



## Environmental Review Form for Argonne National Laboratory

<b>Form:</b>	ANL-985
<b>Version:</b>	5
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<b>Created By:</b>	Cisek, Jonathan E.

### Creator

Badge:	212942	Name:	Cisek, Jonathan E.
Cost Center:	208	Division:	PMO
Job Title:	Project Manager - Infrastructure	Employee Type:	Regular Full-Time Exempt
Building:	202	Lab Extension:	2-6391

### General Information

Project/Activity Title: Electrical Capacity & Distribution Capability (ECDC) Project

ASO NEPA Tracking No.: 2928	Type of Funding:
B & R Code:	Identifying Number: 01752
SPP Proposal Number:	CRADA Proposal Number:
Work Project Number:	ANL Accounting Number: (Item 3a in Field Work Proposal)
Other (explain):	

List appropriate NEPA Owners:  
Division: PMO NEPA Owner:

### Financial Plans

To select a Financial Plan, click the magnifying glass icon to open a search window.

Cost Center: Project: Phase: Task:

### Description of Proposed Action

See attached document, ECDC "Environmental Review Form - Description of Proposed Action," for a complete detailed description of the proposed action. This is an update to ERF ANL-985-1108, which was initially approved on 12/03/2018. The original NEPA Log number is 2845.

### Description of Affected Environment

Argonne National Laboratory is located near Lemont, IL, approximately 25 miles southwest of Chicago. See attachment SK-1-2 approximates the route of the overhead transmission lines. The proposed route would begin south of the Argonne site, on the southern edge of Waterfall Glen near existing ComEd substation J310. This is the location where the new ComEd substation would be installed. The route progresses north through the Waterfall Glenn Forest Preserve, along Railroad Drive. The approximate route shown in SK-1-2 would follow Railroad Drive north to the 100 area where it would turn northwest. Once the route would reach 94th St. it would switch from overhead to underground. Then the route would continue west and would cross Outer Circle Rd and tie into Argonne's Substation 551. Additionally, there would be a tap just north of the Eastwood extension. This tap would traverse west to a new substation that would be located east of existing substation 544. For the route, the area south of Argonne property along Railroad Dr. has generally already been cleared of trees and vegetation, although some additional clearing may be necessary at the location around ComEd's new substation. The approximate route segment inside the Argonne fence also consists of disturbed areas. See attached ecosystem classification map for Waterfall Glen, attachment SK-17. Locations for the Long Lead scope and Construction Contract Options can be found in the attached graphics, SK-4 through SK-14. All locations are in previously disturbed areas, including: Substation 551, Substation 549, existing duct bank under 94th St., existing right-of-way between ComEd's J310 and Argonne's substation 549, the Bldg. 202 east parking lot, existing duct bank loop in the 200 area, existing power poles scattered throughout the 300 area, and Bldg. 364.

### Potential Environmental Effects

- Attach explanation for each "yes" response near bottom of form.
- **See Instructions for Completing Environmental Review Form.**

Section A (Complete For All Projects)		Yes	No	Explanation
1.	Project evaluated for Pollution Prevention and Waste Minimization opportunities and details provided under items 2, 4, 6, 7, 8, 16, and 20 below, as applicable	<input checked="" type="radio"/>	<input type="radio"/>	Yes, measures to reduce waste and pollution would be evaluated as an ongoing process throughout construction.
2.	Air Pollutant Emissions	<input checked="" type="radio"/>	<input type="radio"/>	Yes, emissions from cars and construction equipment would occur. Equipment at jobsite would be running during typical daily working hours.
3.	Noise	<input checked="" type="radio"/>	<input type="radio"/>	General construction noises are expected. Any noises above the OSHA standards would require workers to wear the appropriate personal protective equipment. Standard operation of construction equipment would not impact the activities of adjacent buildings. The project team would work with FPDDC personnel and community leaders to mitigate the construction noise to the general public and any nearby property owners.
4.	Chemical/Oil Storage/Use	<input checked="" type="radio"/>	<input type="radio"/>	Typical construction chemicals such as adhesives and gasoline would be used. The material would be stored in proper containers and protected from spillage per the erosion control plan. SDS would be available for chemicals on the construction site.
5.	Pesticide Use	<input type="radio"/>	<input checked="" type="radio"/>	
6.	<b>Toxic Substances Control Act (TSCA) Substances</b>			
6a.	Polychlorinated Biphenyls (PCBs)	<input type="radio"/>	<input checked="" type="radio"/>	No. There are no PCBs that would be installed as part of this project. Demolished old equipment or transformers are not expected to contain PCBs. Standard Argonne procedures would be followed if PCBs are encountered.
6b.	Asbestos or Asbestos Containing Materials	<input type="radio"/>	<input checked="" type="radio"/>	
6c.	Other TSCA Regulated Substances	<input type="radio"/>	<input checked="" type="radio"/>	
6d.	Import or Export of Chemical Substances	<input type="radio"/>	<input checked="" type="radio"/>	
7.	Biohazards	<input type="radio"/>	<input checked="" type="radio"/>	
8.	Effluent/Wastewater (If yes, see question #12 and contact Peter Lynch (HSE) at 2-4582 or lynch@anl.gov)	<input checked="" type="radio"/>	<input type="radio"/>	The results of construction activities would generate some storm water effluent. This is mostly a concern during civil site prep for the new substation. Construction runoff would be minimal for base scope and the installation of the overhead transmission lines. Any storm water discharges during construction would be filtered prior to discharge. Silt fencing would control the excess storm water runoff from outside the site from entering the site and would filter runoff from the site. These activities, including inspections, frequency, and qualifications of stormwater inspectors in accordance with IEPA requirements, would be documented in more detail with a storm water pollution and prevention plan to be included in the project design and to be implemented by the construction contractor. Any storm sewer inlets and outfalls near the project would be protected.
9.	<b>Waste Management</b>			
9a.	Construction or Demolition Waste	<input checked="" type="radio"/>	<input type="radio"/>	Most of the demolition waste for the base scope would consist of trees, shrubs, and other organics to be cleared for the power line right-of-way (ROW). All material would be taken to a CCDD landfill. Some Long Lead Scope and Construction Contract Options would demolish existing electrical equipment and materials including: Conductors, transformers, switchgear,

