A. Griffin).
- C.1. Unnamed assistants may work on permitted activities only under the direct and on-site supervision of Crystal A. Griffin. "On-site supervision" is defined as having the Permittee at a distance close enough to enable immediate assistance to a supervised individual, as needed, while the supervised individual conducts an authorized activity. **Named Permittee must remain present at each mist-net [harp trap] site while it is being operated.**
- D. Acceptance of this permit serves as evidence that the Permittee understands and agrees to abide by the terms of this permit and all sections of Title 50 Code of Federal Regulations (CFR), Parts 13 and 17, pertinent to issued permits (https://www.ecfr.gov/cgi-bin/text-idx?c=ecfr&sid=a1d34199d1ab36c8b78ecd06a7fa5180&tpl=/ecfrbrowse/Title50/50cfr13_main_02.tpl and <https://www.ecfr.gov/cgi-bin/text-idx?node=50:2.0.1.1.1&rgn=div5>). Section 11 of the Endangered Species Act of 1973, as amended, provides for civil and criminal penalties for failure to comply with permit conditions.
- A request for permit renewal and the \$100 application processing fee must be received **at least 30 days prior to the expiration date** of this permit to continue conducting authorized activities under the expired permit while your application is being processed (subject to compliance with 50 CFR, Parts 13.21 and 13.22). Please use <https://fwsepermits.servicenowservices.com/fwse> to obtain specific information regarding the new ePermitting process to apply for and submit your digital recovery permit application and application processing fee. When these requirements are not met, this permit becomes invalid on the expiration date. *Unless otherwise instructed within the Authorizations and Conditions*, **annual reports** are due by January 31 following each year your permit is in effect and shall be submitted to all offices identified in the permit Conditions.
- E. Permittee is authorized to take (capture with mist nets or harp traps, handle, identify, radio-tag, band, collect non-intrusive measurements, and release) Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*), and Ozark big-eared bat (*Corynorhinus townsendii ingens*) for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does **not** authorize the collection of voucher specimens.
- F. Activities are authorized at the following locations:
- F.1. Within the U.S. Fish and Wildlife Service (USFWS) Regional New Mexico office State: Oklahoma, upon receipt of written concurrence from the Field Supervisor, and upon coordination with Ozark Plateau National Wildlife Refuge prior to (1) surveys of caves known to be used by federally-listed bats, and (2) examinations of caves suspected of



NATIVE ENDANGERED & THREATENED SP.
RECOVERY

Permit Number: ESPER0003405

Version Number: 0

Effective: 2021-07-23 **Expires:** 2026-12-31

containing federally-listed bat species (some presence/absence surveys may require the presence of a U.S. Fish and Wildlife Service Biologist), and as outlined in Condition G.

- F.2. Within the USFWS Midwest Region 3 States: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- F.3. Within the USFWS Regional Georgia office States: Alabama, Arkansas, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- F.4. Within the USFWS Regional Massachusetts office States: Connecticut, Delaware, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- F.5. Within the USFWS Regional Colorado office States: Kansas, Nebraska, North Dakota, and South Dakota, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.

G. Permittee shall notify and request approval from the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is available at: <https://www.fws.gov/midwest/endangered/permits/index.html>. Your request for this site-specific approval must be in writing and must indicate:

- G.1. Species for which proposed activities are being conducted.
- G.2. Location of proposed activities, including project site, county, and state.
- G.3. A complete description of activities (i.e., proposed project plan, including purpose and need, surveys, methods, etc.).
- G.4. Dates when the project is proposed to take place.
- G.5. Evidence that Permittee has received any required contracts to complete the activities.
- G.6. Whether all annual reporting requirements have been fulfilled.

