

FLOODWAY HABITAT MITIGATION PLAN

ELLIOTT DITCH – REACHES 4 – 6 INTERIM MEASURES PROJECT

**ARCONIC US, LLC
3131 EAST MAIN STREET
LAFAYETTE, INDIANA 47905**

Prepared for:



ARCONIC

**MR. ROBERT PREZBINDOWSKI
TENNESSEE OPERATIONS – NORTH PLANT
2300 NORTH WRIGHT ROAD
ALCOA, TENNESSEE 37701**

Prepared by:

**CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
2704 CHEROKEE FARM WAY, SUITE 101
KNOXVILLE, TN 37920**

CEC PROJECT 315-052.0015

**AUGUST 2023
REVISION 3**



Civil & Environmental Consultants, Inc.

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1.0 EXECUTIVE SUMMARY

Civil & Environmental Consultants, Inc (CEC), on behalf of Arconic US, LLC (Arconic), is pleased to provide the Indiana Department of Natural Resources (IDNR) this Floodway Habitat Mitigation Plan (HMP) in support of the Construction in a Floodway Permit Application associated with the Elliott Ditch Reaches 4-6 Interim Measures (IM) Project (FW-32124-0). The IM Project is being performed under the direction and supervision of the United States Environmental Protection Agency (U.S. EPA), Region 5 and the Indiana Department of Environmental Management (IDEM) Office of Land Quality (OLQ). The IM Project is also being conducted in accordance with site-wide Resource Conservation and Recovery Act (RCRA) Corrective Action at the Arconic Lafayette Facility (Facility) being administered by IDEM OLQ. This Project is considered the second mobilization of the Elliott Ditch IM Project and is not related to the previous investigation and remediation efforts performed in Reaches 1-3. Remedial activities in Reaches 4-6 will be managed as a single project, regardless of if the execution of the scope of work is performed over multiple construction seasons. This application contemplates the total areas of disturbance, tree removal, etc., across each of the three reaches (Reaches 4-6). The objective of the IM Project is to remove sediment and soil from Reaches 4-6 of Elliott Ditch that contain PCBs concentrations exceeding the risk-based remedial objective (RBRO), according to geomorphology-based assessments. In order to successfully execute the IM Project, floodway disturbances will be required.

The excavation and removal of soil associated with this IM project is estimated to impact up to 5.28-acres of riparian habitat (i.e., non-wetland) within the floodway. Based upon discussions between Arconic, IDNR, and CEC on August 18, 2023, and an email from Mr. Brian Boszor with IDNR on August 21, 2023, Arconic understands that IDNR plans to recognize the remediation of polychlorinated biphenyls (PCBs) within the floodway as a justification for reducing the required mitigation ratio. Based upon the planned remedial footprints, approximately 7.06-acres will be disturbed as part of PCB remedial cleanup in Reaches 4-6 (includes impacts within and adjacent to the floodway). As a result of the remediation of PCBs, IDNR has authorized Arconic to pursue a 2:1 restoration mitigation approach. Of the 7.06-acres of disturbed area, 5.28-acres will include non-wetland tree removal in an urban area and subject to the 2:1 compensatory habitat mitigation, resulting in 10.56-acres of mitigation area. At least 5.28-acres of mitigation will be performed immediately adjacent to Elliott Ditch within the floodway. The remaining 5.28-acres will be mitigated either along Elliott Ditch should sufficient acreage be identified and approved by private property owners, at other areas within the Hydrologic Unit Code (HUC), out-of-kind mitigation, and/or through the in-lieu fee system.

The HMP has been developed in accordance with the Indiana Natural Resources Commission Information Bulletin #17 (Sixth Amendment): Floodway Habitat Mitigation dated October 20, 2021 (Bulletin). Arconic has identified areas within the 8-digit (HUC) area where mitigation may

be performed. Arconic intends to mitigate within areas of the floodway where tree removal is required for the IM Project either for access or cleanup purposes so long as it is not within a residential backyard. Arconic has identified other potential areas within the HUC; however, further discussion with private property owner(s) is necessary for approval. Should Arconic not be able to satisfy the full compensatory mitigation acreage within the HUC, Arconic will pursue credits through the In-Lieu Fee Program.

This HMP identifies two types of mitigation areas:

- Mitigation areas that are currently approved for use; and,
- Mitigation areas that may potentially be utilized pending future discussions with private property owners that have not previously been engaged with this IM Project.

This HMP outlines the guidelines for the preparation of soil and planting of native trees, shrubs, forbs, and ground cover.

Arconic understands that IDNR is interested in several potential projects (i.e., out-of-kind mitigation) within Elliott Ditch to improve the passage of fish and wildlife. The monetary value of the in-lieu fee for mitigation credits would be used by Arconic to perform some or all the projects proposed by IDNR. Arconic is open to assessing the feasibility of these projects with the appropriate stakeholders as part of planning for the final mitigation approach. Arconic cannot guarantee stakeholders will support, agree, or cooperate in the performance of these projects. Should Arconic pursue out-of-kind mitigation, Arconic will provide IDNR a cost estimate for each proposed project balanced against the monetary value of mitigation through the in-lieu fee system. The cost estimate will include labor, materials, and fees for engineering drawings, Federal and State Permits, private property access agreements, contractor procurement, contractor performance of the work, contractor health and safety, oversight, management, solid waste management, post-construction site restoration including habitat mitigation for each project, and any other costs or fees associated with the project. Arconic will consider the projects that are equal to or less than the total cost of the in-lieu fee to be paid for mitigation.

The IDNR projects are:

- Removal of a log-jam near Mile Post 2.10;
- Removal and rerouting of an exposed utility crossing near Mile Post 1.80 which acts as a low-head dam;
- Removal of shotcrete near Mile Post 2.70 previously installed by others to protect a utility crossing; and,
- Removal of a dilapidated bridge structure near Mile Post 2.90.

Finally, the HMP identifies additional follow-up activities, in accordance with the Bulletin, to promote the success of Site restoration and enhancement efforts. These efforts include visits to the mitigation site and the submittal of monitoring reports to IDNR documenting the success of habitat restoration. Implementation of the approved HMP will help restore the loss of environmental benefit or ecological function from remedial activities.

2.0 INTRODUCTION

This HMP describes the mitigation approach to compensate for habitat impacts required as part of remedial activities being performed by Arconic along and within Reaches 4-6 of Elliott Ditch located in Lafayette, Indiana (i.e., Tippecanoe County) (see **Figures 1 and 2**). As provided in the IDNR Construction in a Floodway Assessment form submitted as part of application number FW-32124-0, the IM Project is estimated to disturb up to 13.03-acres in the floodway. Of the 13.03-acres, 5.28-acres contains non-wetland trees in an urban setting, and 0.46-acres is considered early successional habitat. The total unavoidable projected impact requiring mitigation is 5.28-acres (total acreage of non-wetland tree removal); therefore, the total compensatory 2:1 mitigation is 10.56-acres. This HMP includes the following components:

- Project background;
- Project objective;
- Mitigation site selection;
- Existing site conditions;
- Mitigation work plan;
- Maintenance plan;
- Success criteria; and,
- Monitoring plan.