					disconnects, and switches. All material will be inspected for any potential PCB contamination, and thereafter either recycled as scrap metal or disposed of as solid waste in an industrial landfill.
	9b.	Hazardous Waste	<input type="radio"/>	<input checked="" type="radio"/>	
	9c.	Radioactive Mixed Waste	<input type="radio"/>	<input checked="" type="radio"/>	
	9d.	Radioactive Waste	<input type="radio"/>	<input checked="" type="radio"/>	
	9e.	Asbestos Waste	<input type="radio"/>	<input checked="" type="radio"/>	
	9f.	Biological Waste	<input type="radio"/>	<input checked="" type="radio"/>	
	9g.	No Path to Disposal Waste	<input type="radio"/>	<input checked="" type="radio"/>	
	9h.	Nano-material Waste	<input type="radio"/>	<input checked="" type="radio"/>	
10.	Radiation		<input type="radio"/>	<input checked="" type="radio"/>	
11.	Threatened Violation of ES&H Regulations or Permit Requirement		<input type="radio"/>	<input checked="" type="radio"/>	
12.	New or Modified Federal or State Permits		<input type="radio"/>	<input checked="" type="radio"/>	The project would obtain a SWPPP permit from the state. The project would obtain any other required permits if needed as determined by design development. This includes but not limited to: DuPage County permits, USFWS permits, and permits with the Army Corps. Of Engineers.
13.	Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste		<input type="radio"/>	<input checked="" type="radio"/>	
14.	Public Controversy		<input checked="" type="radio"/>	<input type="radio"/>	The general public is an important stakeholder for base scope of the ECDC project. The nearby Waterfall Glen is an extremely popular recreational area and is extensively used by the general public for hiking, biking, walking etc. The project has identified ways in which the public can be informed & engaged about important project details. First, in partnership with the FPDDC, public meetings have been held at the office of the forest preserve for a planning session and commissioners vote. Anyone who was interested could attend these meetings and voice concerns about the project. The planning session occurred on 9/11/18 and the commissioners vote occurred on 9/18/18. The FPDDC Commissioners, who represent the public, unanimously voted to concur with the proposed ECDC route through the forest preserve. Additionally, the project sent representatives to established civic meetings to present important project details for interested parties. These meetings included the Timberlakes Civic Association (11/6/18) and the Community Leaders Roundtable (11/14/18). The project has briefed the FPDDC, Timberlakes Civic Association, and Community Leaders Roundtable and none of these stakeholders raised significant concern regarding the construction of ECDC. The route has been moved away from Cass Avenue which would alleviate public controversy.
15.	Historic Structures and Objects		<input type="radio"/>	<input checked="" type="radio"/>	No. Some work would take place near Bldg. 202 which is an eligible historical building. Bldg. 202 would not be impacted by this project. As appropriate, DOE and Argonne would coordinate with the State Historic Preservation Office (SHPO).
16.	Disturbance of Pre-existing Contamination		<input type="radio"/>	<input checked="" type="radio"/>	
17.	Energy Efficiency, Resource Conserving, and Sustainable Design Features		<input type="radio"/>	<input checked="" type="radio"/>	No. HPSB guidelines do not apply but the project is still working to identify opportunities to increase the efficiency and environmental attributes of the final project. Sustainable acquisition would be preferred.
<b>Section B (For Projects that Occur Outdoors)</b>			<b>Yes</b>	<b>No</b>	

18.	Threatened or Endangered Species, Critical Habitats, and/or other Protected Species	<input type="radio"/>	<input checked="" type="radio"/>	The Hine's emerald dragonfly is an endangered species with a habitat located in the forest preserve. Argonne worked with the FPDDC to ensure that the selected route would not impact this endangered species. The habitat for this endangered species is located in the forest preserve south and west of the selected route. See attached map of the Hines emerald dragonfly critical habitat in the area, attachment SK-18. Depending on design development, ComEd may need to coordinate their construction of the new substation with the USFWS to assess impacts. DOE/Argonne has initiated consultation with the USFWS regarding threatened and endangered species in the project area. The consultation has concluded that these species' habitats are not found in the project area. Additional threatened & endangered species covered in the consultation include: northern long-eared bat, eastern massasauga snake, eastern prairie fringed orchid, leafy prairie clover, Mead's milkweed, and prairie bush-clover. As appropriate, DOE/Argonne would re-open consultation with USFWS regarding these species.
19.	Wetlands	<input type="radio"/>	<input checked="" type="radio"/>	The ECDC project does not anticipate construction in any wetlands at this time, but would be working in proximity to wetlands. Depending on design development, some best practice design mitigations would include: 1. Adjust pole placements to span wetlands 2. Limit construction to winter months when soil and water are more likely to be frozen and vegetation is dormant 3. Use mats and wide track vehicles to spread the distribution of equipment weight when crossing wetlands. Per the identified wetlands in the report "Jurisdictional Status of Wetlands on the Argonne National Laboratory Site" (ANL-15/09), the project area will not impact any wetlands. SK-16 identifies locations of Argonne wetlands.
20.	Floodplain	<input type="radio"/>	<input checked="" type="radio"/>	The ECDC project does not anticipate construction in any floodplains at this time, but may span some 100 & 500 yr. floodplains. If the project encounters floodplains, then floodplain analysis would be performed. Depending on design development, some best practice design mitigations would include: 1. Adjust pole placements to span floodplains 2. Limit construction to winter months when soil and water are more likely to be frozen and vegetation is dormant 3. Use mats and wide track vehicles to spread the distribution of equipment weight when crossing floodplains.
21.	Landscaping	<input type="radio"/>	<input checked="" type="radio"/>	The DOE has indicated that it would allow the project to plant trees at a different location to help offset the trees demolished by this project. A tree survey would be performed in the area to be cleared. Disturbed areas would be restored to re-stabilize the soil.
22.	Navigable Air Space	<input type="radio"/>	<input checked="" type="radio"/>	No. Pole heights anticipated to be below 150 feet above ground level. If a mobile crane used during construction is over 150 feet, then FAA notification would be completed, as appropriate.
23.	Clearing or Excavation	<input checked="" type="radio"/>	<input type="radio"/>	Building a transmission line through woodlands requires that all trees and brush be cleared from the right-of-way (ROW). Clearing of mature trees would be minimized. Excavations would be required to install poles and their foundations. Some additional excavation may be required near substation 551, as a portion of the route may be moved underground during design to help avoid utility conflicts. The ECDC project would mitigate impacts to woodland areas in the following ways: 1. Avoiding routes that fragment major forest blocks 2. Adjusting pole placement and span length to minimize the need for tree removal and trimming along forest edges 3. Allowing some tree and shrub species that reach heights of 12 to 15 feet to grow within sections of the ROW. Certain Construction Contract Options would also require some minor excavation and grading (duct bank, civil prep for foundations, etc.). The project would employ a SWPPP per above to mitigate environmental impacts of excavation. For excavations taking place outside of the laboratory fence, JULIE would be notified prior to excavation to ensure any public utilities are flagged and painted. For excavations inside the fence on Argonne property, normal Argonne dig permitting procedures would be followed. Lastly, the DOE has indicated that it would allow the project to plant trees at a different location to help offset the trees demolished by this project. Excavated soils would be used as backfill in some areas where regrading is necessary. Leftover spoils would be hauled offsite. Estimated excavation for substation and pole foundations is < 300cy.
24.	Archaeological Resources	<input checked="" type="radio"/>	<input type="radio"/>	The project has surveyed the area of the forest preserve where the new ComEd substation would be located, and no archaeological sites or materials were discovered during the survey. Impacts can occur wherever soils would be disturbed, at pole locations, or where heavy equipment is used. Although no archaeological resources have been identified, archaeological surveys may be required in some areas of the route. If any archaeological resources are identified, the project can employ judicious pole placement to span resources and avoid impact to the sites. If during construction an archaeological site is encountered, construction at the site is stopped and DOE would be notified. See attached map of archaeological surveyed areas, attachment SK-15.
25.	Underground Injection	<input type="radio"/>	<input checked="" type="radio"/>	
26.	Underground Storage Tanks	<input type="radio"/>	<input checked="" type="radio"/>	

27.	Public Utilities or Services	<input checked="" type="radio"/>	<input type="radio"/>	The public electrical utility, ComEd, would design and build a new substation for this project. The new transmission lines may cross public gas utility lines but would not impact them. Utilities would be located before any excavations through JULIE.
28.	Depletion of a Non-Renewable Resource	<input type="radio"/>	<input checked="" type="radio"/>	
<b>Section C (For Projects Outside of ANL)</b>		<b>Yes</b>	<b>No</b>	
29.	Prime, Unique, or Locally Important Farmland	<input type="radio"/>	<input checked="" type="radio"/>	No. Waterfall Glen does not contain farmland.
30.	Special Sources of Groundwater (such as sole source aquifer)	<input type="radio"/>	<input checked="" type="radio"/>	
31.	Coastal Zones	<input type="radio"/>	<input checked="" type="radio"/>	
32.	Areas with Special National Designations (such as National Forests, Parks, or Trails)	<input type="radio"/>	<input checked="" type="radio"/>	
33.	Action of a State Agency in a State with NEPA-type Law	<input type="radio"/>	<input checked="" type="radio"/>	
34.	Class I Air Quality Control Region	<input type="radio"/>	<input checked="" type="radio"/>	

### Categorical Exclusion

Other (Use field below to enter other categorical exclusion)

A project-specific CX should be developed for this project.