You may proceed with only the activities described in your written concurrence letter, upon receipt from the applicable USFWS Field Supervisor. ***Your concurrence letter must be carried with this permit to authorize site-specific activities.***



NATIVE ENDANGERED & THREATENED SP.
RECOVERY

Permit Number: ESPER0003405

Version Number: 0

Effective: 2021-07-23 **Expires:** 2026-12-31

H. Permittee shall adhere to the following conditions involving capture and handling of bats:

H.1. Bats may be captured with mist nets following the protocol included in the Range-wide Indiana Bat Summer Survey Guidelines. Guidelines are available at:

<https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. **Note:** Permittee must use the most up-to-date version of the Summer Survey Guidelines, available on the USFWS website page, for your summer surveys. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

H.2. Bats may be captured with harp traps with written concurrence from the Field Supervisor in the state in which trapping is proposed. **Harp traps must be continually monitored.** Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

Named Permittee must remain present at each mist-net and harp trap site while it is being operated.

H.3. Permittee shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., Bat Reporting Spreadsheet). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.

H.4. Lipped metal bands having a unique identifier may be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Bands should be applied to the forearm of captured bats prior to release. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.

H.5. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (forearm band, transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first.



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- H.6. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the USFWS Field Supervisor for the state in which the activities are proposed to occur.
- H.7. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at:
<https://www.whitenosesyndrome.org/topics/decontamination>.
- H.8. Ozark big-eared bats (*Corynorhinus townsendii ingens*) shall be immediately removed from the net/trap after capture, then processed and released. When there are multiple bats in the net, Ozark big-eared bats (OZBB) shall be removed first and processed as quickly as possible. If this is not possible, the species shall be placed into a **HOLDING CAGE** and held no longer than 10 minutes. Place the cage in a dark, quiet location, and process all as soon as possible. **Do not put these bat species in holding bags, nor in an individual holding bag or container** (*C. t. ingens* are highly social and being held individually in a bag increases stress and can lead to mortality). Holding cage options include small rubber/plastic/vinyl coated soft-sided (mesh) pet carriers or modified standard minnow traps with rubber coated mesh where the top of the trap is either a plastic bucket or flower pot with a hole in the center (contact the OZBB Lead Recovery Biologist for further information on acceptable enclosures -- see Condition Q.4. for contact information). A holding cage shall contain only multiple OZBBs (avoid overcrowding). Do not place other species/subspecies in either cage(s). Holding cages shall be decontaminated using the most current White-nose Syndrome decontamination guidance after a night of use (<https://www.whitenosesyndrome.org/topics/decontamination>). Do not decontaminate holding cages within a single net night.

When an OZBB appears to be going into shock (i.e., becomes limp and unresponsive), place the bat in a dark, quiet location either on a rock or other flat surface considered the safest option for the bat in that situation to recover (removed from capture activities and predators) and monitor it periodically. **Do not continue to handle the bat, nor place it in a holding cage or in a holding cage with other OZBBs.** If the stressed bat recovers, release it immediately without an attempt to gather additional data, collect samples, apply a band or a transmitter, etc.

- H.9. Permittee is not authorized to take Virginia big-eared bat (*C. t. virginianus*). The USFWS acknowledges that incidental (unintentional) capture of this co-occurring listed bat species may potentially occur while conducting lawful survey activities directed at authorized bat species. This permit **does not authorize** any activities for the specific purpose of capture of Virginia big-eared bats. Permittee shall be observant and cautious to eliminate or minimize “take” of co-occurring listed species to the maximum extent practicable. In the event of incidental (unintentional) capture of Virginia big-eared bat, Permittee shall immediately remove the bat(s) from the net/trap after



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capture, document with a photograph and release at the capture site. ***Do not put these bat species in holding cages, bags, or containers.*** Within 48 hours, you must notify the USFWS Field Office in the state in which you are working of the incidental capture (see <https://www.fws.gov/midwest/endangered/permits/index.html>).

H.10. When carrying out mist-netting and handling of bats under this permit, Permittee must use COVID-specific Personal Protective Equipment (PPE) in addition to the PPE already identified by the USFWS and states for mitigating the risk of spread of the fungus that causes white-nose syndrome, which includes the use of disposable gloves, disposable or site-dedicated clothing, and adherence to decontamination procedures. COVID-specific PPE is a non-vented N95 respirator (no exhalation valve) or any respirator or mask that provides a similar level of protection filtering exhaled air (https://www.cdc.gov/niosh/nppt/topics/respirators/disp_part/respsource1quest3.html#half).