2.1 Background

Arconic has unilaterally decided to remediate PCB-impacted sediment and soil in Reaches 4-6 of Elliott Ditch. The 2023 IM Work Plan (WP) has been prepared to address the safe movement and disposal of these materials, as well as restoration activities. The IM Project is being performed as part of RCRA Corrective Action administered by the IDEM OLQ with coordinated approval from the U.S. EPA, Region 5. IDEM provided regulatory approval of the IMWP in June 2023. Clearing of brush/trees and the installation of site improvements (i.e., access roads, decontamination pads, etc.) will be performed to facilitate access and support the successful execution of the Project. Approximately 50-tons of sediment from within Elliott Ditch will be removed for off-site disposal and replaced with clean fill material to match the natural stream gradient. In addition, approximately 25,000-tons of soil along Elliott Ditch will be removed for off-site disposal and replaced with clean fill material, installed in 9-inch lifts and compacted to 90-percent Standard Proctor, to match pre-excavation conditions. Following backfill installation, topsoil will be placed prior the installation of a native riparian seed mix within the riparian corridor. Erosion control blankets will be utilized to promote ground stabilization, if necessary. All bare and disturbed areas that are not currently mowed and maintained will be revegetated as soon as possible upon completion. Revegetation will include grasses, sedges, and wildflowers native to Northwestern Indiana and specifically for stream bank/floodway stabilization purposes. Finally, areas where

mowing currently occurs will include turf-type grasses. Arconic will obtain Access and Use Agreements from private property owners before any IM Project related activities occur on their property.

Unavoidable impacts to the riparian habitat will be required to support the successful execution of the IM Project. Arconic proposes that the mitigation site(s) to compensate for this removal be located within the regulated floodway of Elliott Ditch, where possible. Compensatory mitigation may also occur in the HUC within other floodways, outside of drainage easements. If the appropriate acreage cannot be secured, Arconic intends to utilize the In-Lieu Fee Program to fulfill its mitigation obligation.

2.2 Objective

The objective of this HMP is to identify the efforts that will be taken to compensate for the loss of riparian habitat along Elliott Ditch from approximately the 9th Street crossing to the Old Romney Road crossing after completion of this IM Project. The HMP has been prepared specifically to satisfy the IDNR habitat mitigation requirements as outlined in the Bulletin.

2.3 Site Selection

Arconic is committed to performing mitigation activities upon successful completion of the Project. As stated above, Arconic has identified two types of mitigation areas:

- Mitigation areas that are currently approved for use; and,
- Mitigation areas that may potentially be utilized pending future discussions with private property owners that have not previously been engaged with this IM Project.

Table 1 has been provided below identifying each mitigation area type and associated acreage. Attached **Figure 3** and **Figure 4** have also been provided to depict the location of potential mitigation property within the HUC. As stated previously, 5.28-acres will be mitigated immediately adjacent to Elliott Ditch within the floodway, while the remaining 5.28-acres will be mitigated as described previously. The 5.28-acres of mitigation within the floodway of Elliott Ditch will be accomplished with the remedial footprints of Reaches 5-6, where remediation is currently proposed, and in Reach 1¹ where remediation was previously performed and Access and Use Agreements² are currently in place for restoration activities. Arconic has identified 120.72-

¹ Within Reaches 5 and 6, 2.71-acres of the remediation area will be utilized for mitigation. Within Reach 1, 6.76-acres of mitigation area have been identified. Within the 6.76-acre area, the additional 2.57-acres of mitigation will be accomplished.

² In previous versions of this Habitat Mitigation Plan, mitigation areas in Reach 1 were classified as “probable”. Based upon the executed Access & Use Agreement between Arconic and property owners identified in Table 1 [i.e., Feature Numbers 7(a) and 8], restoration, including tree planting, is authorized to proceed.

acres of potential mitigation area located outside of the current and former project limits where the remainder of the mitigation may be performed (i.e., 5.28-acres). In order for these areas to proceed, coordination with private property owners is required. Downstream potential mitigation areas (i.e., from Reach 6) would require soil sampling to assess if future remedial activities are necessary as to not perform the mitigation in an area where clearing and soil removal will be required.

Table 1
Proposed Compensatory Mitigation Sites

Feature Number	Parcel Number	Mitigation Area Status	Owner Name	Property Address	Acreage
4	79-11-08-100-001.000-033		NIKKO LLC	225 E 300 S LAFAYETTE	0.75
5	79-11-08-251-001.000-032		PURDY HOME PLACE NORTH OF 350 LLC	505 E 350S	1.96
7(a)	79-11-03-376-010.000-033		LOCAL UNION #2317 UAW BUILDING CORPORATION	3107 OLYMPIA DR LAFAYETTE	1.61
8	79-11-03-326-001.000-033		TIPPECANOE PROPERTIES LLC	250E	2.44
MITIGATION AREA					6.76
1	79-11-07-126-011.000-031		NORFLEET ANTHONY R	W 350 S LAFAYETTE	3.97
2	79-11-07-126-002.000-031		NORFLEET DEBBIE A	710 W VETERANS MEMORIAL PKWY LAFAYETTE	5.70
3(a)	79-11-07-200-005.000-031		NEWTON CHARLES R & MELINDA	335 W 300 S LAFAYETTE	1.61
3(b)	79-11-07-200-002.000-031		JORDAN JASON & JESSICA L	307 W 300 S LAFAYETTE	0.57
3(c)	79-11-07-200-009.000-031		WEATHERFORD EARL T III & TENA M	W 300 S LAFAYETTE	0.24
6	79-11-09-227-013.000-032		CITY OF LAFAYETTE BOARD OF PARKS AND RECREATION	BRIDGEWATER CT LAFAYETTE	3.33
7(b)	79-11-03-376-008.000-033		LEASE ONE LLC	3119 OLYMPIA DR LAFAYETTE	0.33
9	79-11-02-151-001.000-033		TIPPECANOE COUNTY BOARD OF COMMISSIONERS	3550 BRADY LN LAFAYETTE	4.96
10(a)	79-11-02-176-002.000-033		INDIANA VOCATIONAL TECHNICAL COLLEGE	3101 S CREASY LN LAFAYETTE	4.27
10(b)	79-11-02-251-001.000-033		TIPPECANOE COUNTY BOARD OF COMMISSIONERS	ROSS RD LAFAYETTE	5.86
11	79-11-02-401-003.000-037		IVY TECH STATE COLLEGE	3101 S CREASY LN LAFAYETTE	10.93
12	79-11-01-476-003.000-037		KOEHLER RONALD D ETAL	SR38 E LAFAYETTE	2.67
13	79-10-12-100-006.000-021		WEINHARDT ELEANOR BAUER ETAL	3235 S 175 W LAFAYETTE	16.56
14	79-10-02-200-001.000-021		EVONIK CORPORATION	LILLY RD LAFAYETTE	59.72
POTENTIAL MITIGATION AREA TOTAL					120.72
<div style="display: flex; justify-content: space-between;"> <div style="width: 15%;"> <div style="background-color: #d9ead3; width: 20px; height: 10px; display: inline-block; margin-right: 5px;"></div> = Mitigation Area </div> <div style="width: 15%;"> <div style="background-color: #f2dede; width: 20px; height: 10px; display: inline-block; margin-right: 5px;"></div> = Potential Mitigation Area </div> </div>					

Arconic understands that IDNR prefers the mitigation to occur within the 8-digit HUC. Arconic will assess the feasibility of utilizing the properties identified on **Figure 3** and **Figure 4** as the primary mitigation option. Arconic is committed to mitigating within the remedial footprints located in the floodway, where appropriate. If the total compensatory mitigation cannot be satisfied within the acreage presented above, Arconic proposes to utilize the In-Lieu Fee Program for the remaining acreage balance as a secondary option per IDNR Bulletin #79 dated October 20, 2021.