### ANL NEPA Reviewer Use Only

- My approval is the final approval necessary  
 This form requires additional approval from DOE

### To be Completed by DOE/ASO

Section D	Yes	No
Are there any extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal?	<input type="radio"/>	<input checked="" type="radio"/>
Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts?	<input type="radio"/>	<input checked="" type="radio"/>
If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211?	<input type="radio"/>	<input type="radio"/>
Can the project or activity be categorically excluded from preparation of an Environment Assessment or Environmental Impact Statement under Subpart D of the DOE NEPA Regulations?	<input checked="" type="radio"/>	<input type="radio"/>
If yes, indicate the class or classes of action from Appendix A or B of Subpart D under which the project may be excluded: This project may be excluded under the 10 CFR Part 1021, Subpart D, Appendix B actions: B4.6 Additions and Modifications to Transmission Facilities, B4.12 Construction of power lines; and B4.11 Electric power substations and inter-connection facilities.		
If no, indicate the NEPA recommendation and class(es) of action from Appendix C or D to Subpart D to Part 1021 of 10 CFR.		

### Attachments

**File Description:** ERF Attachments [View Attachment](#)

**File Description:** IDNR Consultation [View Attachment](#)

**Comments**

**Add Approver**

Approver Name	Approver Badge	Reason	Delete

**Notifications**

The approval notification email will be copied to the people listed below.

Badge	Name	Division	Delete

**ASO-CX Number**

**ASO-CX- 363**

Comments:

This is an update to ERF ANL-985-1108 (ASO-CX-357), which was initially approved on 12/03/2018.

**Approval**

<u>Approver</u>	<u>Action</u>	<u>Date Routed</u>	<u>Action Date</u>	<u>Approval Reason / Comments</u>	<u>Approval Type</u>
Cisek, Jonathan E.	APPROVED	2019-09-06	2019-09-06 12:01:34.0	Creator :	PRIMARY
Cisek, Jonathan E.	APPROVED	2019-09-06	2019-09-06 12:01:34.0	Project Manager :	PRIMARY
Matton, Philip B.	APPROVED	2019-09-06	2019-09-09 09:36:13.0	NEPA Owner Approval for Argonne Environmental Review :	PRIMARY
Andersen, Karyn Elizabeth Schoch	APPROVED	2019-09-09	2019-09-09 12:52:13.0	Added: :	PRIMARY
Ptak, Jill S.	APPROVED	2019-09-09	2019-09-09 13:52:30.0	ANL NEPA Reviewer :	PRIMARY
Hellman, Karen B.	APPROVED	2019-09-09	2019-09-09 15:22:26.0	ANL-985 Review and Approval :	PRIMARY
Stine, Gail Y.	APPROVED	2019-09-09	2019-09-10 22:30:26.0	ANL-985 Review and Approval :	PRIMARY
Kearns, Paul K.	APPROVED	2019-09-10	2019-09-11 10:24:43.0	ANL-985 ANL COO Review and Approval :	PRIMARY
Joshi, Kaushik N.	APPROVED	2019-09-11	2019-09-17 16:06:50.0	ANL-985 DOE-ASO Review and Approval : <b>This ERF CX approval tracked by ASO-CX-363</b>	PRIMARY
Siebach, Peter Rudolf	APPROVED	2019-09-17	2019-09-18 09:07:20.0	ANL-985 DOE NEPA Compliance Officer Review and Approval : <b>Scope changes necessitated update.</b>	PRIMARY

**Argonne National Laboratory**  
**Electrical Capacity & Distribution Capability (ECDC) Project**  
**Environmental Review Form – Description of Proposed Action**

**Background:** The original Electric Capacity and Distribution Capability Project (ECDC) Categorical Exclusion Determination (ERF form ANL-985-1108, dated 12/3/2018) requires update to better reflect current project scope, notably the transmission route. Argonne’s scientific advancements require a strong foundation that supports reliable, redundant, maintainable, and flexible utility systems. A key component of ANL’s utility system portfolio is the high voltage electrical distribution system. Without this critical system, most science at ANL could not be pursued. The high voltage electrical distribution system at Argonne consists of substations, transformers, high voltage electrical supply, and distribution cabling. All high voltage power is supplied to the laboratory via a single off site ComEd managed substation facility and limited to a peak power draw of 87 MVA. Once on site, electricity is distributed through laboratory managed substations, transformers, and facilities. The condition of these components of the electrical system limit the ability for the Laboratory to support the forecasted electrical demand growth and operational requirements. Electrical reliability is critical to achieving user facility operational goals. Examples of these goals include the Basic Energy Science (BES) program’s 2017 target for Advanced Photon Source (APS) 90% schedule availability and the Advanced Scientific Computing Research (ASCR) program’s 95% scheduled availability.

**BASE SCOPE:** The project objective is to install two 138kV transmission lines connecting Argonne's 551 substation with a new ComEd substation south of the Argonne site. ComEd would design and build this new substation in tandem with the ECDC project and it would be built adjacent to ComEd's existing substation J310. The new ComEd substation and a portion of the anticipated route would traverse some forested areas, so tree-clearing and grubbing would be required. A portion of the route runs through Waterfall Glen, land currently owned by the Forest Preserve District of DuPage County (FPDDC). Prior to construction, Argonne/DOE would obtain easement rights for the land area outside of laboratory property for the route of the transmission lines and for the new ComEd substation. This means that at the time of construction, all base scope work would be completed on DOE property. There are numerous smaller electrical projects planned as “construction contract options” on the base contract. Due to funding constraints, these may be added to base scope if funding remains.

**LONG LEAD SCOPE:** In addition to the base scope above, a few small projects are planned as "Long Lead" scopes to be completed in advance of the base scope. This Long Lead scope was also submitted under a separate ERF (Identifying Number 01712). “Long Lead” is a project management term for early scope action(s) that will enable the base scope to proceed.

**SOW#1:** The SOW consists of purchase and installation of a new 45MVA transformer (Transformer 12) at substation 551. The project would also include the purchase and installation of transformer foundations, disconnects, OH aluminum bus work, cable/wiring connections, and associated equipment accessories. Additionally, the project would design and install SCADA software/hardware to accept new connections. See attachment SK-4.