- I. Upon determination that endangered or threatened bats are present at previously undocumented sites, Permittee shall notify the following within 48 hours: the USFWS Midwest Region 3 Recovery Permit Coordinator, the Species Recovery Lead (see below), and the USFWS Field Office within the geographic location of study areas (<https://www.fws.gov/midwest/endangered/permits/index.html>).
- J. Accidental injury or mortality may not exceed two (2) specimens. In the event that any accidental injury or mortality occurs, all activities must cease. The Permittee must report any bat mortality or serious injury within 24 hours to the applicable USFWS Field Office in the state in which the incident occurred (contact information provided at: <https://www.fws.gov/midwest/endangered/permits/index.html>). Written notification must also be made within 48 hours to the Midwest Region 3 Regional Recovery Permit Coordinator and the Species Recovery Lead (see below). The Permittee's statement must document the cause of the injury or mortality, and identify all remedial measures employed by the Permittee to eliminate future mortality or injury events. Based on consultation between the USFWS offices, decisions will be made regarding remedial measures that will be implemented and whether and/or when any of the authorized activities may continue. The Species Recovery Lead Office will provide a decision within five (5) business days concerning the disposition of any injured or dead specimen. Dead or moribund bats may be retained for further study only with the written permission of the USFWS. Any bats that are not authorized for retention are to be chilled and promptly transferred to the USFWS Species Recovery Lead for potential necropsy and/or contaminants analysis. Permitted activities may resume upon receipt of written approval from the Species Recovery Lead Office.
- K. This permit is non-transferable.
- L. Permittee must carry a copy of this permit at all times when conducting the authorized activities. Shipments of collected biological materials should also be accompanied by a copy of this permit. Note that this permit is limited to the above activities and identified species.



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- M. Issuance of this permit does not constitute permission to conduct these activities on National Wildlife Refuges or any other public or private lands; such permission must be obtained separately from the appropriate landowner or land manager before beginning these authorized activities. This permit, neither directly nor by implication, grants the right of trespass.
- N. Upon locating a dead, injured, or sick federally listed species, under circumstances not addressed in this authorization, initial notification must be made immediately to the USFWS Field Office in the state in which the specimen is found (<https://www.fws.gov/midwest/endangered/permits/index.html>) (<https://www.fws.gov/midwest/endangered/permits/index.html>). Notification should also be made by the next business day to the USFWS' Midwest Region 3 Recovery Permit Coordinator identified below. Those offices will confer with the USFWS' Division of Law Enforcement as appropriate and determine next steps. Care should be taken in handling sick, injured, or dead specimens to ensure effective treatment or to preserve biological materials for later analysis. In conjunction with the care of sick or injured endangered or threatened species, and the preservation of biological materials from a dead individual, the finder should take responsible steps to ensure that the site is not unnecessarily disturbed.
- O. An Annual Report of all activities conducted under the authority of this permit is due by January 31 following **each year** this permit is in effect. When assisting with netting, the permit number of the individual responsible for each capture should be recorded on the data collection form. Reports shall be sent electronically and your transmittal email must cite your Federal permit number, Permittee name, and the Annual Report year in the subject line (**Note: thumb drives/flash drives and links to documents cannot be accepted**). In addition, copies of all publications and reports resulting from work conducted under this permit must be submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report shall include:
- O.1. The "Bat Reporting Spreadsheet" is required for reporting data and can be found on the FWS Midwest Permits website (<https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>). Prior to reporting, check the permits website to ensure you are using the most up to date form. Using the reporting form will help standardize data collection and increase efficiency in reporting.
- O.2. The date, time, geographic locations (including datum and projection information), species, age, sex, and weight of all bats encountered.
- O.3. A description of locations surveyed where no bats were encountered.
- O.4. Band numbers of all bats banded.
- O.5. Information on any injuries and/or mortalities and disposition of specimens.
- O.6. Location and characteristics of roost trees and bat colonies.



