AMERICAN TRANSMISSION SYSTEMS, INCORPORATED

LETTER OF NOTIFICATION
HARDING – PERRY 345 KV TRANSMISSION LINE LOOP TO AND EXPANSION OF THE LEROY CENTER SUBSTATION PROJECT

OPSB CASE NO.: 14-1107-EL-BLN

NOVEMBER 21, 2014

American Transmission Systems, Incorporated
76 South Main Street
Akron, Ohio 44308

LETTER OF NOTIFICATION
HARDING – PERRY 345 KV TRANSMISSION LINE LOOP TO, AND EXPANSION OF, THE LEROY CENTER SUBSTATION PROJECT

The following information is being provided in accordance with the procedures delineated in Ohio Administrative Code Section 4906-11-01: Letter of Notification Requirements of the Rules and Regulations of the Ohio Power Siting Board.

4906-11-01(B): Letter of Notification Requirements

4906-11-01(B)(1)a: Name and Reference Number

Name of Project:	Harding – Perry 345 kV Transmission Line Loop to, and Expansion of, the Leroy Center Substation Project ("Project")
2013 LTFR Reference:	This Project is identified on page 62 of Ohio Edison Company, The Cleveland Electric Illuminating Company, The Toledo Edison Company and American Transmission Systems, Incorporated's 2014 Electric Long-Term Forecast Report ("LTFR") submitted to the Public Utility Commission of Ohio in Case Number 14-0625-EL-FOR.

4906-11-01(B)(1)b: Brief Description of Project

American Transmission Systems, Incorporated ("ATSI"), a FirstEnergy Company, proposes to expand the footprint of the existing Leroy Center Switching Station to allow for the addition of 345 to 138 kV transformers and associated equipment to loop the existing Harding – Perry 345 kV Transmission Line into the expanded substation.

In this submittal, ATSI will use the following naming convention:

1. The existing substation will be identified as the Leroy Center Switching Station;
2. The expanded substation will be identified as the Leroy Center Switching Station and Substation.

In addition to expanding the footprint of the substation, the Project includes installing two new transmission line structures north and south of the substation to support both the loop of the Harding – Perry 345 kV Transmission Line into the expanded substation and to relocate the existing Inland – Perry 345 kV Transmission Line where it passes above the expanded substation. This Project is needed to reinforce the transmission system to address transmission reliability issues as generation plants are retired in the region. The existing Leroy Center Switching Station presently operates as a 138 kV switching station that connects to the following transmission lines:

Leroy Center – Nursery Q-11 138 kV Transmission Line
Leroy Center – Nursery Q-12 138 kV Transmission Line
Ashtabula – Mayfield Q-1 138 kV Transmission Line
Ashtabula – Mayfield Q-2 138 kV Transmission Line
Mayfield – Stacy Q-3 138 kV Transmission Line
Ashtabula – Mayfield Q-4 138 kV Transmission Line

The existing double-circuit Harding – Perry 345 kV Transmission Line and the Inland – Perry 345 kV Transmission Line are currently located adjacent to the east side of the existing Leroy Center Switching Station.

The Project will involve: (1) expanding the existing Leroy Center Switching Station to create the Leroy Center Switching Station and Substation (which may also be referred to as the Leroy Center Substation following the construction of the Project), by expanding the fenced area of the existing substation by approximately 6.1 acres and installing a 345 kV switchyard with 345 to 138 kV transformers and associated facilities; (2) looping approximately 1,250 feet of the existing Harding – Perry 345 kV Transmission Line into the substation; (3) shifting the existing Inland – Perry 345 kV Transmission Line, which will not connect to the Leroy Center Switching Station and Substation, to pass over the substation expansion; and (4) temporarily relocating the Harding – Perry 345 kV Line during construction.

The substation expansion will occur within property owned by The Cleveland Electric Illuminating Company ("CEI"), a FirstEnergy Company. The transmission line relocations located north of Leroy Center Road will occur within the CEI property. The transmission line relocations located south of Leroy Center Road will largely occur within existing transmission right-of-way easements granted to CEI, although a small portion of new right-of-way adjacent to the east side of the existing right-of-way may be required. The general location of the Project is shown in Figures 1 and 2. The proposed substation layout is provided as Exhibit 1. The Project is located in LeRoy Township in Lake County, Ohio.

4906-11-01(B)(1)c: Why the Project Meets the Requirements for a Letter of Notification

The Project meets the requirements for a Letter of Notification because the Project is within the types of project defined by Items (1)(a), (1)(g) and (8)(b) of Attachment A of the Board's interim process defined in the Board's September 4, 2012 Finding and Order in Docket 12-1981-GE-BRO. These items state:

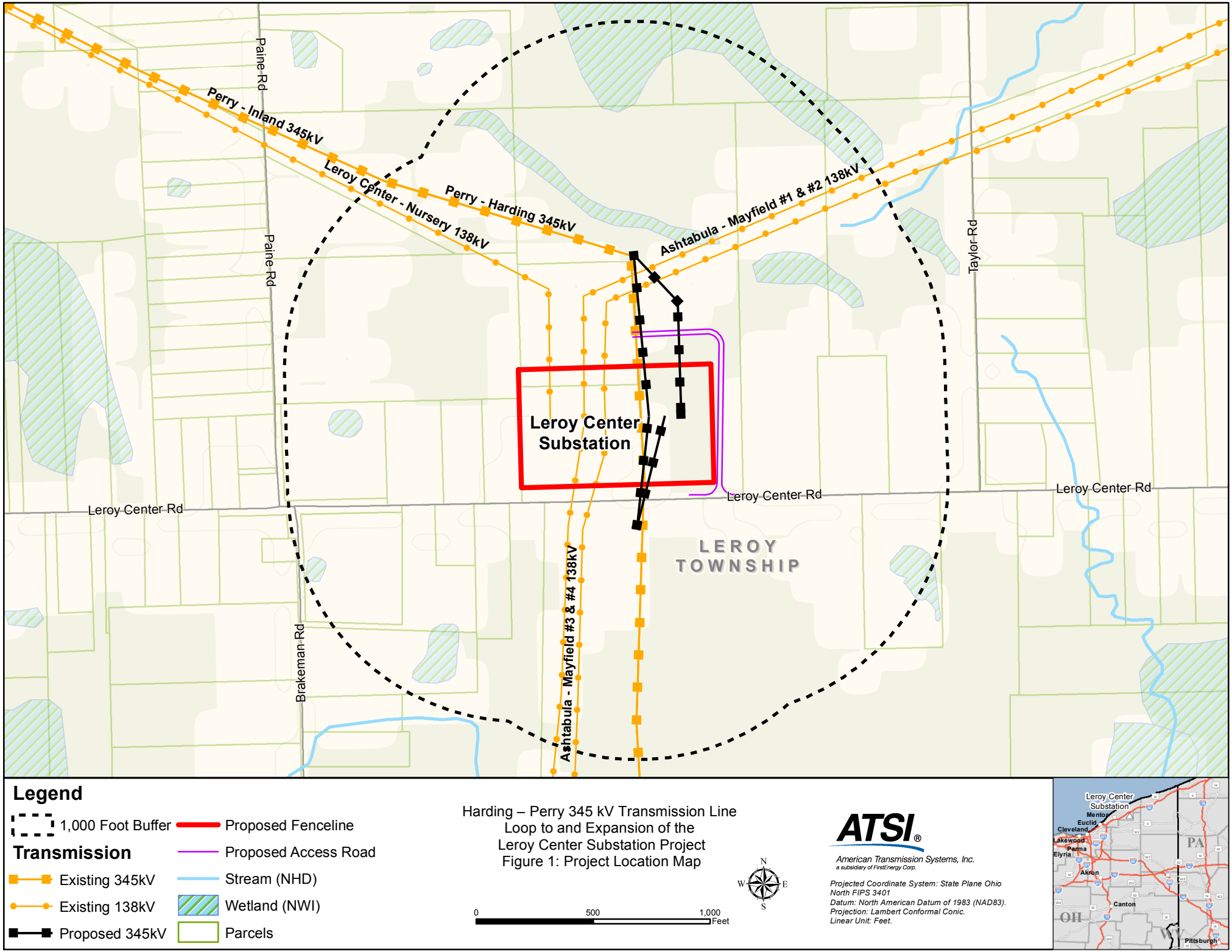
(1) Rerouting or extension or new construction of single or multiple circuit electric power transmission lines(s) as follows:

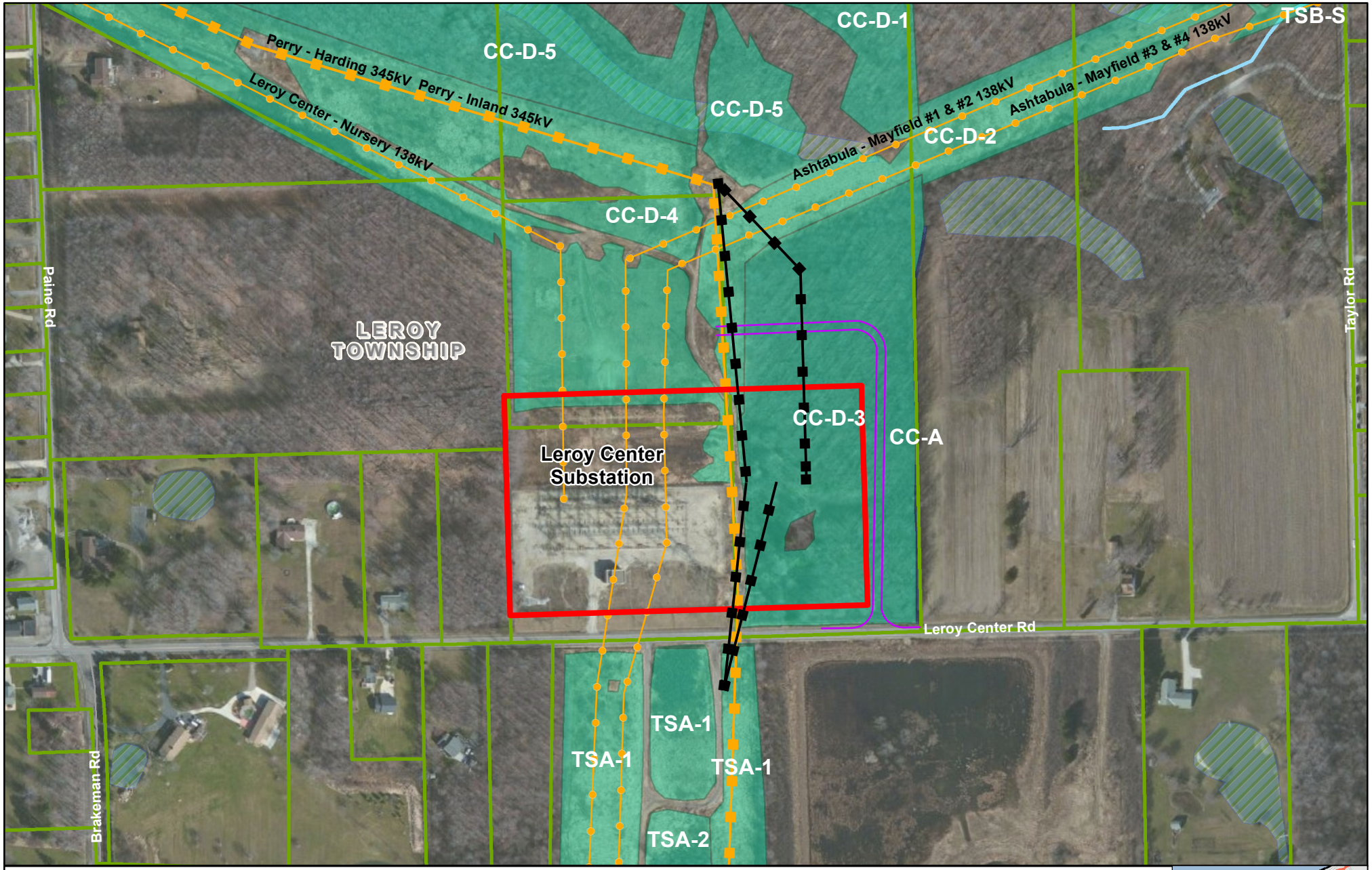
(a) Line(s) three hundred kilovolts (kV) and above, and greater than 0.1 mile but not greater than two miles in length.