**SOW#2:** In the 94th St. UG duct bank between substation 551 and the new TCS expansion, existing cables would be upgraded to support a higher load. This scope solely consists of cable pulling, terminations, and testing. Some modification may be required to the switchgear building at substation 551 to accept these larger cables. See attachment SK-5.

**SOW#3:** At substation 549A, upgrade existing original 4/0 copper cables with new conductors that can support projected laboratory load growth. Some old disconnects would also be replaced with newer

**Argonne National Laboratory**  
**Electrical Capacity & Distribution Capability (ECDC) Project**  
**Environmental Review Form – Description of Proposed Action**

disconnects. This option solely consists of conductor, insulator, and disconnect upgrades at substation 549A. See attachment SK-6.

**CONSTRUCTION CONTRACT OPTIONS:** There are numerous other smaller electrical projects planned as construction contract options on the base contract. Due to funding constraints, these may be added to base scope as contingency spend down items. These options are generally maintenance activities at existing distribution locations onsite. Future options may be added to the project that exist in these identified locations. If options are added in new areas, then the ERF would be revised. These options include, but are not limited to:

**Option 1:** Transformer 14 Installation and Substation 551 Expansion. The SOW consists of purchase and installation of a new 45MVA transformer (Transformer 14) at substation 551 and associated switchgear building. The project would expand substation 551 further west, in the location of Bldg. 202 XY Building. The 202 XY Building would be demolished in advance by a separate project. See attachment SK-7.

**Option 2:** 138kV Z Line OH Replacement. The SOW consists of demolishing the existing OH lines and wood poles that run between substation J310 (in FPDDC) and Substation 549A (on Argonne property). New steel poles and upgraded conductors would be installed in the existing right-of-way. This scope is partially outside of the Argonne fence, but on existing easement. See attachment SK-8.

**Option 3:** Transformer 6 Replacement. Transformer 6 at substation 549A is past its useful life. This project would replace in kind the transformer and associated relaying & controls. See attachment SK-9.

**Option 4:** Transformer 5 Replacement. Transformer 5 at substation 549A is past its useful life. This project would replace in kind the transformer and associated relaying & controls. See attachment SK-10.

**Option 5:** 200 Area Reliability. This SOW is to install a new UG duct bank connecting the vista switches outside of Bldg. 202 and Substation 551. The Bldg. 202 vista switches would be replaced with new. See attachment SK-11.

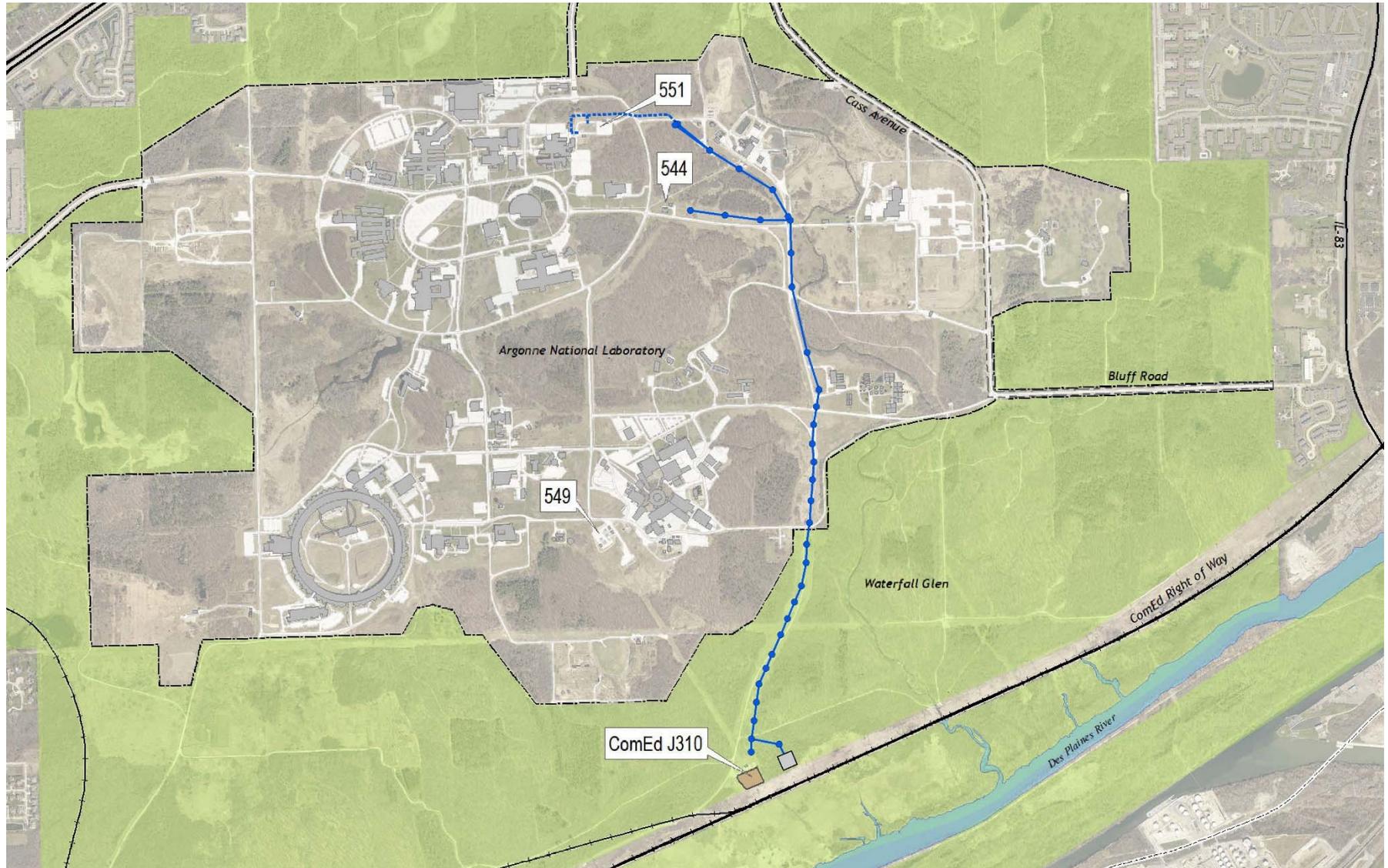
**Option 6:** Underground 13.2 kV Reliability. This project would improve UG and pad mounted distribution automation with a SCADA upgrade. Specifically it would involve upgrade of an underground fiber optic cable in existing duct bank in the 200 area. See attachment SK-12.