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- O.7. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
- O.8. A completed data collection sheet as found in the Survey Guidelines, cited in Condition H.1.
- O.9. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., the reporting spreadsheets found on the current Rangewide Indiana Bat Summer Survey Guidelines website cited in Condition H.1., or other species-specific data sheets). Photographs of the identifying characteristics for each individual federally listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- O.10. Copies of all site-specific authorization letters required under Condition G.

IF NO ACTIVITIES OCCURRED OVER THE COURSE OF THE YEAR, INDICATION OF SUCH SHALL BE SUBMITTED AS AN ANNUAL REPORT.

- P. Copies of your reports shall be sent to **all offices** indicated below. Your transmittal letter (or email) must cite your Federal permit number, Permittee name, and the Annual Report year in the subject line. Electronic copies shall be submitted in MS Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office (**thumb drives/flash drives and links to documents cannot be accepted**).

P.1. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Ecological Services – Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov

P.2. Regional Recovery Permit Coordinator
U.S. Fish and Wildlife Service
Endangered Species Permits Office
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6420; fax 505/248-6788)
permitsR2ES@fws.gov



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P.3. Regional Recovery Permit Coordinator

U.S. Fish and Wildlife Service
Endangered Species Permits Office
1875 Century Blvd.
Atlanta, Georgia 30345-3301
(404/679-7097; fax 404/679-7081)
permitsR4ES@fws.gov

P.4. Regional Recovery Permit Coordinator

U.S. Fish and Wildlife Service
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(413/253-8212; fax 413/253-8482)
permitsR5ES@fws.gov

P.5. Regional Recovery Permit Coordinator

U.S. Fish and Wildlife Service
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489
(303/236-4224; fax 303/236-0027)
permitsR6ES@fws.gov

Q. Additionally, based on species, reports and publications shall be submitted to the following:

Q.1. *For studies involving gray bat:*

Vona Kuczynska
U.S. Fish and Wildlife Service
Missouri Field Office
101 Park DeVille Drive, Suite A
Columbia, Missouri 65203-0007
(573/234-2132; fax 573/234-2181)

Q.2. *For studies involving Indiana bat:*

Lori Pruitt



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U.S. Fish and Wildlife Service
Indiana Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261; fax 812/334-4273)

Q.3. *For studies involving northern long-eared bat:*

Jill Utrup
U.S. Fish and Wildlife Service
Minnesota-Wisconsin Field Office
4101 American Blvd. E.
Bloomington, Minnesota 55425-1665
(952/252-0092; fax 952/646-2873)

Q.4. *For studies involving Ozark big-eared bat:*

Richard Stark
U.S. Fish and Wildlife Service
Ozark Plateau National Wildlife Refuge
9014 East 21st Street
Tulsa, Oklahoma 74129
(918/382-4520; fax 918/581-7467)

R. Additionally, based on geographic area, **reports and publications shall be submitted to** the applicable offices under “For Fish and Wildlife Permit Holders” at: <https://www.fws.gov/midwest/endangered/permits/index.html>.

cc: FWS/Regional Offices – New Mexico, Georgia, Massachusetts, Colorado (Attn: Regional Recovery Permit Coordinator)
FWS, TE Coordinator: Illinois-Iowa, Indiana, Michigan, Minnesota-Wisconsin, Missouri, Ohio
DNR/DOC, TE Coordinator: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin

END



NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE

Permit Number: TE99058B-0

Effective: 10/31/2016 Expires: 12/31/2021

Issuing Office:

Department of the Interior
U.S. FISH & WILDLIFE SERVICE
Endangered Species Permit Office
5600 American Boulevard, West, Suite 990
Bloomington, MN 55437-1458
permitsR3ES@fws.gov

Permittee:

JOSHUA R FLINN
12504 E. 34TH TER S
INDEPENDENCE, MO 64055
U.S.A.

CHIEF - ENDANGERED SPECIES

Authority: Statutes and Regulations: 16 USC 1539(a), 16 USC 1533(d); 50 CFR 17.22, 50 CFR 17.32, 50 CFR 13.