(g) Line(s) that are necessary to maintain reliable electric service as a result of the retirement or shutdown of an electric generating facility located within the state.

(8) Constructing additions to existing electric power transmission substations where:

(b) There is greater than twenty percent expansion of the fenced area.


Perry - Inland 345kV
Leroy Center - Nursery 138kV
Perry - Harding 345kV
Ashtabula - Mayfield #1 & #2 138kV
Paine Rd
Paine Rd
Taylor Rd
Leroy Center Substation
Leroy Center Rd
Leroy Center Rd
Leroy Center Rd
LEROY TOWNSHIP
Brakeman Rd
Ashtabula - Mayfield #3 & #4 138kV
Legend
1,000 Foot Buffer
Transmission
Existing 345kV
Existing 138kV
Proposed 345kV
Proposed Fenceline
Proposed Access Road
Stream (NHD)
Wetland (NWI)
Parcels
Harding – Perry 345 kV Transmission Line
Loop to and Expansion of the
Leroy Center Substation Project
Figure 1: Project Location Map
N
W
E
S
0
500
1,000
Feet
ATSI
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.
Projected Coordinate System: State Plane Ohio North FIPS 3401
Datum: North American Datum of 1983 (NAD83).
Projection: Lambert Conformal Conic.
Linear Unit: Feet.
Leroy Center Substation
Mentor
Euclid
Cleveland
Lakewood
Parma
Elyria
Akron
Canton
PA
OH
WV
Pittsburgh



Legend

- Proposed Fenceline
- Proposed Access Road

Transmission

- Existing 345kV
- Existing 138kV
- Proposed 345kV

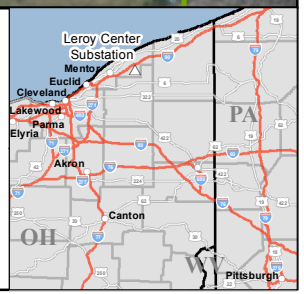
- Parcels
- Delineated Stream
- Delineated Wetland
- Stream (NHD)
- Wetland (NWI)

Harding – Perry 345 kV Transmission Line
Loop to and Expansion of the
Leroy Center Substation Project
Figure 2: Project Aerial Map

0 300 600 Feet

ATSI®
American Transmission Systems, Inc.
a subsidiary of FirstEnergy Corp.

Projected Coordinate System: State Plane Ohio North FIPS 3401
Datum: North American Datum of 1983 (NAD83).
Projection: Lambert Conformal Conic.
Linear Unit: Feet.



In order to ensure reliable electric service as a result of the retirement of generation in the ATSI service area, the proposed Project consists of the following:

1. Expanding the fenceline of the existing Leroy Center Switching Station by approximately 6.1 acres to create the Leroy Center Switching Station and Substation, which is an approximately 66 percent expansion of the fenced area of the existing switching station.

2. Constructing approximately 1,250 feet of new 345 kV line as part of the Harding – Perry 345 kV Transmission Line extension to the expanded substation.

3. Shifting approximately 1,150 feet of the existing Inland – Perry 345 kV Transmission Line (which will not connect to the Leroy Center Switching Station and Substation) to pass over the substation expansion.

4. Temporarily relocating approximately 550 feet of the Harding – Perry 345 kV Transmission Line during construction.

4906-11-01(B)(2): Need for the Project

ATSI's 345 kV and 138 kV transmission system in the greater Cleveland / Akron area (the Project Area Transmission System) is part of the transmission grid and—through various substations—provides electric supply to a large portion of The Cleveland Electric Illuminating Company ("CEI") and Ohio Edison Company ("Ohio Edison") service territories. This area of CEI and Ohio Edison's service territories is referenced in this Application as the Project Area.

Currently, when operating under normal configuration, the Project Area Transmission System supplies distribution and customer substations. These distribution and customer substations in the Project Area serve more than 900,000 customers. The Project Area Transmission System when it was originally installed was designed for area needs as they existed at that time (primarily residential and industrial customers) and relied heavily on generating units located in close proximity to the load center. The 345 kV and 138 kV Project Area Transmission System was expanded over time to

both accommodate growth in the Project Area, and better integrate the CEI system in the larger interconnected transmission grid system. However, the Project Area Transmission System continues to rely on generating units located inside the load center to both meet local electrical demand and provide voltage stability through dynamic reactive power response. The amount of dynamic reactive power available in any area is defined as the difference between the actual reactive output of dynamic reactive devices (i.e. generating units, Synchronous Condensers, Static Var Compensators ("SVC"), etc.) and the maximum capability of the dynamic reactive devices, which is commonly referred to as dynamic reactive reserve. When dynamic reactive reserve is exhausted, the Project Area Transmission System becomes at risk for low voltage and voltage collapse.

The retirement of the majority of Cleveland area coal-fired generating plants means that the Project Area Transmission System must import more power from outside the local load center, and rely on some retired units being converted from generating units to synchronous condensers, to maintain a level of dynamic reactive power response. Much of the power being imported into the Project Area Transmission System moves over the ATSI transmission system which ultimately connects to neighboring utilities. These facilities have import capacity limitations; imports that exceed these limitations result in thermal overloads on these facilities as well as within the Project Area being served. Additionally, with increased loading on the transmission lines that move power into the Project Area, there are increased power losses on the transmission system. These power losses also contribute to a reduction in dynamic reactive reserves in the Project Area, as reactive power is consumed by the transmission system.

Furthermore, many additional factors have led to increased consumption of electricity in the affected areas. The expansion of the greater Cleveland metropolitan area into the surrounding rural areas has led to a significant increase in new homes, schools, and service-type business; as well as increased commercial and industrial businesses that have come into the area or expanded their facilities and operations in the area. Each

new home, and new or expanded business, adds to the load on the Project Area Transmission System, which therefore adds to the amount of power that must be imported into the Project Area. Even without the retirement of the generation units in the area, the Project Area Transmission System was approaching the limits for which it was designed. The core issue is that unless a new supply of electric energy is brought into the area, the existing Project Area Transmission System is unlikely to be able to support a reliable electric system capable of delivering needed electricity to Project Area homes, businesses and communities and no additional capacity will be available for new homes or businesses in the area.

Because the Project Area Transmission System is approaching its operating limits, in order to accommodate electric contingencies—as well as new load (i.e. homes, businesses, and industrial facilities) that come on-line prior to the completion of the Project—operating procedures are in place on affected circuits in the area. Operating procedures may include manual load reductions (forced outages) in the Project Area should they be required as voltages in the Project area begin to deteriorate. This may be necessary to ensure the reliable operation of the Transmission System as it relates to voltage stability. The Project is needed to reduce to the extent possible the need for these types of operating procedures.

(1) Purpose of the Proposed Facility

The Leroy Center Switching Station and Substation and associated line reconfiguration projects are needed to support recent and future increases in the flow of electric power across the ATSI transmission system and maintain voltage levels in the greater Cleveland / Akron area. Specifically, this Project, as well as other related projects, are intended to reinforce the interconnected transmission system following the announced retirement of 18 units at coal-fired power plants in the ATSI territory—located in both Ohio and Pennsylvania—that will occur by 2015. Additionally there are other projects identified by PJM and FirstEnergy that are also needed to ensure compliance with North American Electric Reliability Corporation ("NERC") planning

criteria for the 345 and 138 kV transmission systems, PJM planning criteria and the FirstEnergy transmission planning criteria. Ultimately, the projects are needed to ensure continued provision of safe and reliable electric service in the Project Area.

The proposed Leroy Center Switching Station and Substation and associated line reconfiguration projects will add a new 345-138 kV substation to more effectively serve a dense pocket of distribution and customer load. Serving the local load pocket where there is established ATSI 138 kV infrastructure reduces 138 kV flows out of ATSI Star Substation under contingency conditions and facilitates transmission flows across the ATSI system. This pathway for the increased importation of power into the Project Area will provide the following benefits to the Project Area Transmission System:

1. Increase the import capability into the Project Area;
2. Make the area more reliable under contingency conditions;
3. Decrease flows on existing infrastructure;
4. Reduce reactive power losses on transmission lines moving power into the Project Area; and
5. Increase dynamic reactive reserves in the Project Area to maintain voltage stability.

4906-11-01(B)(3): Location Relative to Existing or Proposed Lines

The location of the Project relative to existing or proposed transmission lines is described in reference to the FirstEnergy System Facilities map, included as the last page of Chapter 3 of the confidential portion of the FirstEnergy Corp. 2014 Long-Term Forecast Report, submitted to the Public Utility Commission of Ohio ("PUCO") in Case No. 14-0625-EL-FOR under rules 4901:5-5:04(C) of the Ohio Administrative Code. This map shows ATSI's 345 kV and 138 kV existing transmission lines and transmission substations and does not depict the proposed location of the Project. In reference to the map, the proposed Project enters the map into Lake County approximately 12 inches (11 by 17 inch printed version) from the left edge of the map

box and 1 1/2 inches (11 by 17 inch printed version) from the top of the map box. The general location of the Project is shown in this LON in Figures 1 and 2. A map showing the general layout of the Project is included in Exhibit 1.

4906-11-01(B)(4): Alternatives Considered

The existing Leroy Center Switching Station is located along Leroy Center Road at the junction of existing 138 kV and 345 kV lines, and presently contains a 138 kV switching station that connects to the following six 138 kV lines: Leroy Center – Nursery Q-11 and Q-12, Ashtabula – Mayfield Q-1, Q-2 & Q-4 and Mayfield-Stacy Q-3 . As previously described, the Project is necessary to reinforce the local 138 kV system by connecting a 345 kV source into the existing Leroy Center Switching Station. ATSI proposes to address the electrical need by expanding the existing Leroy Center Switching Station to create the Leroy Center Switching Station and Substation by adding 345 to 138 kV transformers and connecting one of the two adjacent existing 345 kV lines to the substation.

Building the substation at this location capitalizes on the use of existing infrastructure, reducing the overall footprint necessary to meet the needs of the Project. The proximity of the 138 kV lines to the 345 kV lines at this location allows this interconnection with minimal new right-of-way ("ROW") corridor(s). The existing Leroy Center Switching Station location is also optimal since the Leroy Center – Nursery Q-11 and Q-12 138 kV lines are adjacent to the Project location. Both of these circuits are presently served radially from Eastlake substation. The Project will create a networked path from Eastlake to the Leroy Center Substation. This will allow the end customers served from these facilities to be supplied from either Eastlake or Leroy Center under outage events. If another project location was selected along the Ashtabula – Mayfield Q-1, Q-2 & Q-3 and Mayfield-Stacy Q-3 138 kV corridor, additional ROW would be needed to create this network path to realize this reliability benefit.