3.0 EXISTING SITE CONDITIONS

The proposed mitigation areas are located along the left and right descending banks of Elliott Ditch and Wea Creek, both of which are tributaries to the Wabash River within the Middle Wabash – Little Vermillion watershed (HUC 05120108) downstream of Lafayette, Indiana. Property use along the floodway includes residential, commercial, and agriculture developments.

The existing floodway forest strata is dominated by box elder (*Acer negundo*), eastern white pine (*Pinus strobus*), Amur honeysuckle (*Lonicera maackii*), and wild ginger (*Asarum canadense*). Non-dominant species include white avens (*Geum canadense*), perennial ryegrass (*Lolium perenne*), Virginia creeper (*Parthenocissus quinquefolia*), poison ivy (*Toxicodendron radicans*), giant ragweed (*Ambrosia trifida*), and Frank’s sedge (*Carex frankii*). Representative photographs, as provided in the Construction in a Floodway Permit Application of current site conditions, have been provided in **Appendix A**.

As part of investigation activities performed prior the preparation of the 2023 IMWP, soil borings were advanced to assess conditions in Reaches 4-6. Sediment poling and sampling within Elliott Ditch was also performed to assess the locations and overall thickness of sediment deposits. Soils were typically light brown to black in color and had varying degrees of plasticity due to the presence of clays and silts. Root, leaf, and rock content were observed; however, it was typically less than 15-percent. Wood content was not observable. There were no distinguishable odors present in any of the soil samples. The granular structure of the soil was typically fine to very-fine and consisted predominately of loam with varying amounts of silt and sand. The loamy soil was observed to be loose, poorly graded, and contained organics. The soils sampled on all terraces were dominated primarily by topsoil characteristics of a mature forest, with a minor component of alluvial silts and sands.

4.0 MITIGATION PLAN

The HMP proposes the restoration and enhancement of up to 10.56-acres of floodway forest. As stated previously, Arconic intends to utilize the In-Lieu Fee Program should the remaining required mitigation area, beyond the required 5.28-acres discussed above, not be available to accommodate the compensatory mitigation and out-of-kind mitigation projects are impractical. The HMP recognizes avoidance of impact as the most effective method of mitigating against environmental impact to the Site. Effort will be made to protect existing vegetation and reduce impacts to riparian habitat in the area both during planning and execution of remedial activities. Components of the HMP include site preparation, groundcover seeding and species, shrub/tree planting and species, schedule for implementation, protection measures, and reporting.

4.1 Site Preparation

Prior to mitigation planting activities, the following activities will be performed, if necessary:

- Soil will be tilled to a depth of 8-inches to improve aeration, infiltration of precipitation, and reduce runoff in the targeted area.
- Topsoil containing sufficient organic material will be imported and spread over the mitigation area and tilled into the subsurface material.
- Soil amendments (e.g. nitrolized tree bark, organic compost) will be added in approved proportions and tilled into the soil to a depth of up to one-foot across the disturbed mitigation area.

An approved erosion and sedimentation control plan will be prepared and implemented to reduce excess runoff and reduce erosion to the mitigation site and reduce the potential for sedimentation to Elliott Ditch and tributaries. Engineering controls such as silt fencing installation and sowing temporary seed/mulch on exposed surfaces will be completed, as necessary.

4.2 Understory Herbaceous Seeding – Groundcover

Following soil layer preparation, the mitigation area will be seeded with grasses and herbaceous plants native to Indiana and included in the United States Department of Agriculture (USDA) Plants database specific to Tippecanoe County. A seed mixture will be used that includes at least five species of grasses and sedges, and five species of wildflowers as identified in **Table 2** provided below. Seeds will be mixed proportionally to ensure that no one species will dominate the understory. Fertilizers will not be used. Areas that are broadcast-seeded will be lightly raked after spread to ensure purchase of seed in soil. Rate of application will be completed as determined by the seed provided.

Table 2			
Plant Species List - Herbaceous			
Scientific Name	Common Name	Strata	Indicator Status
<i>Allium cernuum</i>	Nodding Wild Onion	Wildflower	FACU
<i>Amphicarpaea bracteata</i>	Hog Peanut	Wildflower	FAC
<i>Aquilegia canadensis</i>	Wild Columbine	Wildflower	FAC
<i>Carex blanda</i>	Eastern Woodland Sedge	Sedge	FAC
<i>Carex vulpinoida</i>	Fox Sedge	Sedge	OBL
<i>Geranium maculatum</i>	Wild Geranium	Wildflower	FACU
<i>Heliopsis helianthoides</i>	Smooth Oxeye	Wildflower	FACU
<i>Impatiens capensis</i>	Orange Jewelweed	Wildflower	FACW
<i>Juncus tenuis</i>	Poverty Rush	Rush	FAC
<i>Solidago gigantea</i>	Late Goldenrod	Wildflower	FACW
<i>Vernonia gigantea</i>	Ironweed	Wildflower	FAC
<i>Vernonia missurica</i>	Missouri Ironweed	Wildflower	FACU
Plant Species List - Groundcover			
<i>Schizachyrium scoparium</i>	Little Bluestem	Grass	FACU
<i>Elymus virginicus</i>	Virginia Wildrye	Grass	FACW
<i>Andropogon gerardii</i>	Big Bluestem	Grass	FAC
<i>Dichanthelium latifolium</i>	Broad-leaved Panicgrass	Grass	FACU
<i>Dichanthelium dichotomum</i>	Cypress Panicgrass	Grass	FAC
<i>Desmodium canescens</i>	Hoary tick trefoil	Grass	UPL
<i>Panicum Virgatum</i>	Switch Grass	Grass	FAC
- Note: Equivalent native species may be substituted based upon availability and IDNR Approval			

When seeding along a slope of 3:1 or steeper, additional measures will be used to help establish vegetation. Soil will be stabilized with heavy-duty, biodegradable erosion control blankets (i.e., net free or loose woven netting), or a bonded fiber hydro-mulch if seeding occurs during the dormant season.

4.3 Understory Shrub and Tree Planting

Woody plants will be selected and placed in accordance with IDNR’s Bulletin to ensure the diversity and ecological function of the mitigation area. To promote the future development of the riparian forest in the floodway, woody vegetation will be randomly placed rather than planted in rows to simulate natural stocking, but to still allow for efficient monitoring and maintenance. Key principals include:

- Minimum of five canopy tree species and five shrub and/or understory tree species with at least one being an understory tree.
- A maximum of one maple species will be planted and a minimum of one oak and one hickory species will be planted.

- At least 10-percent of species planted will be oak and hickory species and no single species will account for more than 20-percent of the planting. Should the sycamore species be selected for mitigation purposes, this species will be planted at a lower density than other species.
- Spacing will follow the guidelines as established by IDNR.