Location where authorized activity may be conducted:

ON LANDS SPECIFIED WITHIN THE ATTACHED SPECIAL TERMS AND CONDITIONS

Reporting requirements:

ANNUAL REPORT DUE: 01/31

See permit conditions for reporting requirements

Conditions and Authorizations:

- A. GENERAL CONDITIONS SET OUT IN SUBPART D OF 50 CFR 13, AND SPECIFIC CONDITIONS CONTAINED IN FEDERAL REGULATIONS CITED ABOVE ARE HEREBY MADE A PART OF THIS PERMIT. ALL ACTIVITIES AUTHORIZED HEREIN MUST BE CARRIED OUT IN ACCORD WITH AND FOR THE PURPOSES DESCRIBED IN THE APPLICATION SUBMITTED. CONTINUED VALIDITY, OR RENEWAL, OF THIS PERMIT IS SUBJECT TO COMPLETE AND TIMELY COMPLIANCE WITH ALL APPLICABLE CONDITIONS, INCLUDING THE FILING OF ALL REQUIRED INFORMATION AND REPORTS.
- B. THE VALIDITY OF THIS PERMIT IS ALSO CONDITIONED UPON STRICT OBSERVANCE OF ALL APPLICABLE FOREIGN, STATE, LOCAL, TRIBAL, OR OTHER FEDERAL LAW.
- C. VALID FOR USE BY PERMITTEE NAMED ABOVE.
 - C.1. VALID FOR USE BY PERMITTEE NAMED ABOVE AND FOR USE BY JOSHUA FLINN. UNNAMED ASSISTANTS MAY WORK ON PERMITTED ACTIVITIES ONLY UNDER THE DIRECT AND ON-SITE SUPERVISION OF NAMED PERMITTEE. **At least one named permittee must remain present at each mist-net site while it is being operated.**
- D. ACCEPTANCE OF THIS PERMIT SERVES AS EVIDENCE THAT THE PERMITTEE AND ITS AUTHORIZED AGENTS UNDERSTAND AND AGREE TO ABIDE BY THE TERMS OF THIS PERMIT AND ALL SECTIONS OF TITLE 50 CODE OF FEDERAL REGULATIONS, PARTS 13 AND 17, PERTINENT TO ISSUED PERMITS (<http://www.fws.gov/permits/ltr/ltr.html>). SECTION 11 OF THE ENDANGERED SPECIES ACT OF 1973, AS AMENDED, PROVIDES FOR CIVIL AND CRIMINAL PENALTIES FOR FAILURE TO COMPLY WITH PERMIT CONDITIONS.