Based on existing land use and design requirements, the substation will be expanded to the east. Expansion to the east avoids the need to relocate the existing transmission corridor to the north and avoids interference with residential properties to the west. In addition, expansion to the east can be completed entirely on property owned by CEI.

Limited options exist in this region to construct a new substation that meets the requirements of the Project and that has fewer overall impacts. For instance, one impact of the Project is impacts to wetlands located at the existing substation site as part of the expansion. In considering alternatives, ATSI looked for potential substation locations that may have fewer wetland impacts. However, in evaluating these alternative sites, ATSI determined that they would all require significant new ROW corridors to allow extension of the existing 345 kV line (Harding – Perry) to the new substation, extension of the existing Leroy Center to Nursery 138 kV lines to the new substation, and a larger overall footprint for the new substation and associated work in the existing 138 kV switching station. Locating the new 345 kV substation in a location that is not contiguous to the existing switching station would require the new substation to be approximately 20 percent larger than as proposed, and would also require expansion of the existing 138 kV switching station by approximately 20 percent. The combined increase in total land disturbance under these alternative scenarios ranges from 50-70 percent.

In an effort to minimize impacts, ATSI evaluated the potential impacts of the Project if constructed at four alterative substation locations: (1) construction to the east at the corner of Taylor Road and Leroy Center Road; (2) construction to the north in an undeveloped wooded area; (3) construction south of Leroy Center Road; and (4) construction to the west in an agricultural field to the south of Leroy Center Road. Under all alternatives, wetlands would be permanently impacted due to the required expansion of the existing 138 kV switching station to include necessary equipment. Under any alternative that has the new 345 kV substation not immediately contiguous, the wetland impacts would be approximately 20 percent larger than under the proposed alternative due to requirements necessary for the Project if the substations

are separated, which would include new substation deadend, or take off structures, and the need to increase the area of the existing substation to accommodate the new equipment.

Table 1 below estimates the approximate acreage of permanent wetland fill for the various substation alternatives. Please note that other than the proposed Project, **none of the impact totals include wetland fill associated with new transmission structures**. This is because it is difficult to determine the placement of transmission structures without full engineering design. It is highly likely that all the alternatives other than the proposed would have additional permanent wetland fill from transmission structures in wetlands. Each transmission structure would account for approximately 0.01 acres of fill.

Table 1. Alternative Wetland Impact Comparison

Alternative Substation Location	Permanent Fill		PFO Clearing (acres)
	Total Wetland Fill (acres)	Palustrine forested wetland (PFO) Fill (subset of total wetland fill) (acres)	
Proposed	6.48	5.35	1.56
Eastern[1]	3.04	0.56	3.66
Northern	4.34	3.06	5.39
Southern	6.74	1.2	0.00
Western[2]	1.24	unknown	7.71

Table 2 below presents the cost of each alternative. As discussed in greater detail below, however, there are additional environmental, cost, and social factors involved in each alternative.

[1] Louis Berger did a desktop wetland analysis, estimating wetland and stream locations based on a review of NWI, hydric soils, and NHD stream layers and visual inspection of aerial photography.

[2] The Western Alternative's transmission lines have not been engineered. As such, wetland and stream impacts cannot be calculated. The wetland impact numbers shown in this table reflect the known wetland impact from the necessary expansion of the existing Leroy Center Switching Station. Forested Wetland clearing is based upon the desktop wetland analysis.

Table 2. Cost of Each Alternative			
Site Location	Construction Cost	Land/Real Estate Acquisition Cost	Cost Difference from Proposed
Proposed	$22,410,500	N/A	$0
Eastern Alternative	$24,860,500	$228,000 to $290,000	$2,687,000 to $2,740,000
Northern Alternative	$29,810,500	N/A	$7,400,000
Southern Alternative	$26,010,500	$22,000	$3,622,000
Western Alternative	$27,360,500	$342,500 to $548,000	$5,292,500 to $5,498,000

Eastern Alternative

If the substation was located in the agricultural area to the east of the existing switching station at the corner of Taylor and Leroy Center roads, a significant portion of the PFO area that would be permanently filled or cleared under the proposed alternative would still require clearing. In addition, this area would be occupied by new transmission line connections including permanent structures in the wetland. This option would require the purchase of private agricultural land and would result in a substation fence line in close proximity to the adjacent residence. The necessary configuration would require this residence to be purchased due to the close proximity. This option also would be closer and more visible to additional residences to the east on Leroy Center and Taylor Roads. Based upon preliminary calculations, not including new or relocated transmission structures in wetlands, it is estimated that the eastern option would require approximately 3.04 acres of wetland to be permanently filled, 0.56 acres of which are PFO. In addition, this option would require 3.66 acres of PFO wetland clearing for new ROW development to connect to the proposed and existing substations. Because wetland delineations were not conducted outside of FirstEnergy's property and this eastern area is mostly an active agricultural field, the hydric soil, NWI, and NHD layers were used to define wetlands for this alternative. There is also a stream (CC-A-S) located along the eastern edge of the property line within the PFO. This stream would be within the work zone of the eastern alternative and would likely be impacted by construction.

It is estimated that the eastern alternative would cost $24,860,500 to build, in addition to an estimated $228,000 to $290,000 for land and real estate acquisition. The east alternative would require two new 138kV transmission lines spanning from existing 138 kV to the new 138/345 kV yard which must be routed through the forested wetlands immediately east of the existing yard.

Although the eastern alternative would result in less permanent fill than the proposed alternative, it is not the preferred alternative because of increased costs ($2.69 to $2.74 million more expensive than the proposed alternative), the need to acquire the land, impacts to residents, and the amount of PFO that would need to be cleared.

Northern Alternative

The northern alternative would result in the new substation being placed north of the existing switching station and various existing ROWs in a forested area comprised mostly of a mosaic PFO wetland with some forested uplands. This forested area to the north of the existing switching station contains PFO wetlands (CC-D-5 and CC-D-1) that are more buffered and isolated from existing development than those that would be impacted in the proposed alternative. The wetlands that would be impacted under the proposed alternative (CC-D-3) are adjacent to maintained ROW, the existing switching station, cultivated fields, roads, and residences. As such the PFO wetlands that would be filled under the northern alternative are likely to provide better wildlife habitat than the PFO areas to the east of the existing switching station that would be filled under the Project. In addition, the northern PFO wetlands are mostly free of invasive species; whereas the PFO wetland that would be filled under the Project (CC-D-3) has a moderate coverage of the invasive glossy buckthorn. The northern alternative would require approximately 4.34 acres of permanent wetland fill, of which 3.06 acres is PFO. In addition, this option would require approximately 5.39 acres of additional PFO wetland clearing for new ROW development to connect to the existing and new substations.

It is estimated that the northern alternative would cost $29,810,500 to build. The northern alternative would require two new 138 kV transmission lines from existing

138 kV yard to the new 138/345 kV yard which must be routed through the forested wetlands immediately east of the existing yard.

Overall, this alternative is not the preferred alternative because although it would result in 2.14 acres less of permanent fill than the proposed alternative, the northern alternative would result in more land disturbance, there would be an additional 3.83 acres of PFO wetland clearing and would be $7.4 million more expensive than the proposed alternative.

Southern Alternative

The southern alternative would result in the new substation being placed south of Leroy Center Road in an area comprised almost entirely of wetlands. The area along the existing transmission line corridor south of Leroy Center Road is dedicated to wetland mitigation efforts under the ownership of Leimco Development, Co, LTD, Shamrock Business Center, LTD, Donald E. Mortell Trustee, Successor in Interest to Mortell Associates. This mitigation area is a part of an USACE-approved Joint Mitigation Plan between the aforementioned parties and Lake County Metroparks for permanent conservation, management, and protection. Part of this wetland mitigation area includes a Category 3 PFO. Therefore, construction of a new substation to the south along the existing transmission corridor would conflict with this Joint Mitigation Plan. Based upon preliminary calculations, it is estimated the southern alternative would require approximately 6.74 acres of permanent wetland fill, of which approximately 1.20 acres would be PFO (TSA-1 and TSA-2). Additional clearing of forested wetlands to facilitate ROW development is not anticipated for this alternative due to its proximity to Leroy Center Road.

It is estimated that the southern alternative would cost $26,010,500 to build, in addition to $22,000 for land acquisition, though the parcel may not be available for purchase as it is a wetland mitigation area. The south alternative requires four existing 138kV transmission lines to be routed around the proposed substation. The reroute of the 138kV transmission lines will be to the west of the South Alternative layout and may affect the existing homes west of the proposed layout. The South Alternative

would also require two new 138 kV transmission lines from existing 138 kV to the new 138/345 kV yard which must be routed through new ROW.

This alternative is not the preferred alternative, because total wetland fill is greater than under the proposed alternative, it overlaps with wetlands that are earmarked for permanent conservation, management, and protection, and the alternative would be around $3.62 million more expensive than the proposed alternative.

Western Alternative

The western alternative involves locating the new 345 kV substation in an agricultural field approximately 0.6 miles to the west of the existing switching station and immediately south of Leroy Center Road. In order to connect the new substation with the existing Harding – Perry 345 kV and the Leroy Center – Nursery 138 kV lines, ATSI would need to construct two new transmission lines south and east of the new switching station that would total a distance of 1.7 miles and would cross at least ten privately owned parcels. Final engineering for this alternative has not been conducted; therefore, the exact location of transmission line structures and access roads cannot be determined at this time.

Louis Berger conducted a desktop wetland and stream analysis within the expected limits of disturbance. Based upon this analysis, although the western alternative's substation footprint would be in an agricultural field that does not appear to contain wetlands, there are likely to be substantial wetlands located within the new transmission line ROWs, most of which are PFO wetlands. In order to construct the western alternative, a total of 7.71 acres of PFOs in the ROWs would need to be cleared. In addition, because of the wetland density, it is unlikely that all wetlands could be spanned. As a result, it is expected that multiple transmission structures would need to be located in wetlands. Each transmission structure would result in approximately 0.01 acres of permanent fill; however, the number of structures in wetlands cannot be calculated without a final engineering design. Similarly, because of wetland density and the presence of multiple streams in the ROWs, it is expected

that access roads would need to have permanent or temporary stream and wetland crossings that would result in additional wetland impacts. The NHD indicates the presence of a single stream, an unnamed tributary to East Creek, within the proposed ROW. This tributary intersects the ROW in three separate locations for a total of 0.1 miles. Although impact numbers cannot be calculated at this time, it is expected that the western alternative would impact both wetlands and streams, including possible impacts at the tie-in locations into the existing lines which are within the mitigation site discussed previously in the southern alternative.

In addition, the western alternative would cross at least ten privately owned parcels. Obtaining easements on these parcels, as well as needing to construct almost 2 miles of transmission lines, would increase the project costs. Overall, it is estimated that the Western Alternative would cost $27,360,500 to build, in addition to $363,100 to $581,000 for land acquisition. The west alternative would require large rotated tangent transmission structures to loop the existing 345 kV transmission line into the new substation (as well as new structures for the existing 345 kV line that will pass by the new substation). The west alternative would also require two new 138 kV transmission lines from existing 138 kV to the new 138/345 kV yard which must be routed through new ROW. Purchasing the substation site and obtaining easements on the ROW parcels, as well as needing to construct almost 2 miles of transmission lines, would jeopardize the required in-service date and increase the project costs.