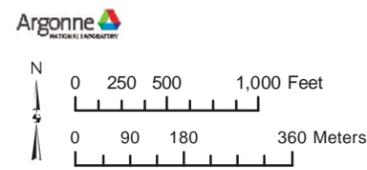
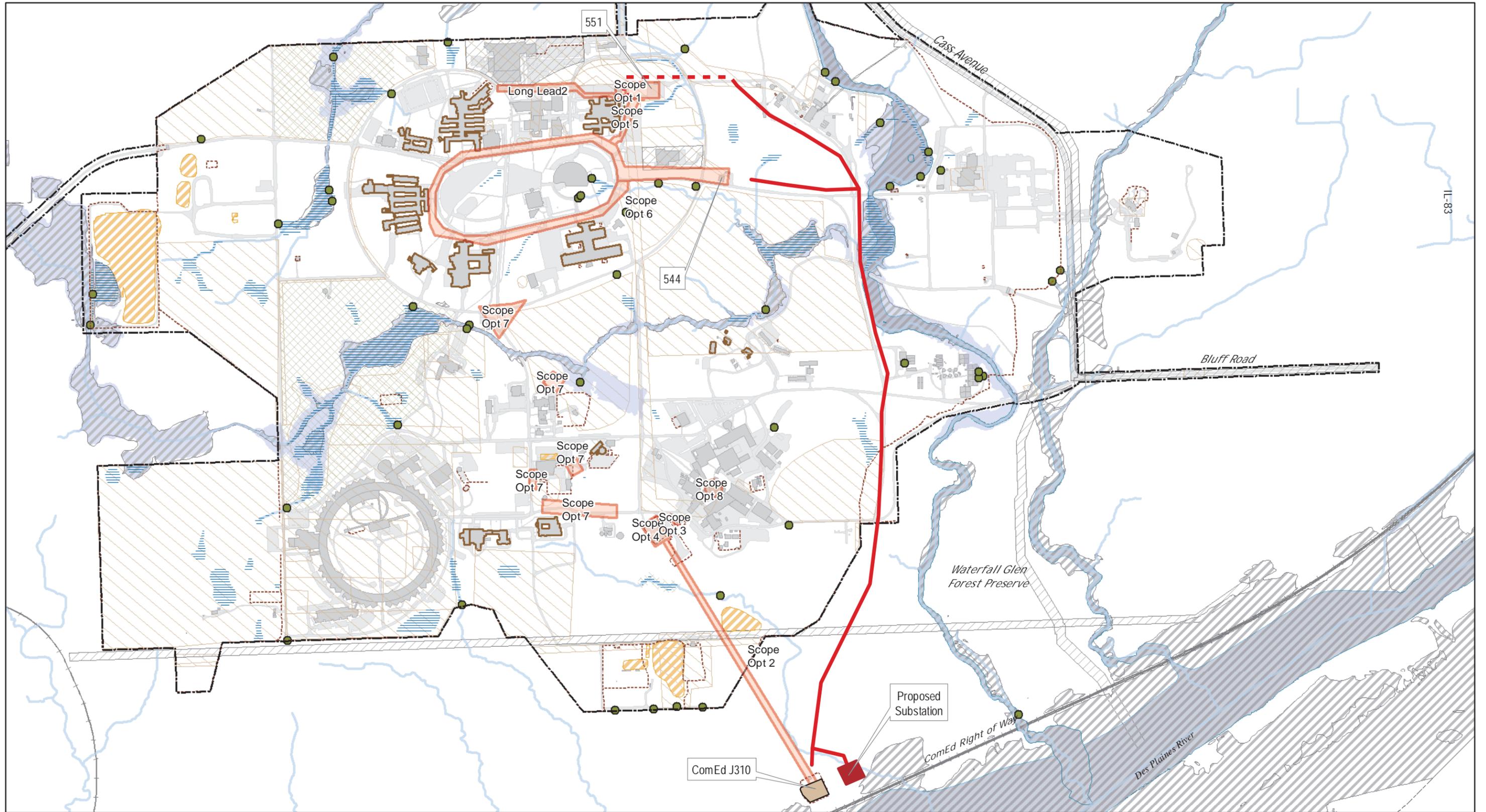
**Option 7:** OH 13.2 kV Reliability. Upgrade manual switches on existing poles all over the site with new intelligent smart grid switches. See attachment SK-13.

**Option 8:** Switchgear 12A/12B Replacement. Switchgear 12A/12B in Bldg. 364 is past its useful life. This project would replace the equipment in kind with new. See attachment SK-14.

# PRELIMINARY DESIGN

## UPDATED 138kV TRANSMISSION ROUTE





- |                         |                                      |                              |                  |
|-------------------------|--------------------------------------|------------------------------|------------------|
| ECDC Above Ground Route | Base Flood Floodway                  | Exist. Easement, 3rd party   | Perimeter Fence  |
| ECDC Underground Route  | Base Flood 100 Year Flood Zone       | Archaeology Survey on Record | Argonne Boundary |
| ECDC Optional Scope     | FIRM Preliminary 100 Year Flood Zone | NRHP Eligible Building       |                  |
| NPDES Outfall           | Endangered Species Location          | Argonne Building             |                  |
| Argonne Wetland         | Contaminated Area                    | Road                         |                  |

**ECDC Project  
Proposed Work Locations**

IS-PMO-SPPM  
08/12/2019

Graphics are for illustrative purposes only

# Long Lead SOW#1

Transformer 12 Installation at Substation 551

- All work will take place at Substation 551



# Long Lead SOW#2

94<sup>th</sup> St. Duct Bank Cable Upgrades

- All work will take place in duct bank from 551 running under 94<sup>th</sup> St.