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ENDANGERED & THREATENED WILDLIFE**Permit Number: TE99058B-0**
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- E. Permittee is authorized to take (capture with mist nets, handle, identify, radio-tag, band and release) Indiana bat (*Myotis sodalis*), gray bat (*Myotis grisescens*), northern long-eared bat (*Myotis septentrionalis*) Virginia big-eared bat (*Corynorhinus townsendii virginianus*), and Ozark big-eared bat (*Corynorhinus townsendii ingens*) for scientific research aimed at recovery of the species: presence/absence surveys, studies to document habitat use, population monitoring, and to evaluate potential impacts. This permit does **not** authorize the collection of voucher specimens.
- F. Activities are authorized at the following locations:
- F.1. Location within Region 2 of the USFWS: Oklahoma, upon receipt of written concurrence from the Field Supervisor, and upon coordination with Ozark Plateau National Wildlife Refuge prior to (1) surveys of caves known to be used by federally-listed bats, and (2) examinations of caves suspected of containing federally-listed bat species (some presence/absence surveys may require the presence of a U.S. Fish and Wildlife Biologist), and as outlined in Condition G.
 - F.2. Locations within Region 3 of the USFWS: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.3. Locations within Region 4 of the USFWS: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.4. Locations within Region 5 of the USFWS: Connecticut, Delaware, District of Columbia, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia and West Virginia, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
 - F.5. Locations within Region 6 of the USFWS: Kansas, Montana, Nebraska, North Dakota, South Dakota, and Wyoming, upon receipt of written concurrence from the Field Supervisor, as outlined in Condition G.
- G. Permittee shall notify the USFWS Field Supervisor for the state in which activities are proposed to occur at least 15 days prior to conducting any activities. Contact information is available at: <https://www.fws.gov/midwest/endangered/permits/index.html>. Your request for this site-specific approval must be in writing and must indicate:
- G.1. Species for which proposed activities are being conducted.
 - G.2. Location of proposed activities, including project site, county, and state.
 - G.3. A description of the activities (i.e., surveys, radio-telemetry studies, etc.).
 - G.4. Dates when the project is proposed to take place.
 - G.5. Evidence that Permittee has received any required contracts to complete the activities.
 - G.6. Whether all annual reporting requirements have been fulfilled.
 - G.7. You may proceed with activities only upon receipt of written concurrence from the applicable USFWS Field Supervisor. *Your concurrence letter must be carried with this permit to authorize site-specific activities.*
- H. Permittee shall adhere to the following conditions involving capture and handling of bats:
- H.1. Bats may be captured with mist nets following the protocol included in the Range-wide Indiana Bat Summer Survey Guidelines. Guidelines are available at: <http://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html>. Note that you must use the most up-to-date version of the Summer Survey Guidelines, available on the USFWS website page, for your summer surveys. The monitoring interval for mist nets is +/- 10 minutes and may not exceed 15 minutes. Captured bats may be held for a maximum of 30 minutes, unless injured. In extenuating circumstances, bats shall be held for no longer than 45 minutes.

NATIVE ENDANGERED & THREATENED SP. RECOVERY
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- H.2. Permittee shall carry out non-intrusive measurements on all captured bats. Data shall be recorded for all bats captured and include, but not be limited to, the data requested in any automated or species specific data sheet provided by the USFWS (e.g., Bat Reporting Spreadsheet). Handling should be limited to the maximum extent practicable and should cease immediately at signs of undue stress (e.g., bat becoming unresponsive, etc.). Bats that appear stressed from handling should be placed in a dark, quiet location away from activity where it can safely fly away after recovery, and should be checked to ensure successful recovery before leaving the study site. Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- H.3. Lipped metal bands having a unique identifier may be applied to the forearm of captured bats prior to release. No more than one band per bat may be used. Bands should be applied to the forearm of captured bats prior to release. Position the band on the wing so that when the bat is hanging upside down, the band numbers are right-side up. A single band should be placed on the right forearm of each male and the left forearm of each female bat.
- H.4. Radio transmitters may be applied during spring, summer, and fall roosting and migration periods via nontoxic skin bond adhesive. The total weight of the transmitter may not exceed 5% of the bat's body weight and the total weight of the package (transmitter and adhesive) may not exceed 6% of the bat's body weight. The lightest package (both transmitter and adhesive) capable of accomplishing the required task should be used, especially with pregnant females and newly volant juveniles. Bats carrying transmitters must be monitored daily for at least three days, or until the transmitter falls off, whichever occurs first.
- H.5. No trapping activities shall occur within 20 meters of a known Indiana bat maternity roost site, either natural or artificial roosts, unless Permittee receives prior written approval from the U.S. Fish and Wildlife Service Field Supervisor for the state in which the activities are proposed to occur.
- H.6. Equipment used to capture and handle bats shall be cleaned and decontaminated, including personal gear such as boots and gloves, using products cited in decontamination guidelines and in compliance with label directions. The most recent decontamination guidance is found on the web at:
<https://www.whitenosesyndrome.org/topics/decontamination>.
- I. Upon determination that endangered or threatened bats are present at previously undocumented sites, Permittee shall notify the following offices within 48 hours: the U.S. Fish and Wildlife Service Region 3 Office (Condition L.), and the U.S. Fish and Wildlife Service Field Office within the geographic location of study areas (<https://www.fws.gov/midwest/endangered/permits/index.html>).
- J. Accidental mortality may not exceed two specimens. In the event that this number is met, all activities must cease. Any bat mortality or serious injury must be reported within 5 calendar days to the applicable U.S. Fish and Wildlife Service office based on location of mortality event and to the nearest U.S. Fish and Wildlife Service Law Enforcement, Special Agent Office (<http://www.fws.gov/offices>). Dead or moribund bats may be retained for further study only with the written permission of the U.S. Fish and Wildlife Service. Any bats that are not authorized for retention are to be chilled and promptly transferred to the U.S. Fish and Wildlife Service for potential necropsy and/or contaminants analysis (Condition L.6.).
- K. An annual report of all activities conducted under the authority of this permit is due by January 31 following each year this permit is in effect. In addition, copies of all publications and reports resulting from work conducted under this permit must be submitted as they become available. Failure to furnish any reports required by this permit is cause for permit revocation and/or denial of future permit applications. At a minimum, your report shall include:
- K.1. The date, time, geographic locations (including datum and projection information), species, age, sex, and weight of all bats encountered.
- K.2. A description of locations surveyed where no bats were encountered.
- K.3. Band numbers of all bats banded.
- K.4. Information on any injuries and/or mortalities and disposition of specimens.
- K.5. Location and characteristics of roost trees and bat colonies.