Species will be selected from a list of approved plants native to Indiana and having been verified by voucher as present in Tippecanoe County per the USDA database. A list of woody plant species is found in **Table 3** provided below. Plants will be selected and distributed per the planting principles included in Section VII.B of the Bulletin. Site selection will also be considered when placing plants [e.g. facultative upland (FACU) plants will be planted in the floodway furthest from Elliott Ditch, facultative wetland (FACW) will be placed in the wettest areas of floodway]. Plant sizing will be finalized prior to implementation of the HMP and will be based upon availability, site conditions, and time of year.

Table 3				
Woody Plant Species List - Canopy Trees				
Scientific Name	Common Name	Strata	Coefficient of Conservatism	Indicator Status
<i>Acer saccharinum</i>	Silver Maple	Large Canopy Tree	1	FACW
<i>Acer rubrum</i>	Red Maple	Large Canopy Tree	5	FAC
<i>Carya cordiformis</i>	Bitternut hickory	Large Canopy Tree	5	FACU
<i>Celtis occidentalis</i>	Hackberry	Large Canopy Tree	3	FACU
<i>Fagus grandifolia</i>	American Beech	Large Canopy Tree	8	FACU
<i>Juglans nigra</i>	Black Walnut	Large Canopy Tree	2	FACU
<i>Platanus occidentalis</i>	Sycamore	Large Canopy Tree	3	FACW
<i>Prunus serotina</i>	Black Cherry	Small Canopy Tree	1	FACU
<i>Quercus Alba</i>	White Oak	Large Canopy Tree	5	FAC
<i>Quercus macrocarpa</i>	Bur Oak	Small Canopy Tree	5	FACU
<i>Quercus muehlenbergii</i>	Chinkapin oak	Medium to Large Canopy Tree	4	FACU
<i>Quercus palustris</i>	Pin Oak	Small Canopy Tree	3	FACW
<i>Quercus rubra</i>	Northern Red Oak	Large Canopy Tree	4	FACU
<i>Tilia americana</i>	American Basswood	Large Canopy Tree	5	FACU
Woody Plant Species List - Shrubs and Understory Trees				
<i>Aesculus glabra</i>	Buckeye	Large Understory Tree	5	FACU
<i>Carpinus caroliniana</i>	American Hornbeam	Medium Understory Tree	5	FAC
<i>Cornus dummondii</i>	Roughleaf Dogwood	Medium Shrub	2	FAC
<i>Ilex verticillata</i>	Common Winterberry	Medium Shrub	8	FACW
<i>Cornus obliqua</i>	Pale Dogwood	Medium Shrub	5	FACW
<i>Corylus americana</i>	American Hazlenut	Medium Shrub	4	FACU
<i>Hydrangea arborescens</i>	Wild Hydrangea	Small Shrub	7	FAC
<i>Ptelea trifoliata</i>	Common Hop-Tree	Medium Shrub	4	FACU
- Note: Equivalent native species may be substituted based upon availability and IDNR Approval				

4.4 Schedule

Arconic will begin implementation of the HMP in accordance with the conditions set forth in the approved IDNR Permit FW-32124-0. Soil preparation will be accomplished during drier conditions (i.e., late spring or summer). If soil preparation is completed in the spring, native and annual groundcover seeding will be completed simultaneously. However, if soil preparation occurs in summer or fall, the native groundcover will be postponed until the following spring. Tree/shrub planting will be completed during the first dormant season following soil preparation and native/annual ground cover seeding.

4.5 Protection of the Mitigation Site

Arconic does not have the authority to record restrictive covenants on the private properties identified for mitigation without consent from the various owners. As previously discussed with IDNR, Arconic will perform the following:

- Signage will be installed at each property where the mitigation is completed for a minimum of three years. The signage will include language identifying the location as a mitigation site and will prohibit mowing and spraying. After success criteria have been satisfied, signage will remain per the discretion of the property owner.
- Maintain Access & Use Agreements with the various property owners in order to perform the required monitoring and maintenance activities until success criteria have been achieved.
- Provide letters to each of the impacted property owners in advance of the mitigation explaining the intent of the mitigation is to return the riparian corridor back to an acceptable habitat, as defined by IDNR, through the implementation of the HMP. The letter will also explain restrictions associated with the mitigation.

4.6 Reporting

A report documenting the successful implementation of the HMP will be submitted to IDNR within 60 days after the completion of the work. Items to be included in the report include:

- Summary of field activities;
- Survey of the mitigation area;
- List of planted species including stem counts;
- Seed application rates;
- Photographic documentation; and,
- Proposed monitoring points for IDNR's consideration.

5.0 MAINTENANCE PLAN

Maintenance will be conducted on an as needed basis based upon findings from regular site visits (i.e., semi-annual) performed as part of the Monitoring Plan. Maintenance activities may include:

- Reseeding or replanting;
- Watering;
- Control of invasive species; and,
- Erosion repair.

Completed maintenance activities will be disclosed to IDNR during annual reporting (see **Section 7**).

6.0 SUCCESS CRITERIA

Non-wetland forest mitigation success will be measured based upon percent survival of planted trees and shrubs (75-percent for bareroot and small container stock). Total vegetation cover criteria includes 80-percent cover, and of the 80-percent, 75-percent being of native species. In addition, erosion/sedimentation will be evaluated and corrected, as necessary. The mitigation site(s) will be evaluated against these criteria on an annual basis for a minimum of three years, or until the success criteria are satisfied for two consecutive years. After three years, assuming success criteria have been satisfied for two consecutive, CEC will coordinate a visit with IDNR to determine success of the mitigation and release from further monitoring and maintenance.

7.0 MONITORING PLAN

Mitigation success will be assessed by the execution of a monitoring plan for three years. An annual monitoring report based upon routine site visits will document progress toward meeting the success criteria. Elements of the monitoring report are defined in Section IX of the Bulletin. The monitoring report will be submitted to the IDNR every year for three years after a full growing season elapses. Monitoring reports will continue on an annual basis should monitoring continue beyond three years until year five. In the event that mitigation is determined to not have been successful after year five, another mitigation plan will be submitted that includes an extended monitoring period along with corrective actions. Success of mitigation will be based on the criteria listed above and further defined in Section IX.B of the Bulletin.

7.1 Woody Plant Survival

Woody plant species will be monitored through stem counts within one, surveyed permanent rectangular plot. The plot will be approximately 0.1-acre, and a comprehensive list of woody species observed will be maintained.

7.2 Groundcover Establishment

Percentage of groundcover will be evaluated within the surveyed permanent rectangular plot identified in **Section 7.1**. Observed species within the plot will be identified and assigned a standard Daubermire percent cover class, or a similar approach will be deployed. A comprehensive list of herbaceous species observed will be maintained.

7.3 Overall Site Development

During monitoring visits, the mitigation site will be inspected for:

- Areas of erosion;
- Instability;
- Presence of invasive species;
- Vandalism; and,
- Trash dumping.

Overall site conditions will be documented through photographs taken at various photo stations throughout the mitigation area. Photo stations will be established in the first year of monitoring.