# Long Lead SOW#3

549A Bus 1 & Bus 2 Upgrades

- All work will take place at Substation 549A



# Construction Contract Option #1

Transformer 14 Installation and 551 Expansion

- All work will take place at Substation 551



# Construction Contract Option #2

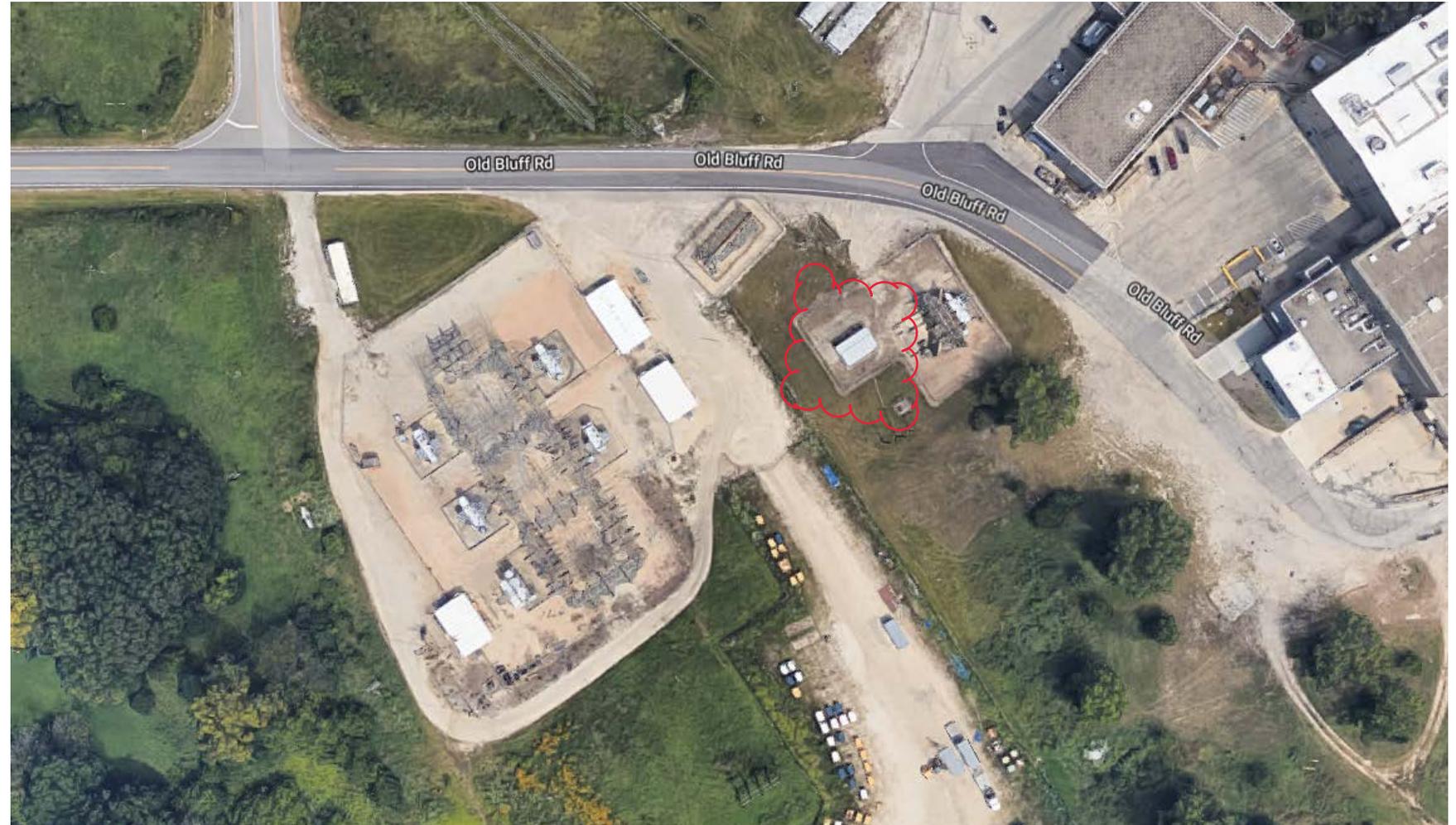
138kV OH Z Line Replacement



# Construction Contract Option #3

Transformer 6 Replacement

- All work will take place at Substation 549A



# Construction Contract Option #4

Transformer 5 Replacement

- All work will take place at Substation 549A



# Construction Contract Option #5

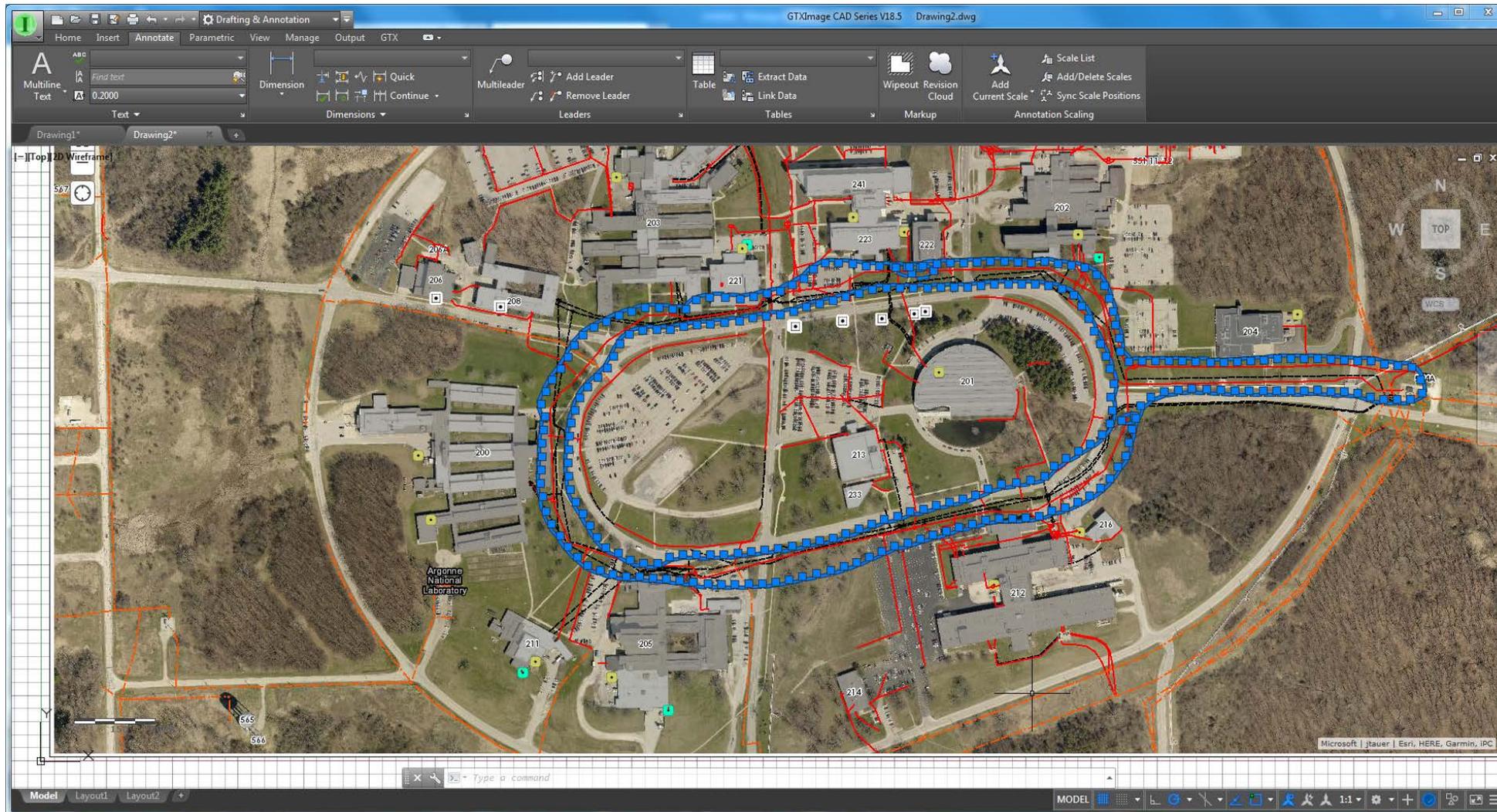