Although the western alternative would require less permanent wetland fill than the proposed alternative, it would likely result in greater stream impacts, require more PFO clearing, and would be $5.29 to $5.50 million more expensive than the proposed alternative.

Conclusions

Installing the new Leroy Center Substation adjacent to the existing switching station reduces the overall impacts associated with the Project to the maximum extent

possible and practical. The expansion footprint is further minimized by re-using the maximum amount of the existing switching station yard feasible. Additionally, in order to minimize the amount of transmission work, the new 345 kV expansion will be located beneath the existing Harding – Perry 345 kV line. To further minimize wetland impacts, ATSI will construct the Project using best management practices, such as construction matting, for temporary construction access, work pads, and laydown areas. As such, temporary wetland impacts have been avoided.

Locating the proposed substation an even greater distance away from the existing switching station would not avoid wetland impacts as there would be a requirement for significant extension of new transmission line corridors, thus resulting in additional land use, wetland, and forest impacts. Additionally, constructing a substation that is not contiguous to the existing Leroy Center Switching Station would be more costly than the proposed location, due to increased ROW length, additional construction needs, and in some cases, land acquisition.

For these reasons, the existing switching station site was identified as the Proposed Site for the Project. ATSI believes expanding the existing Leroy Center Switching Station to include the Leroy Center Substation represents the alternative that best balances costs and environmental and social impacts that minimizes to the maximum extent possible adverse environmental impacts taking into account the nature and costs of the various alternatives.

4906-11-01(B)(5): Construction Schedule

Construction on the Project is expected to begin March 1, 2015 with an in-service date of June 1, 2016.

4906-11-01(B)(6): Area Map

Figure 1 depicts the General Project Location and Figure 2 is an aerial map of the Project. To locate and view the Project site from the Columbus, Ohio area, travel north on I-71 for approximately 113 miles. Take exit 220 to merge onto I-271 north. Continue on I-271 N for approximately 40 miles. Take the ramp for I-90 east and

travel for approximately 16 miles. Take Exit 205 for Vrooman Road toward US-86 south. After approximately 0.2 miles, turn right onto Vrooman Road. Continue on Vrooman Road for approximately 1.4 miles and then turn left onto Leroy Center Road. Travel on Leroy Center Road for approximately 1.7 miles. The Leroy Center Substation will be on the left side of the road.

4906-11-01(B)(7): Property Owner List

The Leroy Center Substation is located on existing property owned by CEI. CEI has an existing right-of-way on property owned by LEIMOC Development Company, LTD on the south side of Leroy Center Road. It may be necessary to acquire a small area of additional right-of-way to widen the existing right-of-way on the south side of Leroy Center Road.

4906-11-01(C): Technical Features of the Project

4906-11-01(C)(1): Operating Characteristics

Electric Transmission Line Data

The Inland – Perry and Harding – Perry 345-kV Transmission lines are designed for 345 kV operation and currently are located adjacent to the east side existing Leroy Center 138 kV switching station. The two lines' operating characteristics will not be changed by the Project. The Project will loop the Harding – Perry 345 kV line into Leroy Center substation forming Harding – Leroy Center and Leroy Center – Perry 345 kV Transmission Line.

The Inland – Perry 345 kV Transmission line will be relocated to pass above the expanded Leroy Center substation (without electrically connecting to the substation). The existing 345 kV transmission structure inside the Leroy Center substation (7119B) must be removed and a new double-circuit substation H-frame structure must be constructed to direct the Inland – Perry 345 kV transmission line away from the proposed transformers and deadend the Harding – Perry 345 kV line into the substation. However, at this time it does not appear to be possible to schedule

simultaneous outages of the Harding – Perry 345 kV (bottom circuit) and Inland – Perry 345 kV (top circuit) transmission lines to support this construction process.

In order to remove structure 7119B and construct the new double-circuit substation H-frame, the Harding – Perry 345 kV bottom circuit will be temporarily rerouted east of the existing transmission right-of-way through the new 345 kV substation yard. Three guyed wood poles are planned to be installed inside the existing right-of-way and a wood H-frame directly south of the substation will be used to temporarily reroute Harding – Perry 345 kV and allow for an outage on the Inland – Perry 345 kV line during tower 7119B demolition and substation H-Frame construction. The Inland – Perry 345 kV top circuit will then be installed on the new substation H-frame and put back in service. Once Inland – Perry is connected, Harding – Perry will be able to take an outage and will be connected to the new substation H-frame structure for the final transmission layout. The temporary Harding – Perry 345 kV structures will then be removed during final connection to the substation.

The existing and new conductor and static wire for the Harding – Perry 345 kV Transmission Line loop and the Inland – Perry 345 kV Transmission Line are 954 kcmil ACSR conductor and 7#8 Alumoweld static wire. The line loop will be constructed within The Cleveland Electric Illuminating Company-owned property located north of Leroy Center Road and within easements granted to The Cleveland Electric Illuminating Company south of Leroy Center Road. Subject to the completion of detailed engineering design of the Project, it is anticipated that in addition to structures within the substation, two new double circuit structures will be installed to support the Harding – Perry 345 kV line loop and the relocated Inland – Perry 345 kV Transmission Line. The proposed transmission line alignments are identified on the preliminary Leroy Center Substation layout included as Exhibit 1.

Transmission Structures

A typical 345 kV double-circuit steel dead end structure to be used for Project construction is included as Figure 2-1 in Exhibit 2.

Electric Transmission Substation Data

ATSI's proposed Leroy Center Switching Station and Substation expansion will be constructed on property owned by The Cleveland Electric Illuminating Company. The equipment and facilities described below will be installed within the fenced area of the substation.

Breakers

There will be four (4) 345 kV breakers and eleven (11) 138 kV breakers added at the substation during the expansion project (bringing the total number of 138 kV breakers to 17). These breakers will be SF6 (sulfur hexafluoride) gas insulated, dead tank breakers.

Switchgear

No switchgear will be installed at the proposed Leroy Center Switching Station and Substation.

Bus Arrangement and Structures

The project will be initially installed as follows: There will be a two (2) bay 345-kV breaker and a half; expandable to a three (3) bay breaker and a half. There will initially be two line terminations (expandable to six). There will be a 138 kV five (5) bay breaker and a half with ten line terminations. The 345 kV and 138 kV yards will be tied through two (2) 345/138 kV transformers connected to the main buses. Equipment support steel structures will be designed using structural tubing or folded plate tapered tubular structures. There will be three (3) 345 kV A-Frame dead-end structures. All yard structures will be ASTM A36, ASTM A500, or

ASTM A572 steel hot-dip galvanized for corrosion protection. The high bus throughout the yard will be approximately 34 feet in height.

Transformers

There will be two (2) 345/138 kV 560 MVA transformers installed at the substation.

Control Buildings

A single story, prefabricated control building, approximately 24 feet by 58 feet in dimension, will be installed.

Other Major Equipment

Other equipment may include surge arresters, Capacitor Voltage Transformers ("CVTs"), line traps, and disconnect switches.

4906-11-01(C)(2)a: Calculated Electric and Magnetic Fields

The following calculations provide an approximation of the magnetic and electric field strengths associated with the Leroy Center Substation Project. This includes the transmission lines as they cross the substation fence. The calculations are based on a model of the substation with the electric fields and magnetic fields calculated along the proposed substation perimeter fence line, including the transmission lines where they cross the substation fence line. The electric and magnetic fields ("EMF") calculations were performed using the Electric Power Research Institute ("EPRI") EMF Workstations 2009 program software.

Factors that affect the level of magnetic and electric fields include the variance in the right-of-way widths, daily and projected long-term transmission line loading, operating voltage, contingency operations, phase configuration, direction of current flows, conductor sag, ground elevation, unbalance conditions, and other nearby magnetic field sources or conductors of neutral current including water mains, metallic fences, and railroad tracks. The natural configuration of a substation is such that the

buswork inside a substation will minimize the magnetic field within the substation. Electric field computations assume that shrubs, trees, buildings, and other objects are not in proximity to the facilities, as they produce significant shielding effects. Other transmission or distribution facilities in the vicinity of the line will also affect the calculated fields. For example, a double-circuit loop configuration, with current flows in opposite directions, results in a partial reduction (cancellation) of the magnetic field levels. The model and calculations include a number of assumptions including the following:

- Current flows are assumed in the direction expected under normal system operating conditions.
- The location of transmission line poles, attached conductors and static wire, and line phasing are based on preliminary engineering layouts.
- The minimum clearance above the ground was assumed to occur at the substation fence.
- The calculated field levels assume a reference point approximately 3 feet (1 meter) above ground.

Three loading conditions were modeled: 1) normal maximum loading, 2) emergency line loading, and 3) winter normal conductor rating. The normal maximum loading represents the routine maximum load at which the substation would be operated. Daily current load levels would fluctuate below this level. The emergency maximum loading represents the maximum current flow in the substation under unusual circumstances and only for a short period of time. The winter normal conductor rating represents the maximum current flow that the conductor used on the Project can withstand during winter conditions.

The field strengths were calculated at the fence, starting at the southwest corner of the proposed substation fence and continuing in a clockwise direction until arriving back at the southwest corner. Table 3 itemizes the line loading of the transmission lines. The minimum and maximum calculated electric field and magnetic field values around

the perimeter of the proposed substation fence are shown in Table 4. Graphical depictions of the results are shown in Figures 3-1 through 3-4 in Exhibit 3. The normal line loading represents FirstEnergy's peak system load for the transmission lines. The emergency line loading represents the maximum line loading under contingency operation. The winter rating is based on the continuous maximum conductor ratings ("MCR") of the circuits and an ambient temperature of zero degrees centigrade (32 deg. F), wind speed of 1.3 miles per hour, and a circuit design operating temperature of 100 degrees centigrade (212 deg. F).

Table 3. Transmission Line Loading

Line Name	Normal Loading Amps	Emergency Loading Amps	Winter Rating Amps
Northern Corridor			
Leroy Center-Nursery Q-11 138 kV Transmission Line	421	598	1295
Leroy Center-Nursery Q-12 138 kV Transmission Line	344	547	1295
Q-1 Ashtabula-Leroy Center 138 kV Transmission Line	89	315	695
Q-2 Ashtabula-Leroy Center 138 kV Transmission Line	142	370	695
Q-3 Leroy Center-Stacy 138 kV Transmission Line	283	429	695
Q-4 Ashtabula-Leroy Center 138 kV Transmission Line	137	380	695
Inland-Perry 345 kV Transmission Line	450	800	1477
Leroy Center-Perry 345 kV Transmission Line	920	1045	1479
Southern Corridor			
Q-1 Leroy Center-Mayfield 138 kV Transmission Line	196	248	695
Q-2 Leroy Center-Mayfield 138 kV Transmission Line	291	368	695
Q-3 Leroy Center-Mayfield 138 kV Transmission Line	203	312	695

Table 3. Transmission Line Loading			
Line Name	**Normal Loading Amps**	**Emergency Loading Amps**	**Winter Rating Amps**
Q-4 Leroy Center-Mayfield 138 kV Transmission Line	164	215	695
Inland-Perry 345 kV Transmission Line	450	800	1477
Harding-Leroy Center 345 kV Transmission Line	110	422	1479

Table 4. Calculated Electric and Magnetic Field Values Around Perimeter of the Proposed Substation Fence		
Type of Field Modeled	**Maximum**	**Minimum**
Electric Field	2.4 kV/m	0.014 kV/m
Magnetic Field, Normal Load	70.972 mG	0.192 mG
Magnetic Field, Emergency Load	79.857 mG	0.284 mG
Magnetic Field, Winter Rating	148.735 mG	0.605 mG

4906-11-01(C)(2)b: EMF Discussion

Background Information

EMFs are naturally occurring in the environment and can be found in the Earth's interior and in the human body. EMFs are generated essentially anywhere where there is a flow of electricity, including electrical appliances and power equipment. Electric fields are associated with the voltage of the source; magnetic fields are associated with the flow of current in a wire. The strength of these fields decreases rapidly with distance from the source. EMFs associated with electricity use are not disruptive to cells like x-rays or ultraviolet rays from the sun. EMF fields are thought to be too weak to break molecules or chemical bonds in cells. Scientists have conducted extensive research over the past two decades to determine whether EMFs are associated with adverse health effects, and although the research and debate of this issue continues, at this time there is no firm basis to conclude that EMFs cause adverse

health effects. A number of independent scientific panels have reviewed the research and have stated that there is no basis to conclude that EMFs cause adverse health effects nor has it been shown that levels in everyday life are harmful.