7.4 Schedule

Monitoring will include a minimum of two visits per year (i.e., one in the late spring/ early summer, and one in the late summer/early fall). Monitoring will begin in the first growing season following planting activities. Monitoring will be conducted for three years, or until the performance standards have been met and the project has received release from IDNR.

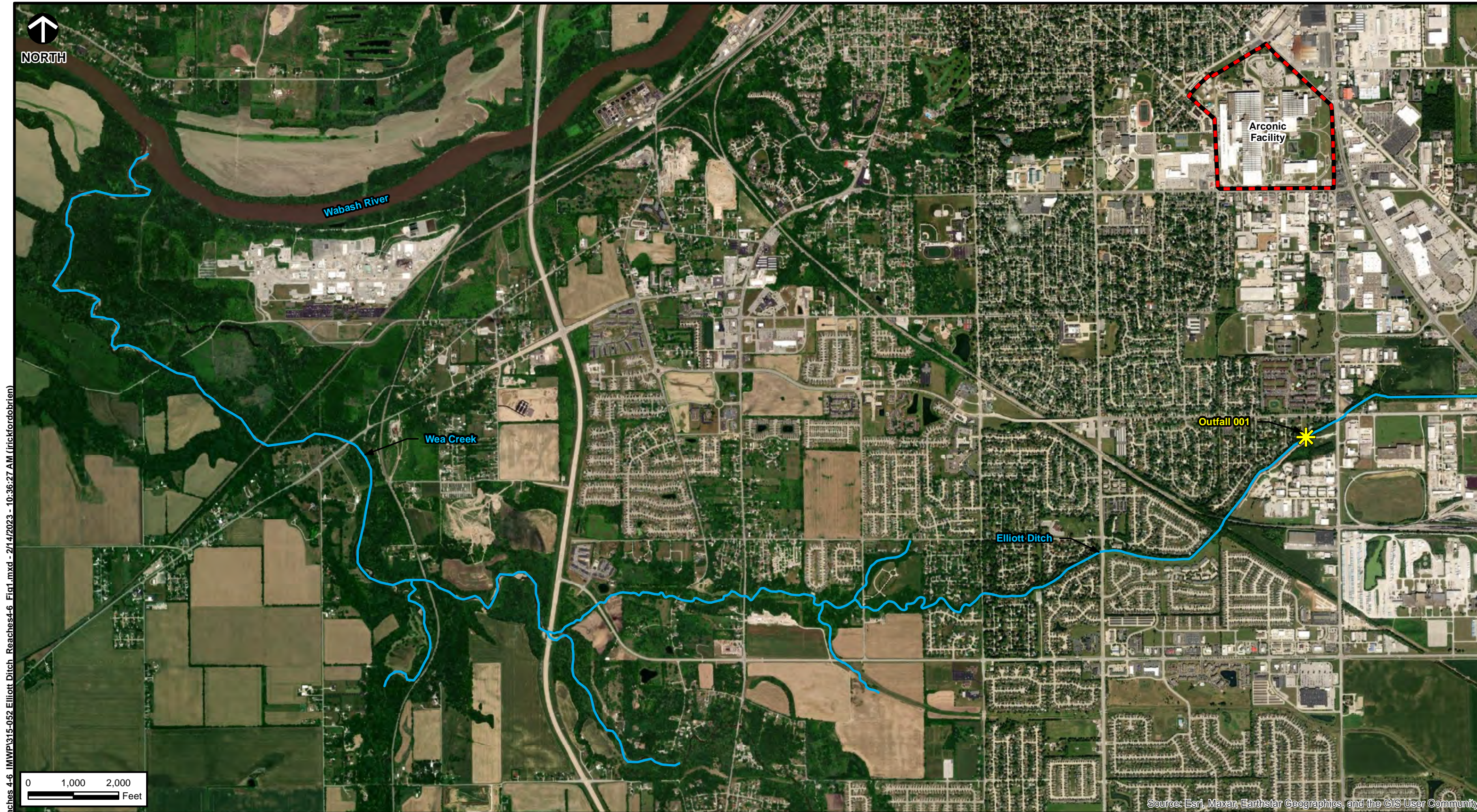
7.5 Monitoring Reporting

Annual monitoring reports will be submitted to IDNR summarizing field data and will discuss project success against the criteria presented above. The annual report will be submitted by December 31 of the calendar year.

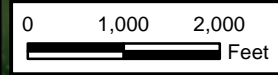
7.6 Release From Monitoring

Once the performance standards are met for two consecutive years, the project will be considered complete. Pending IDNR approval, Arconic will be released from further monitoring and maintenance efforts

FIGURES



P:\310-000\315-052-GIS\Maps\Reaches 4-6 IMWP\315-052 Elliott Ditch - Reaches4-6 Fig1.mxd - 2/14/2023 - 10:36:27 AM (jrickfordobrien)



- LEGEND**
- Outfall 001
 - Arconic Facility
 - Elliott Ditch

REFERENCE
 ESRI WORLD IMAGERY / ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY](http://gto.arcgis.com/maps/world_imagery)
 ACCESSED 2/14/2023

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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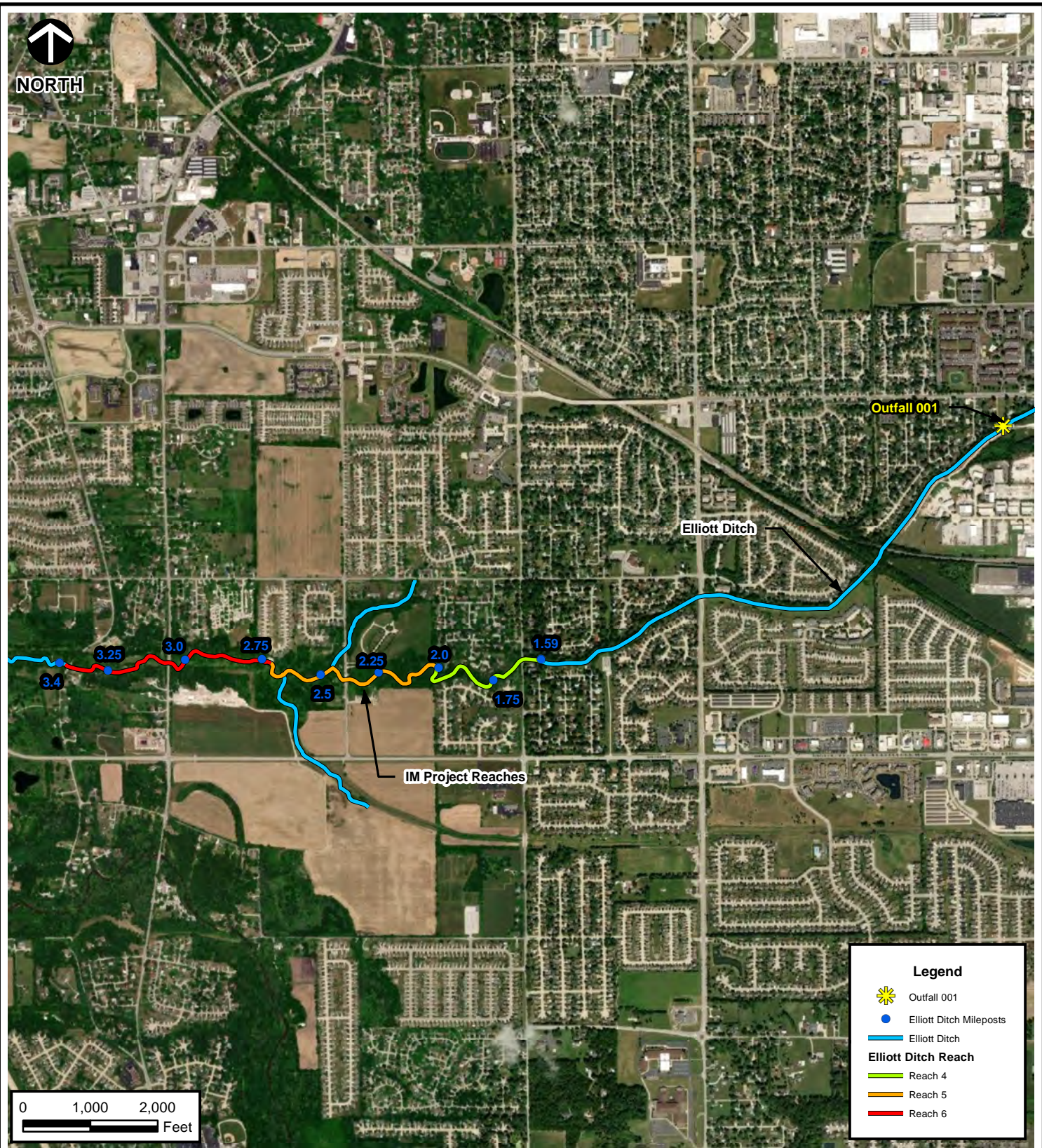
**ARCONIC CORP. - ELLIOTT DITCH
 REACHES 4-6 IMWP
 LAFAYETTE, INDIANA**