200 Area Reliability

- Exact route of ductbank to be determined during design



# Construction Contract Option #6

Underground 13.2 Distribution Reliability



# Construction Contract Option #7

OH 13.2 Distribution Reliability

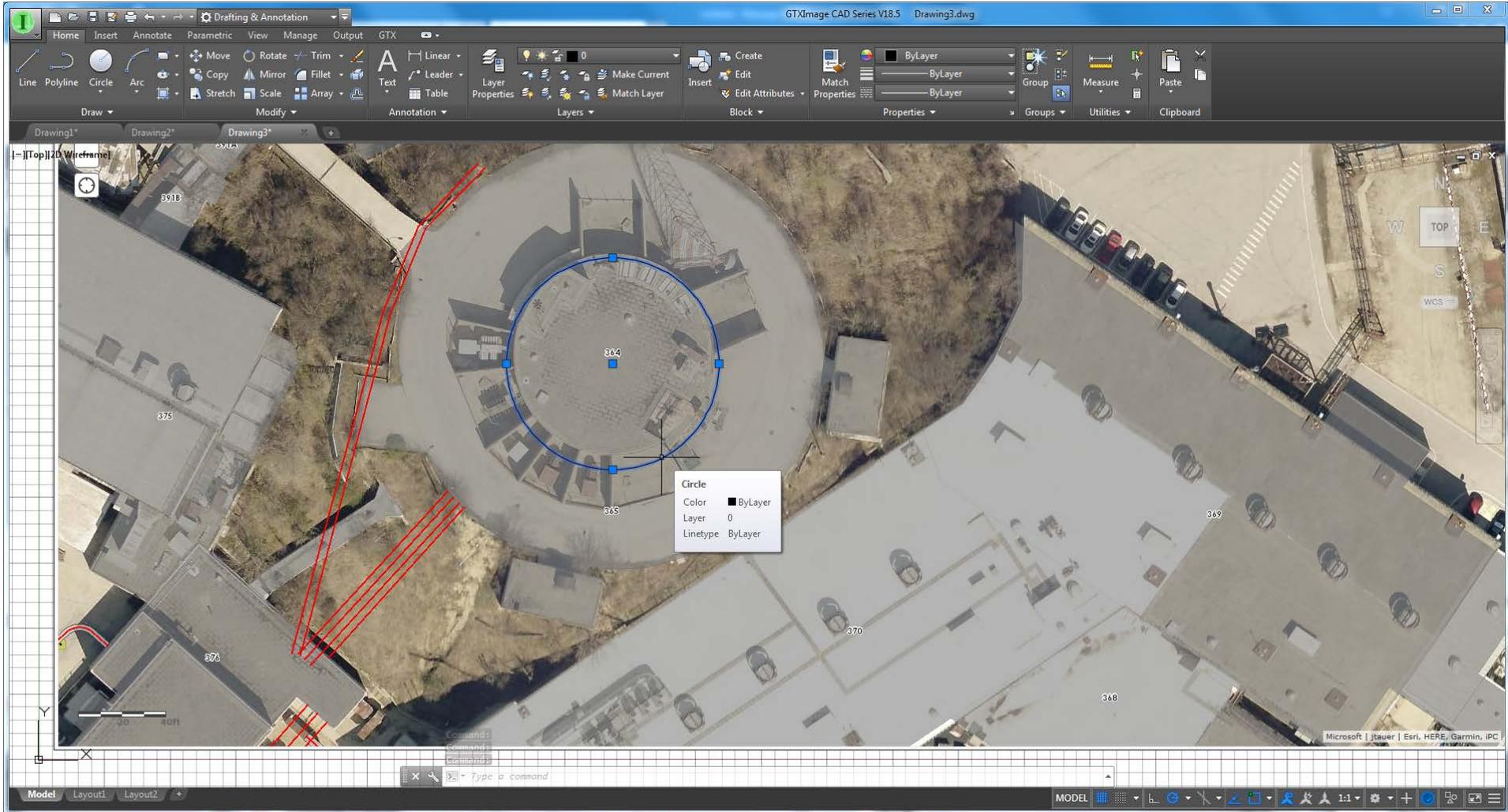
- All work will take place on existing power poles



# Construction Contract Option #8

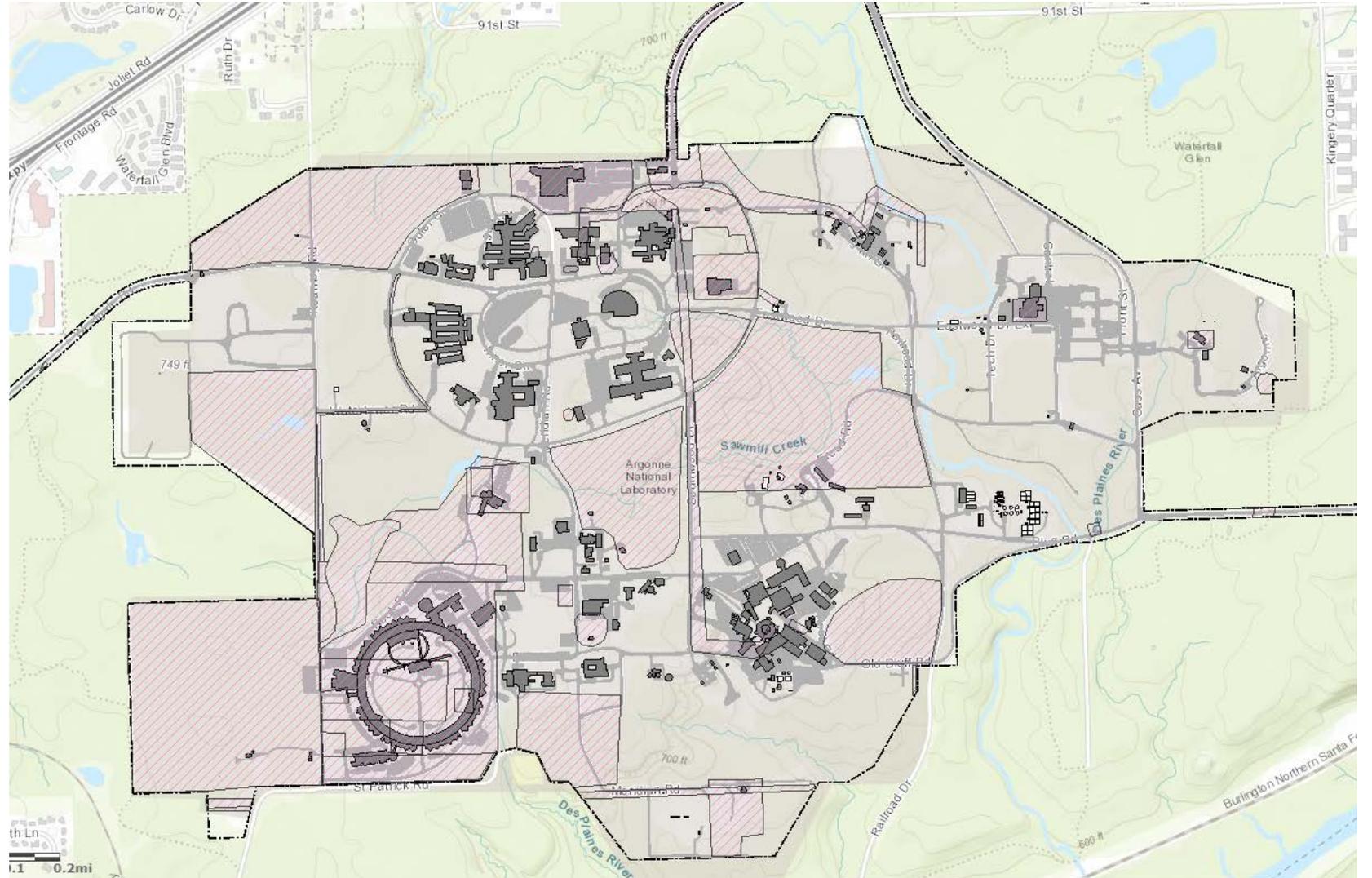
Switchgear 12A/12B Replacement

- All work will take place at Bldg. 364



# Archeological Surveys on Record

- Hatched areas have archeological surveys on record.