Recent Developments

As a part of the National Energy Policy Act of 1992, the Electric and Magnetic Fields Research and Public Information Dissemination ("EMF RAPID") program was initiated within the five-year effort under the National EMF Research Program. The culmination of this five-year effort resulted in a final RAPID Working Group report, which was released for public review in August 1998. The Director of the National Institute of Environmental Health Sciences ("NIEHS") then prepared a final report to Congress after receiving public comments. The NIEHS' Director's final report, released to Congress on May 4, 1999, concluded that extremely low frequency electric and magnetic fields (ELF-EMF) exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. The Director further stated that the conclusion of this report is insufficient to warrant aggressive regulatory concern.

Sources for Additional Information

The following websites sponsored by federal agencies or other organizations provide additional information on EMF:

- Centers for Disease Control/National Institute for Occupational Safety and Health: http://www.cdc.gov/niosh/topics/emf/
- National Institute of Environmental Health Sciences (NIEHS) EMF Rapid Program: http://www.niehs.nih.gov/health/topics/agents/emf/

4906-11-01(C)(3): Estimated Costs

The following are the estimated capital costs by FERC Accounts for the proposed Project:

Substation

Account		Cost
350	Land Rights, Engineering, etc.	$ 2,581,800
355	Poles and Fixtures	$ 3,952,600
356	Overhead Conductors & Devices	$ 25,621,000
	Total	**$ 32,155,400**

Transmission Line Loop

Account		Cost
350	Land Rights, Engineering, etc.	$ 116,000
355	Poles and Fixtures	$ 775,000
356	Overhead Conductors & Devices	$ 506,000
	Total	**$ 1,397,000**

4906-11-01(D): Socioeconomic Data

4906-11-01(D)(1): Land Use

Land use varies within 1,000 feet of the proposed Leroy Center Switching Station and Substation site and line extensions. In general, land use in the vicinity of the proposed site is characterized by a mix of rural forested uses to the north and west, and agricultural uses to the east and south. Table 5 identifies the land use type within both 1,000 feet of the proposed Leroy Center Substation site and the Harding – Perry 345 kV Transmission Line loop and Inland – Perry 345 kV Transmission relocation, based on the 2006 National Land Cover Data ("NLCD").

Table 5. Land Use Types within 1,000 feet

Land Use Type	Percent Within 1,000 feet of Leroy Center Substation Preliminary Fence Line and Line Extensions
Agriculture	32.8%
Developed, Low Intensity	5.3%
Developed, Medium Intensity	1.4%
Developed, Open Space	0.7%
Forest	47.9%
Grassland	7.0%
Wetland	4.9%

The Project is located entirely within LeRoy Township in Lake County. Table 6 identifies the demographics for the counties and municipalities traversed or within 1,000 feet of the Project.

Table 6. Demographics					
Municipality	**2010 Population**	**2000 Population**	**Percent Change**	**2010 Average Household Size**	**2010 Median Household Income**
Lake County	*230,041*	*224,611*	*2.4%*	*2.49*	*$56,231*
LeRoy Township	3,113	3,122	-0.3%	2.58	$36,424

Sources: U.S. Census Bureau, Census 2010 Summary File 1 and U.S. Census Bureau, Census 2000 Summary File 1.

Based on a review of aerial imagery and field reconnaissance, 11 residences are located within 1,000 feet of the proposed Leroy Center Switching Station and Substation fence line or the transmission line extensions. Most of these residences are located along Leroy Center Road.

4906-11-01(D)(2): Agricultural Land

No Agricultural District land parcels are within 1,000 feet of the proposed Leroy Center Switching Station and Substation fence line. ATSI's routing and permitting consultant, Louis Berger, contacted the Lake County auditor in November 2012 to obtain information on Agricultural District land. Louis Berger received the data via email from the Lake County Auditor on November 15, 2012. Louis Berger followed up with the Lake County auditor via email on October 21, 2014. The Auditor indicated that there are no Agricultural District data updates within the Project area. The October 2014 communication with the County Auditors fulfills the requirement of the Ohio Administrative Code ("OAC") 4906-11-01 (D)(2), which states that this data must be collected not more than 60 days prior to submittal.

4906-11-01(D)(3): Archaeological or Cultural Resources

The substation expansion will occur adjacent to the existing Leroy Center Switching Station on property owned by The Cleveland Electric Illuminating Company, a

FirstEnergy company. As part of ATSI's investigation of the project site, a search of the Ohio Historic Preservation Office ("OHPO") National Register of Historic Places on-line database was conducted and did not identify the existence of any historic sites within 1,000 feet of the Project. The OHPO database includes all Ohio listings on the National Register of Historic Places, including districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. The closest previously recorded cultural resource sites are approximately 0.9 mile west of the Project. ATSI retained Louis Berger to conduct an archeological field investigation in August 2014. No isolated artifact locations, archeological sites, or intact cultural deposits were identified during the archeological survey. Based on the OHPO response dated July 8, 2014, no historic architectural survey is necessary for this Project.

4906-11-01(D)(4)a: Documentation of Letter of Notification Transmittal

This Letter of Notification is being provided concurrently to the following officials of LeRoy Township and Lake County.

LeRoy Township

Chuck Klco, Trustee
14510 Valentine Road
Thompson, Ohio 44086

Heather Shelton, Trustee
6500 Taylor Road
LeRoy Township, Ohio 44077

Rich Van Pelt, Trustee Chairman
6522 Indian Point Road
LeRoy Township, Ohio 44077

Sharon Rodgers, Fiscal Officer
5920 Paine Road
LeRoy Township, Ohio 44077

Lake County

Daniel P. Troy, Board President
105 Main Street
Painesville, Ohio 44077

Judy Moran, Commissioner
105 Main Street
Painesville, Ohio 44077

Robert E. Aufuldish, Commissioner
105 Main Street
Painesville, Ohio 44077

Jason Boyd, Administrator
105 Main Street
Painesville, OH 44077

Lake County Metroparks

Paul Palagyi, Executive Director
11211 Spear Road
Concord Township, OH 44077

Copies of the transmittal letters to these officials have been included with the transmittal letter submitting this Letter of Notification to the Ohio Power Siting Board.

4906-11-01(D)(4)b: Public Information Program

ATSI's manager of External Affairs will advise local officials of features and the status of the proposed Project as necessary.

4906-11-01(D)(5): Current or Pending Litigation

There is no known current or pending litigation involving this Project.

4906-11-01(D)(6): Local, State, and Federal Requirements

The Applicant anticipates submitting a Notice of Intent ("NOI") for coverage under Ohio EPA General National Pollutant Discharge Elimination System ("NPDES") Permit for Discharges Associated with Construction Activities. Based on preliminary engineering, permanent wetland impacts and wetland conversion impacts are anticipated as part of the construction of the Leroy Center Switching Station and Substation. No temporary wetland impacts are anticipated. ATSI will obtain coverage under the U.S. Army Corps of Engineers ("USACE") Individual Section 404 Permit Application. The Applicant also anticipates obtaining an individual Section 401 Water Quality Certification from the Ohio Environmental Protection Agency ("Ohio EPA"). ATSI will develop a wetland mitigation plan for this Project in consultation with USACE and Ohio EPA. The Section 404 Permit Application and the Section 401 Water Quality Certification were submitted on September 26, 2014. The Applicant has consulted with the U.S. Fish and Wildlife Service ("USFWS") and the Ohio Department of Natural Resources ("ODNR") for federal and state listed

species. ATSI has completed its consultation with USFWS and ODNR at this time; however, consultation with OHPO will continue.

There are no other known local, state, or federal requirements that must be met prior to commencement of construction on the proposed Leroy Center Switching Station and Substation.

4906-11-01(E): Environmental Data

4906-11-01(E)(1): Endangered, Threatened, and Rare Species Investigation

A written request was submitted to the USFWS and the ODNR on April 14, 2014 to research the presence of any endangered, threatened, or rare species within the Project area. The USFWS response dated May 14, 2014 indicated that the proposed Leroy Center Substation expansion is within the range of the federally endangered Indiana bat (*Myotis sodalis*). As stated in the USFWS response, summer habitat requirements for the Indiana bat consist of:

(1) Dead or live trees and snags with peeling or exfoliating bark, split trunk and/or branches, or cavities, which may be used as maternity roost areas; (2) Live trees (such as shagbark hickory and oaks) which have exfoliating bark;
(3) Stream corridors, riparian areas and upland woodlots which provide forage sites.

USFWS recommends avoiding habitat that meets the above criteria. If the trees must be cut, they should only be cut between October 1 and March 31. Further, USFWS indicated that if there is a federal nexus for the Project, no tree clearing on any portion of the parcel should occur until consultation under Section 7 of the Endangered Species Act ("ESA"), between the USFWS and the federal action agency, is completed. USFWS recommended that the federal action agency submit a determination of effects to the USFWS office, relative to the Indiana bat, for review

and concurrence. If the applicant plans to clear trees prior to issuance of a 404 and/or 401 permit the following two conditions must be adhered to:

(1) Section 7 consultation for the Indiana bat between USFWS and the USACE must be completed.
(2) No tree clearing on any portion of the parcel should occur until both the USACE and the Ohio EPA anticipate that issuance of both a 404/Nationwide Permit ("NWP") and a 401 permit authorizing the Project as a whole is imminent. This will ensure that clearing will be limited to the footprint of whichever alternative is ultimately permitted, and that no unnecessary clearing will occur. No tree clearing should occur until these two conditions have been satisfied.

The USFWS response also indicated that the proposed Project is within the range of the northern long-eared bat (*Myotis septentrionalis*), a species that is currently proposed for listing as federally endangered under the ESA. As stated in the USFWS response, summer requirements for the northern long-eared bat consist of:

(1) Roosting habitat in dead or live trees and snags with cavities, peeling or exfoliating bark, split tree trunk and/or branches, which may be used as maternity roost areas;
(2) Foraging habitat in upland and lowland woodlots and tree lined corridors;
(3) Occasionally they may roost in structures like barns and sheds.

USFWS indicated that the proposed Project is in the vicinity of one or more confirmed records of northern long-eared bats. Therefore, USFWS recommends that trees exhibiting any of the characteristics listed above, as well as any wooded areas or tree lined corridors be saved wherever possible. If the trees must be cut, USFWS recommends that they be cut between October 1st and March 31st to avoid impacts to the northern long-eared bats. ATSI intends to adhere to the time of year restrictions recommended by USFWS; however, it is possible that tree clearing may have to occur

prior to receiving the Section 404 and Section 401 permits from USACE and Ohio EPA, respectively.