ELLIOTT DITCH VICINITY MAP

DRAWN BY:	JRO	CHECKED BY:	JMB	APPROVED BY:	JMB*	FIGURE NO:	1
DATE:	FEBRUARY 14, 2023	SCALE:	1" = 2,000'	PROJECT NO:	315-052.0007		

Signature on File *

P:\310-000\315-052\GIS\Maps\Reaches 4-6 IMWP\315-052 Elliott Ditch Reaches4-6 Fig2.mxd - 4:02:59 PM (mbruck)



SOURCE: ESRI WORLD IMAGERY / ARCGIS MAP SERVICE: HTTP://GOTO.ARCGISONLINE.COM/MAPS/WORLD_IMAGERY. LAST ACCESSED: 12/19/2022
 IMAGE DATE: 03/12/2011



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**ARCONIC CORP. - ELLIOTT DITCH
 REACHES 4-6 INTERIM MEASURES
 LAFAYETTE, INDIANA**

ELLIOTT DITCH REACHES 4-6 IM PROJECT AREA

DRAWN BY: JRO

CHECKED BY: JMB

APPROVED BY: JMB*

FIGURE NO:

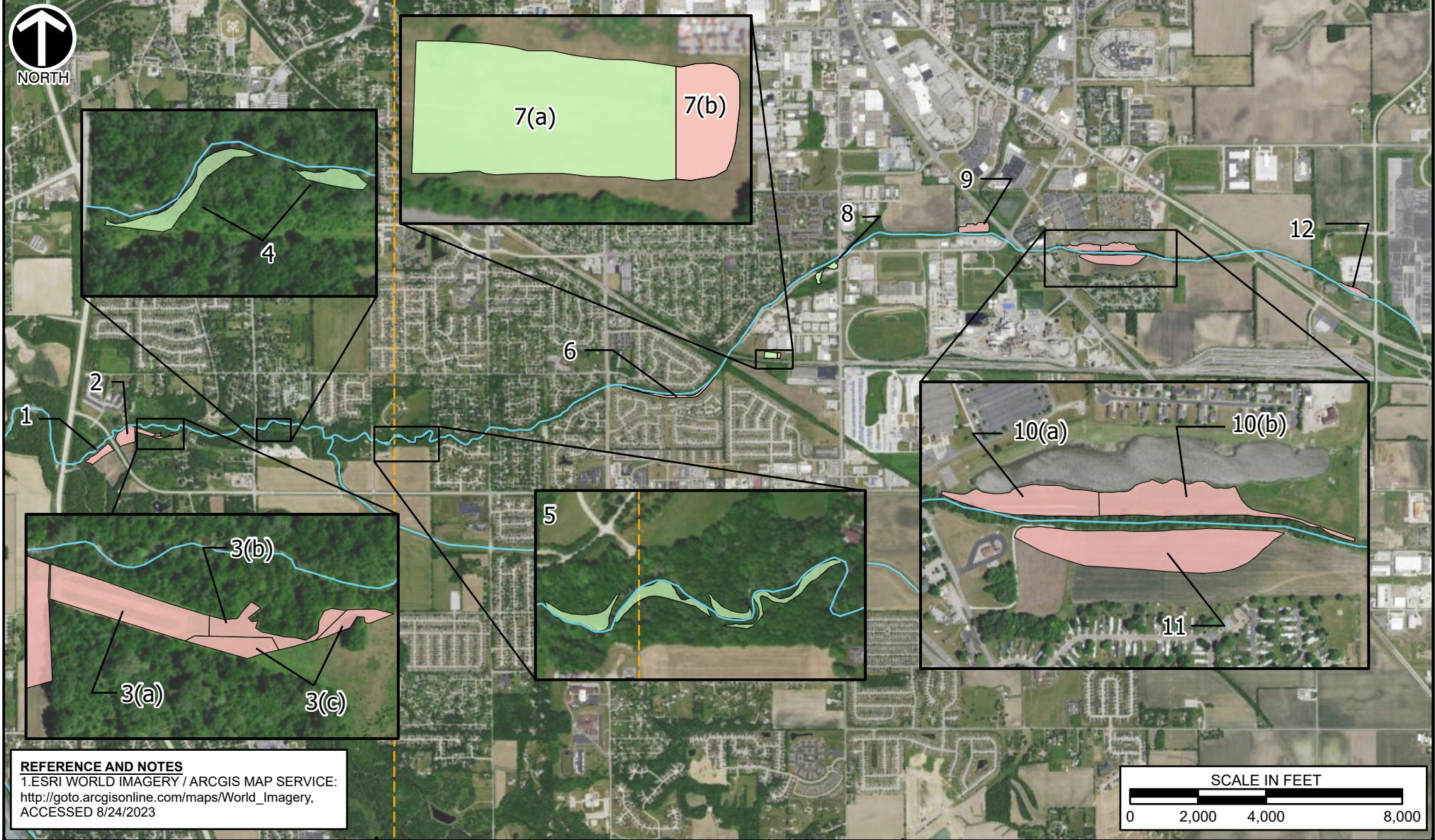
DATE: DECEMBER 19, 2022

DWG SCALE: 1" = 2,000'

PROJECT NO: 315-052.0007

2

Signature on File *



REFERENCE AND NOTES
 1. ESRI WORLD IMAGERY / ARCGIS MAP SERVICE:
http://goto.arcgisonline.com/maps/World_Imagery,
 ACCESSED 8/24/2023



LEGEND

- Mitigation Area
- Potential Mitigation Area
- Stream
- MatchLine to Figure 4

10(a) Feature number corresponds to Table 3, identifying property owner.