NATIVE ENDANGERED & THREATENED SP. RECOVERY
ENDANGERED & THREATENED WILDLIFE

Permit Number: TE99058B-0

Effective: 10/31/2016 Expires: 12/31/2021

- K.6. Copies of any separate reports and/or publications resulting from work conducted under the authority of this permit.
- K.7. A completed data collection sheet as found on the Range-wide Indiana Bat Summer Survey Guidelines website page, cited in Condition H.1.
- K.8. Data shall be submitted for all bats captured and include, but not be limited to, the data requested in any automated or species-specific data sheet provided by the USFWS (e.g., the data collection sheets found on the current Rangewide Indiana Bat Summer Survey Guidelines website page cited in Condition H.1., or other species specific data sheets). Photographs of the identifying characteristics for each individual federally-listed species captured are encouraged. The Permittee may be requested to provide individual photographs after submittal of annual reporting data.
- K.9. Copies of all site specific authorization letters required under Condition G.

If no activities occurred over the course of the year, indication of such shall be submitted as an annual report.

- L. Copies of your reports shall be sent to the offices listed below. When possible, electronic copies shall be submitted in lieu of hard copies in MS Word, Portable Document Format, Rich Text Format, or other file format that is compatible with the receiving office.

- L.1. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Midwest Region (Region 3)
Ecological Services - Endangered Species
5600 American Blvd. W., Suite 990
Bloomington, Minnesota 55437-1458
(612/713-5343; fax 612/713-5292)
permitsR3ES@fws.gov
- L.2. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southwest Region (Region 2)
Endangered Species Permits Office
P.O. Box 1306
Albuquerque, New Mexico 87103-1306
(505/248-6649; fax 505/248-6788)
permitsR2ES@fws.gov
- L.3. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Southeast Region (Region 4)
Endangered Species Permits Office
1875 Century Blvd., Suite 200
Atlanta, Georgia 30345-3301
(404/679-7097; fax 404/679-7081)
permitsR4ES@fws.gov
- L.4. Regional Recovery Permits Coordinator
U.S. Fish and Wildlife Service - Northeast Region (Region 5)
Endangered Species Division
300 Westgate Center Drive
Hadley, Massachusetts 01035-9589
(703/358-2402; fax 413/253-8482)
permitsR5ES@fws.gov
- L.5. ESA Assistant Recovery Coordinator & Permit Coordinator
U.S. Fish and Wildlife Service - Mountain-Prairie Region (Region 6)
Endangered Species Permits Office
Denver Federal Center, P.O. Box 25486
Denver, Colorado 80225-0489



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(719/628-2670; fax 303/236-0027)
permitsR6ES@fws.gov

L.6. Lori Pruitt
Endangered Species Coordinator
U.S. Fish and Wildlife Service
Ecological Services Field Office
620 S. Walker Street
Bloomington, Indiana 47403-2121
(812/334-4261 x1213; fax 812/334-4273)