In the ODNR's June 4, 2014 response indicated that the Project is within the range of the Indiana bat. The ODNR also indicated that the Project is within the range of the spotted turtle (*Clemmys guttata*), a state threatened species. The spotted turtle prefers fens, bogs and marshes, but is also known to inhabit wet prairies, meadows, pond edges, wet woods, and the shallow sluggish waters of small streams and ditches. Due to the Project's proximity to wetland habitat, and planned earthmoving activities, the ODNR recommends that a habitat suitability survey be conducted to determine if potentially suitable spotted turtle habitat is present at the Project site. Per ODNR recommendations, ATSI contracted Gregory Lipps, a state-approved herpetologist, to conduct a spotted turtle habitat suitability survey. Mr. Lipps, in his letter dated August 25, 2014, concludes the Project does not contain any habitat suitable for the spotted turtle. ODNR concurrence with these findings was provided on September 22, 2014.

The June 4, 2014 ODNR response indicated that the black bear (*Ursus americanus*), a state endangered species, is located within the range of the Project, but due to the mobility of this species, the Project is not likely to impact the black bear. ODNR indicated that the Project is within the range of the piping plover (*Charadrius melodus*), a state and federally endangered bird species, and the Kirtland's warbler (*Dendroica kirtlandii*), a state and federally endangered species. These species do not nest in the state but only utilize stopover habitat as they migrate through the region. Due to the location, ODNR stated that this Project is not likely to impact these species. The Project is within the range of the northern brook lamprey (*Ichthyomyzon fossor*), a state endangered fish. ODNR stated that due to the location, and that there is no in-water work proposed, this Project is not likely to impact these species. The Project is within the range of the black sandshell (*Ligumia recta*), a state threatened mussel, and the fawnsfoot (*Truncilla donaciformis*), a state threatened mussel. ODNR stated that due to the location, and that there is no in-water work proposed, this Project is not

likely to impact these species. The Project is within the range of the upland sandpiper (*Bartamia longicauda*), a state endangered bird. Nesting upland sandpipers utilize dry grasslands including native grasslands, seeded grasslands, grazed and ungrazed pasture, hayfields, and grasslands established through the Conservation Reserve Program ("CRP"). ODNR suggests that if this type of habitat will be impacted, construction should be avoided in this habitat during the species' nesting period of April 15 to July 31. If this type of habitat will not be impacted, the Project is not likely to impact the species. Because the Project site does not contain any dry grassland, the upland sandpiper would not be impacted.

4906-11-01(E)(2): Areas of Ecological Concern

Wetland Delineation

Louis Berger conducted field wetland delineations at the proposed Leroy Center Switching Station and Substation property in September 2012, April 2014, and August 2014. Wetlands were delineated in accordance with the Ohio Environmental Protection Agency ("Ohio EPA") Ohio Rapid Assessment Method for Wetlands v. 5.0 ("ORAM"). ORAM was developed to determine the relative ecological quality and level of disturbance of a particular wetland in order to meet requirements under Section 401 of the Clean Water Act. Each wetland is given a score using a range from 0 (low quality and high disturbance) to 100 (high quality and low disturbance). Wetlands scored from 0 to 29.9 are grouped into "Category 1," 30 to 59.9 are "Category 2," and 60 to 100 are "Category 3." Table 7 provides a summary of the number, length, acreage and quality of each wetland type discussed.

Table 7. Description of Wetlands Identified within the Survey Area Boundary				
Flag Series	**Cowardin Type**	**ORAM Score**	**ORAM Category**	**Acres**
CC-D-1	PFO	50	2	3.22
CC-D-2	PEM/PSS			5.14
CC-D-3	PFO			8.46
CC-D-4	PEM/PSS			11.29
CC-D-5	PFO			6.72
TS-A-1	PEM/PSS	25	1	7.18
TS-A-2	PFO			0.32
Total acres of wetlands within Survey Area boundary				**42.33**
Total PFO Wetlands				**4**
Total PEM/PSS Wetlands				**3**

Five wetlands were delineated within the Project Area. Based on preliminary design, ATSI anticipates 6.48 acres of permanent wetland fill impacts to three of these wetlands (CC-D-4, CC-D-3, and CC-D-2). In addition, the Project requires non-mechanical clearing of 1.56 acres of forested wetland (CC-D-3) which will permanently convert forested wetland to emergent wetland habitat.

The temporary rerouting of the Harding – Perry 345 kV bottom circuit east of the existing transmission right-of-way through the new 345 kV substation yard will result in additional non-mechanical clearing of forested wetland. ATSI does not anticipate the temporary rerouting to result in temporary impacts to wetlands, as the temporary structures will be direct-embed with guy wires, which will not result in any temporary wetland fill. In addition, ATSI will use construction matting for any additional temporary access roads or laydown areas located within wetland.

Table 8 characterizes the streams assessed using the headwater habitat evaluation index ("HHEI") methodology. The HHEI methodology is a tool to assess stream function, but is not a regulatory requirement in Ohio. Two streams were delineated within the Leroy Center Substation Project Area. Based on preliminary design, ATSI anticipates no impacts to streams.

Table 8. Description of Streams Identified within the Survey Area Boundary								
Flag Series	**Water Body**	**Flow Regime**	**Form Used**	**Score**	**Class**	**Bankfull Width (feet)**	**Length within Survey Area (feet)**	**Photo Number**
CC-A-S	UNT to Paine Creek	Intermittent (R4)	HHEI	32	Mod Class II PHWH	4.9	814	1
TS-B-S	UNT to Paine Creek	Intermittent (R4)	HHEI	53	Class II PHWH	6.6	211	9
Total HHEI Stream Length							**1,025**	

Conservation and Recreation Lands and Scenic Rivers

The Project is located approximately 2,400 feet east of the Hell Hollow Wilderness Area. Based on the location and scope of the Project, no impact on the Wilderness Area is anticipated. No scenic rivers will be crossed or otherwise impacted by the Project.

4906-11-01(E)(3): Additional Information

Construction and operation of the proposed Project will be in accordance with the requirements specified in the latest revision of the National Electric Safety Code ("NESC") as adopted by the PUCO and all applicable safety standards established by the Occupational Safety and Health Administration ("OSHA").

Exhibit 1

NOTES:

1. EXISTING CONTOUR DATA FROM USGS TOPOGRAPHIC MAPPING SERVICES AT 1FT INTERVAL.
2. ELEVATIONS SHOWN ARE FINISHED GRADE UNLESS OTHERWISE NOTED.
3. SITE WORK AND NEW CONTOURS ARE BASED ON PRELIMINARY INFORMATION AND WILL CHANGE WITH FINAL SITE LAYOUT AND DESIGN STORM WATER MANAGEMENT PROVISIONS (DITCHES, BASINS, ETC.) ARE SHOWN AS PRELIMINARY.
4. RE-SEED DISTRUBED SLOPES NOT RECEIVING CRUSHED ROCK SURFACING AS SPECIFIED.
5. NO GEOTECHNICAL INFORMATION AVAILABLE AND PRELIMINARY SITE LAYOUT DOES NOT CONSIDER THE FINDINGS OF ANY SUCH REPORT.
6. EXISTING TREELINE BASED ON AVAILABLE AERIAL IMAGERY.
7. FUTURE TRANSMISSION LINES SHOWN AS PRELIMINARY. FINAL DESIGN AND LAYOUT TO BE DONE BY OTHERS.

LIMITS OF DISTURBANCE:

LIMITS OF DISTURBANCE:	
PRELIMINARY LIMITS OF DISTURBANCE/NPDES BOUNDARY:	32.06 ACRES
PERMANENT SUBSTATION FENCED AREA:	5.01 ACRES

LIMITS OF DISTURBANCE:

PRELIMINARY LIMITS OF DISTURBANCE/NPDES BOUNDARY: 28.61 ACRES

LEGEND:

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- FINISHED GRADE MAJOR CONTOUR
- FINISHED GRADE MINOR CONTOUR
- PROPERTY LINE
- SUBSTATION FENCE
- LIMITS OF DISTURBANCE
- NEW TREE LINE
- EXISTING TREE LINE
- CRUSHED ROCK
- WETLANDS
- EXISTING STREAM
- EXISTING EASEMENT

OVERHEAD TRANSMISSION LEGEND:

- INLAND-PERRY 345kV LINE
- LEROY CENTER-HARDING 345kV LINE
- LEROY CENTER-PERRY 345kV LINE
- LEROY CENTER-MAYFIELD NO.1 (Q-1-LC-MF) 138kV LINE
- LEROY CENTER-MAYFIELD NO.2 (Q-2-LC-MF) 138kV LINE
- LEROY CENTER-MAYFIELD NO.3 (Q-3-LC-MF) 138kV LINE
- LEROY CENTER-MAYFIELD NO.4 (Q-4-LC-MF) 138kV LINE
- EASTLAKE NO.1-LEROY CENTER (Q-15-EL-LC) 138kV LINE
- EASTLAKE NO.2-LEROY CENTER (Q-16-EL-LC) 138kV LINE
- ASHTABULA NO.1-LEROY CENTER (Q-1-AT-LC) 138kV LINE
- ASHTABULA NO.2-LEROY CENTER (Q-2-AT-LC) 138kV LINE
- LEROY CENTER-STACY (Q-3-LC-ST) 138kV LINE
- ASHTABULA NO.3-LEROY CENTER (Q-4-AT-LC) 138kV LINE

NORTH

0 30' 60' 120'