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DRAWN BY:	JS	CHECKED BY:	GW
DATE:	8/24/2023	SCALE:	1"=4,000'

ARCONIC US, LLC
LAFAYETTE OPERATIONS
ELLIOTT DITCH
LAFAYETTE, INDIANA

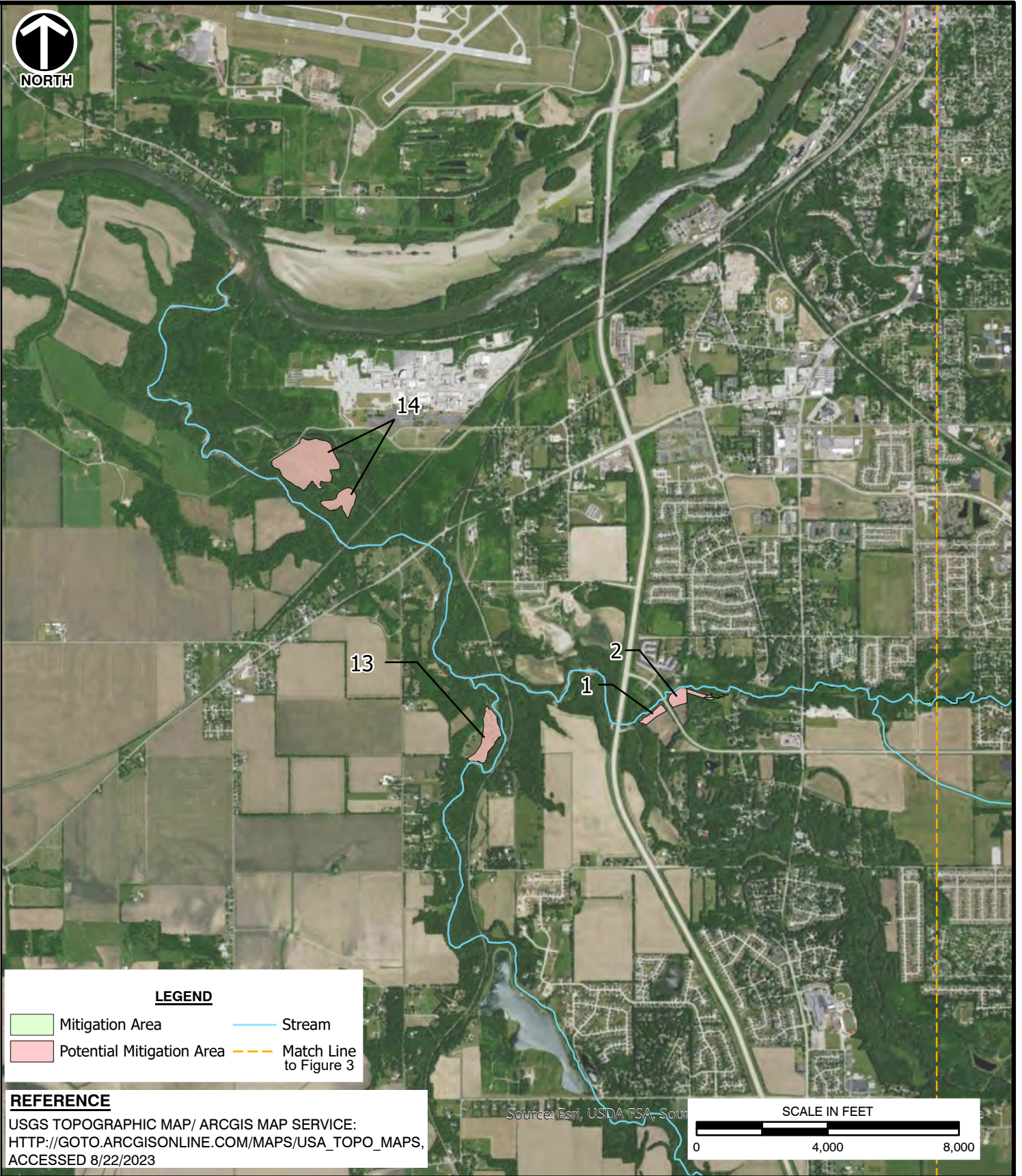
PROPOSED COMPENSATORY MITIGATION SITES

APPROVED BY:	JMB	FIGURE NO:
PROJECT NO:	315-052	3

*Hand Signature on file



P:\310-000\315-052\1-Draft Documents\Task 0015 - R4-R6 Permit Package Prep (IDNR and USACE)\IDNR Mitigation Plan\Task 0021\Task 0021.aprx 8/4/2023 9:09 AM (jrickford@brien)

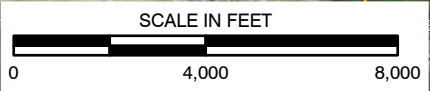


LEGEND

 Mitigation Area	 Stream
 Potential Mitigation Area	 Match Line to Figure 3

REFERENCE
 USGS TOPOGRAPHIC MAP/ ARCGIS MAP SERVICE:
[HTTP://GOTO.ARCGISONLINE.COM/MAPS/USA_TOPO_MAPS](http://gto.arcgis.com/maps/usa_topo_maps),
 ACCESSED 8/22/2023

Source: Esri, USDA FSA, Source



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ARCONIC US, LLC
LAFAYETTE OPERATIONS
ELLIOTT DITCH
LAFAYETTE, INDIANA

PROPOSED DOWNSTREAM COMPENSATORY MITIGATION SITES

DRAWN BY:	JS	CHECKED BY:	GW	APPROVED BY:	JMB*	FIGURE NO:	4
DATE:	8/22/2023	SCALE:	1"=4,000'	PROJECT NO:	315-052		

APPENDIX A



Photo 1: SP-1, upland, facing east.



Photo 2: SP-2, upland, facing north.



Photo 3: SP-3, Wetland A, facing north.



Photo 4: SP-3, Wetland A, facing east.



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530 E. Ohio Street, Suite G
Indianapolis, IN 46204
Phone: 317-655-7777 Toll Free: 877-746-0749

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ELLIOTT DITCH REACHES 5-6
TIPPECANOE COUNTY, INDIANA
CEC PROJECT # 315-052

Photographs Taken:

February 28 & March 1, 2023



Photo 5: Wetland A (PEM) overview, facing south.



Photo 6: SP-4, upland, facing south



Photo 7: Wetland B (PEM) overview, facing north.



Photo 8: SP-5, upland, facing north.



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February 28 & March 1, 2023



Photo 9: SP-6, Wetland B (PEM), facing northeast.



Photo 10: Stream 1 (Elliott Ditch), perennial, facing downstream and east.



Photo 11: Stream 1 (Elliott Ditch), perennial, facing upstream and west.



Photo 12: Stream 2, facing downstream and south.



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Photo 13: Stream 2, perennial, facing upstream & north.



Photo 14: Stream 3, perennial, facing downstream & north.



Photo 15: Stream 3, perennial, facing upstream & south.



Photo 16: Stream 4, intermittent, facing downstream and south.



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Photo 17: Stream 4, intermittent, facing upstream & north.



Photo 18: Representative open habitat, facing south.



Photo 19: Representative early successional habitat, facing west.