M. Additionally, based on geographic area, reports and publications shall be submitted to the offices listed under Field Office
Contact Information at: <https://www.fws.gov/midwest/endangered/permits/index.html>

cc: FWS/Region 2, 4, 5, and 6 (Attn: Regional Recovery Permit Coordinator)
FWS, TE Coordinators: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin
DNR/DOC, TE Coordinators: Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin

END



TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

Scientific Collection Permit : 1491

Issue date: 5/17/2021

Expiration date: 5/17/2022

Pursuant to authority of T.C.A. 70-2-213: James D. Kiser

and the following additional permittees:

James D. Kiser, David Saugey, Lynda Mills, Lynda Wight, Kim Carter, Doug Stephens, Wes Cunningham, Angela Sjollema, Jody Nicholson, Hannah Stoffs, Josh Adams, and Julia Wilson

are granted permission to take the following species:

All species of bats native to Tennessee, including the endangered Indiana bat (*Myotis sodalis*), endangered gray bat (*Myotis grisescens*), endangered Virginia big-eared bat (*Corynorhinus townsendii virginianus*), threatened northern long-eared bat (*Myotis septentrionalis*), and non-federally listed species such as the little brown bat (*Myotis lucifugus*), southeastern bat (*Myotis austroriparius*), eastern small-footed bat (*Myotis leibii*), tri-colored bat (*Perimyotis subflavus*), evening bat (*Nycticeius humeralis*), big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), hoary bat (*Lasiurus cinereus*), Seminole bat (*Lasiurus seminolus*), Rafinesque's big-eared bat (*Corynorhinus rafinesquii*), and Brazilian free-tailed bat (*Tadarida brasiliensis*). All though not a target species, the southern flying squirrel (*Glaucomys volans*), is often captured during mist net surveys for bats. The number of individuals captured for each species in mist nets are unknown, but all animals will be removed from nets, identified to species, weighed and measured, photographed, and released immediately at the capture site within 30 minutes of capture. If an Indiana and/or northern long-eared bat is captured, up to five animals per site might be fitted with a radio-transmitter and tracked to day roost sites. Bats will also be fitted with uniquely numbered arm bands as issued by TWRA. See attached file entitled "TDOT-Region-1_2020-Bat-Survey-Plan.pdf" for normal survey activities.



TENNESSEE WILDLIFE RESOURCES AGENCY

ELLINGTON AGRICULTURAL CENTER
P. O. BOX 40747
NASHVILLE, TENNESSEE 37204

Scientific Collection Permit : 1491

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Restricted to the following locations:

Statewide - Depending on contracts received and notification of TWRA Regional Offices. Bat survey plans are prepared and must also receive approval from the U.S. Fish and Wildlife Service - Cookeville Field Office.



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Restricted to the following collection methods:

Summer mist net surveys will follow methods outlined by USFWS's 2020 Range-wide Indiana bat Summer Survey Guidelines, and outlined in TDOT's request for man-hour estimates. Surveys will be completed between 15 May - 15 August. Mist nets and harp traps will be used to capture bats. Radio-transmitters appropriate for each bats body mass will be used to track to roost sites.

Subject to the following rules:

Wildlife may not be held longer than 24 hours without prior approval. All containers and equipment utilized in the collection of amphibians and reptiles shall be decontaminated and disinfected for ranavirus and other pathogens. This permit is invalid unless accompanied by all applicable federal permits.

No species listed by TWRA as endangered, threatened, in need of management, or of greatest conservation need may be taken without approval; release these species immediately. Report the occurrence of endangered or threatened species to TWRA within five days.

Prior to collecting in the field, you are required to notify the TWRA Regional Dispatcher with the name(s) of person(s) doing the collecting, where, when and what species you will be collecting. Contact information is attached.

Executive Director, Tennessee Wildlife Resources Agency

5/17/2021

Date

The State of Tennessee

AN EQUAL OPPORTUNITY EMPLOYER