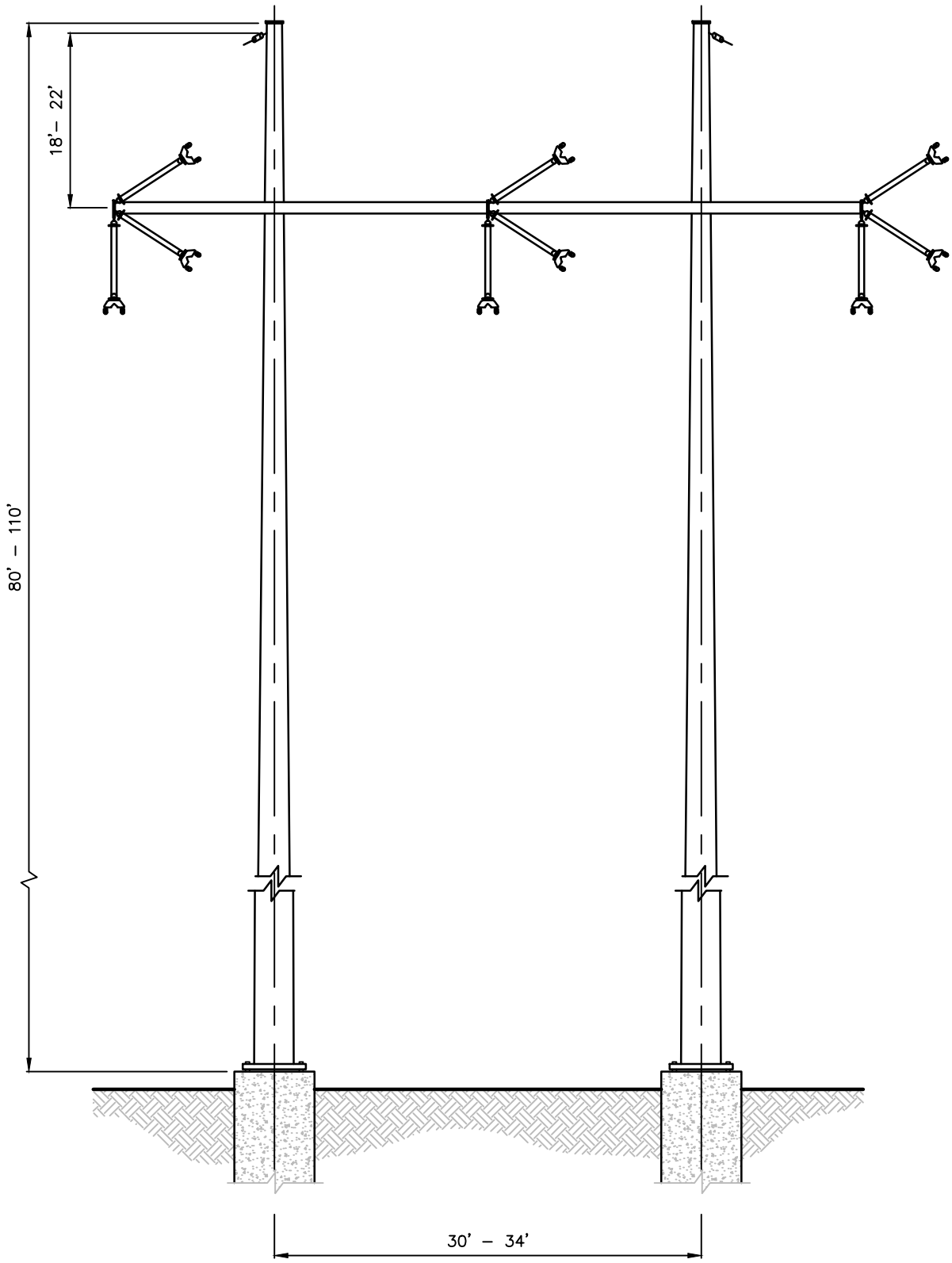
SCALE IN FEET

PRELIMINARY - NOT FOR CONSTRUCTION

BY: AMB	FirstEnergy	DIST. CODE:	OPERATING COMPANY: Illuminating Co.	REGION: CH-NO	AREA: East
APP: –	Energy Delivery Technical Services	C	FACILITY: LEROY CENTER		
DATE: 06/25/14		SCALE: 1-60	TITLE: PRELIMINARY LEROY CENTER SUBSTATION LAYOUT		
ISSUE: Preliminary		SIZE: 36x24			
DRAWING BY BURNS & McDONNELL.			SAP NETWORK NO: –	DOC. ID: EXHIBIT 1	REV: –

Revisions to

Exhibit 2



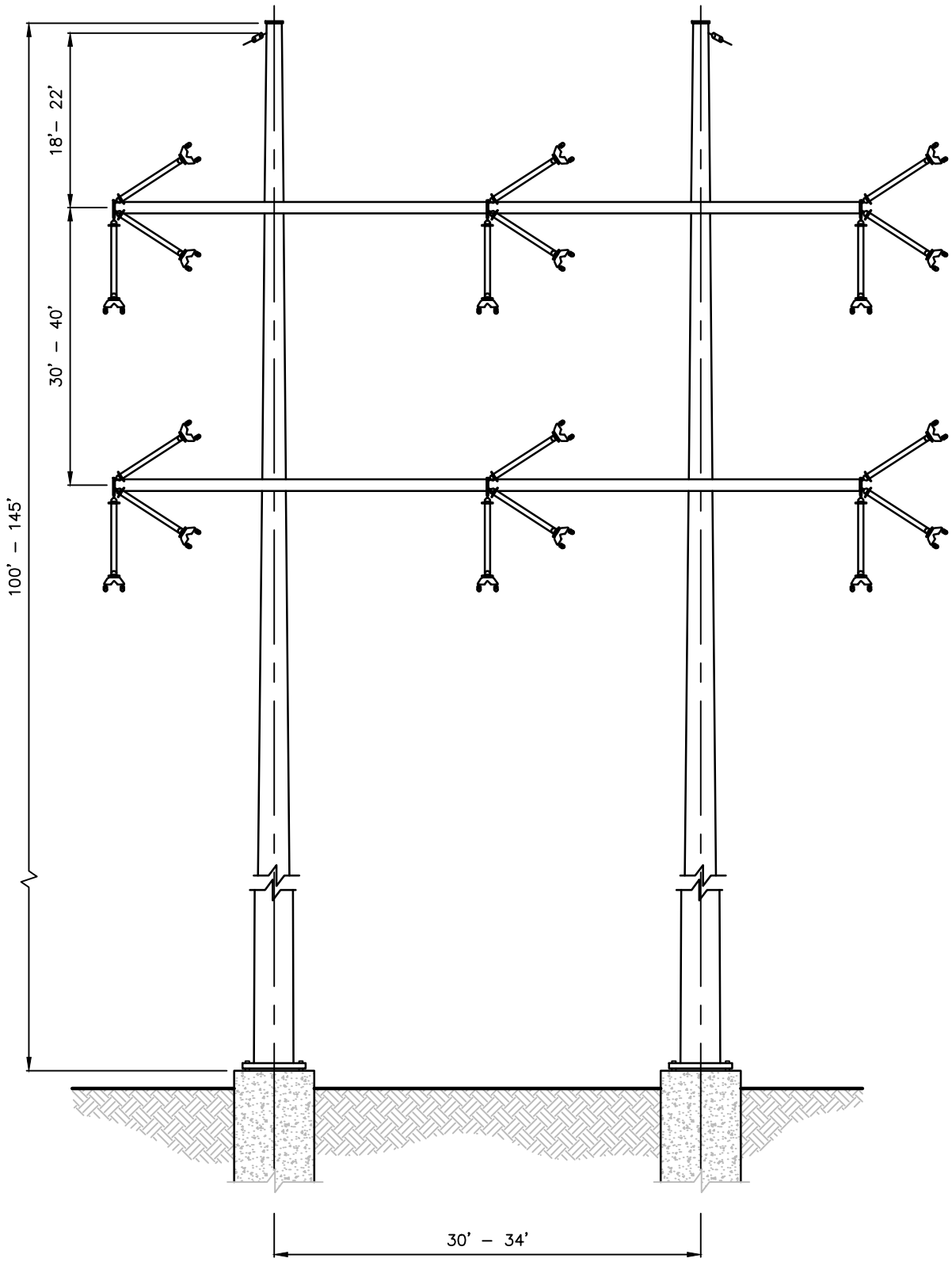
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HARDING – PERRY 345 kV
TRANSMISSION LINE LOOP TO AND
EXPANSION OF THE LEROY CENTER
SUBSTATION

FIGURE 2–1

NEW SINGLE CIRCUIT STEEL 2–POLE HORIZONTAL
DEADEND STRUCTURE

EXHIBIT 2



NOTE:
1. CIRCUIT POSITION WILL BE DETERMINED DURING FINAL ENGINEERING.

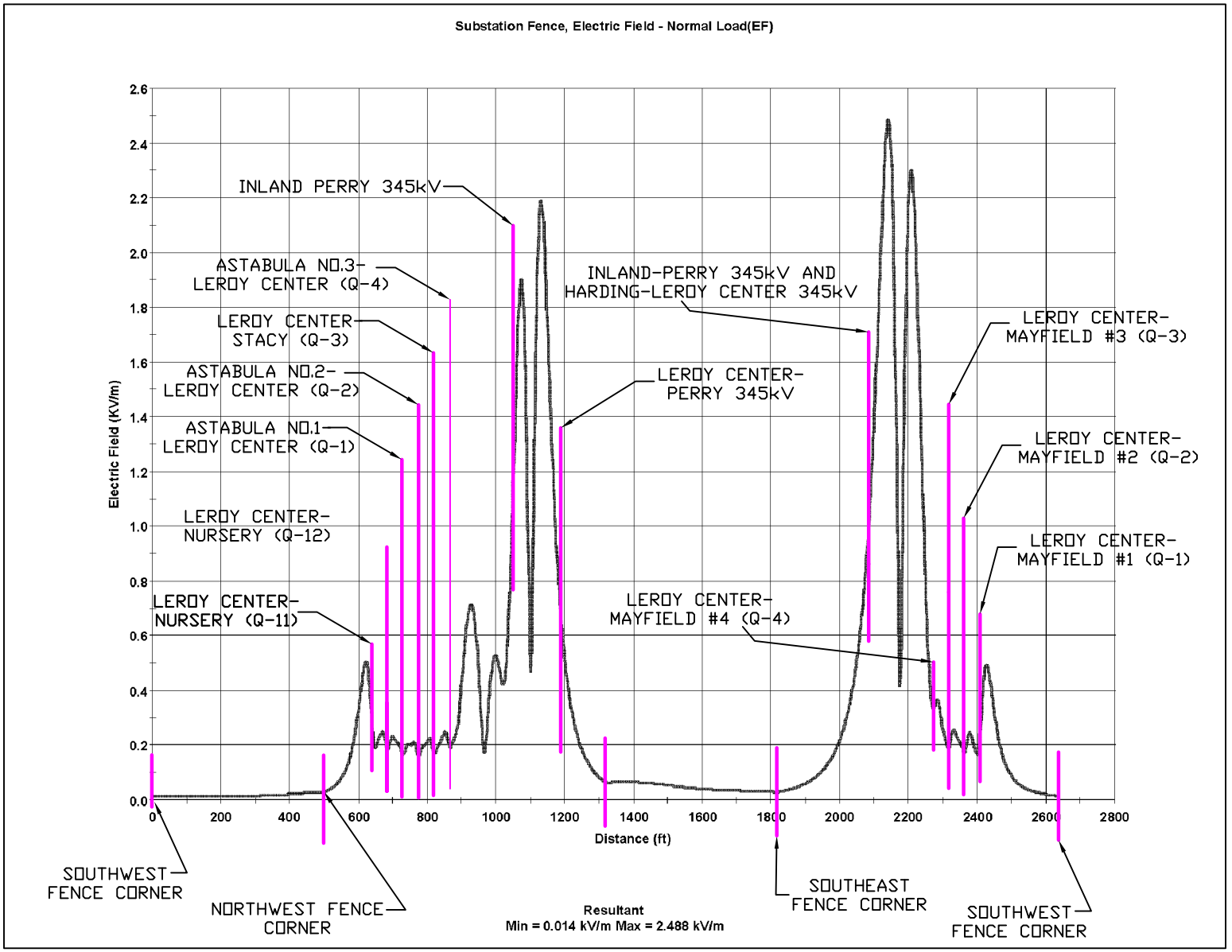
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HARDING – PERRY 345 kV TRANSMISSION LINE LOOP TO AND EXPANSION OF THE LEROY CENTER SUBSTATION