Photo 20: PRT 1, *Platanus occidentalis*.



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Photo 21: PRT 2, *Populus deltoides*.



Photo 22: PRT 3, *Populus deltoides*.



Photo 23: PRT 4, *Populus deltoides*.



Photo 24: PRT 5, Unknown (dead).



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Photo 25: PRT 6, *Populus deltoides*.



Photo 26: PRT 7, *Populus deltoides*.



Photo 27: PRT 8, *Ulmus americana*.



Photo 28: PRT 9, *Carya ovata*.



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Photo 29: PRT 10, Unknown (dead).



Photo 30: PRT 11, *Acer negundo*.



Photo 31: PRT 12, *Fraxinus pennsylvanica*.



Photo 32: PRT 13, *Populus deltoides*.



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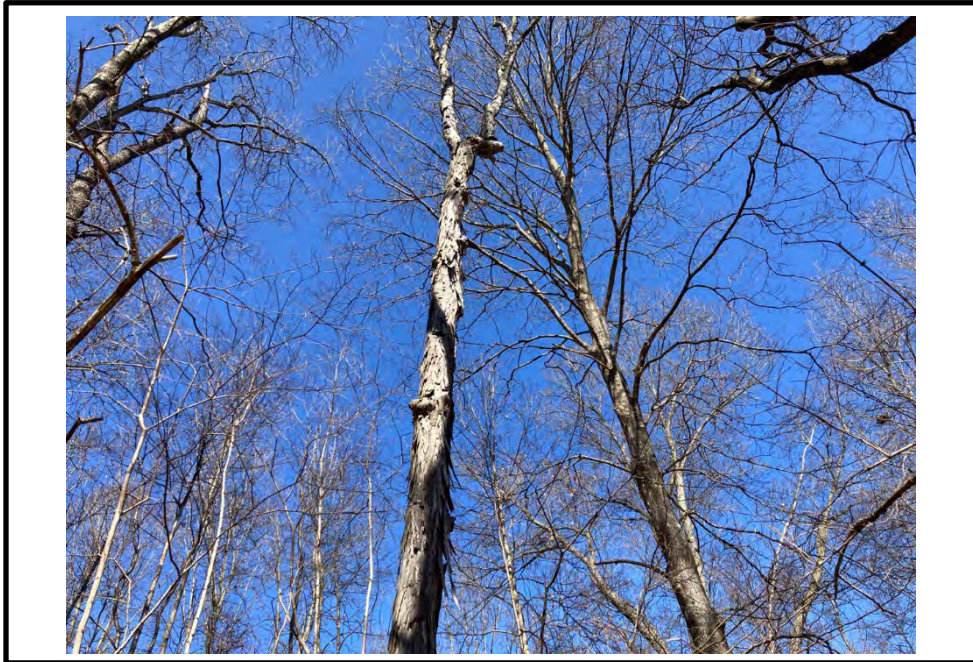


Photo 33: PRT 14, *Carya ovata*.



Photo 34: PRT 15, *Carya ovata*.

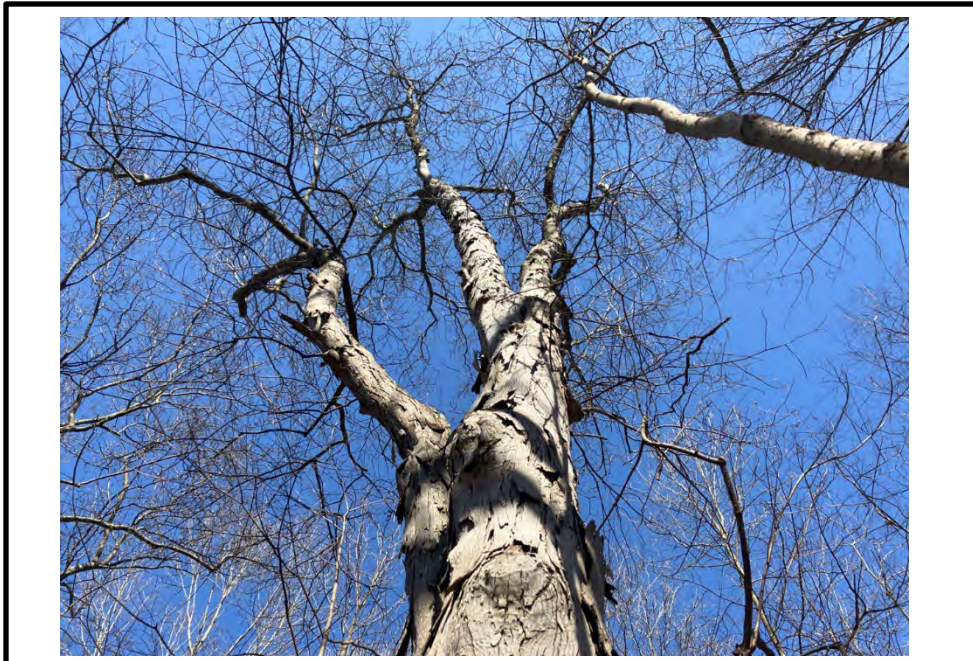


Photo 35: PRT 16, *Carya ovata*.



Photo 36: PRT 17, *Carya ovata*.



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Photo 37: PRT 18, *Quercus rubra*.

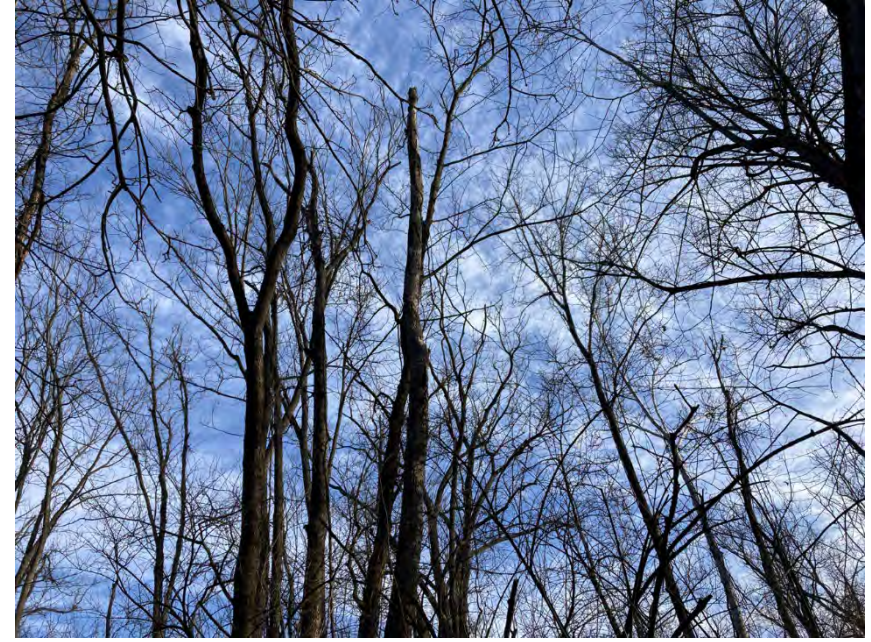


Photo 38: PRT 19, *Populus deltoides*.



Photo 39: PRT 20, *Fraxinus pennsylvanica*.



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