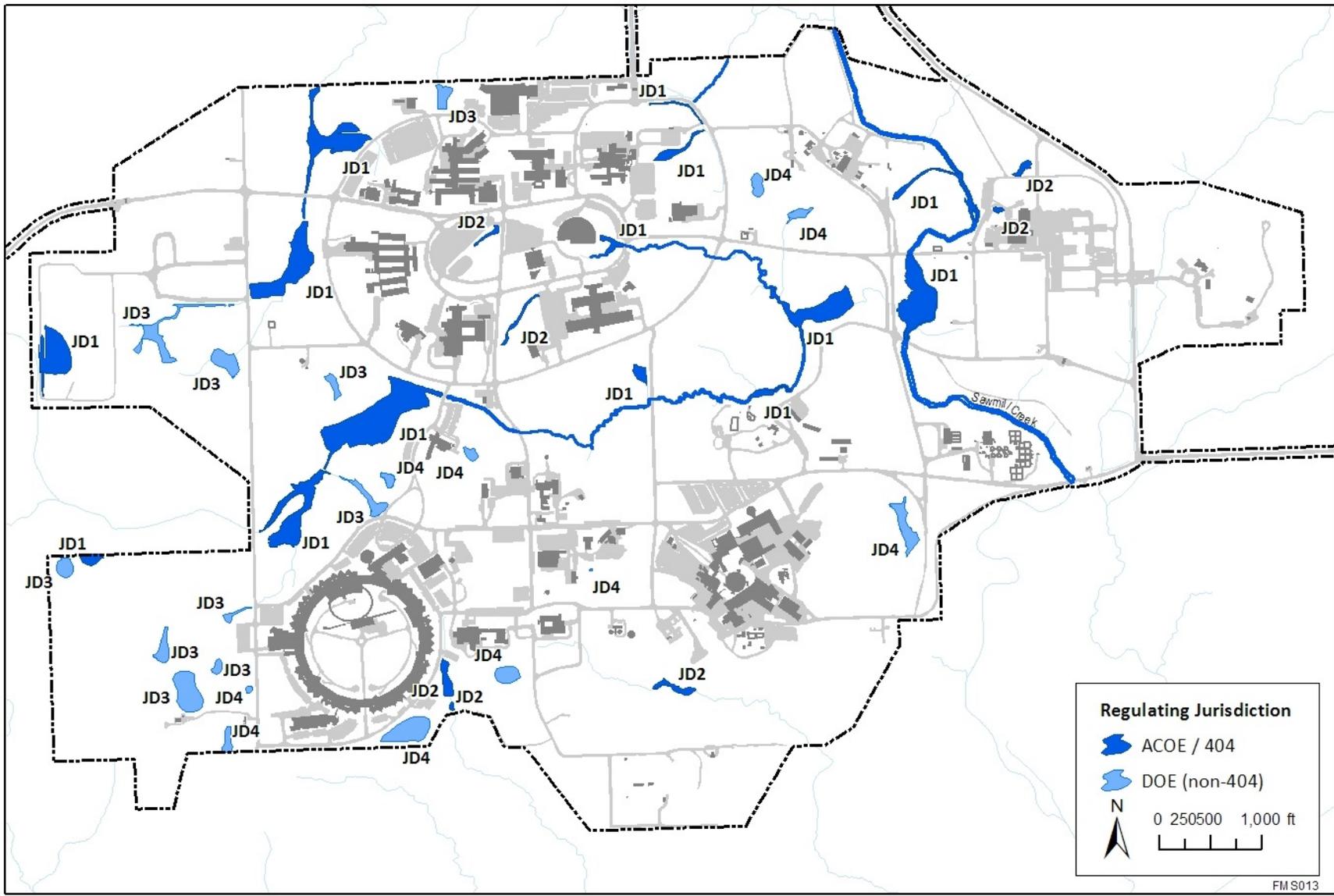
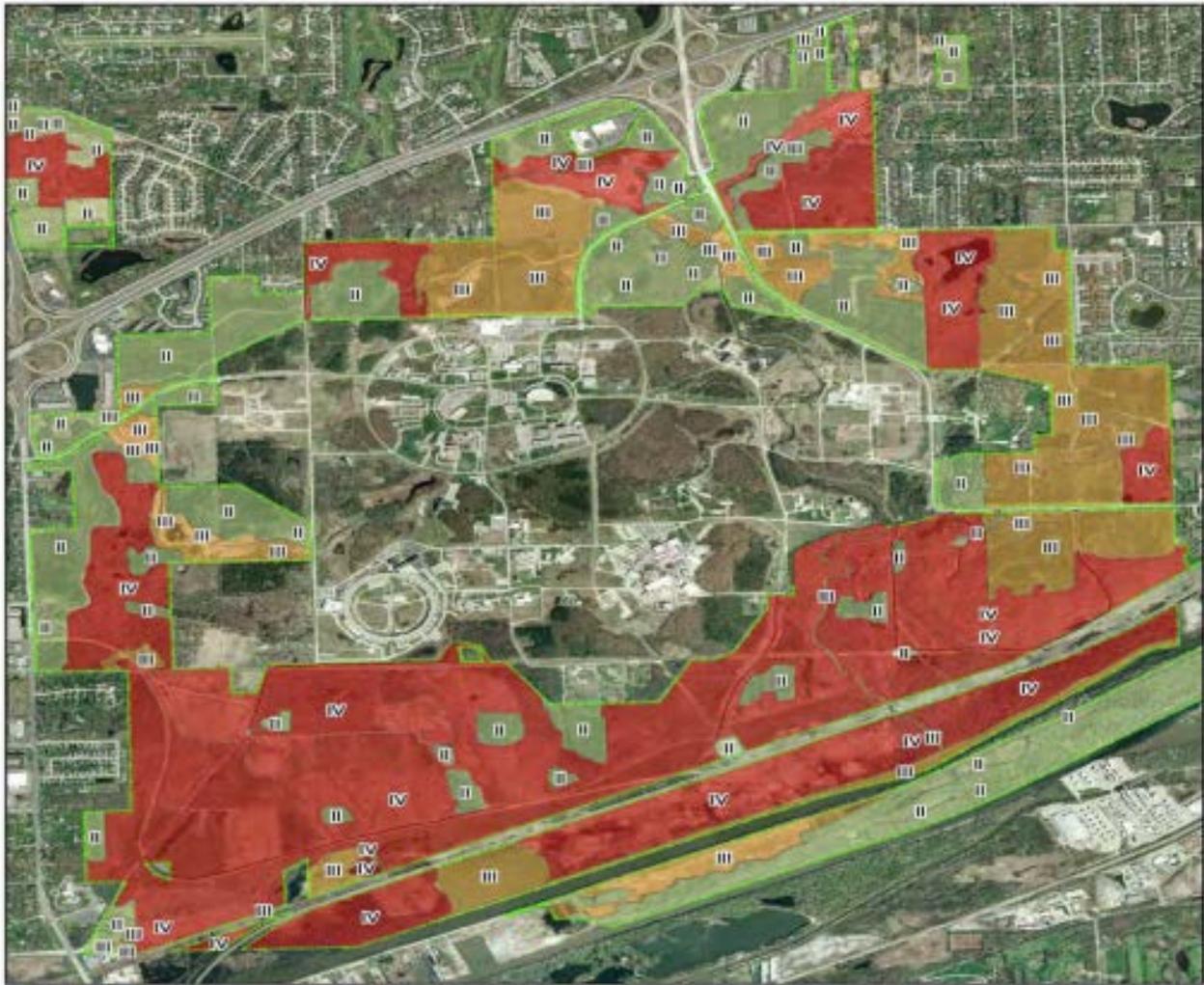


Figure 2. Provisional Jurisdictional Determinations of Argonne Wetlands.



**Waterfall Glen Forest Preserve**  
Ecosystem Classification Map July 2015

**Legend**

- Forest Preserve Boundary
- Ecosystem Classification**
- I
- II
- III
- IV



# Hines Emerald Dragonfly Critical Habitat

Source: USFWS Website

Habitat is located south and west of construction area

## » Critical Habitat

### Critical Habitat Spatial Extents