FIGURE 2–2
NEW SINGLE CIRCUIT STEEL 2–POLE HORIZONTAL DEADEND STRUCTURE

EXHIBIT 2

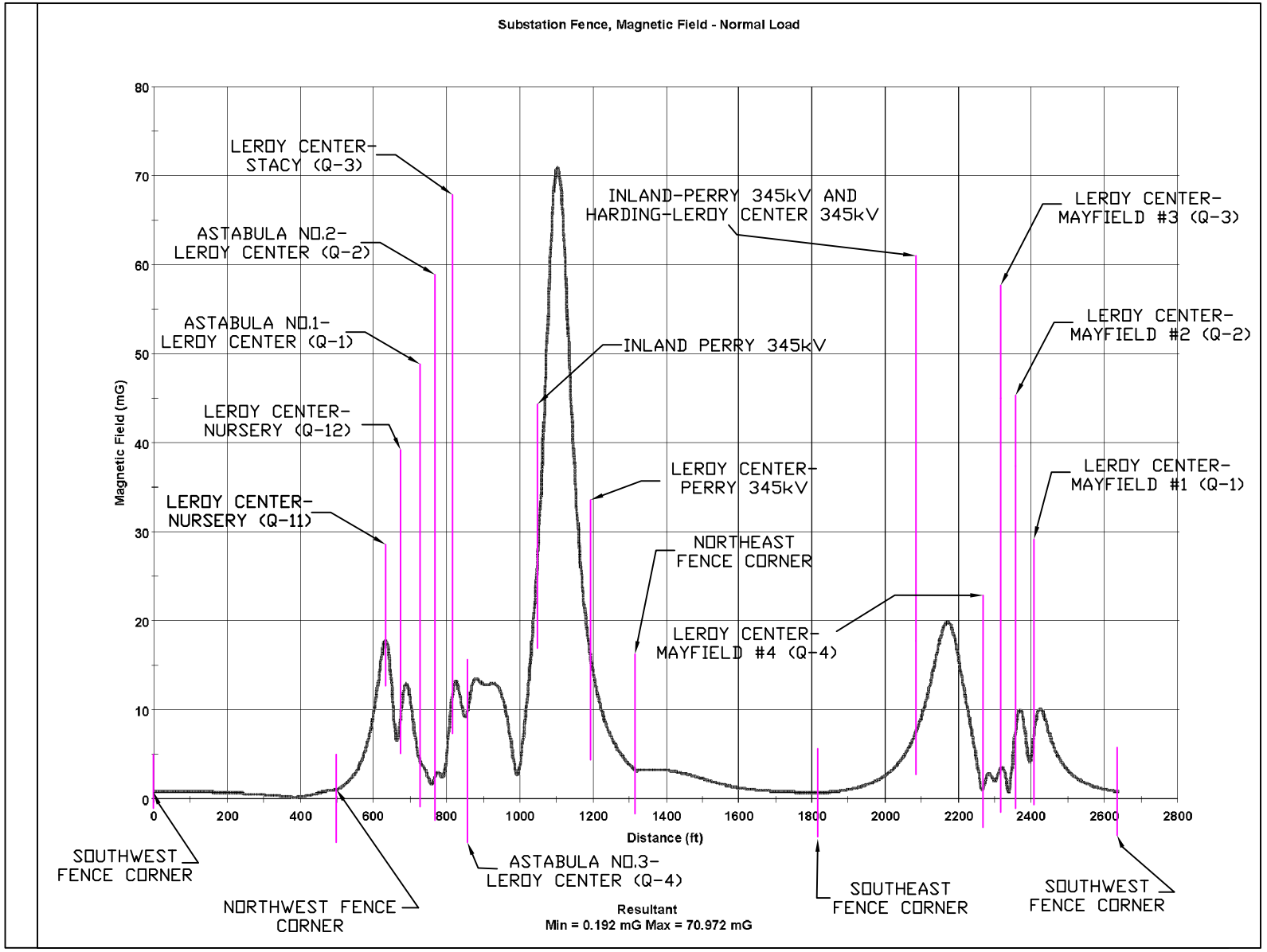
Exhibit 3



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LEROY CENTER SUBSTATION

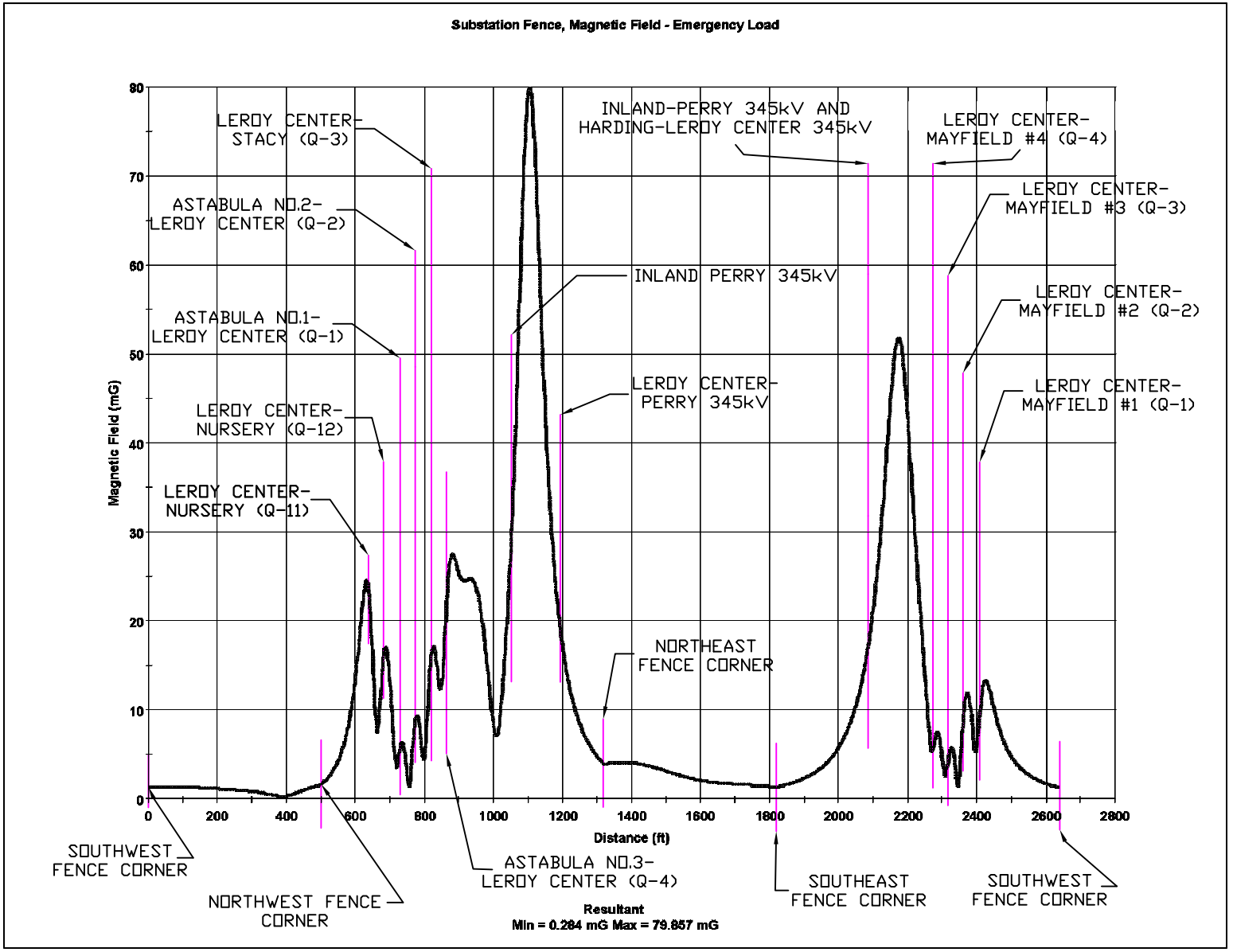
Electric Field Figure 3-1



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LEROY CENTER SUBSTATION

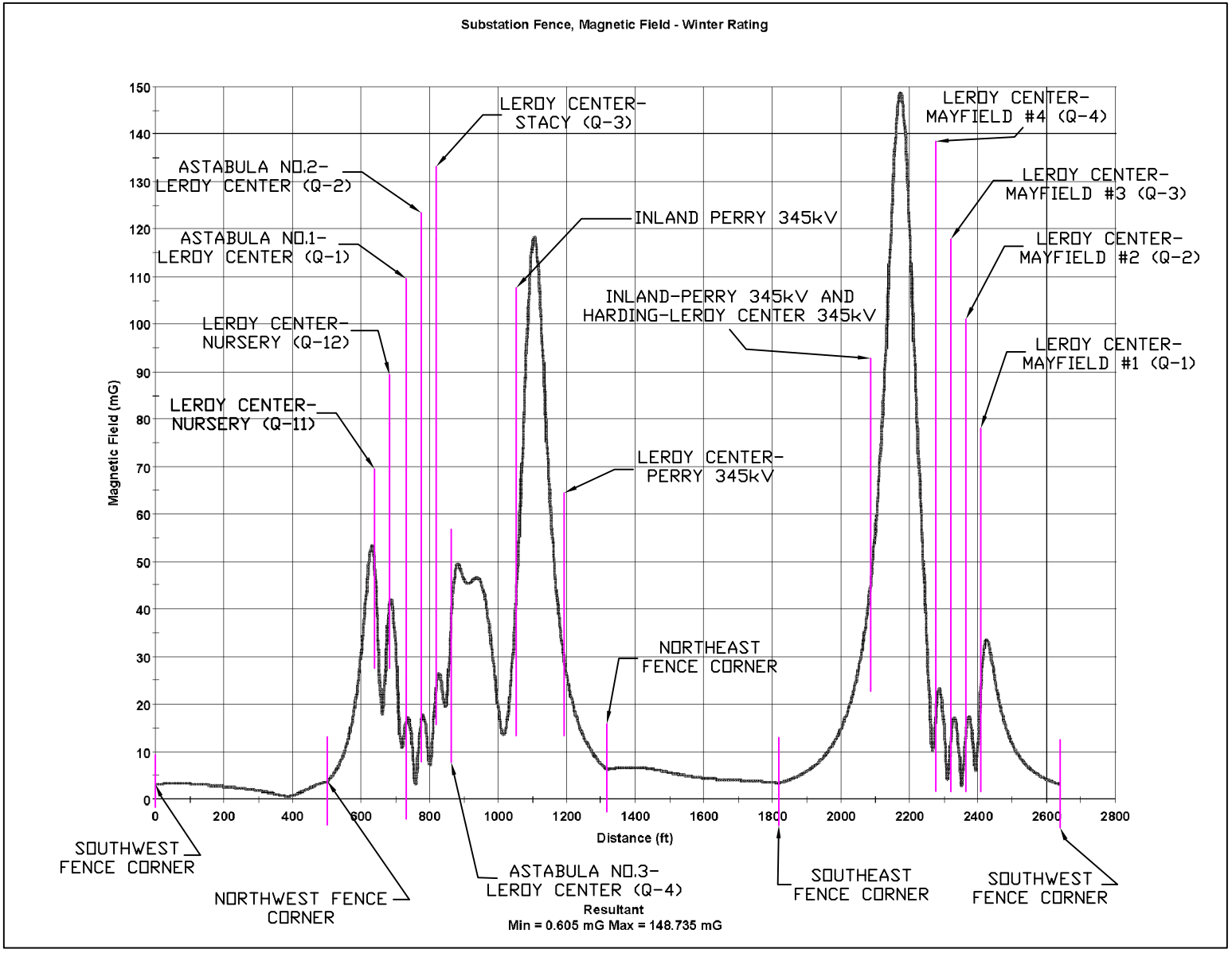
Magnetic Field Normal Figure 3-2



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LEROY CENTER SUBSTATION

Magnetic Field Emergency Figure 3-3



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LEROY CENTER SUBSTATION

Magnetic Field Winter Rating Figure 3-4

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in

Case No(s). 14-1107-EL-BLN

Summary: Letter of Notification Application for the Harding - Perry 345kV Transmission Line Loop to, and the expansion of, the Leroy Center Substation Project electronically filed by Mr. Robert J Schmidt on behalf of American Transmission Systems Inc.